#### **Nancy Hernandez**

From: Mike Mohajer < MikeMohajer@yahoo.com>

**Sent:** Sunday, January 07, 2018 4:39 AM

To: Janet Chairez Gallardo
Cc: Dorcas Hanson-Lugo

**Subject:** Notification - Antelope Valley Landfill Permit revision application

Attachments: AVPL JTD Nov 2017 Appendix C Supplemental Traffic Inmpact Analysis.pdf

#### Hi Janet,

Thank you for forwarding me the attached City of Palmdale Supplemental Impact Analysis for Antelope Valley Landfill Expansion, dated 9/17/2004 which was subsequently revised on September 20, 2005 to evaluate Traffic Impact Analysis (TIA) for the <u>calendar year 2007</u>. As recommended by the subject report and considering all the new residential, commercial and industrial developments in the Antelope Valley (Cities of Lancaster, Palmdale and the LA County Unincorporated communities) since the calendar year 2007, (an 11-year period), the subject traffic study needs to be updated/amended to include a Traffic Impact Analysis for the <u>Calendar Years 2018 and 2023</u>, and provide mitigating measures as a part of consideration of the issuance of the Revised Solid Waste Management Permit. The subject TIAs should be prepared by the City of Palmdale, as the "Lead Agency" pursuant to the CEQA, OR the "Responsible Agency" (i.e. the LEA, the LA County Department of Public Health)

Please consider the above as my formal comments, as a private citizen, and please make copies available to the Cities of Lancaster, Palmdale, LA County, CalRecycle and general publics.

Please feel free to contact me should you have any questions. Thank you,

<u>Mike Mohajer</u>

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P. O. Box 3334, San Dimas, CA 91773

# APPENDIX C SUPPLEMENTAL TRAFFIC IMPACT ANALYSIS

# CITY OF PALMDALE ANTELOPE VALLEY LANDFILL EXPANSION TRAFFIC IMPACT ANALYSIS (REVISED)

Prepared by:

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William Kunzman



September 17, 2004 (Revised September 20, 2005)

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# City of Palmdale

# **Antelope Valley Landfill Expansion**

# Traffic Impact Analysis (Revised)

This report contains the revised traffic impact analysis for the proposed Antelope Valley Landfill expansion. The current landfill is designated as landfill #1 and the expansion is designated landfill #2, which will operate as one landfill. For the purposes of this traffic analysis the expected increases in traffic of the landfill, including the expansion, has been analyzed. The landfill traffic (truck and employee traffic) to both landfill #1 and landfill #2 utilize the same entry road. The project site is located at the existing terminus of City Ranch Road, west of Tierra Subida Avenue in the Palmdale area of Los Angeles County.

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

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

#### 1. Findings

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

#### **Existing Traffic Conditions**

- a. The existing landfill is currently accepting an average of 1,372 tons of material per day. The project site is currently generating approximately an average of 626 daily vehicle trips, 53 vehicles per hour during the morning peak hour and 60 vehicles per hour during the evening peak hour (see Table 6). However, the existing landfill also accepts concrete for recycling and/or materials used for daily cover or beneficial use, and when a major inflow of these materials occurs, then the daily tonnage can reach 3,800 tons per day. This peak inflow of concrete or daily cover material is sporadic and lasts for a few days.
- b. Arterial roadways in the vicinity of the site are at present only partially improved.
- c. The roadway links in the vicinity of the site currently operate within acceptable Levels of Service.
- d. The intersections in the vicinity of the site currently operate at Level of Service B or better during the peak hours (see Table 1b).
- e. Traffic signals appear to currently be warranted at the following study area intersections (see Appendix D):

Tierra Subida Avenue (NS) at:
5th Street West (EW)
Rayburn Road (EW)
Avenue S (EW) (Installation will be in 2005)

#### Traffic Impacts

a. For purposes of this analysis, it was assumed that the project site will increase operations to an average of 3,613 tons per day, and a peak of 5,548 tons per day. The project site is projected to generate an average of approximately 1,324 trips per day, 105 and 85 of which occur during the morning and evening peak hours, respectively. During peak inflow conditions when large quantities of concrete for recycling and/or materials used for alternative daily cover or beneficial use are received, the daily

volume reaches 1,594 trips per day, 124 and 96 of which occur during the morning and evening peak hours, respectively (see Tables 1a and 6).

- b. The landfill expansion is projected to generate on average approximately 698 new daily vehicle trips, 52 new vehicles per hour will occur during the morning peak hour, and 25 new vehicles per hour will occur during the evening peak hour (see Tables 1a and 6). During peak inflow conditions when large quantities of concrete for recycling and/or materials used for alternative daily cover or beneficial use are received, up to 968 new daily vehicle trips, 71 new vehicles per hour will occur during the morning peak hour, and 36 new vehicles per hour will occur during the evening peak hour (see Tables 1a and 6).
- c. The roadway links in the vicinity of the site are projected to continue to operate within acceptable Levels of Service for existing plus project traffic conditions for average as well as peak inflow of material conditions.
- d. For existing plus project traffic conditions, the intersections in the vicinity of the site are projected to continue to operate at Level of Service B or better during the peak hours for average and peak inflow of material conditions (see Table 1b).
- e. The project does not have a significant traffic impact using the County of Los Angeles Congestion Management Program criteria. That criteria is that a project has a significant traffic impact if any of the following is met:

Project increases ICU by more than 1.0 percent and ICU is more than 90 percent after the project traffic is added.

Project increases ICU by more than 2.0 percent and ICU is more than 80 percent after the project traffic is added.

Project increases ICU by more than 4.0 percent and ICU is more than 70 percent after the project traffic is added.

- f. The roadway links in the vicinity of the site are projected to operate within acceptable Levels of Service for Year 2007 without project traffic conditions, except for Tierra Subida Avenue between 5th Street West and Rayburn Road. This condition will remain until Tierra Subida is widened to its ultimate General Plan designation.
- g. For year 2007 without project traffic conditions, the intersections in the vicinity of the site are projected to operate at Level of Service D or better during the peak hours (see Table 1b).

- h. The roadway links in the vicinity of the site are projected to operate within acceptable Levels of Service for Year 2007 with project traffic conditions, except for Tierra Subida Avenue between 5th Street West and Rayburn Road. This condition will remain until Tierra Subida is widened to its ultimate General Plan designation.
- i. For Year 2007 with project traffic conditions, the intersections in the vicinity of the site are projected to operate at Level of Service D or better during the peak hours for average and peak inflow of material traffic conditions (see Table 1b).
- j. Because the project does not have a significant traffic impact when the project is added to existing traffic conditions, nor when it is added to 2007 traffic conditions, it will also not have a significant traffic impact at any other future point in time such as year 2025. This is because the project will never increase the ICU's shown in Table 1b by more than the amounts shown in Table 1b. However, the project should pay standard traffic impact fees to the City of Palmdale and receive credits for improvements consistent with the City's Traffic Impact Fee Ordinance.
- k. The SR 14 Freeway receives a maximum of 10 percent of the project's traffic and that is south of Avenue S. For average inflow conditions, this is 70 vehicles per day, and for peak inflow conditions this is 97 vehicles per day. The SR 14 south of Avenue S has 70,000 vehicles per day per the latest available Caltrans counts, and the added vehicles represents a 0.14 percent increase which is insignificant. Per the Los Angeles Congestion Management Program (LACMP) section D.4, 150 added vehicles in the peak hour is a significant impact. The SR 14 currently has 6,000 vehicles in the peak hour. It has 55.9 percent in the peak hour peak direction, or 3,354 vehicles in one direction. One way capacity is 4,000 vehicles per hour per LACMP Appendix A, and it is operating at a volume to capacity ratio of 0.84. The operating speeds in the peak hour peak direction are above 45 miles per hour, which is a Level of Service C per the LACMP, Exhibit 5-1.

#### Recommendations

The following measures are recommended to mitigate the impact of the project on traffic circulation:

- Site-specific circulation and access recommendations are depicted on Figures 30 and 31.
- b. It is proposed that the waste management access road alignment will be along R-5 as a two lane roadway (60 foot right-of-way). R-5 will intersect Tierra Subida Avenue opposite Rayburn Road (see Figures 30 and 31).
- c. As is the case for any roadway design, the City of Palmdale should periodically review traffic operations in the vicinity of the project once the project is constructed to assure that the traffic operations are satisfactory.

Table 1a

Existing / Project Dally Traffic Generation Summary

Descriptor	Tons per Truck	Truck Loads In	Cars In	Trucks And Cars In	Total Trips (In + Out)
Average Existing Conditions (1,372 tons/day)	6.596	208	105	313	626
Proposed Average Condition (3,613 tons/day)	8.363	432	230	662	1324
Difference		224	125	349	698
Average Existing Conditions (1,372 tons/day)	6.596	208	105	313	626
Proposed Peak Condition (5,548 tons/day)	9.785	567	230	797	1594
Traffic Increase		359	125	484	968
Traffic increase Local in Palmdale (Approximately 85 %)		286	125	411	823
Traffic Increase from Outside Palmdale (Approximately15 %)	]	71	0	71	142
Peak Permitted Condition (3,654 tons/day)	6.480	550	180	730	1460
Proposed Peak Condition (5,548 tons/day)	9.785	567	230	797	1594
Total Increase		17	50	67	134

#### Notes:

- 1. Details concerning the types of material hauled and the types of truck are contained in Table 4.
- 2. Details concerning the time of day the traffic occurs, including peak hours, are contained in Table 5.
- 3. A trip occurs when something is taken from point A to point B and something enters or exits the vehicle at point A or point B. When a vehicle enters the facility, deposits material, and leaves, that results in an "in trip" and an "out trip" (total of 2 trips).
- 4. Per Figure 19, 15 percent of the project traffic is assumed to come to Palmdale via the State Route 14 Freeway.
- 5. The anticipated number of transfer trucks coming to the facility from State Route 14 Freeway is 71 loads per day (per Table 6) for both the average and peak conditions. The 71 loads is 142 in plus out trips. The 142 in plus out trips is about 15 percent of the peak total traffic.

Table 1b Summary of Intersection Capacity Utilization (ICU) and Level of Service (LOS)

			Inflow of	1	nflow of	Significan	nt impact <sup>2</sup>	
			3 tons per day)		3 tons per day)			
	121		roe,		ros,	i .= !	ETT. 7/1	
Intersection	Scenario	Morning	Evening	Morning	Evening	Average Inflow	Peak Inflov	
Tierra Subida Avenue (NS) at:	Existing	52.0-A	66.9-8	52.0-A	<b>66.9-</b> B	1		
Paimdale Boulevard (EW)	Existing Plus Project	52.2-A	67.1-B	52.3-A	67,2-8			
	Difference	+0.2	+0.2	+0,3	+0.3	NO	NO	
	Year 2007 Without Project	66.2-8	86.3-D	66,2-8	86.3-D	! I		
	Year 2007 With Project	66.5-B	86.5-D	66.5-B	86.6-8			
	Difference	+0.3	+0.2	+0.3	+0.3	NO NO	NO	
Tierra Subida Avenue (NS) at:	Eldsting	39.9-A	48.9-A	39.9-A	48,9-A			
5th Street West (EW)	Edsting Plus Project	40.6-A	49.4-A	40.9-A	49.4-A	l		
	Difference	+0.7	+0.5	+1.0	+0.5	NO	NO	
	Year 2007 Without Project	50.1-A	62.1-B	50.1-A	62.1-8			
	Year 2007 With Project	50.8-A	62.6-8	51.0-A	62.7-8			
	Difference	+0.7	+0.5	+0.9	+0.6	NO NO	NO	
Tierra Subida Avenue (NS) at	Existing	51,3-A	63.4-B	51.3-A	63.4-B			
Rayburn Road (EW)	Existing Plus Project	52.5-A	54.1-B	52.8-A	64.3-B			
	Difference	+1.2	+0.7	+1.5	+0.9	NO	NO	
	Year 2007 Without Project	66,2-B	81.7-D	65.2-B	81.7-D			
	Year 2007 With Project	56.4-B	82.3-D	66.8-B	82.5-D			
	Difference	+1.2	+0.6	+1.6	+0.8	NO	NO	
Tierra Subida Avenue (NS) at:	Existing	27.1-A	42.7-A	27.1-A	42.7-A			
City Ranch Road (EW)	Edating Plus Project	27.6-A	42.7-A	27.8-A	42.8-A	502	(4)	
,,,	Difference	+0.5	+0.0	+0.7	+1,1	NO	NO	
	Year 2007 Without Project	33.0-A	53.8-A	33.0-A	53.8-A			
	Year 2007 With Project	33.5-A	53.8-A	33.7-A	54.0-A			
	Difference	+0.5	+0.0	+0.7	+0.2	NO	NO	
liena Subida Avenue (NS) at	Existing	40.6-A	55.9-A	40.5-A	55.9-A			
Avenue S (EW)	Existing Plus Project	41.3-A	56.4-A	41.7-A	56.5-A			
Aveilue S (C11)	Difference	+0.8	+0.5	+1.2	+0.6	NO	NO	
	Year 2007 Without Project	50,8-A	71.5-C	50.8-A	71,5-C	- 150	110	
	Year 2007 With Project	51.7-A	72.0-C	52.0-A	72.1-C	! !		
	Difference	+0.9	+0.5	+1.2	+0.6	NO	NO	
5th Street West (NS) at:	Existing	30.0-A	51.7-A	30.0-A	51,7-A	110	110	
Paimdale Boulevard (EW)	Editing Plus Project	30.0-A	51.7-A	30.2-A	61.7-A			
Pallicale Bodievard (E44)	Difference	+0.0	+0.0	+0.2	+0.0	NO	NO	
	Year 2007 Without Project	36.7-A	65.9-B	36.7-A	65,9-8	NO.	140	
	Year 2007 With Project	36.8-A	65.9-8	36.9-A	65.9-8	50.00		
	1 (3)	+0.1	+0.0	+0.2	+0.0	NO	NO	
25 44 5 25 D 2103 -t	Difference					NO	NO	
SR-14 Freeway SB Ramps (NS) at	Existing	38.6-A	67.3-8	35.6-A	67.3-8			
Paimdale Boulevard (EW)	Existing Plus Project	36.6-A	67.3-B	36.6-A	67.3-B	ا یہا		
	Difference	+0,0	+0.0	+0.0	+0.0	NO	NO	
	Year 2007 Without Project	45.6-A	86.9-D	45.6-A	86.9-D			
	Year 2007 With Project	45.6-A	86.9-D	45.6-A	86.9-D			
	Difference	+0.0	+0.0	+0.0	+0.0	NO	NO	
SR-14 Freeway SB Ramps (NS) at	Editting	46.1-A	48.9-A	46.1-A	48.9-A			
Avenue S (EW)	Existing Plus Project	46.2-A	49.0-A	46.3-A	49.1-A			
	Difference	+0.1	+0.1	+0.2	+0.2	NO	NO	
	Year 2007 Without Project	58.2-A	62.1-8	58.2-A	62.1-B			
	Year 2007 With Project	58,4-A	62.2-B	58,4-A	62.3-B	[		
	Difference	+0.2	+0.1	+0.2	+0.2	NO	NO	
SR-14 Freeway NB Ramps (NS) at:	Existing	26.9-A	44.0-A	26.9-∧	44.0-A			
Palmdale Boulevard (EW)	Existing Plus Project	26.9-A	44.D-A	26.9-A	44.0-A			
	Ofference	+0.0	+0.0	+0.0	+0.0	NO	NO	
	Year 2007 Without Project	32.6-A	55.7-A	32.6-A	66.7-A			
	Year 2007 With Project	32.6-A	65.7-A	32.6-A	66.7-A	_		
	Difference	+0.0	+0.0	+0.0	+0.0	NO	NO	
R-14 Freeway NB Ramps (NS) at:	Existing	30.0-A	41,4-A	30.0-A	41.4-A			
Avenue S (EW)	Existing Plus Project	30.4-A	41.5-A	30.4-A	41.5-A			
• •	Difference	+0.4	+0.1	+0.4	+0,2	NO	NO	
	Year 2007 Without Project	36.8-A	52.1-A	36.8-A	52.1-A		-,,,,,	
	Year 2007 With Project	37.1-A	52.2-A	37.2-A	52.3-A			
						,		

<sup>1</sup> ICU-LOS = Intersection Capacity Utilization - Level of Service
2 In the County of Los Angeles, the change in the ICU value is considered insignificant if the change in the ICU is less than 1 percent regardless of the ICU value, or if the change in the ICU value is less than 2 percent and the ICU with the project is less than 90 percent.

### 2. Congestion Management Program (CMP) Methodology

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

#### County Congestion Management Program (CMP)

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

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

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

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

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

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

#### Prescribed Methodology for A Traffic Impact Analysis (TIA)

The TIA must include all monitored intersections to which the project adds traffic above a certain minimum amount. In Los Angeles County, the monitored intersections are contained in Appendix A of the <u>Congestion Management Program (CMP)</u> for the <u>County of Los Angeles</u>. In the Appendix A referenced immediately above, no intersections are listed that are near the project. So from that point of view, no traffic analysis is required.

This traffic study analyzes all arterial intersections that are reasonably foreseen to receive traffic from this project, and analyze those intersections using the Intersection Capacity Utilization (ICU) methodology.

In Los Angeles County, the technique used to calculate ICU's is as follows. Lane capacity is 1600 vehicles per lane per hour of green time for through and turn lanes, except that a capacity of 2880 vehicles per lane per hour of green time is used for dual turn lanes. A total yellow clearance time of 10 percent is added.

If the intersection has to be analyzed for deficiencies, then mitigation is required if the existing traffic plus anticipated traffic growth plus project traffic does cause the ICU to go above a certain point. In Los Angeles County, mitigation is required if the ICU is worse than Level of Service E, which corresponds to an ICU of 100 percent or more.

In Los Angeles County, future traffic volumes are determined using growth rates that are applied to existing traffic volumes. The growth rates differ from one area of the County to another. According to the CMP, the expected growth rate for North County is 0.9 percent per year.

Although a 0.9 percent per year growth rate is recommended by the CMP, a "conservative" growth rate of 6.0 percent per year is used as a maximum likely estimate within this analysis. The reason 6.0 percent per year is used is because (1) it was used in our previous analysis, and (2) the historic growth rate along the SR-14 Freeway in the study area is approximately 3 percent. The SR-14 Freeway is referenced because it is a good barometer of growth in this portion of North County.

#### Mitigation Measures

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

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

#### 3. Project Description

This section discusses the project's location, proposed development, and traffic characteristics of such a development. Figure 1 shows the project location map. Figures 2 and 3 illustrate the landfill parcels and topographic map, respectively.

#### Location

The project site is located at the existing terminus of City Ranch Road, west of Tierra Subida Avenue in the Palmdale area of Los Angeles County.

#### **Proposed Development**

Although the current landfill operation is permitted to receive up to 434 truckloads that correspond to roughly 1,400 tons per day, it is estimated that at this time approximately 1,372 tons of material are received each day on average. For purposes of this traffic study, it is assumed that the future operation will reach an average of 3,613 tons per day of deposited material.

However, the existing landfill also accepts concrete for recycling and/or materials used for daily cover or beneficial use, and when a major inflow of these materials occurs, then the daily tonnage today increases to as much as 3,800 tons per day. In the future when the average tons per day is 3,613, it is expected the peak inflow of material can reach 5,548 tons per day. This peak inflow of concrete or daily cover material is sporadic and will last for a few days. The terms "average" inflow of material and "peak" inflow of material will be used to distinguish these two traffic conditions in this traffic analysis.

Today, on average there are 208 loads per day and 1,372 tons per day of deposited material. These 208 loads consist of 142 municipal solid waste loads, 16 transfer trailer loads, 17 contaminated soil loads, 23 greenwaste loads, and 10 loads by others. Waste Management trucks average 4.05 tons each for municipal solid waste, 21 tons each for transfer trailers, 25 tons each for contaminated soil, 0.7 tons each for greenwaste, and an average of 8 tons each for others.

The municipal solid waste truck drivers and helpers arrive at work between 4:00 AM and 6:00 AM and leave between 11:00 AM and 3:00 PM. The office workers arrive at work between 7:00 AM and 8:00 AM and depart between 4:00 PM and 5:00 PM. Typically the municipal solid waste trucks are exiting prior to 7:00 AM.

It is proposed that the waste management access road alignment will be along R-5 as a two lane roadway (60 foot right-of-way). R-5 will intersect Tierra Subida Avenue opposite Rayburn Road (see Figures 30 and 31).

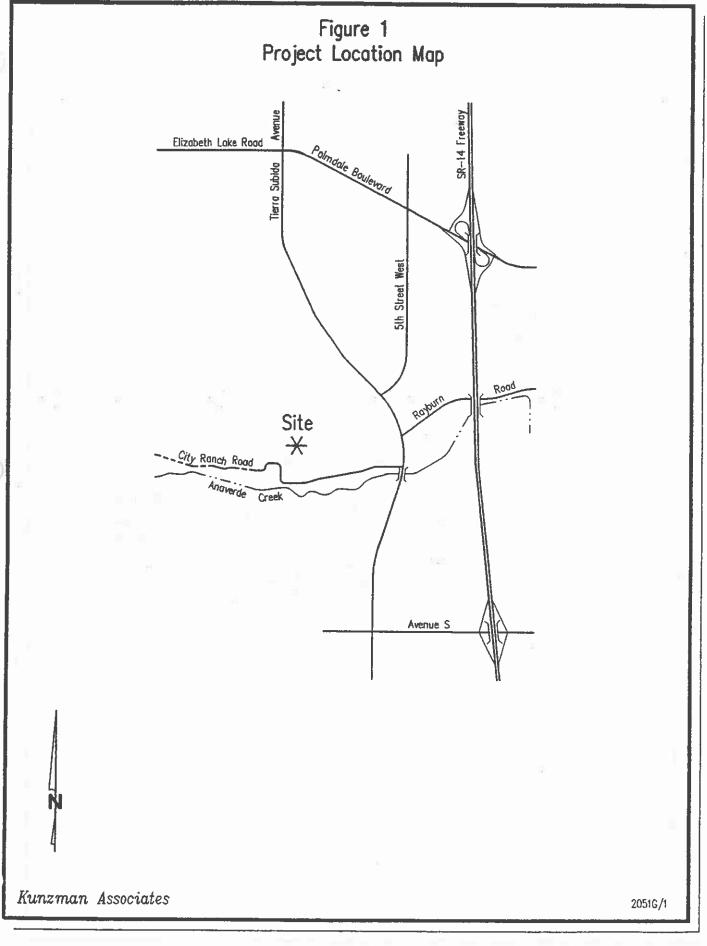
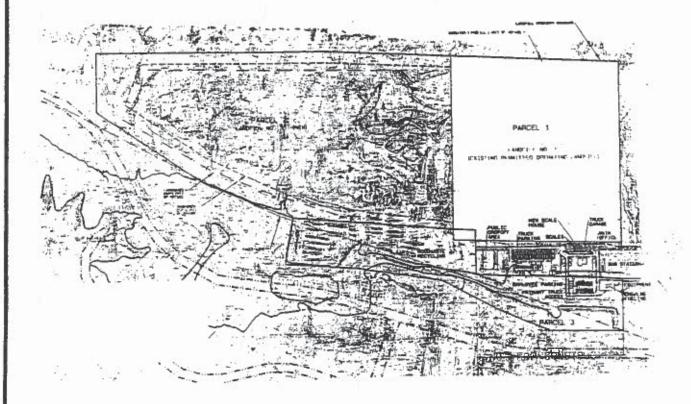


Figure 2 Landfill Parcels

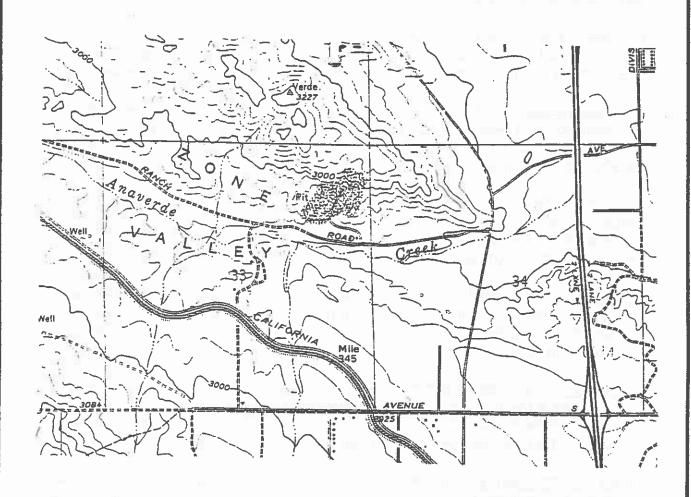


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Figure 3 Topographic Map



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#### 4. Existing Traffic Conditions

The traffic conditions as they exist today are discussed below and illustrated in Figures 4 to 13.

#### **Surrounding Street System**

Roadways that will be utilized by the site expansion include Palmdale Boulevard, Rayburn Road, City Ranch Road, Avenue S, Tierra Subida Avenue, and 5th Street West. In the vicinity of the project site, the following roadway conditions exist.

<u>Palmdale Boulevard:</u> This east-west four lane divided to six lane divided roadway is classified as a Regional Arterial (six lane divided) on the City of Palmdale General Plan Circulation Element. It currently carries approximately 12,400 to 19,900 vehicles per day in the study area.

Rayburn Road: This east-west two lane undivided roadway is classified as a Major Arterial (114 foot right-of-way; six lane divided) on the City of Palmdale General Plan Circulation Element. It currently carries approximately 5,100 vehicles per day in the study area.

<u>City Ranch Road:</u> This east-west two lane undivided roadway is classified as a Secondary Arterial (84 foot right-of-way; four lane divided) on the City of Palmdale General Plan Circulation Element. It currently carries approximately 700 vehicles per day in the study area.

Avenue S: This east-west two lane undivided to four lane divided roadway is classified as a Major Arterial (114 foot right-of-way; six lane divided) on the City of Palmdale General Plan Circulation Element. It currently carries approximately 1,100 to 24,000 vehicles per day in the study area.

<u>Tierra Subida Avenue:</u> This north-south two lane undivided to six lane divided roadway is classified as a Regional Arterial north of Palmdale Boulevard, Major Arterial (114 foot right-of-way; six lane divided) between Palmdale Boulevard and Avenue S, and a Secondary Arterial (84 foot right-of-way; four lane divided) south of Avenue S on the City of Palmdale General Plan Circulation Element. It currently carries approximately 1,700 to 14,100 vehicles per day in the study area.

5th Street West: This north-south four lane divided roadway is classified as a Major Arterial (114 foot right-of-way; six lane divided) north of Palmdale Boulevard and as a Secondary Arterial (84 foot right-of-way; four lane divided) south of Palmdale Boulevard on the City of Palmdale General Plan Circulation Element. It currently carries approximately 2,900 to 4,100 vehicles per day in the study area.

#### **Existing Travel Lanes and Intersection Controls**

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

#### **Existing Average Dally Traffic (ADT) Volumes**

Figure 5 depicts the existing average daily traffic (ADT) volumes. Traffic volumes were obtained from the <u>2001 Traffic Volumes on California State Highways</u> by Caltrans and factored from peak hour intersection turning movement counts obtained by Kunzman Associates (see Appendix B).

#### **Existing Volume to Capacity Ratios**

Roadway capacity is generally defined as the number of vehicles that can be reasonably expected to pass over a given section of road in a given time period. Congestion, high accident rates, the quality of traffic flow (Level of Service), and environmental acceptability all come into play in defining a particular roadway's effective capacity. It is possible to identify maximum desirable volumes for typical roadway types based on the number of roadway travel lanes. These daily volumes reflect estimates of the amount of daily traffic that will result in peak hour traffic volumes equal to the maximum desirable capacity of each roadway type. Table 2 contains City of Palmdale daily capacities by roadway type.

By dividing existing ADT volumes by the daily roadway capacities listed in Table 2, existing daily volume to capacity ratios have been calculated and are shown in Figure 6. As may be seen on Figure 6, the roadway links in the vicinity of the site currently operate within acceptable Levels of Service.

#### **Existing Intersection Capacity Utilization (ICU)**

The technique used to assess the operation of an intersection is known as Intersection Capacity Utilization (ICU). To calculate an ICU value the volume of traffic using the intersection is compared with the capacity of the intersection. An ICU value is usually expressed as a percent. The percent represents that portion of the hour required to provide sufficient capacity to accommodate all intersection traffic if all approaches operate at capacity.

The ICU's for the existing traffic conditions have been calculated and are shown in Table 3. Existing ICU values are based upon manual morning and evening peak hour turning movement counts obtained by Kunzman Associates in November, 2002 (see Figures 7 and 8). Traffic count worksheets are provided in Appendix B. There are two peak hours in a weekday. The morning peak hour is between 7:00 AM and 9:00 AM, and the evening peak hour is between 4:00 PM and 6:00 PM. The actual peak hour within the two hour interval is the four consecutive 15 minute

periods with the highest total volume when all movements are added together. Thus, the evening peak hour at one intersection may be 4:45 PM to 5:45 PM if those four consecutive 15 minute periods have the highest combined volume.

The intersections in the vicinity of the site currently operate at Level of Service B or better during the peak hours. Existing ICU worksheets are provided in Appendix C.

Comparison of daily volume to capacity ratios and corresponding Level of Service, and peak hour Intersection Capacity Utilization and corresponding Level of Service reveals significant differences. The differences between daily link volume to capacity ratios and peak hour ICU values is particularly pronounced when cross traffic is light. Daily volume to capacity ratios assume that all cross streets require 50 percent of the time to satisfy their demand, and assume that the subject street has 50 percent of the time available to it. The daily link volume to capacity ratios are a generalized indicator while peak hour ICU actually represents what can be expected in the peak hour at intersections. Of the two indicators, the peak hour ICU value and corresponding LOS is by far the best measure of roadway performance.

#### **Existing City of Palmdale General Plan Circulation Element**

Figure 9 exhibits the City of Palmdale General Plan Circulation Element. Both existing and future roadways are included in the Circulation Element of the General Plan and are graphically depicted on Figure 9. This figure shows the nature and extent of arterial highways that are needed to serve adequately the ultimate development depicted by the Land Use Element of the General Plan.

Figure 10 shows the existing General Plan land use designations and Figure 11 shows the existing land use zoning in the vicinity of the site.

Figure 12 shows the parcels and lot numbers for the land surrounding the landfill. Figure 13 shows which lots are vacant and occupied. A lot was considered occupied if it had an above ground structure on it or was part of the landfill.

#### **Existing Traffic Signal Warrants**

Traffic signals appear to currently be warranted at the following study area intersections (see Appendix D):

Tierra Subida Avenue (NS) at:
5th Street West (EW)
Rayburn Road (EW)
Avenue S (EW) (Installation will be in 2005)

Table 2

## City of Palmdale Roadway Capacities

Facility Type	Number of Lanes
Two Lane Undivided	12,000 vehicles per day
Four Lane Divided	36,000 vehicles per day
Six Lane Divided	54,000 vehicles per day

Table 3

Existing Intersection Capacity Utilization (ICU) and Level of Service (LOS)

			Intersection Approach Lanes <sup>1</sup>							Peak Hour					
	Traffic	Nor	thbo	und	Sou	thbo	ound	Ea	stbo	und	We	stbo	und	ICU-	LOS <sup>2</sup>
Intersection	Control <sup>3</sup>	·Ε·	T	R	L	Т	R	L	Т	R	L	Т	R	Morning	Evening
Tierra Subida Avenue (NS) at:	=		= :												17
Palmdale Boulevard (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	52.0-A	66.9-B
5th Street West (EW)	CSS	0	1	1	1	1	0	0	0	0	1	0	1	39.9-A	48.9-A
Rayburn Road (EW)	css	0	1	1	1	1	0	0	0	0	1	0	1	51.3-A	63.4-B
City Ranch Road (EW)	css	1	1	0	1	1	1	0	1	1	0	1	. 1	27.1-A	42.7-A
Avenue S (EW)	AWS	0	1	0	0	1	0	0	1	0	0	1	0	40.5-A	55.9-A
5th Street West (NS) at:							•								
Palmdale Boulevard (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	_1	30.0-A	51.7-A
SR-14 Freeway SB Ramps (NS) at:															
Palmdale Boulevard (EW)	TS	0	0	0	1	0	1>>	0	2	1>>	0	2	1>>	36.6-A	67.3-B
Avenue S (EW)	TS	0	0	. 0	2	0	1	0	2	1>>	1	2	0	46.1-A	48.9-A
SR-14 Freeway NB Ramps (NS) at:															
Palmdale Boulevard (EW)	TS	1	0	1>>	0	0	0	0	3	1>>	0	3	1>>	26.9-A	44.0-A
Avenue S (EW)	TS	1	0	1>>	0	0	0	1	2	0	0	2	1>>	30.0-A	41.4-A

When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane, there must be sufficient width for right turning vehicles to travel outside the through lanes.
 L = Left; T = Through; R = Right; >> = Free Right Turn

<sup>&</sup>lt;sup>2</sup> ICU-LOS = Intersection Capacity Utilization - Level of Service

<sup>&</sup>lt;sup>3</sup> TS = Traffic Signal
CSS = Cross Street Stop
AWS = All Way Stop

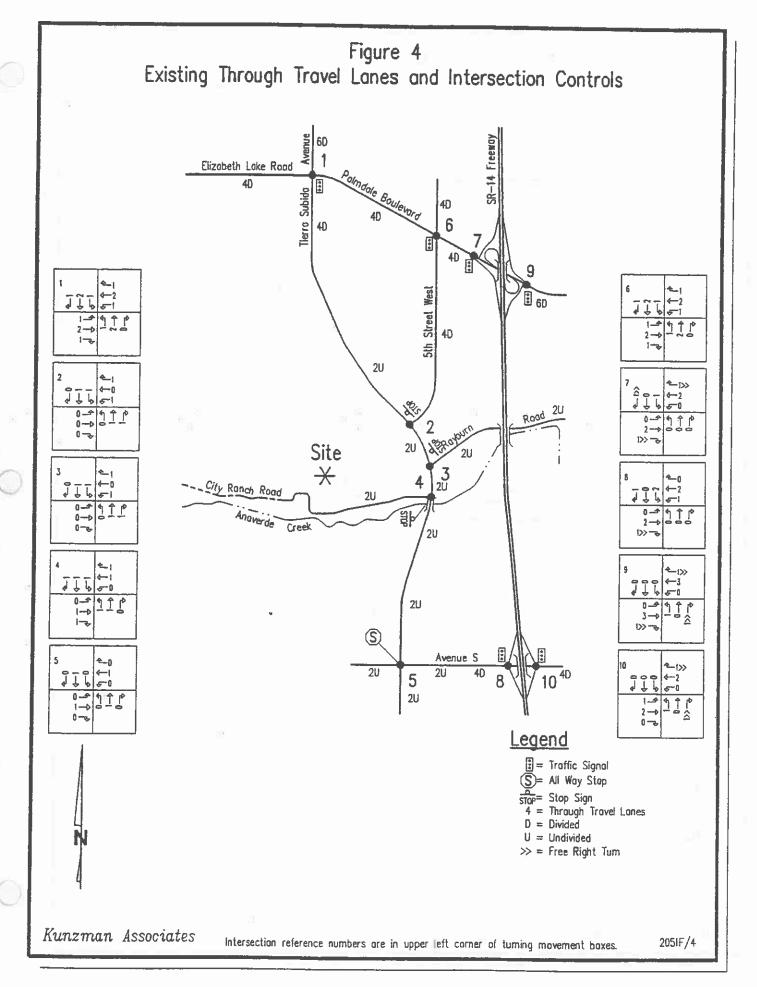
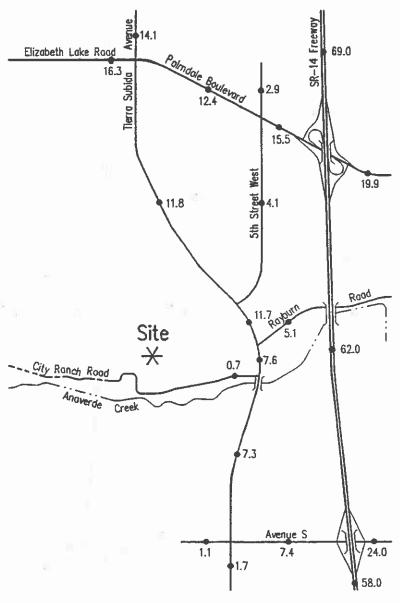


Figure 5
Existing Average Daily Traffic (ADT) Volumes



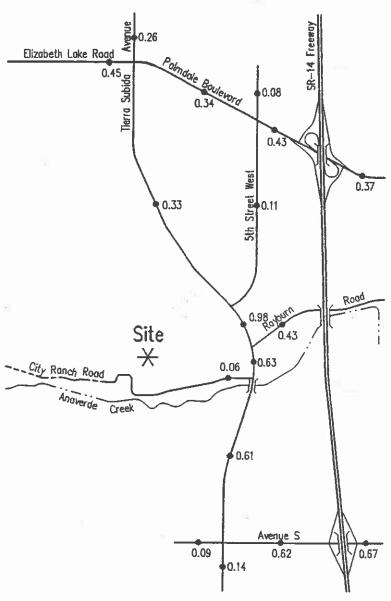
Legend

1.5 = Vehicles Per Oay (1000's)

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Figure 6
Existing Volume to Capacity Ratios



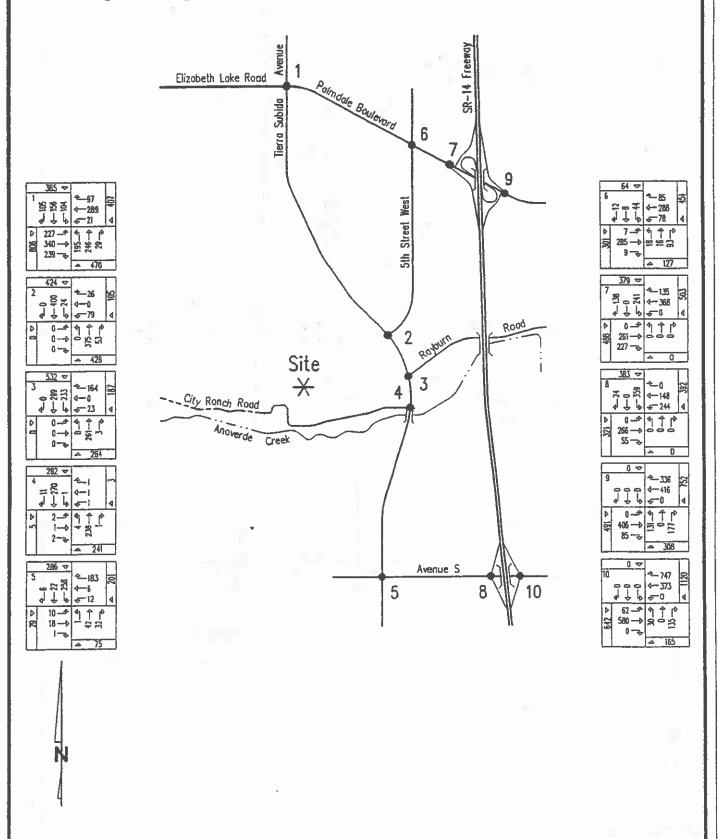
Legend

0.14 = Volume To Capacity Ratio

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2051G/6

Figure 7
Existing Morning Peak Hour Intersection Turning Movement Volumes



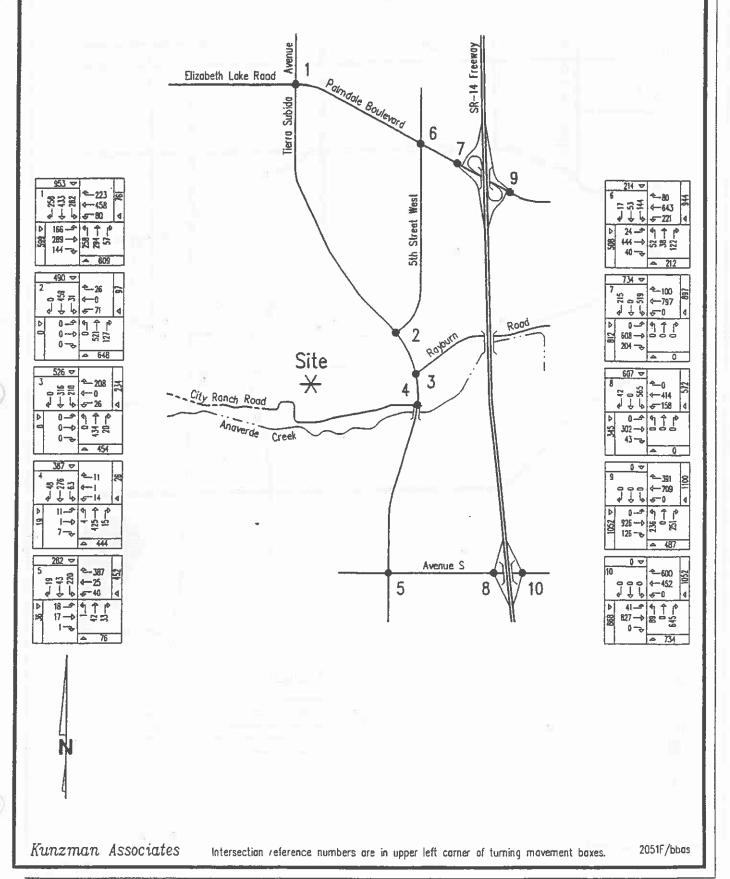
21

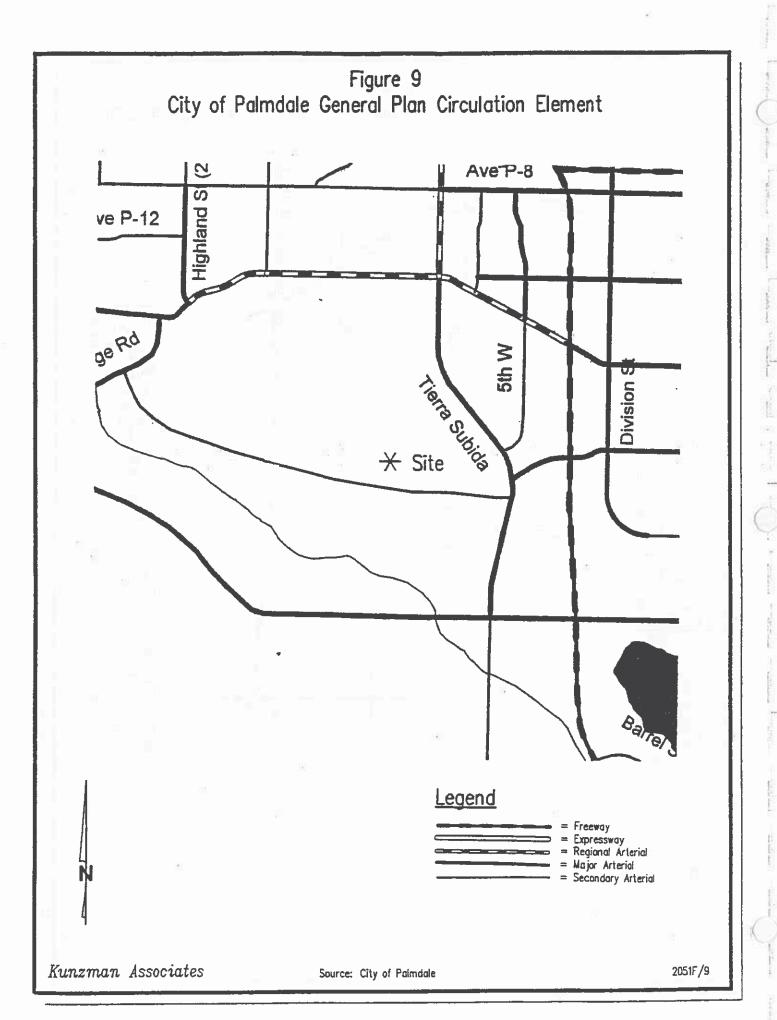
intersection reference numbers are in upper left corner of turning movement boxes.

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2051F/bbos

Figure 8
Existing Evening Peak Hour Intersection Turning Movement Volumes





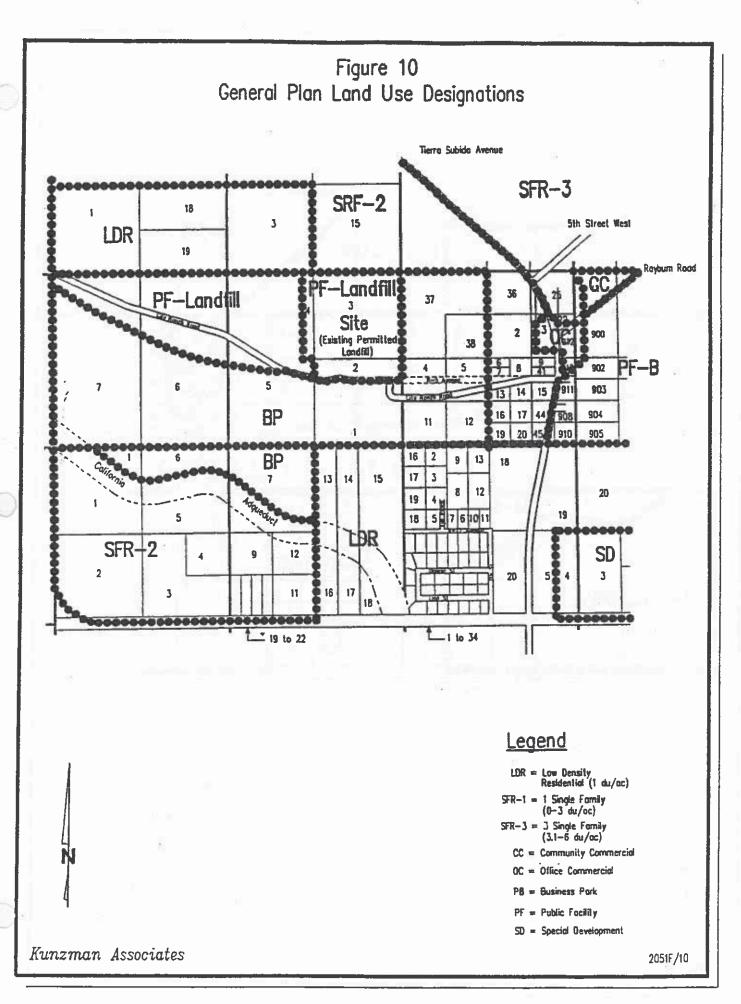
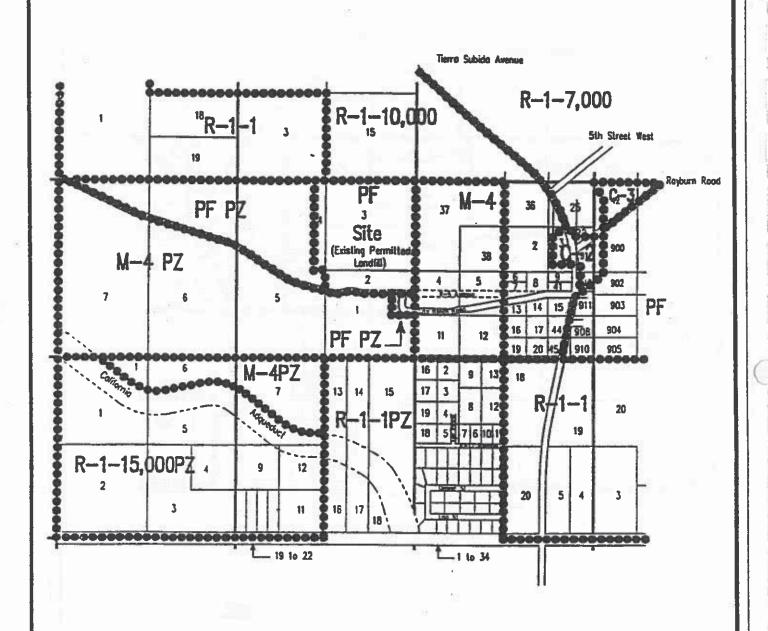


Figure 11
Zoning Designations



## Legend

R-1 = Single Family Residential

C-2 = Office Commercial

C-3 = General Commercial

M-4 - Pionned Industrial

Pf = Public Facility

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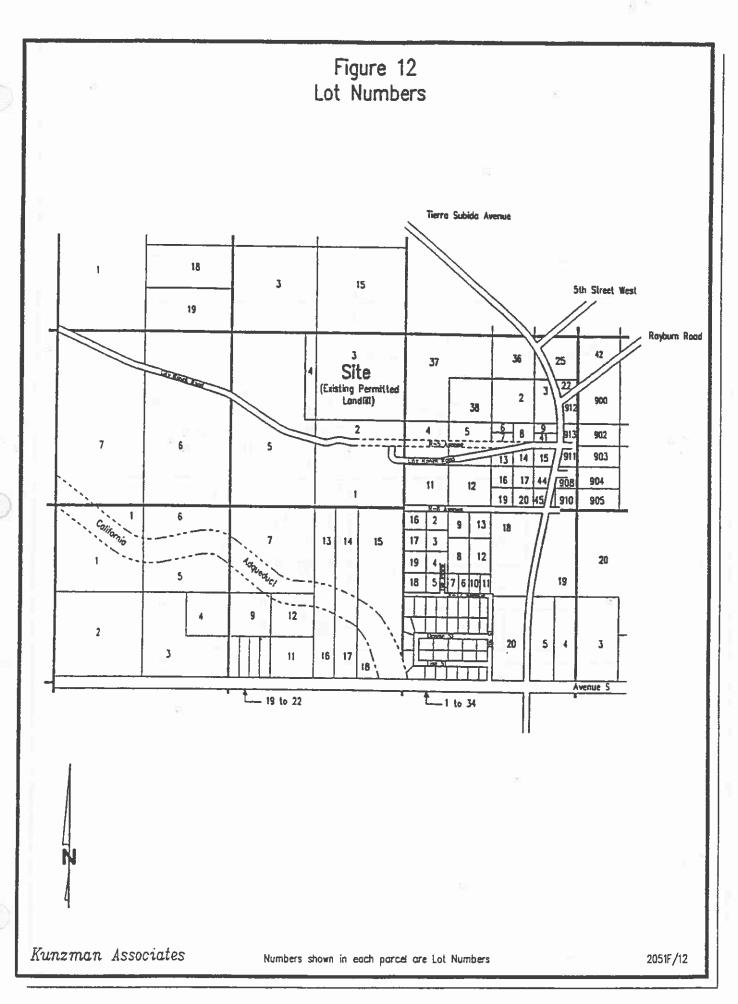
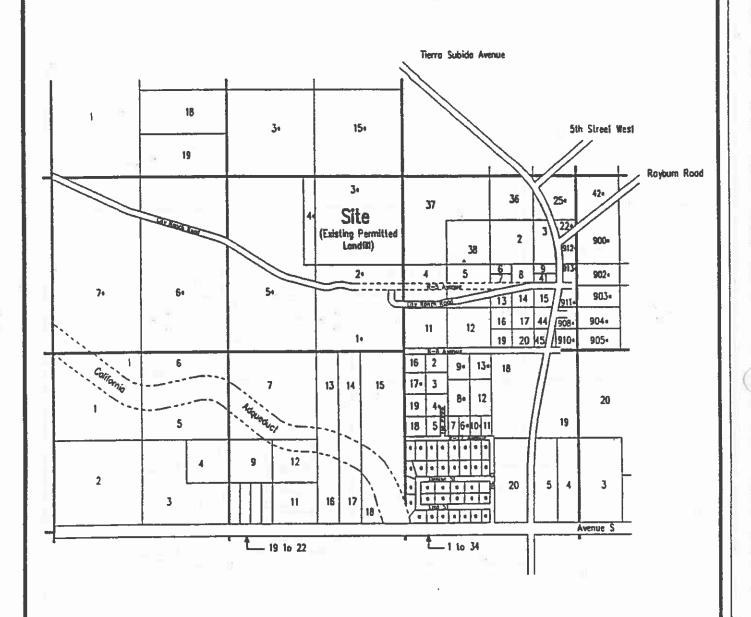


Figure 13 Vacant and Occupied Lots



# <u>Legend</u>

7 - Vocani Lai

7. = Occupied Lot (Has a structure or is landfill)

Kunzman Associates

Numbers shown in each parcel are Lat Numbers

2051F/13

#### 5. Project Traffic

The existing landfill is currently accepting an average of 1,372 tons of material per day. For purposes of this analysis, it was assumed that the project site will increase operations to an average of 3,613 tons per day.

However, the existing landfill also accepts concrete for recycling and/or materials used for daily cover or beneficial use, and when a major inflow of these materials occurs, then the daily tonnage can reach 3,800 tons per day. This peak inflow of concrete or daily cover material is sporadic and lasts for a few days.

For purposes of this analysis, it was assumed that the project site will increase operations to an average of 3,613 tons per day, and a peak of 5,548 tons per day.

#### **Traffic Generation**

The traffic generated by the project is determined by multiplying an appropriate trip generation rate by the quantity of land use. Trip generation rates are predicated on the assumption that energy costs, the availability of vehicles to drive, and our life styles remain similar to what we know today. A major change in these variables may affect trip generation rates.

Trip generation rates were determined for daily traffic, morning peak hour inbound and outbound traffic, and evening peak hour inbound and outbound traffic for the proposed land use. Trip generation is documented in Tables 4, 5, and 6.

Table 4 shows actual existing count data for truck loads and tonnage. The data was collected over 51 working days. Table 4 also shows the expected future truck loads and tonnage, as well as the expected change between the existing and future operation. It should be noted that the change in transfer trucks is 71 loads per day, or 142 in plus out trips. These trucks will all use the State Route 14 Freeway. They represent approximately 15 percent of the increase in traffic by the proposed land fill expansion. Also, see Table 1a for a summary of changes in traffic generation.

Table 5 shows data collected on an hourly basis. It shows when the trucks arrive and depart the site, as well as when cars arrive and depart the site. From Table 5 one can determine the peak hour and daily in and out volumes. The peak hour and daily volumes in Table 5 are summarized in Table 6.

Table 6 exhibits the traffic generation rates, project peak hour volumes, and project daily traffic volumes. Per Table 6, the existing landfill is currently generating 416 truck trips per day, 39 and 24 of which occur during the morning and evening peak hours, respectively. In addition, the site is currently generating 210 car trips per day, of which 14 and 36 occur during the morning and evening peak hours, respectively (see Table 6).

The project site is projected to generate in the future on the average a total of approximately 1,324 trips per day (662 in and 662 out), 105 and 85 of which occur during the morning and evening peak hours, respectively (see Table 6).

The landfill expansion is projected to generate on the average approximately 698 new daily vehicle trips, 52 new vehicles per hour will occur during the morning peak hour, and 25 new vehicles per hour will occur during the evening peak hour (see Table 6).

The project site is projected to generate in the future for peak inflow conditions a total of approximately 1,594 trips per day (797 in and 797 out), 124 and 96 of which occur during the morning and evening peak hours, respectively (see Table 6).

The landfill expansion is projected to generate for peak inflow conditions approximately 968 new daily vehicle trips, 71 new vehicles per hour will occur during the morning peak hour, and 36 new vehicles per hour will occur during the evening peak hour (see Table 6).

#### **Traffic Distribution and Assignment**

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

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

Figure 14 contains an estimate of the directional distribution and assignment of the existing traffic from the landfill. This estimate is based on information in the previous traffic studies for the landfill and field observations. Traffic from the landfill expansion is expected to have a distribution that is similar to the existing landfill traffic.

#### **Project-Related Traffic**

Based on the identified traffic generation and distribution, project related ADT volumes are shown on Figure 15. The project related morning and evening peak hour intersection turning movement volumes are shown on Figures 16 and 17, respectively.

The project traffic is expected to have an average one-way trip length of 5.5 miles for trips originating in the City and 15 miles for trips originating outside of the City. It is approximately 15 miles to Lancaster going north on the State Route 14 Freeway, and approximately 15 miles to the Antelope Valley Air Pollution Control District boundary going south on the State Route 14 Freeway.

Table 4 Truck Traffic For Antelope Valley Landfill

	Existing Tru	ick Traffic	376		
Туре	Tons	Loads	Tons/Load	Tons/Day	Loads/Day
Municipal Solid Wasts (Com., Res., Ind.)	29,299	7,228	4.05	574	142
Transfer Trellers	16,743	797	21.01	328	18
Recycle (Com., Res., Ind.)	0	0	4.20	. 0	
Recycle - Concrete	1,182	264	4.48	23	5
Cover Soil	414	16	25.88	8	1
Contaminated Soll	21,412	856	25.01	420	17
Greenwaste	826	1,189	0.69	16	23
Other Recycling	103	194	0.53	2	4
Total	69,979	10,544		1,372	208

Average Inflow of Mate	erial Future	Truck Traffic	(3,613 tons p	er day)	
Туре	Tona	Loads	Tons/Load	Tons/Day	Loads/Day
Municipal Solid Waste (Com., Res., Ind.)	59,874	14,771	4.05	1174	290
Transfer Trailers	93,093	4,433	21.00	1826	87
Recycle (Com., Res., Ind.)	1,180	281	4.20	20	5
Recycle - Concrete	1,020	228	4.48	20	5
Cover Soil	345	14	25.00	7	1
Contaminated Soil	25,486	1,019	25.00	500	20
Greenweste	14,095	4,698	3.00	64	21
Other Recycling	102	192	0.53	2	4
Total	195,195	25,636	Т	3,613	432

Difference For Tr	uck Traffic fo	r Average li	nflow of Materi	şi	
Туре	Tons	Loads	Tons/Load	Tons/Day	Loads/Day
Municipal Solid Waste (Com., Res., Ind.)	30,575	7,543	4.05	600	148
Transfer Trailers	76,350	3,636	21.00	1,498	71
Recycle (Com., Res., Ind.)	1,180	281	4,20	20	
Recycle - Concrete	-162	-36	4.48	-3	C
Cover Soil	-69	-2	25.00	-1	0
Contaminated Soil	4,074	163	25.00	80	3
Greenwaste	13,269	3,509	3.00	48	-2
Other Recycling	~1	-2	0.53	0:	C
Total Difference	125,216	15,092		2,241	224

Peak Inflow of Mater	ial Future Tr	uck Traffic (	5,548 tons per	day)	
Туре	Tons	Loads	Tons/Load	Tons/Day	Loads/Day
Municipal Solid Waste (Com., Res., Ind.)	69,822	14,771	4.05	1174	290
Transfer Trailers	93,093	4,433	21.00	1826	87
Recycle (Com., Res., Ind.)	1,180	281	4.20	20	5
Recycle - Concrete	1,020	228	4.48	337	75
Cover Soil	357	14	25.00	250	10
Contaminated Soil	25,500	1,019	25.00	1875	75.
Greenwaste	14,095	4,598	3.00	64	21
Other Recycling	102	192	0.53	2	4
Total	195, 169	25,636		6,548	567

Difference For	Peak Inflov	v of Material	Truck Traffic		
Туре	Tons	Loads	Tons/Load	Tons/Day	Loads/Day
Municipal Solid Waste (Com., Res., Ind.)	30,523	7,543	4.05	600	148
Transfer Trailers	76,350	3,836	21.00	1,498	71
Recycle (Com., Res., Ind.)	1,180	281	4.20	20	5
Recycle - Concrete	-162	-38	4.48	314	70
Cover Soil	-57	-2	25.00	242	9
Contaminated Soil	4,088	163	25.00	1,455	58
Greenwaste	13,269	3,509	3.00	48	-2
Other Recycling	-1	-2	0.53	0	0
Total Difference	125,190	15,092		4,176	359

- Notes:

  1.) Existing Measured January 1, 2003 to February 28, 2003 (51 working days).

  2.) Future assumes additional 400 tons per day Municipal Solid Waste from Lancaster.

  3.) Future assumes 20 tons per day of Graenwaste transferred from Lancaster.

  4.) Future assumes 30 tons per day from proposed Palmdale Greenwaste.

  5.) The columns labeled "Tons" and "Loads" are for 51 working days.

  6.) Because of rounding, some totals may differ by 1 compared to the sum of the components.

#### Traffic Schedule For Antalope Valley Landfill - Average Inflow of Material Condition

							Existing 1	raffic S	ched	le For A	rtelope	Valley La	ndili								
		-			Inbo	und									Out	bound					Total
	<u> </u>	Truck		ides picku	DS) 1			ars.		7otal		Truci	cs (inc	tudes picto	_			>ars		Total	inbound/
Time Period	hemas <sup>1</sup>			Recycle/		Total			Total	Trucks				Recycle/		Total			Total	Trucks	Outbound
		I Ferrales	GMA	Concrete	Other	Iuda	Employee	Mtsc.	Cars	& Cars	MSW	Transfer	GAW	Concrete	Other	Trucks	Employee	Misc.	Cars	& Cars	Trucks & Cars
5:00 AM - 6:00 AM	0	이	0	0	이	0	3	0	3	3	0	0	0	0	0	0	0	0	0	0	3
6:00 AM - 7:00 AM	3	이	0	0	이	3	5	0	5	8	30	0	3	0	0	33	0	0	0	33	41
7:00 AM - 8:00 AM	3	0	2	0	0	8	27	0	27	32	30	0:	4	1	0	35	0	0	n	35	67
8:00 AM - 9:00 AM	10	5	2	o	- 1	18	0	7	7	25	17	- 2	2	0	ō	21	0	7	7	28	53
9:00 AM - 10:00 AM	10	1	2	- 1	6	20	lol	al	6	28	17	3	2	1	5	28		Ŕ	'	36	64
10:00 AM - 11:00 AM	19	0	4	0	2	25	0	- 5	8	33	14	1	2	'n	2	19	0	B		27	50
11:00 AM -12:00 NOON	15	4	2	- 1	- 1	23	0	8	Ā	31	14	2	Ä	1	2	23				31	
12:00 NOON - 1:00 PM	13	1	2	o	5	21	0	8	В	29	7			'n		16	0		8	24	62 53
1:00 PM - 2:00 PM	13	0	2	1	- 1	17	o	- 8	8	25	7	0	2	1	2	12	0		A	20	33
2:00 PM - 3:00 PM	18	4	3	- 1	- 1	27	اه	A	8	35	3	2	5	,	1	2	2	e e	11	19	45
3:00 PM - 4:00 PM	19	- 1	4	- 1	3	28	اه	a	Ā	36	3	3	7	4	,				13		54
4:00 PM - 5:00 PM	19	ol.	ol	ol	2	21	o	7	7	28	ŏ	, i	0	,	<b>1</b>	3	22		29	32	58
5:00 PM - 8:00 PM	o	o	ō.	o	öl	- ol	o l	6	6	0	ŏ	0	ŏ	,	1	1	ZZ 8:		29	32	60
6:00 PM - 7:00 PM	o	o	0	ol	ol	ol	اه	- 0	ő	ŏ	. 0	ő	اه	0	, 		0	0	្ព		6
7:00 PM - 8:00 PM	اه	0	o	0	ol	اه	ol.	0	0	0	0	ام	ĭ	,	, i	ă	0	,			0
Atter 8:00 PM	٥	0	o		ō	0	ō.	- 0	o	0	o	ő	ŏ	- 0	ő	0	0	0	, a		0
Total	142	16	23	5	22	208	35	70	105	313	142	16	23	5	22	208	35	70	105	313	626

				Future 1	reffic	Scheduk	For Antelo	pe Vs	ey Len	dfill for A	verage	triflow of	Mater	ial (3,613 t	ons be	r day)					
						ound			1.6-					. ,		bound					Total
		Truck	s (inci	udes picku	ps)			ars		Total		Truc	cs (inc	Ludes picia	ps)			Cars		Total	Inbound/
	Ι.		l ï	Recycle/		Total			Total					Recycle/		Total			Total	Trucks	Outbound
Time Period	MSW'	Transfer	GAV	Concrete	Other	Trucks	Епріоуве	Misc.	Cars	& Cars	MSW	Transfer	GAV	Concrete	Other	Trucks	Employee	Misc.	Cars	& Cars	Trucks & Cars
5:00 AM - 6:00 AM	0	0	0	0	0	0	65	0	65	65	0	0	0	0	0	0	0	0	0	0	65
5:00 AM - 7:00 AM	5	0	1	٥	1 1	7	25	2	27	34	60	0	2	0	- 1	63	0	2	2	65	90
7:00 AM - 8:00 AM	6	0	1.	0	- 1	8	42	2	44	52	60	اه	3	1	1	65		- 2	-	67	119
8:00 AM - 9:00 AM	21	19	- 1	0	2	43	0	7	7	50	35	11	1	0	- 1	48	,	7	7	55	105
9:00 AM - 10:00 AM	21	4	1:	1	6	33	0	8	8	41	35	10	1	1		52				60	101
10:00 AM - 11:00 AM	39	0	3	0	2	44	- 0	8	8	82	29	2	- 1	,	2	34	Š			42	
11:00 AM -12:00 NOON	29	19	1	1	2	52	0	9	9	51	29	11	3	1	2	48		ءُ ا	0	55	94
12:00 NOON - 1:00 PM	27	4	2	Ó	5	38	0	9	9	47	15	10	2	ا	4	31	Š		-	40	115
1:00 PM - 2:00 PM	27	٥	2	1	1	31	0	9	9	40	15	2		1	2	22	0	"		31	6/
2:00 PM - 3:00 PM	37	19	2	1	1	60	0	9	8	69	6	11	- 1	,	2	20	20	"	29		/1
3:00 PM - 4:00 PM	39	4	3	1	3	50	3	8	11	81	R	10	- 41	1	2	20	35		43	49 63	118
4:00 PM - 5:00 PM	19	٥	- il	o	2	22	5	8	13	35	0	2	- 41	اٰہ	2	20	35		43	49	124
5:00 PM - 6:00 PM	15	10	- 1		1	27	0	4	4	31	0	آھ ا	- ;		2	44	39	, a	43		84
6:00 PM - 7:00 PM	4	8	1	0	1	14	0	4	4	18	0	10	- 1	0	4	12	39		43	54 19	85
7:00 PM - 8:00 PM	1	0	1	0	1	3		3	3	5	0	"	- 4		- 4	2	3	-	(	18	37
Alter 8:00 PM	0	o	0	0	0	ŏ	0	0	0	o	0	0	,		,	0		0	3		11
Total	290	87	21	5	29	432	140	90	230	662	290	87	21	5	29	432	140	90	230	662	1,324

				Difference	in Trafi	lic Sche	dule For An	telope '	Valley I	andfill to	or Aven	age Inflow	of Ma	iterial (3,61	3 tons	per day	)				
						ound									_	oound		1			Total
		Truck	ds (incl	ludes picku	os)		- 0	ars		Total		Truck	ca (inc	ludes picia.	ps)			Ars		Total	Inbound
				Recycle/		Total			Total	Trucks.				Recycle/		Total			Total	Trucks	Outhound
Time Period	MSW'	Trensfer	GAW	Concrete	Other	Trucks	Employee	Misc.	Cars	& Cars	M5W	Transfer	GAV	Concrete	Other	Trucks	Employee	Misc.	Cars	& Cars	Trucks & Cars
5:00 AM - 5:00 AM	0	0	0	0	0	0	62	0	62	62	0	0	0	0.	0	0	0	0	0	0	62
6:00 AM - 7:00 AM	2	0	1	0	- 1	4	20	2	22	26	30	0	-1	0	- 1	30	0	2	2	32	58
7:00 AM - 8:00 AM	3	0	-1	0	- 1	3	15	2	17	20	30	oi	-1	o	1	30	0	2		32	52
MA 00:9 - MA 00:8	11	14	-1	0	_ 1	25	0	0	0	25	18	9	-1	0	- 1	27	0	0	اما	27	52
9:00 AM - 10:00 AM	31	3	-1	0	0	13	0	0	0	13	18	7	-1	0	0	24	0	0	اه	24	37
10:00 AM - 11:00 AM	20	0	-1	0	0	19	0	0	0	19	15	- 1	-1	0	o	15	ō	0	اه	15	34
11:00 AM -12:00 NOON	14	15	-1	0	₽ 1	29	0	1	1	30	15	9	-1	. 0	0	23	0	1	1	24	54
12:00 NOON - 1:00 PM	14	3	0	0	0	17	0	- 1	1	15	8	7	0	of	0	15	0	1		16	34
1:00 PM - 2:00 PM	14	0	0	0	0	14	0	1	1	18	8	2	0	0	0	10	0	1	1	11	26
2:00 PM - 3:00 PM	19	15	-1	0	0	33	0	1	1	34	3	9	-1	0	- 1	12	17	1	15	30	64
3:00 PM - 4:00 PM	20	3	-1]		0	22	3	0	3	25	3	-7	1	0	0	11	30	0	30	41	66
4:00 PM - 5:00 PM	이	0	- 1	0	0	1	5	1	6	7	0	2	- 1	0	0	3	13	1	14	17	24
5:00 PM - 6:00 PM	15	10	- 1	0	- 1	27	0	4	4	31	0	8	1	o	1	10	34	À	38	48	79
6:00 PM - 7:00 PM	4	8	- 1	0	= 1	= 14	0	4	4	18	0	10	- 1	0	- il	12	3	4	7	19	77
7:00 PM - 8:00 PM	- 1	٥	- 1	0	- 1	3	0	3	3	5	0	0	1	_	- il	2	0	3	3	5	41
After 8:00 PM	0	0	D	0	0	0	o o	0	٥	0	0	0	o	0	اه	0	8	0	A	R	, i
Total	148	71	-2	0	7	224	105	20	125	349	148	71	-2	0	7	224	105	20	125	349	698

Table 5 continues on next pags

#### Notes:

- 1.) MSW<sup>1</sup> = Municipal Solid Waste
- 2.) Assumes average roundirips to lendfill 3.5 hours.
  3.) Other = Conteminated soil, clean soil, recycling, and other included under inbound recycling.
  4.) Inbound/Outbound recycling refers to crushed concrete.
- 5.) Truck count includes commercial vehicles and residential customers (pickup trucks, etc.)
- 6.) Misc. = Car and pickup trips to pay disposable bill, recycle oil, recycle batteries, etc.
- 7.) Because of rounding, some totals may differ by 1 compared to the sum of the components.

Table 5 (page 2 of 2) Traffic Schedule For Antalope Valley Landfill - Peak inflow of Material Condition

<u> </u>							Existing	refic	Sched	ule For A	untelop	Valley L	ındfil			_					
				_		ound									Out	bound				-	Total
	<u> </u>	Truck	e (incl	udes picia	ps)			केंद्र ह		Total		Truck	s (Inc	tudes picto	40m)		(	Cars	_	Total	Inbound/
				Recycle/		Total			Total	Trucks		100		Recycle/		Total			Total	-	
Time Period	M2M.	Transfer	GW	Concrete	Other	Trucks	Employee	Misc.	Cars	& Care	MSW	Transfer	@W	Congrete	Other	Tructor	Employee	Misc	Care	& Core	7nucks & Care
	0	이	0	0	0	0	3	0	3	3	0	0	0	0	n	0	0	0	- 0	O COMP	FROCKS & CET
6:00 AM - 7:00 AM	3	0	0	0	0	3	8	0	8	8	30	0	3	- 0	ñ	33	Š	ů			3
7:00 AM - 8:00 AM	3	0	2	0	0	5	27	0	27	32	30	0	_ Ă	-		35				33	41
8:00 AM - 9:00 AM	10	5	2	ol	1.	18		7	7	25	17	3	- 3	,		21		U	a	35	67
B:00 AM - 10:00 AM	10	- 1	2	1		20	n			28	17	- 1	ارً	, ,	ار ا		٥	7	7	28	53
10:00 AM - 11:00 AM	19	0	4	0	2	25	0	В		33	14	3	2	۱ ۱	의	28	0	- 6		36	64
11:00 AM -12:00 NOON	15	4	2	1	1	23	ni	Ā		31	14	- 1	- 1		2	19	9		8	27	60
12:00 NOON - 1:00 PM	13:	- 1	2	0	5	21	ň			29	'[]	4	- 1	1	2	23	악	8	8	31	62
1:00 PM - 2:00 PM	13	0	2	- 1	1	17	ň			25	- 4	3			- 1	16	익	a	8	24	53
2:00 PM - 3:00 PM	18	4	3	1	- 1	27	ň			35	1 4	3	- 4	- 1	2	12	0	- 8	8	20	45
3:00 PM - 4:00 PM	19	- 1	4	- 1	3	28	0			38	3	- 4	اءُ	- 0	1	8	3	8	11	18	54
1:00 PM - 5:00 PM	19	ol	ol	0	2	21		7		28	, i	2	, J		- 3	9	- 6	- 61	13	22	68
5:00 PM - 6:00 PM	0	0	o	ō	ō	-	اة	- 1	4	6	,		0		3	3	22	7	29	32	60
3:00 PM - 7:00 PM	oi	0	o	ò	-			ň	ň	~	0		, i	u u	- 1	_ ]	5	0	5	6	đ
7:00 PM - 8:00 PM	0	ol	ol	o	0	0	0	ň	٥	0	0		, i	U	۷	막	0	0	이	0	0
Mer 8:00 PM	0	0	0	- 1	0	0	ol	0	0	0	0	3	0	, i	0		9	9	0	0	0
Total	142	16	23	5	22	208	35	70	105	313	142	16	23	5	22	208	35	701	105	313	626

					Inb	bnuc					_				Qui	bound					7-4-1
	<u> </u>	Truck	s (incl	udes picto				ane		Total	_	Truck	s (inc	tudes picio				Carra		Total	Total inbound/
	١.			Recycle/		Total			Total	Trucios				Baruniai		Total			Total	Thacks	Outbound
Time Period	MSW'	Transfer	GAV	Concrete	Other	Trucks	Employee	Meç.	Cars	& Cars	MSW	Transfer	GAW	Concrete	Other	Trueles	Employee	Man	~~		
5:00 AM - 6:00 AM	0	0	0	0	0	0	65	0	65	65	ō	0	0	0	0	0	- Cilparyee	eranc.	Cars	o Cars	Trucks & Ca
3:00 AM - 7:00 AM	8	0	- 1	0	1	7	25	2	27	34	60	0	2	0					U	0	'
MA 00:8 - MA 00:	- 6	0	1	-0	2	P	42	2	44.	53	80	ň	- 1			63	9	2	2	65	
:00 AM - 9:00 AM	21	19	- 1	7	5	63	0	7	7	60	35	11	3	3	-	68		2	2	70	10
:00 AM - 10:00 AM	21	4	- 1	10	10	46				54	35	10	- 1	0	3	67	9	7	7	64	13
0:00 AM - 11:00 AM	39	0	3	10	9	61	ň			69	29	10	_ ][	10	10	66	0	8	8	74	1
1:00 AM -12:00 NOON	29	19	- 1	10		67	ň		ı	76	29	11	- '	10	9	51	0	8	8	59	. 1
2:00 NOON - 1:00 PM	27	4	2	10	11	54	, o		اة	63	15	10	3	10	8	81	0	Đ	9	70	16
:00 PM - 2:00 PM	27	0	- 5	10	10	49	, , , , , , , , , , , , , , , , , , ,		ا ا	58		101	2	10	11	48	이	9	P	57	1
:00 PM - 3:00 PM	37	19	- 5	10		TB	, ,				15	2	2	10	10	39	0	9	B	48	11
:00 PM = 4:00 PM	30	4	- 3	9		83	, ,		11	85	°.		- 1	10	- 8	36	20		29	85	18
00 PM - 5:00 PM	19		4		10	30	3	٥	1 11	74		10	- 1	7	9	33	35	- 8	43	76	1
:00 PM - 6:00 PM	15	10	- 4	Š	- 10	33	2	-	13	43	ol	2	- 1	이	10	13	35	6	43	58	1
00 PM - 7:00 PM	14		- 4			15	9	- 1	1	37	0		- 1	0	7	16	39	4	43	59	1
00 PM - 8:00 PM	- 7		- 31		2	15	9	- 4	4	19	9	10	- 1	0	2	13	3	4	7	20	
ter 8:00 PM	, i	0	- 41			3	9	3	3	7	9	이	- 1	0	2	3	0	3	3	8	
Total	290	87	21	75	94	567	140	90	230	797	290	87	21	75.	0	0	6	0	8	8	

	<del> </del>					pund									Out	bound					Total
	<u> </u>	Truck	s (inc	udee picia	DE)			Term .		Total		Truck	a (inc	tudes picio	ape)			Cars		Total	Inbound/
		1		Recycle/		Total				Trucio				Recycle/		Total			Total		Outbound
Time Period	MSW'	Transfer	GAW	Concrete	Other	Tructes	Employee	Msc.	Care	& Cars	MSW	Transfer	GW	Cononste	Other	Trucios	Employee	Men			Trucks & Can
5:00 AM - 0:00 AM	0	0	0	0	0	0	62	0	82	62	0	п	0	0	0	0	A.	WEST.	Cattra	O LETS	Trucks & Can
3:00 AM - 7:00 AM	2	0.	1	0.	1	4	20	2	22	26	30		-4		, v			U	0	U	63
MA 00:8 - MA 00:7	3	0	-41	0	2	- 4	15	-	17	21	30		- 11		- 1	30	0	2.	2	32	58
MA 00:8 - MA 00:	11	14	-1	7	- 4	35		0	'.	35			-1	2	2	33	0	2	2	35	50
0:00 AM - 10:00 AM	11	3	-1		1	26	0	0			18		-1	5	5	36	0	0	0	36	71
0:00 AM + 11:00 AM	20	,	- 4	10	- 1	36	, v	0	<u>"</u>	26	18	7	-1	9	5	38	0	0	0	38	84
1:00 AM -12:00 NOON	14	15	1.1	- 10			u u	U	0	38	15	- 1	-1	10	7	32	0	0	0	32	68
2:00 NOON - 1:00 PM	14	13	- 1		- 4	44	0	- 1	11	45	15	9	-1	В	8	38	0	1	1	39	84
:00 PM - 2:00 PM		3	,	10		33	0	. 1]	11	34	8	7	0	10	7	32	0	1	1	33	67
:00 PM - 3:00 PM	14		- "	P	8	32	0	1	1	33	a	2	0	9	8	27	0	1	- 1	28	81
	19	15	-11	19	- 7	49	이	1	1	50	3	B	-1	10	7	28	17	1	18	46	96
3:00 PM - 4:00 PM	20	3)	-1	ıΠ	8	36	3	0	3	38	3	7	- 1	6	7	24	30	0	30	54	92
1:00 PM - 5:00 PM	이	9	- 1	이	8	9	5	- 1	8	15	0	2	- 1	0	7	10	13	1	14	24	20
:00 PM - 8:00 PM	15	10	- 1	0	7	33	0	- 4	4	37	0	al	- 1	0	- 6	15	34	- 1	38	53	39
:00 PM - 7:00 PM	- 4	8	- 1	0	2	15	0	- 4	4	19	0	10	- il	اة	- 3	13		7	30	20	90
:00 PM - 8:00 PM	- 1	0	- 1	ol	2	4	0	3	3	7	0		- il	,	- 5	13	2	- 3	- 4	20	39
fter 8:00 PM	0	. 0	0	0	ol	ol	0	o	o	6	0	ő	- 1	0	6	3		3	3		13
Total	148	71	-2	70	72	359	105	20	125	484	148	71	-2	70	72	359	105	20	125	484	8

- Notes:

  1.) MSW<sup>1</sup> = Municipal Solid Waste

  2.) Assumes average roundbrips to landfill 3.5 hours.

  3.) Other = Contentinated soli, clean soil, necycling, and other included under inbound recycling.

  4.) Inbound/Outbound recycling refers to crushed concrets.

  5.) Truck count includes contenential vehicles and residential customers (pickup trucks, etc.)

  6.) Misc. = Car and pickup tripe to pay disposable bill, recycle oil, recycle batteries, etc.

  7.) Because of rounding, some totale may differ by 1 compared to the sum of the components.

Table 6
Project Traffic Generation

	Average	Inflow C	of Material	(3,613 o	ns per da	ay)	
		Average 72 Tons/	Volume Day)		Average 13 Tons	Volume /Day)	
Time Period	Trucks	Cars	Total	Trucks	Cars	Total	Difference
Morning Peak Hour (8:00 AM - 9:00 AM) Inbound Outbound Total	18 21 39	7 7 14	25 28 53	43 48 91	7 7 14	50 55 105	25 27 52
Evening Peak Hour (5:00 PM - 6:00 PM) Inbound Outbound Total	21 3 24	7 29 36	28 32 60	27 11 38	4 43 47	31 54 85	3 22 25
Daily	416	210	626	864	460	1,324	698

	Peak!	nflow Of	Material (	5,548 ton:	s per day	()	
	Existing	Average	Volume	Futur	e Peak \	/olume	
	(1,3	72 Tons/	Day)	(5,5	48 Tons	/Day)	
Time Period	Trucks	Cars	Total	Trucks	Cars	Total	Difference
Morning Peak Hour (8:00 AM - 9:00 AM) Inbound Outbound Total	18 21 39	7 7 14	25 28 53	53 57 110	7 7 14	60 64 124	35 36 71
Evening Peak Hour (5:00 PM - 6:00 PM) Inbound Outbound Total	21 3 24	7 29 36	28 32 60	33 16 49	4 43 47	37 59 96	9 27 36
Daily	416	210	626	1,134	460	1,594	968

	Permi	tted Peak	to Future	Peak Co	mparisor	۱	==1
	Permiti	ed Peak	Volume	Futur	e Peak V	olume -	
	(3,5	64 Tons/I	Day)	(5,5	48 Tons/	(Day)	
Time Period	Trucks	Cars	Total	Trucks	Cars	Total	Total Difference
Daily	1,100	360	1,460	1,134	460	1,594	134

The truck tonnage capacities have changed since the 1993 CUP aapproval. Today, trucks can accommodate a larger tonnage than in 1993; therefore, less trucks are required today for the same tonnage.

Because of rounding, some totals may differ by 1 compared to the sum of the componentns.

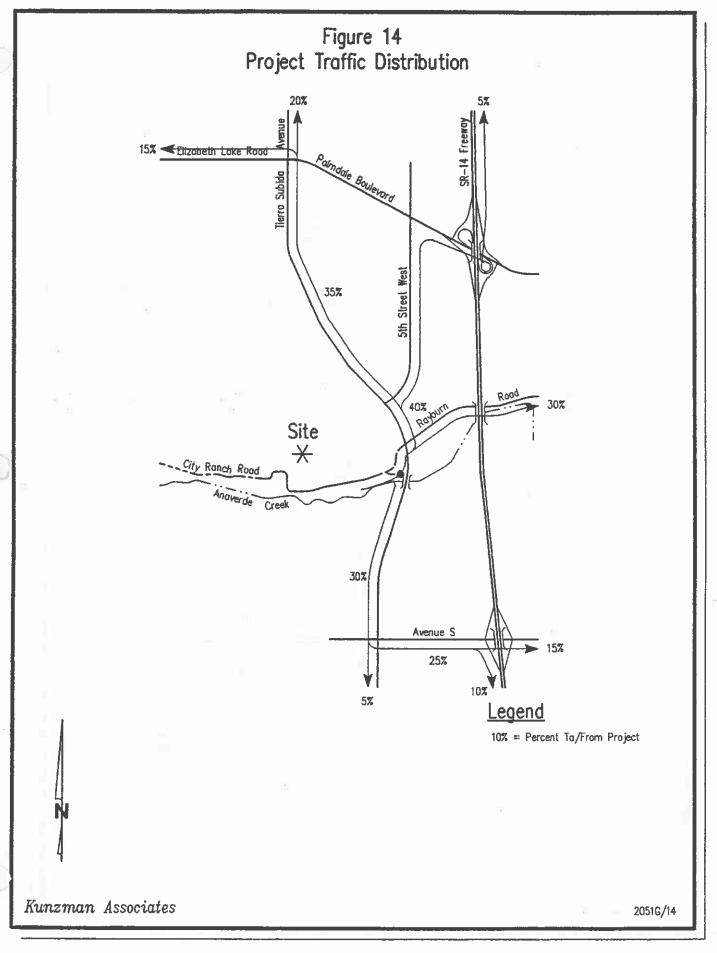
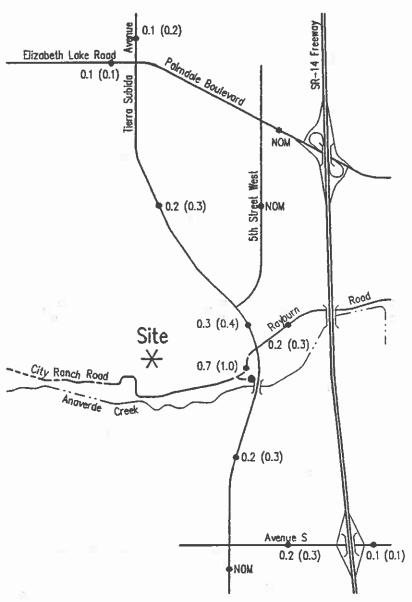


Figure 15
Project Average Daily Traffic (ADT) Volumes



## Legend

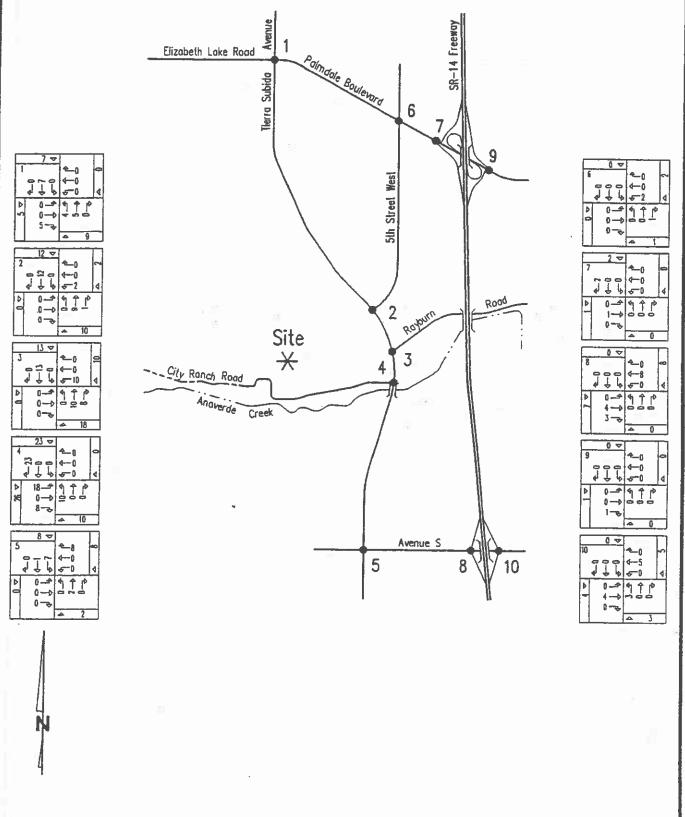
0.1 (0.1) = Vehicles Per Day (1000's) for Average and Peak Inflow of Material

NOM = Nominal, Less Than 50 Vehicles Per Day

Kunzman Associates

2051G/15

Figure 16
Project Morning Peak Hour Intersection Turning Movement Volumes



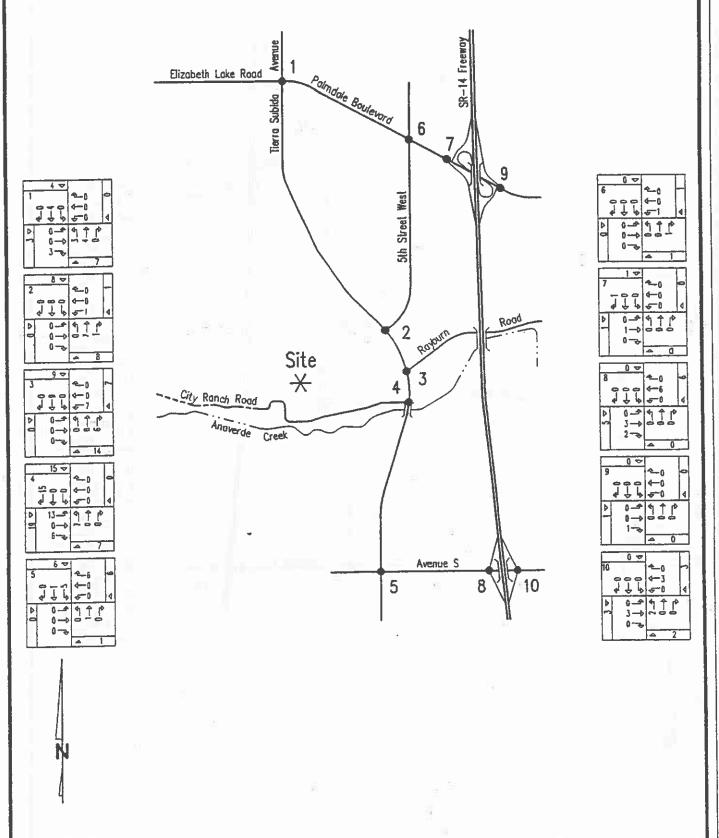
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Kunzman Associates

Intersection reference numbers are in upper left corner of turning movement baxes.

2051F/bbas

Figure 17
Project Evening Peak Hour Intersection Turning Movement Volumes



2051F/bbas

Kunzman Associates

### 6. Existing Plus Project Traffic Conditions

Once the project-related traffic is assigned to the existing street network and added to existing volumes, the traffic impact can be assessed. Figures 18 to 21 illustrate the existing plus project traffic conditions.

#### Existing Plus Project Average Daily Traffic (ADT) Volumes

With the landfill expansion, the existing plus project ADT volumes are as illustrated on Figure 18.

#### **Existing Plus Project Volume to Capacity Ratios**

For existing plus project traffic conditions, daily volume to capacity ratios have been calculated and are as shown on Figure 19. Daily volume to capacity ratios are based on City of Palmdale roadway capacities depicted in Table 2. For existing plus project traffic conditions, the roadway links in the vicinity of the site are projected to continue to operate within acceptable Levels of Service.

#### Existing Plus Project Intersection Capacity Utilization (ICU)

The technique used to assess the operation of an intersection is known as Intersection Capacity Utilization (ICU). To calculate an ICU value the volume of traffic using the intersection is compared with the capacity of the intersection. An ICU value is usually expressed as a percent. The percent represents that portion of the hour required to provide sufficient capacity to accommodate all intersection traffic if all approaches operate at capacity.

The ICU's for the existing plus project traffic conditions have been calculated and are shown in Table 7. Existing plus project morning and evening peak hour turning movement volumes are shown on Figures 20 and 21, respectively.

For existing plus project traffic conditions, the intersections in the vicinity of the site are projected to continue to operate at Level of Service B or better during the peak hours. Existing plus project ICU worksheets are provided in Appendix C.

Table 7

Existing Plus Project Intersection Capacity Utilization (ICU) and Level of Service (LOS)

				i	nteri	secti	on Ap	pros	ich l	Lanes	1			Peak	Hour
	Traffic	No	rthbo	ound	Sot	uthb	ound	Ea	stbo	und	We	estbo	ound	ICU-	LOS <sup>2</sup>
Intersection	Control <sup>3</sup>	L	Т	R	L	Ţ	R	Ĺ	Ţ	R	L	T	R	Morning	Evening
Tierra Subida Avenue (NS) at:															·
Palmdale Boulevard (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	52.2-A	67.1-B
5th Street West (EW)	CSS	0	- 1	=1.	1	1	0	0	0	0	1	0	1	40.6-A	49.4-A
Rayburn Road (EW)	TS	1	1	1	1	1	1	1	1	0	1	1	0	52.5-A	64.1-B
City Ranch Road (EW)	CSS	0	1	0	1	1	0	0	0	0	1	0	1	27.6-A	42.7-A
Avenue S (EW)	TS	0	1	0	0	1	0	0	1	0	0	1	0	41.3-A	56.4-A
5th Street West (NS) at:															
Palmdale Boulevard (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	30.0-A	51.7-A
SR-14 Freeway SB Ramps (NS) at:															
Paimdale Boulevard (EW)	TS	0	0	0	1	0	1>>	0	2	1>>	0	2	1>>	36.6-A	67.3-B
Avenue S (EW)	TS	0	0	0	2	0	-1	0	2	1>>	1	2	0	46.2-A	49.0-A
SR-14 Freeway NB Remps (NS) at:															
Palmdale Boulevard (EW)	TS	1	0	1>>	0	0	0	0	3	1>>	0	3	1>>	26.9-A	44.0-A
Avenue S (EW)	TS	1	0	1>>	0	0	0	1	2	0	0	2	1>>	30.4-A	41.5-A

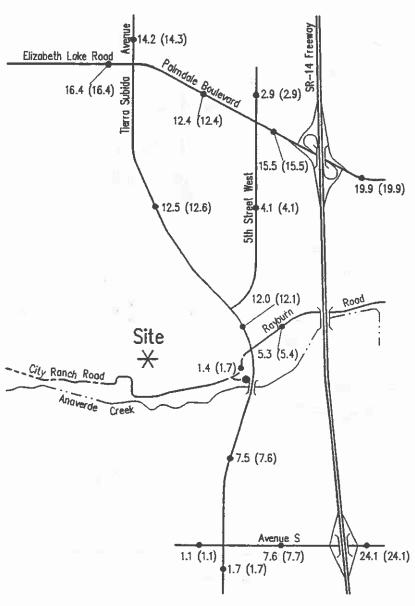
	Peak inf		-, 101								-				
	=((0))	<u> </u>		-	ntere	ecti	on Ap	pros	ich l	Lanet	'			Peak	Hour
	Traffic	No	rthbo	ound	Sot	ithb	ound	Ea	stbo	und	We	estbo	bnuc	ICU-	LOS <sup>2</sup>
Intersection	Control <sup>3</sup>	L	T	R	L	Ţ	R	L	T	R	L	T	R	Morning	Evening
Tierra Subida Avenue (NS) at:									-						
Palmdale Boulevard (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	52.3-A	67.2-B
5th Street West (EW)	CSS	0	1	1	1	1	0	0	0	0	1	0	1	40.9-A	49.4-A
Rayburn Road (EW)	IS	1	1	1	1	1	1	1	1	0	1	1	0	52.8-A	64.3-B
City Ranch Road (EW)	CSS	0	1	0	1	1	0	0	0	0	1	Ð	1	27.8-A	42.8-A
Avenue S (EW)	ŢS	0	1	0	0	1	0	0	1	0	0	1	0	41.7-A	56.5-A
5th Street West (NS) at:							=								
Paimdale Boulevard (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	30.2-A	51.7-A
SR-14 Freeway SB Ramps (NS) at:				711										11	
Palmdale Boulevard (EVV)	TS	0	0	0	1	0	1>>	0	2	1>>	0	2	1>>	36.6-A	67.3-B
Avenue S (EW)	TS	0	0	0	2	0	1	0	2	1>>	1	2	0	46.3-A	49.1-A
SR-14 Freeway NB Ramps (NS) at:															
Palmdale Boulevard (EW)	TS	1	0	1>>	0	0	0	0	3	1>>	0	3	1>>	26.9-A	44.0-A
Avenue S (EW)	TS	1	0	1>>	0	0	0	1	2	٥	0	2	1>>	30.4-A	41.6-A

When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane, there must be sufficient width for right turning vehicles to travel outside the through lanes.
 L = Left; T = Through; R = Right; >> = Free Right Turn; 1 = Improvement

 $<sup>^2</sup>$  ICU-LOS  $\simeq$  Intersection Capacity Utilization - Level of Service

<sup>&</sup>lt;sup>3</sup> TS = Traffic Signal CSS = Cross Street Stop AWS = All Way Stop

Figure 18
Existing Plus Project Average Daily Traffic (ADT) Volumes



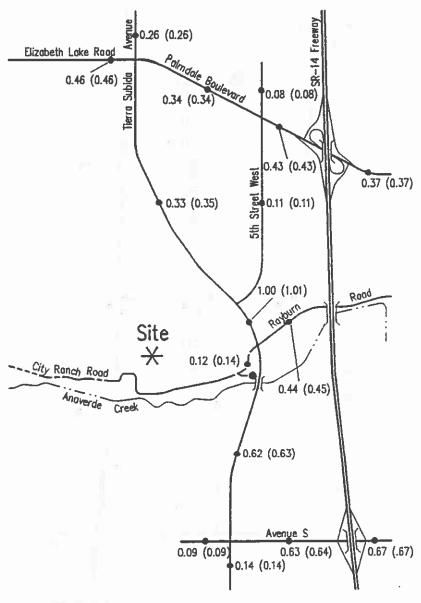
### Legend

1.7 (1.7) = Vehicles Per Day (1000's) for Average and Peak Inflow of Material

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2051H/18

Figure 19
Existing Plus Project Volume to Capacity Ratios



# Legend

0.14 (0.14) = Volume to Capacity Ratio for Average and Peak Inflow of Material

Kunzman Associates

2051G/19

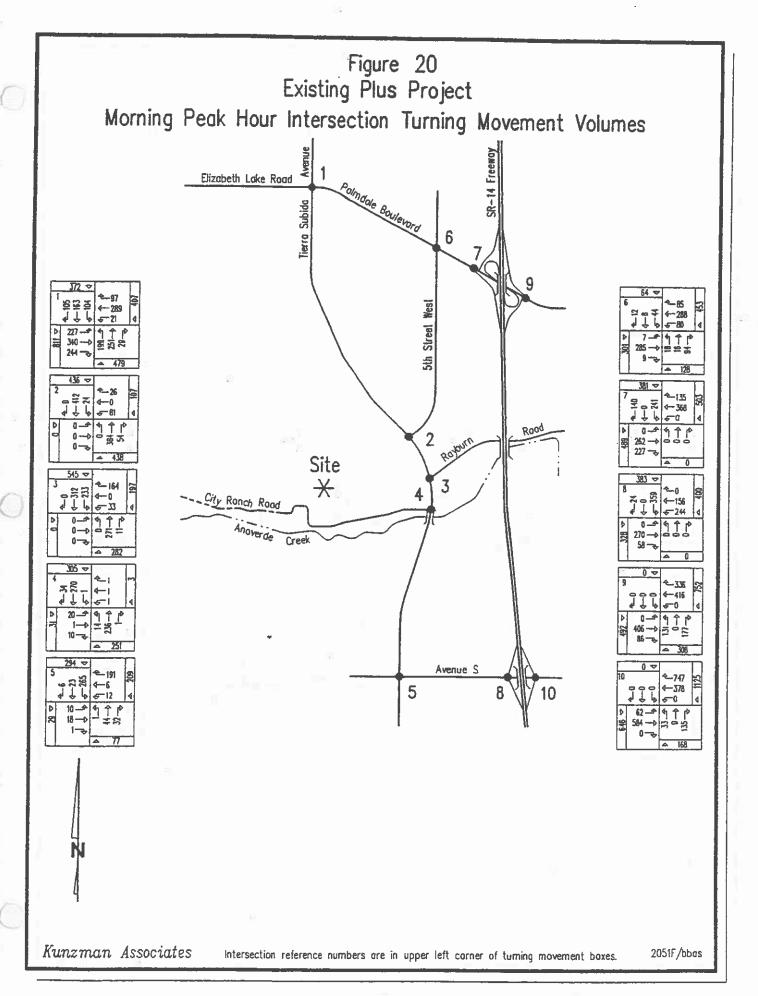
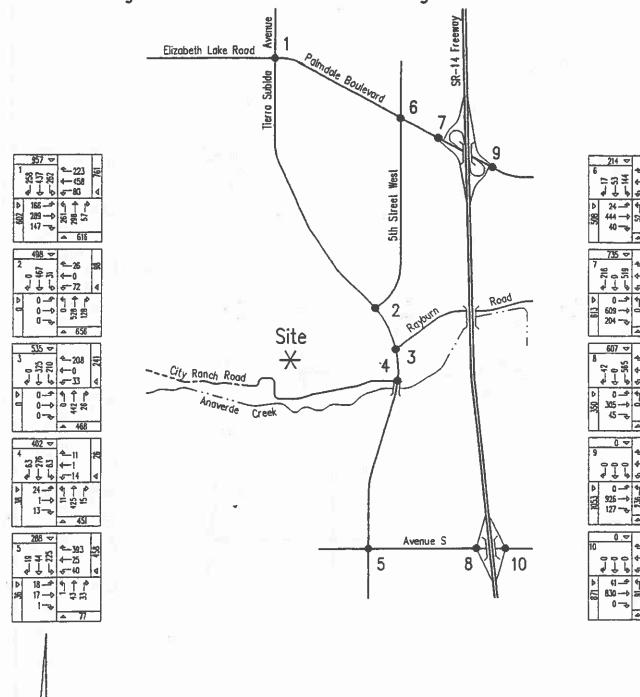


Figure 21 Existing Plus Project Evening Peak Hour Intersection Turning Movement Volumes



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Intersection reference numbers are in upper left corner of turning movement boxes.

2051F/bbos

#### 7. Year 2007 Traffic Conditions

In this section, Year 2007 traffic conditions without and with the project are discussed. Figures 22 to 31 show the Year 2007 traffic conditions.

#### Method of Projection

To account for areawide growth on roadways, Year 2007 traffic volumes have been calculated based on a 6.0 percent annual growth rate of existing traffic volumes over a 5 year period. The Los Angeles County Congestion Management Plan calls for an annual growth rate of 0.6 percent for North County, which is the area encompassing the Lancaster / Palmdale and is northeast of the San Fernando Valley. For this study, 6.0 percent was assumed.

Areawide growth has been added to daily and peak hour traffic volumes on surrounding roadways, in addition to traffic generated by the project.

#### Year 2007 Average Daily Traffic (ADT) Volumes

Year 2007 without project ADT volumes are depicted on Figure 22 and the Year 2007 with project ADT volumes are as illustrated on Figure 23.

### Year 2007 Volume to Capacity Ratios

For Year 2007 without and with project traffic conditions, daily volume to capacity ratios have been calculated and are as shown on Figures 24 and 25. Daily volume to capacity ratios are based on City of Palmdale roadway capacities depicted in Table 2. For Year 2007 without project and with project traffic conditions, most of the roadway links in the vicinity of the site are projected to operate within acceptable Levels of Service, except for Tierra Subida Avenue between 5th Street West and Rayburn Road. This cumulative impact condition will remain until Tierra Subida is widened to its ultimate General Plan designation. Implementation of the proposed mitigation/recommendations will reduce the project's contribution to the this unacceptable Level of Service.

## Year 2007 Intersection Capacity Utilization (ICU)

The technique used to assess the operation of an intersection is known as Intersection Capacity Utilization (ICU). To calculate an ICU value the volume of traffic using the intersection is compared with the capacity of the intersection. An ICU value is usually expressed as a percent. The percent represents that portion

Table 9 Year 2007 With Project Intersection Capacity Utilization (iCU) and Level of Service (LOS)

	Average I	NOUTE	v of	Mate	rial (	3,61	3 ton	s pe	r day	/)					
21				·	nten	secti	on A	proa	ach l	anes	1			Peak	Hour
	Traffic	No	rthbo	bruuc	Sou	ıthb	ound	Ea	stbo	und	We	stbo	ound	ICU-	LOS <sup>2</sup>
Intersection	Control <sup>3</sup>	L	T	R	L	Т	R	L	Т	R	L	T	R	Morning	Evening
Tierra Subida Avenue (NS) at:														0	
Palmdale Boulevard (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	66.5-B	86.5-D
5th Street West (EW)	CSS	0	1	1	1	1	0	0	0	0	1	0	1	50.8-A	62.6-B
Rayburn Road (EW)	IS	1	1	1	1	1	1	1	1	0	11 1	1	0	66.4-B	82.3-D
City Ranch Road (EW)	CSS	0	1	0	1	1	0	0	0	0	1	0	1	33.5-A	53.8-A
Avenue S (EW)	TS	0	1	0	0	1	0	0	1	0	0	1	0	51.7-A	72.0-C
5th Street West (NS) at:											UU				
Palmdale Boulevard (EW)	I TS	1	2	0	1	2	1	1	2	-1	1	2	1	36.8-A	65.9-B
SR-14 Freeway SB Ramps (NS) at:															
Paimdale Boulevard (EW)	TS	0	0	0	1	0	1>>	0	2	1>>	0	2	1>>	45.6-A	86.9-D
Avenue S (EW)	TS	0	0	0	2	0	1	0	2	1>>	1	2	0	58.4-A	62.2-B
SR-14 Freeway NB Ramps (NS) at:															
Paimdale Boulevard (EW)	TS	1	0	1>>	0	0	0	0	3	1>>	0	3	1>>	32.6-A	55.7-A
Avenue S (EW)	TS	1	0	1>>	0	0	0	1	2	0	0	2	1>>		52.2-A

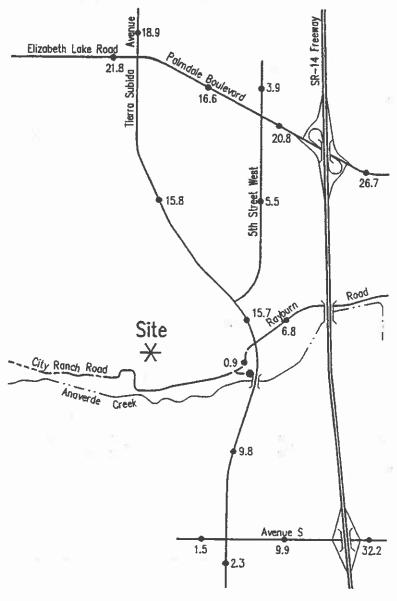
	Peak int	low :	of M	ateria	aj (5,	548	tons	per c	lay)						
					nten	ecti	on A	proa	ich	Lanes	1		•	Peak	Hour
	Traffic	No	thb	ound	Soi	ıthb	ound	Ea	stbc	und	We	stbo	und	ICU-	LOS <sup>2</sup>
Intersection	Control <sup>3</sup>	L	T	R	L	Т	R	L	Т	R	L	T	R	Morning	Evenin
Tierra Subida Avenue (NS) at:					Г	- 11									- 1
Palmdale Boulevard (EW)	TS	1	2	Ð	1	2	1	1	2	1	1	2	1	66.5-B	86,6-0
5th Street West (EW)	CSS	0	1	- 1	1	1	0	0	0	0	1	0	1	51.0-A	62.7-B
Rayburn Road (EW)	TS	1	1	1::	1	1	1	1	1	0	1	1	0	66.8-B	82.5-D
City Ranch Road (EW)	CSS	0	1	0	1	1	0	0	0	0	1	0	1	33.7-A	54.0-A
Avenue S (EW)	<u>TS</u>	0	_1	0	0	1	0	0	1	0	0	1	0	52.0-A	72.1-C
5th Street West (NS) at:															
Palmdale Boulevard (EW)	TS	1	2	0	1	2	1	1	2	1	1	2	1	36.9-A	65.9-B
SR-14 Freeway SB Ramps (NS) at:	11														
Paimdale Boulevard (EW)	TS	0	0	0	1	0	1>>	0	2	1>>	0	2	1>>	45.6-A	86.9-D
Avenue S (EW)	TS	Ð	0	0	2	0	-1	0	2	1>>	1	2	0	58.4-A	62.3B
SR-14 Freeway NB Ramps (NS) at:							Ш						1		
Palmdale Boulevard (EW)	TS	1	0	1>>	0	0	0	0	3	1>>	0	3	1>>	32.6-A	55.7-A
Avenue S (EW)	TS	1	0	1>>	0	0	0	1	2	0	0	2	1>>	37.2-A	52.3-A

<sup>&</sup>lt;sup>1</sup> When a right turn lane is designated, the lane can either be striped or unstriped. To function as a right turn lane, there must be sufficient width for right turning vehicles to travel outside the through lanes. L = Left; T = Through; R = Right; >> = Free Right Turn; 1 = Improvement

<sup>&</sup>lt;sup>2</sup> ICU-LOS = Intersection Capacity Utilization - Level of Service

<sup>&</sup>lt;sup>3</sup> TS = Traffic Signal CSS = Cross Street Stop

Figure 22 Year 2007 Without Project Average Daily Traffic (ADT) Volumes



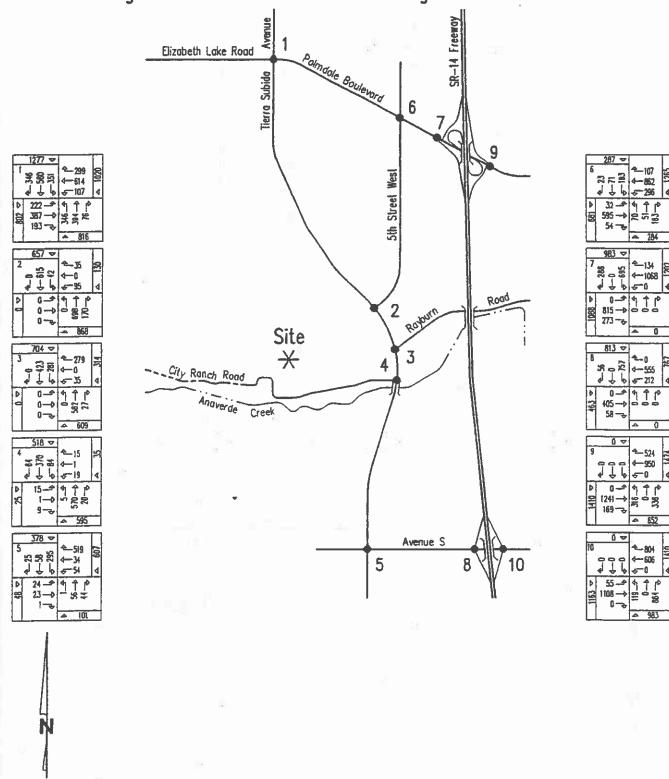
Legend

2.3 = Vehicles Per Day (1000's)

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2051G/22

Figure 27
Year 2007 Without Project
Morning Peak Hour Intersection Turning Movement Volumes



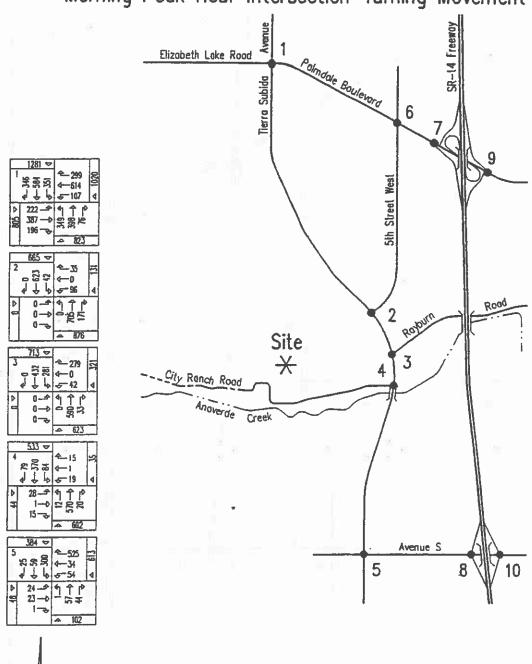
Kunzman Associates

Intersection reference numbers are in upper left corner of turning movement baxes.

2051F/bbas

Figure 28 Year 2007 With Project Morning Peak Hour Intersection Turning Movement Volumes Elizabeth Lake Road Polyndole Boulevord Site  $\times$ City Rench Road Avenue S Kunzman Associates 2051F/bbas Intersection reference numbers are in upper left corner of turning movement baxes.

Figure 29 Year 2007 With Project Morning Peak Hour Intersection Turning Movement Volumes



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intersection reference numbers are in upper left corner of turning movement boxes.

2051F/bbas

#### 8. Circulation Recommendations

Site-specific circulation and access recommendations are depicted on Figures 30 and 31.

#### Site Access

It is proposed that the waste management access road alignment will be along R-5 as a two lane roadway (60 foot right-of-way). R-5 will intersect Tierra Subida Avenue opposite Rayburn Road (see Figures 30 and 31).

The realignment of the waste management access to R-5 will improve the following:

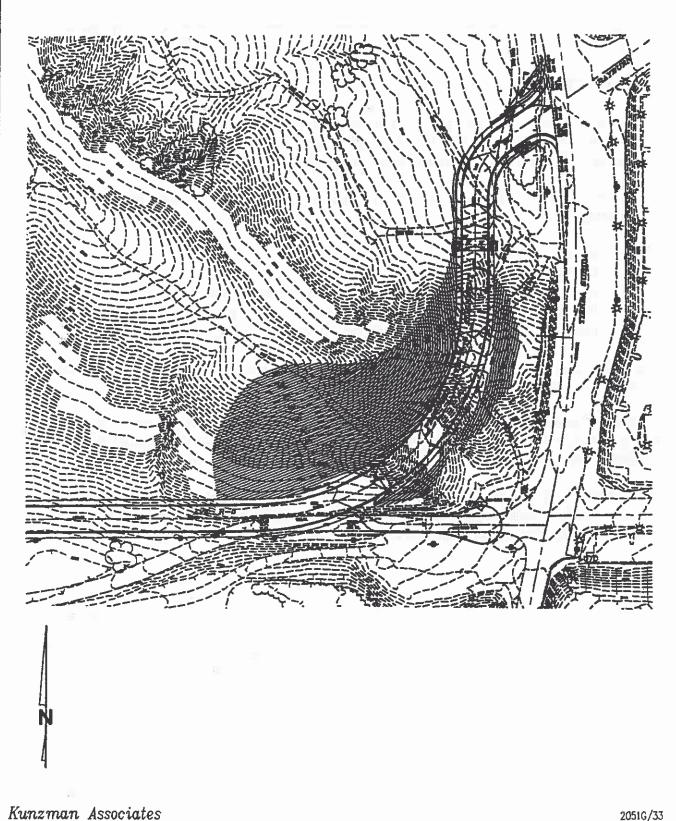
- sight distance
- horizontal and vertical alignment
- wider lanes will result at the Tierra Subida Avenue/Rayburn Road intersection than at the City Ranch Road intersection
- improve traffic signal spacing along Tierra Subida Avenue

Existing City Ranch Road in the realigned portion will terminate as a cul-de-sac bulb immediately west of Tierra Subida Avenue.

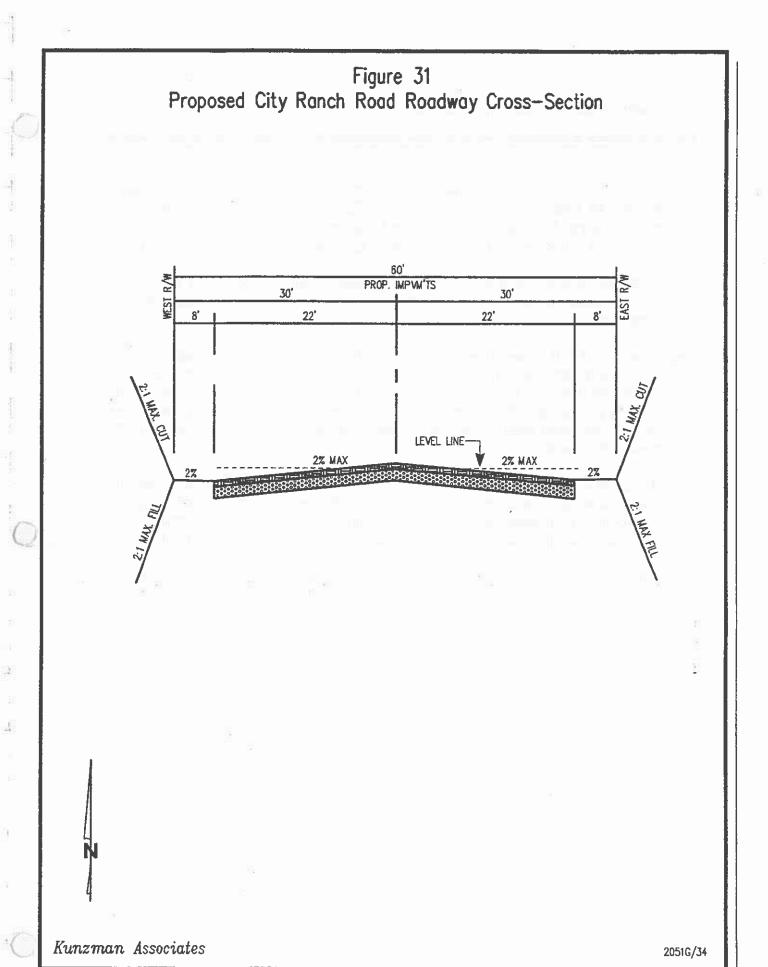
The intersection of existing City Ranch Road and R-5 will be at a skew; however, because the existing City Ranch Road cul-de-sac only serves a small hillside parcel that is vacant, no traffic operational problems are expected.

As is the case for any roadway design, the City of Palmdale should periodically review traffic operations in the vicinity of the project once the project is constructed to assure that the traffic operations are satisfactory.

Figure 30
Proposed Realignment of City Ranch Road to be Opposite Rayburn Road at Tierra Subida Avenue



2051G/33



#### 9. Traffic Generation Comparison

The study to this point has discussed Existing Conditions traffic generation average for an average tonnage intake of 1,372 tons per day. And the study has discussed Future Average Conditions traffic generation for 3,613 total tons per day, as well as Future Peak Conditions traffic generation for 5,548 tons per day.

The analysis of the change in the traffic impacts between existing and future scenarios should be viewed as a maximum likely analysis with over estimation of traffic impacts.

Because Land Fill II is permitted by County CUP 93041 to receive a peak intake of 3,564 tons per day, which corresponds to a total truck traffic volume of 1,100 trucks per day (Refer to the September 7, 1993 correspondence and supplemental traffic analysis contained in Appendix E), a permitted peak to proposed peak comparison has also been provided. Table 6 shows the permitted peak and the proposed future peak.

For purposes of measuring the future traffic impact, the change in trip generation for existing average conditions compared to future average conditions, or existing peak conditions compared to future peak conditions should be used. What should not be used is existing average conditions compared to future peak conditions.

# **Appendices**

Appendix A **Glossary of Transportation Terms** 

Appendix B **Traffic Count Worksheets** 

Appendix C Explanation and Calculation of Intersection Capacity Utilization (ICU)

Appendix D **Traffic Signal Warrant Worksheets** 

## **APPENDIX A**

**Glossary of Transportation Terms** 

#### **GLOSSARY OF TRANSPORTATION TERMS**

#### **COMMON ABBREVIATIONS**

AC:

Acres

ADT:

Average Daily Traffic

Caltrans:

California Department of Transportation

DU:

**Dwelling Unit** 

ICU:

Intersection Capacity Utilization

LOS:

Level of Service

TSF:

Thousand Square Feet

V/C:

Volume/Capacity

VMT:

Vehicle Miles Traveled

#### **TERMS**

**AVERAGE DAILY TRAFFIC**: The total volume during a year divided by the number of days in a year. Usually only weekdays are included.

**BANDWIDTH:** The number of seconds of green time available for through traffic in a signal progression.

**BOTTLENECK**: A constriction along a travelway that limits the amount of traffic that can proceed downstream from its location.

**CAPACITY**: The maximum number of vehicles that can be reasonably expected to pass over a given section of a lane or a roadway in a given time period.

**CHANNELIZATION:** The separation or regulation of conflicting traffic movements into definite paths of travel by the use of pavement markings, raised islands, or other suitable means to facilitate the safe and orderly movements of both vehicles and pedestrians.

CLEARANCE INTERVAL: Nearly same as yellow time. If there is an all red interval after the end of a yellow, then that is also added into the clearance interval.

**CORDON**: An imaginary line around an area across which vehicles, persons, or other items are counted (in and out).

**CYCLE LENGTH**: The time period in seconds required for one complete signal cycle.

**CUL-DE-SAC STREET**: A local street open at one end only, and with special provisions for turning around.

**DAILY CAPACITY**: The daily volume of traffic that will result in a volume during the peak hour equal to the capacity of the roadway.

**DELAY:** The time consumed while traffic is impeded in its movement by some element over which it has no control, usually expressed in seconds per vehicle.

**DEMAND RESPONSIVE SIGNAL**: Same as traffic-actuated signal.

**DENSITY**: The number of vehicles occupying in a unit length of the through traffic lanes of a roadway at any given instant. Usually expressed in vehicles per mile.

**DETECTOR:** A device that responds to a physical stimulus and transmits a resulting impulse to the signal controller.

**DESIGN SPEED**: A speed selected for purposes of design. Features of a highway, such as curvature, superelevation, and sight distance (upon which the safe operation of vehicles is dependent) are correlated to design speed.

**DIRECTIONAL SPLIT**: The percent of traffic in the peak direction at any point in time.

**DIVERSION:** The rerouting of peak hour traffic to avoid congestion.

FORCED FLOW: Opposite of free flow.

FREE FLOW: Volumes are well below capacity. Vehicles can maneuver freely and travel is unimpeded by other traffic.

**GAP:** Time or distance between successive vehicles in a traffic stream, rear bumper to front bumper.

**HEADWAY:** Time or distance spacing between successive vehicles in a traffic stream, front bumper to front bumper.

INTERCONNECTED SIGNAL SYSTEM: A number of intersections that are connected to achieve signal progression.

**LEVEL OF SERVICE**: A qualitative measure of a number of factors, which include speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs.

LOOP DETECTOR: A vehicle detector consisting of a loop of wire embedded in the roadway, energized by alternating current and producing an output circuit closure when passed over by a vehicle.

MINIMUM ACCEPTABLE GAP: Smallest time headway between successive vehicles in a traffic stream into which another vehicle is willing and able to cross or merge.

**MULTI-MODAL**: More than one mode; such as automobile, bus transit, rail rapid transit, and bicycle transportation modes.

**OFFSET**: The time interval in seconds between the beginning of green at one intersection and the beginning of green at an adjacent intersection.

**PLATOON:** A closely grouped component of traffic that is composed of several vehicles moving, or standing ready to move, with clear spaces ahead and behind.

**ORIGIN-DESTINATION SURVEY**: A survey to determine the point of origin and the point of destination for a given vehicle trip.

PASSENGER CAR EQUIVALENTS (PCE): One car is one Passenger Car Equivalent. A truck is equal to 2 or 3 Passenger Car Equivalents in that a truck requires longer to start, goes slower, and accelerates slower. Loaded trucks have a higher Passenger Car Equivalent than empty trucks.

**PEAK HOUR**: The 60 consecutive minutes with the highest number of vehicles.

**PRETIMED SIGNAL**: A type of traffic signal that directs traffic to stop and go on a predetermined time schedule without regard to traffic conditions. Also, fixed time signal.

**PROGRESSION**: A term used to describe the progressive movement of traffic through several signalized intersections.

SCREEN-LINE: An imaginary line or physical feature across which all trips are counted, normally to verify the validity of mathematical traffic models.

**SIGNAL CYCLE**: The time period in seconds required for one complete sequence of signal indications.

**SIGNAL PHASE**: The part of the signal cycle allocated to one or more traffic movements.

**STARTING DELAY**: The delay experienced in initiating the movement of queued traffic from a stop to an average running speed through a signalized intersection.

**TRAFFIC-ACTUATED SIGNAL**: A type of traffic signal that directs traffic to stop and go in accordance with the demands of traffic, as registered by the actuation of detectors.

**TRIP:** The movement of a person or vehicle from one location (origin) to another (destination). For example, from home to store to home is two trips, not one.

**TRIP-END**: One end of a trip at either the origin or destination; i.e. each trip has two trip-ends. A trip-end occurs when a person, object, or message is transferred to or from a vehicle.

**TRIP GENERATION RATE:** The quality of trips produced and/or attracted by a specific land use stated in terms of units such as per dwelling, per acre, and per 1,000 square feet of floor space.

**TRUCK:** A vehicle having dual tires on one or more axles, or having more than two axles.

**UNBALANCED FLOW:** Heavier traffic flow in one direction than the other. On a daily basis, most facilities have balanced flow. During the peak hours, flow is seldom balanced in an urban area.

**VEHICLE MILES OF TRAVEL**: A measure of the amount of usage of a section of highway, obtained by multiplying the average daily traffic by length of facility in miles.

# APPENDIX B

**Traffic Count Worksheets** 

# Intersection Turning Movement Prepared by: Southland Car Counters

N-S STREET:

10th St. West

DATE: 11/14/2002

LOCATION: City of Palmdale

E-W STREET:

Palmdale Blvd.

DAY: THURSDAY

PROJECT#

02-1401-008 A

		N	ORTHBO	DUND	S	OUTHBO	DUND		ASTBO	UND	V	/ESTBOL	JND	
LANES:		NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 1	WL 1	WT 2	WR 1	TOTAL
6:00 AM								<u></u>						
6:15 AM														
6:30 AM														
6:45 AM														
7:00 AM		78	89	5	29	47	38	- 50	99	61	3	147	38	684
7:15 AM		73	44	10	29	36	26	75	121	107	3	80	19	623
7:30 AM		21	42	5	20	44	20	58	65	32	4	30	20	361
7:45 AM		23	71	9	26	29	21	44	55	39	11	32	20	380
8:00 AM		19	65	8	26	43	18	30	41	17	10	30	27	334
8:15 AM		35	54	12	29	37	22	37	49	17	12	22	23	349
8:30 AM		24	50	8	29	41	24	48	38	24	12	30	27	355
8:45 AM		29	71	17	40	36	23	62	57	18	9	43	37	442
9:00 AM													•	
9:15 AM														
9:30 AM														
9:45 AM														
10:00 AM														
10:15 AM									Q.					
10:30 AM	1.14													
10:45 AM														
11:00 AM														
11:15 AM				•										
11:30 AM														
11:45 AM														
TOTAL	1212	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =		302	486	74	228	313	192	404	525	315	64	414	211	3528
AM Peak Hr l	Begins :	at:	700	AM										
PEAK											+5			
VOLUMES =		195	246	29	104	156	105	227	340	239	21	289	97	20 <del>4</del> 8
CONTROL:	Ç	Sionaliz	ed											

# Intersection Turning Movement Prepared by: Southland Car Counters

N-S STREET:

10th St. West

DATE: 11/14/2002

LOCATION: City of Palmdale

E-W STREET:

Palmdale Blvd.

DAY: THURSDAY

PROJECT#

02-1401-008 P

	· N	ORTHBO	UND	S	OUTHBO	DUND	4	ASTBO	JND	V	/ESTBO	DND	
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 1	WL 1	WT 2	WR 1	TOTAL
1:00 PM 1:15 PM 1:30 PM 1:45 PM 2:00 PM 2:15 PM 2:30 PM	III								<del></del>			*	
2:45 PM 3:00 PM 3:15 PM 3:30 PM 3:45 PM											野類		
4:00 PM 4:15 PM 4:30 PM 4:45 PM 5:00 PM 5:15 PM 5:30 PM 5:45 PM	49 55 47 70 77 61 50 63	66 76 68 83 62 71 78 79	8 13 9 15 13 20 9	77 64 63 65 67 65 65 73	99 89 83 98 80 129 126 114	59 61 61 65 66 62 65 66	47 54 47 38 43 44 41 34	76 77 78 71 68 68 82 48	31 29 23 37 40 34 33 30	11 12 18 20 19 23 18 17	91 118 68 96 129 128 105 87	67 64 49 59 52 63 56	681 715 629 707 723 757 735 687
6:00 PM 6:15 PM 6:30 PM 6:45 PM			-										
TOTAL VOLUMES =	NL 472	NT 583	NR 107	SL 539	ST 818	SR 505	EL. 348	ET 568	ER 257	WL 138	WT 822	WR 477	TOTAL 5634
PM Peak Hr Beg	gins at:	445	PM										
PEAK VOLUMES =	258	294	57	262	433	258	166	289	144	80	458	223	2922
CONTROL:	5ignali	zed											

# Intersection Turning Movement Prepared by: Southland Car Counters

N-S STREET:

Tierra Subida Ave.

DATE: 11/12/2002

LOCATION: City of Palmdale

E-W STREET:

5th 5t. West

DAY: TUESDAY

PROJECT#

02-1401-011 A

	N	IORTHBO	DUND	5	OUTHBO	DUND	Ē	ASTBO	UND	W	/ESTBO	UND	
LANES:	NL	NT 1	NR 1	SL 1	ST 1	SR	EL	ET	ER	WL 1	WT 0	WR 1	TOTAL
6:00 AM			·			<del></del>	<u> </u>			1.0			<del> </del>
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM		166	12	5	87					17		4	291
7:15 AM		88	14	6	135					19		9	271
7:30 AM		52	12	5	96					20		8	193
7:45 AM		69	15	8	82					23		5	202
8:00 AM		54	12	5	53					15		7	146
8:15 AM		49	11	4	55					16		6	141
8:30 AM		67	17	3	61					13		8	169
8:45 AM		68	14	5	52					11		7	157
9:00 AM												,	
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM	102			G (1									
10:30 AM								4					
10:45 AM													
11:00 AM													
11:15 AM			•										
11:30 AM													
11:45 AM													
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TÖTAL
VOLUMES =	0	613	107	41	621	0	0	0	0	134	0	54	1570
AM Peak Hr Beg	ins at:	700	AM										
PEAK													
VOLUMES =	0	375	53	24	400	0	0	0	0	79	0	26	957
CONTROL:	1-Way	Stop, W	est										

N-S STREET:

Tierra Subida Ave.

DATE: 11/12/2002

LOCATION: City of Palmdale

E-W STREET:

5th St. West 🍵

DAY: TUESDAY

PROJECT#

02-1401-011 P

	N	ORTHBO	DUND	S	ОИТНВО	UND	E	ASTBOL	JND	V	/ESTBO	UND	
LANES:	NL	NT 1	NR 1	SL 1	ST 1	SR	EL	ET	ER	WL 1	WT 0	WR 1	TOTAL
1:00 PM 1:15 PM 1:30 PM 1:45 PM 2:00 PM 2:15 PM 2:30 PM 2:45 PM 3:00 PM 3:15 PM	2-1		8										0
3:30 PM 3:45 PM 4:00 PM 4:15 PM 4:30 PM 4:45 PM 5:00 PM 5:15 PM 5:30 PM 5:45 PM 6:00 PM 6:15 PM 6:30 PM		72 97 88 127 131 138 125 112	19 25 28 31 37 31 28 26	5 4 8 4 9 10 8 7	98 107 98 107 97 137 118 87		EE B			16 20 25 23 18 14 16	T. =	8 6 9 5 8 6 7 5	218 259 256 297 300 336 302 250
6:45 PM  TOTAL  VOLUMES =	NL 0	NT 890	NR 225	SL 55	ST 849	SR 0	EL 0	ET 0	ER 0	WL 145	WT 0	WR 54	TOTAL 2218
PM Peak Hr Begin	s at:		PM								-	•	<b>_</b> _
PEAK VOLUMES =	0	521	127	31	459	0	0	0	0	71	0	26	1235
CONTROL:	1-Way	Stop, W	/est										

N-S STREET:

Tierra Subida Ave.

DATE: 11/12/2002

LOCATION: City of Palmdale

E-W STREET:

Rayburn Rd.

DAY: TUESDAY

PROJECT#

02-1401-012 A

		N	ORTHBO	DUND	S	OUTHBO	DUND		ASTBOL	JND	٧	VESTBO	UND	
LANES:		NL	NT 1	NR 1	SL 1	ST 1	SR	EL	ET	ER	WL 1	WT 0	WR	TOTAL
6:00 AM 6:15 AM 6:30 AM 6:45 AM 7:00 AM 7:15 AM 7:30 AM 7:45 AM 8:00 AM 8:15 AM 8:30 AM 8:45 AM 9:00 AM 9:15 AM 9:30 AM	10		131 52 31 47 30 31 43 49	0 0 2 1 3 2 3 4	62 76 59 36 37 32 30 29	92 79 58 70 36 41 44 3S					3 5 8 7 8 6 4 2		47 49 38 30 35 28 34 32	335 261 196 191 149 140 158 1S1
10:15 AM 10:30 AM 10:45 AM 11:00 AM 11:15 AM 11:30 AM 11:45 AM				•									in .	
TOTAL VOLUMES =		NL 0	NT 414	NR 15	SL 361	ST 455	SR 0	EL 0	ET 0	ER 0	WL 43	WT 0	WR 293	TOTAL 1581
AM Peak Hr Be	gins	at:	700	AM										
PEAK VOLUMES =		0	261	3	233	299	0	0	0	0	23	0	164	983
CONTROL:	:	L-Way	Stop, We	est										

### **Intersection Turning Movement**

Prepared by: Southland Car Counters

N-S STREET:

Tierra Subida Ave.

DATE: 11/12/2002

LOCATION: City of Paimdale

E-W STREET:

Rayburn Rd.

DAY: TUESDAY

PROJECT#

02-1401-012 P

	N	ORTHBO	UND	SC	UTHBOU	JND	E/	STBOU	ND	W	ESTBOL	IND	
LANES:	NL	NT 1	NR 1	SL 1	ST =	SR	EL	ET	ER	WL 1	WT 0	WR	TOTAL
1:00 PM 1:15 PM 1:30 PM 1:45 PM 2:00 PM 2:15 PM 2:30 PM 2:45 PM													
3:00 PM 3:15 PM 3:30 PM 3:45 PM 4:00 PM 4:15 PM 4:30 PM 4:45 PM 5:00 PM 5:15 PM 5:30 PM 5:45 PM 6:00 PM 6:15 PM 6:30 PM 6:45 PM		57 78 80 103 118 110 103 93	10 8 7 6 3 5 6 5	28 42 51 58 47 51 54 46	80 85 71 67 66 93 90 57		2555 AV 111			2 5 6 7 4 8 7 6		32 40 37 52 49 58 49 40	209 258 252 293 287 325 309 247
TOTAL /OLUMES =	NL 0	NT 742	NR 50	SL 377	ST 609	SR 0	EL 0	ET 0	ER 0	WL 45	WT 0	WR 357	TOTAL 2180
PM Peak Hr Begin	s at:	445	PM										
PEAK VOLUMES =	0	434	20	210	316	0	0	0	0	26	0	208	1214
CONTROL:	1-Way	Stop, W	est .										

Tierra Subida Ave.

DATE: 11/12/2002

LOCATION: City of Palmdale

E-W STREET:

City Ranch Rd.

DAY: TUESDAY

PROJECT#

02-1401-013 A

- W	N	ORTHBO	UND	S	OUTHBO	UND	E	ASTBOL	JND	W	ESTBOI	JND	· · · · · · · · · · · · · · · · · · ·
LANES:	NL 1	NT 1	NR 0	SL 1	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
6:00 AM		¥			<u> </u>	.11							
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	2	89	0	0	50	4	1		0	0		1	147
7:15 AM	1	60	0	0	74	3	0		1	0		0	139
7:30 AM	0	49	0	1	82	2	1		0	0		0	135
7:45 AM	1	38	0	0	64	2	0		1	0		0	106
8:00 AM	0	34	0	1	54	4	1		0	1		0	95
8:15 AM	0	38	1	0	45	2	2		0	0		1	89
8:30 AM	1	49	0	0	43	1	1		1	0		0	96
8:45 AM	0	44	0	1	47	2	0		0	0		0	94
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM				60				88					
10:15 AM													
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM			•										
11:30 AM													
11:45 AM													
TOTAL	NL	NT	NR	SL	डा	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	5	401	1	3	459	20	6	0	3	1	0	2	901
AM Peak Hr Begin	s at:	700	AM										
PEAK													
VOLUMES =	4	236	0	1	270	11	2	0	2	0	0	1	527
CONTROL:	2-Way	Stop, Ea	st & We	est									

N-S STREET:

Tierra Subida Ave.

DATE: 11/12/2002

LOCATION: City of Palmdaie

E-W STREET:

City Ranch Rd.

DAY: TUESDAY

PROJECT#

02-1401-013 P

	N	ORTHBO	UND	S	OUTHBO	UND	11	EASTBOL	JND	W	/ESTBOL	JND	
LANES:	NL 1	NT 1	NR 0	SL 1	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
1:00 PM 1:15 PM 1:30 PM 1:45 PM 2:00 PM 2:15 PM 2:30 PM 2:45 PM 3:00 PM 3:15 PM											8		N
3:30 PM 3:45 PM 4:00 PM 4:15 PM 4:30 PM 4:45 PM 5:00 PM 5:15 PM 5:30 PM 5:45 PM 6:00 PM 6:30 PM 6:30 PM	0 4 2 1 1 0 1	69 91 110 103 99 113 96 54	3 5 3 1 4 7 5 4	3 4 4 8 25 26 14 13	66 70 76 75 63 62 50 45	10 13 11 14 12 11 10 9	3 6 5 3 2 1 2 4		2 1 3 1 2 1 1 2	1 2 2 3 5 4 6 7	58 30 30	0 4 1 0 3 7 5 6	157 200 217 209 216 232 190 144
TOTAL VOLUMES =	NL 9	NT 735	NR 32	SL 97	ST 507	SR 90	EL 26	ET 0	ER 13	WL 30	WT 0	WR 26	TOTAL 1565
PM Peak Hr Begir	ıs at:	430	PM										
PEAK VOLUMES =	4	425	15	63	276	48	11 E	0	7	14	0	11	874
CONTROL:	2-Way	Stop, Ea	ıst & W	est									

N-S STREET:

Tierra Subida Ave.

DATE: 11/14/2002

LOCATION: City of Palmdale

E-W STREET:

Ave. S

DAY: THURSDAY

PROJECT#

02-1401-014 A

							12						
	N	ORTHBO	DUND	S	OUTHBO	DUND		ASTBOL	JND	N	/ESTBO	UND	
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
6:00 AM 6:15 AM 6:30 AM 6:45 AM 7:00 AM 7:15 AM 7:30 AM 8:00 AM 8:15 AM 8:30 AM 8:45 AM 9:00 AM 9:15 AM		12 15 9 6 8 9 9	5 7 6 14 10 9 5 4	44 60 65 89 40 24 30 25	2 7 6 7 5 5 9 6	0 1 3 2 3 2 1	1 2 4 3 4 5 3 2	3 2 5 8 5 4 2	0 0 0 0 0 1 0	2 4 4 2 3 4 8 6	0 0 5 1 2 2 6 5	75 45 36 27 35 33 32 27	144 143 143 159 115 98 105 83
10:00 AM 10:15 AM 10:30 AM 10:45 AM	20 Mg							10 10 10					
11:00 AM 11:15 AM 11:30 AM 11:45 AM			•			35							· ·
TOTAL VOLUME5 =	NL 0	NT 74	NR 60	SL 377	ST 47	SR 13	EL 24	ET 30	ER 1	WL 33	WT 21	WR 310	TOTAL 990
AM Peak Hr Be	gins at:	700	AM						N	超			
PEAK VOLUME5 =	0	42	32	258	22	6	10	18	0	12	6	183	589
CONTROL:	4-Way	5top											

N-S STREET:

Tierra Subida Ave.

DATE: 11/14/2002

LOCATION: City of Paimdale

E-W STREET:

Ave. S

DAY: THURSDAY

PROJECT#

02-1401-014 P

	NO	ORTHBO	UND	SO	OUTHBO	UND	E	ASTBOL	JND	W	ESTBO	UND	
LANES:	NL O	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL O	WT 1	WR 0	TOTAL
1:00 PM 1:15 PM 1:30 PM 1:45 PM 2:00 PM 2:15 PM 2:30 PM 2:45 PM 3:00 PM 3:15 PM 3:30 PM 3:45 PM 4:00 PM 4:15 PM 4:30 PM 4:45 PM 5:00 PM 5:15 PM 5:30 PM 5:45 PM 6:00 PM 6:15 PM 6:30 PM 6:30 PM	0 0 1 0 0 0 0	11 7 8 1 17 14 10 8	8 6 7 10 5 7 11 6	55 50 43 58 53 52 57 49	14 10 13 9 7 20 7 8	9 7 11 8 5 0 6 3	0 1 3 4 5 3 6 3	5 2 4 6 2 2 7 4	1 0 0 1 0 0 0 0	2 5 9 12 9 10 7	4 5 7 6 3 1 15 8	61 80 95 102 88 103 94 87	170 173 201 217 194 211 223 184
TOTAL VOLUMES =	NL 2	NT 76	NR 60	SL 417	ST 88	SR 49	EL 25	ET 32	ER 2	WL 63	WT 49	WR 710	TOTAL 1573
PM Peak Hr Begir		445		= 71/	00	W	August .	J.E		03		710	1373
PEAK VOLUMES =	0	42	33	220	43	19	18	17	1	40	25	387	845_
CONTROL:	4-Way	Stop											

N-S STREET:

5th St. West

DATE: 11/13/2002

LOCATION: City of Palmdale

E-W STREET:

Palmdale Blvd.

DAY: WEDNESDAY

PROJECT#

02-1401-018 A

1921		NORTHB	DUND	SC	OUTHBO	UND	E	ASTBOU	JND	V	/ESTBO	JND	
LANES:	NI 1		NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	1	9	21	2	0	1	1	71	3	8	53	3	173
7:15 AM	5	5	21	11	0	2	0	69	4	7	38	12	174
7:30 AM	5	9	33	5	2	2	1	75	4	13	58	13	220
7:45 AM	6	4	26	11	2	2	3	97	0	22	69	25	267
8:00 AM	4	6	16	8	4	5	2	54	3	22	64	28	216
8:15 AM	4	3	28	6	0	2	2	67	1	24	60	18	215
8:30 AM	4	2	18	13	2	1	2	71	1	12	69	19	214
8:45 AM	6	5	31	17	2	4	1	93	4	20	95	20	298
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM											95		
10:15 AM	無力							5089			711	320	
10:30 AM													
10:45 AM													
11:00 AM													
11:15 AM			•										
11:30 AM													
11:45 AM													
TOTAL	NL		NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	35	43	194	73	12	19	12	597	20	128	506	138	1777
AM Peak Hr Be	gins at:	800	AM										
PEAK													
VOLUMES =	18	16	93	44	8	12	7	285	9	78	288	85	943
CONTROL:	Signa	alized							No.				

### **Intersection Turning Movement**

Prepared by: Southland Car Counters

N-S STREET:

5th St. West

DATE: 11/13/2002

LOCATION: City of Palmdale

E-W STREET:

Palmdale Blvd.

DAY: WEDNESDAY

PROJECT#

02-1401-018 P

	N	IORTHB	DUND	SC	OUTHBO	UND	E	ASTBOL	JND	V	/ESTBOL	JND	
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	TOTAL
1:00 PM 1:15 PM 1:30 PM 1:45 PM 2:00 PM 2:15 PM	••	H											
2:30 PM 2:45 PM 3:00 PM 3:15 PM 3:30 PM 3:45 PM													
4:00 PM 4:15 PM 4:30 PM 4:45 PM 5:00 PM 5:15 PM 5:30 PM 5:45 PM 6:00 PM	12 9 7 13 14 11 15	5 7 11 10 10 8	14 21 28 26 37 17 39	30 23 28 28 48 38 32 26	14 18 18 20 13 11 15	2 6 3 3 6 4 4	2 6 5 5 5 11 5	140 120 115 136 81 108 94 161	11 12 13 10 17 8 10 5	35 42 46 45 50 61 52 58	141 169 140 142 170 184 131	25 29 30 23 20 26 17	431 460 443 462 468 491 422 497
6:15 PM 6:30 PM 6:45 PM			•			fE							
TOTAL VOLUMES =	NL 93	NT 66	NR 211	SL 253	ST 123	SR 34	EL. 42	ET 955	ER 86	WL 389	WT 1235	WR 187	TOTAL 3674
PM Peak Hr Begin	ns at:	500	) PM				83						
PEAK VOLUMES =	52	38	122	144	53	17	24	444	40	221	643	80	1878
CONTROL:	Signal	ized											

N-5 STREET:

SR-14 SB Off-Ramp

DATE: 11/12/2002

LOCATION: City of Palmdale

E-W STREET:

Palmdale Blvd.

DAY: TUESDAY

PROJECT#

02-1401-019 A

	N	ORTHB	OUND	50	UTHBO	DUND	E	ASTBO	UND	٧	VESTBO	UND	
LANES:	* NL	NT	NR	SL 1	ST	SR 1	EL	ET 2	ER 0	WL	WT 2	WR 0	TOTAL
6:00 AM					<del>:</del>	<u></u>	<del></del>			<del></del>			
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM				26		18		29	62		55	31	221
7:15 AM				31		18		35	71		59	42	256
7:30 AM				45		30		25	72		58	40	270
7:45 AM				63		46		67	66		101	43	386
8:00 AM				<b>7</b> 7		34		54	59		93	26	343
8:15 AM				55		28		71	55		79	40	328
8:30 AM				46		30		69	47		95	26	313
8:45 AM				43		27		65	44		83	30	<b>29</b> 2
9:00 AM													
9:15 AM			531										
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM				31 22 23				10,7			ia.		
10:30 AM										23			
10:45 AM													
11:00 AM													
11:15 AM			•										
11:30 AM													
11:45 AM													
TOTAL	NL	NT	NR	SL	ST	5R	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =	0	0	0	386	0	231	0	415	476	0	623	278	2409
AM Peak Hr Beg	gins at:	745	5 AM										
PEAK													
VOLUMES =	0	0	0	241	0	138	0	261	227	0	368	135	1370
CONTROL:	Signaliz	ed;											

N-S STREET:

SR-14 SB Off-Ramp

DATE: 11/12/2002

LOCATION: City of Palmdaie

E-W STREET:

Palmdale Blvd.

DAY: TUESDAY

PROJECT#

02-1401-019 P

	NC	RTHBO	UND	SO	UTHBC	DUND	E	ASTBOL	IND	W	/ESTBOL	IND	
LANES:	NL	NT	NR	SL 1	∎ST	SR 1	EL.	ET 2	ER 0	WL	WT 2	WR 0	TOTAL
1:00 PM	¥												
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM 3:30 PM													
3:45 PM													
4:00 PM				115		36		119	35		162	41	508
4:15 PM				126		32		117	49		151	54	529
4:30 PM				114		43		130	37		178	32	534
4:45 PM				100		54		141	28		203	41	567
5:00 PM				113		40		139	40		197	28	557
5:15 PM				= 135		62	12	166	60		207	23	653
5:30 PM				142		59	性	156	57		204	26	644
5:45 PM				129		54		147	47		189	23	589
6:00 PM													
6:15 PM			*										
6:30 PM												8	
6:45 PM			2										
OTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
OLUMES =	0	0	0	974	0	380	0	1115	353	0	1491	268	4581
M Peak Hr Begin	s at:	500	PM										
EAK													
OLUMES =	0	0	0	519	0	215	0	608	204	0	797	100	2443
ONTROL:	Signaliz	ed;			8								

N-S STREET:

SR-14 SB Ramps

DATE: 11/12/2002

LOCATION: City of Palmdale

E-W STREET:

Ave. S

DAY: TUESDAY

PROJECT#

02-1401-021 A

<u> </u>		NC	RTHBO	UND	SC	UTHBO	UND		ASTBOL	JND	V	ESTBO	GNL	
LANES:		NL	NT	NR	SL 2	ST	SR 1	EL	ET 2	ER 0	WL 1	WT 1	WR	TOTAL
6:00 AM						<u> </u>	i±i	····		<del></del>				
6:15 AM														
6:30 AM														
6:45 AM														
7:00 AM				(20)	<sub>+</sub> 72		2		29	14	76	62		255
7:15 AM					85		6		58	12	69	51		281
7:30 AM					97		7		65	18	61	42		290
7:45 AM					93		4		81	10	54	22		264
8:00 AM					84		7		62	15	60	33		261
8:15 AM					79		3		55	8	63	28		236
8:30 AM					88		5 2		26	17	51	35		222
8:45 AM					62		2		29	14	26	18		151
9:00 AM														
9:15 AM														
9:30 AM														
9:45 AM														
10:00 AM														
10:15 AM									111					
10:30 AM					til .									
10:45 AM														
11:00 AM														
11:15 AM				•										
11:30 AM														
11:45 AM														
TOTAL		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
VOLUMES =		0	0	0	660	0	36	0	405	108	460	291	0	1960
AM Peak Hr B	egins a	ıt:	715	AM										
PEAK														
VOLUMES =		0	0	0	359	0	24	0	266	55	244	148	0	1096
CONTROL:	S	ignaliz	ed;							2				

### **Intersection Turning Movement**

Prepared by: Southland Car Counters

N-S STREET:

SR-14 SB Ramps

DATE: 11/12/2002

LOCATION: City of Palmdale

E-W STREET:

Ave. S

DAY: TUESDAY

PROJECT#

02-1401-021 P

								10				- 4-	
	NC	ORTHBO	UND	SO	UTHBO	UND	E	ASTBOU	IND	W	ESTBOL	JND	
LANES:	NL	NT	NR	SL 2	ST	SR 1	EL	ET 2	ER 0	WL 1	WT 1	WR	TOTAL
1:00 PM 1:15 PM 1:30 PM 1:45 PM 2:00 PM 2:15 PM 2:30 PM 2:45 PM 3:00 PM 3:15 PM				100 AB	4								
3:30 PM 3:45 PM 4:00 PM 4:15 PM 4:30 PM 4:45 PM 5:00 PM 5:15 PM 5:30 PM 5:45 PM 6:00 PM 6:15 PM 6:30 PM 6:45 PM			•	107 116 118 137 136 146 145 138		6 5 14 20 16 8 13 5		67 58 54 65 96 65 82 59	13 8 12 10 13 11 12 7	29 33 37 51 66 48 24 20	58 63 79 54 85 81 117 131		280 283 314 337 412 359 393 360
TOTAL VOLUMES =	NL 0	NT 0	NR 0	SL 1043	ST 0	SR 87	EL 0	ET 546	ER 86	WL 308	WT 668	WR 0	TOTAL 2738
PM Peak Hr Begin	s at:	500	PM 🚿										
PEAK VOLUMES =	0	0	0	565	0	42	0	302	43	158	414	0	1524
CONTROL:	Signaliz	ed;											

N-S STREET:

SR-14 NB Off-Ramp

DATE: 11/12/2002

LOCATION: City of Palmdale

E-W STREET:

Palmdale Blvd.

DAY: TUESDAY

PROJECT#

02-1401-020 A

	NC	RTHB	DUND	SO	UTHBC	UND	ĺ	ASTBO	UND	V	/ESTBO	UND	15
LANES:	NL 1	NT	NR 1	SL	ST	SR	EL	ET 2	ER 1	WL	WT 3	WR 1	TOTAL
6:00 AM	<u> </u>				. <u></u>	(8)							
6:15 AM													
6:30 AM													
6:45 AM									39				
7:00 AM	8		5					46	22		80	42	203
7:15 AM	10		20					60	21		85	45	241
7:30 AM	18		21					66	27		87	68	287
7:45 AM	30		48					97	33		125	106	439
8:00 AM	38		49					118	13		115	79	412
8:15 AM	32		37					95	25		90	71	350
8:30 AM	31		43					96	14		86	80	350
8:45 AM	26		36					85	13		81	76	317
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM	8 * "			1 Total				5					
10:45 AM													
11:00 AM													
11:15 AM													
11:30 AM													
11:45 AM													
OTAL	NL	NT	NR =	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
OLUMES =	193	0	259	0	0	0	0	663	168	0	749	567	2599
M Peak Hr Be	gins at:	745	AM										$\simeq_{_{\mathfrak{L}}}$
EAK													
OLUMES =	131	0	177	0	0	0	0	406	85	0	416	336	1551
ONTROL:	Signalize	ed:									Ð		

### **Intersection Turning Movement**

Prepared by: Southland Car Counters

N-S STREET:

SR-14 NB Off-Ramp

DATE: 11/12/2002

LOCATION: City of Palmdale

E-W STREET:

Palmdale Blvd.

DAY: TUESDAY

PROJECT#

02-1401-020 P

	NC	RTHBO	DUND	SC	OUTHBO	UND	E	ASTBOU	IND	V	ESTBOL	JND	
LANES:	NL 1	NT	NR 1	SL	ST	SR	EL	ET 2	ER 1	WL	WT 3	WR 1	TOTAL
1:00 PM													
1:15 PM													
1:30 PM													
1:45 PM													
2:00 PM													
2:15 PM													
2:30 PM													
2:45 PM													
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	58		61					224	26		165	76	610
4:15 PM	63		66					237	35		170	89	660
4:30 PM	52		55					230	31		180	90	638
4:45 PM	63		69					235	34		194	136	731
5:00 PM	46		29					232	14		191	90	602
5:15 PM	49		32	(Q)			E 6	277	21		162	51	592
5:30 PM	48		26					259	18		160	46	557
5:45 PM	40		23					243	16		142	44	508
6:00 PM	10		23					243	10		174	77	300
6:15 PM			*										
6:30 PM													
6:45 PM													
OTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
OLUMES =	419	0	361	0	0	0	0	1937	195	0	1364	622	4898
M Peak Hr Begin	s at:	400	PM										
EAK													
OLUMES =	236	0	251	0	0	0	0 🖂	926	126	0	709	391	2639
ONTROL:	Signaliz	ed:											

N-S STREET:

SR-14 NB Ramps

DATE: 11/12/2002

LOCATION: City of Palmdale

E-W STREET:

Ave. \$

DAY: TUESDAY

PROJECT#

02-1401-022 A

			- 27										
	N	ORTHBO	DUND	S	OUTHBO	UND	E	ASTBOL	IND	1	WESTBO	UND	
LANES:	NL 1	NT	NR 1	SL	ST	SR	EL 1	ET 1	ER	WL	WT 2	WR 1	TOTAL
6:00 AM		·					· · · · · · ·						
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	2		26				15	93			138	162	436
7:15 AM	3		38				20	123			127	189	500
7:30 AM	8		28				19	149			96	170	470
7:45 AM	9		41				13	161			65	203	492
8:00 AM	10		28				10	147			85	185	465
8:15 AM	11		57				9	125			81	131	414
8:30 AM	10		52				10	104			76	158	410
8:45 AM	2		45				8	83			41	174	353
9:00 AM							_					-7 1	333
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM				-	10			1					
10:30 AM	277 777						112						
10:45 AM													
11:00 AM													
11:15 AM			•										
11:30 AM													
11:45 AM													
TOTAL	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WD	TOTAL
VOLUMES =	55	0	315	0	0	0	104	985	0	0	709	WR 1372	TOTAL 3540
AM Peak Hr Beg	jins at:	715	AM										
PEAK VOLUMES =	30	0	135	0	0	0	62	580	0	D	373	747	1927
CONTROL:	Signaliz	ed							-				****

N-S STREET:

SR-14 NB Ramps

DATE: 11/12/2002

LOCATION: City of Paimdale

E-W STREET:

Ave. S

DAY: TUESDAY

PROJECT#

02-1401-022 P

		NC	ORTHBO	DUND	SC	UTHBO	UND	E	ASTBOU	ND	٧	VESTBO	UND	
LANES:		NL 1	NT	NR 1	SL	ST	SR	EL 1	हा 1	ER	WL	WT 2	WR 1	TOTAL
1:00 PM 1:15 PM 1:30 PM 1:45 PM 2:00 PM 2:15 PM 2:30 PM 2:45 PM 3:00 PM 3:15 PM 3:30 PM 3:45 PM 4:00 PM 4:15 PM 4:30 PM 4:30 PM 5:00 PM 5:15 PM 5:00 PM 5:15 PM 5:30 PM 5:45 PM 6:00 PM 6:45 PM		9 10 29 22 23 20 24 23		128 139 148 163 166 170 146 107				4 8 15 11 10 8 12 9	1B1 196 157 193 203 205 226 189		Ş	78 96 83 88 128 109 127 118	136 144 139 153 161 148 138 118	536 593 571 630 691 660 673 S64
TOTAL VOLUMES =		NL 160	NT 0	NR 1167	SL 0	ST 0	SR 0	EL 77	ET 1550	ER 0	WL 0	WT 827	WR 1137	TOTAL #4918
PM Peak Hr Beg	ins at		445	PM						33				
PEAK VOLUMES =	1	89	0	645	0 @	0	0	41	827	0	0	452	600	2654
CONTROL:	Sic	gnaliz	ed											

### APPENDIX C

Explanation and Calculation of Intersection Capacity Utilization (ICU)

### EXPLANATION AND CALCULATION OF INTERSECTION CAPACITY UTILIZATION (ICU)

#### **Overview**

The ability of a roadway to carry traffic is referred to as capacity. The capacity is usually greater between intersections and less at intersections because traffic flows continuously between them and only during the green phase at them. Capacity at intersections is best defined in terms of vehicles per lane per hour of green. If capacity is 1600 vehicles per lane per hour of green, and if the green phase is 50 percent of the cycle and there are three lanes, then the capacity is 1600 times 50 percent times 3 lanes, or 2400 vehicles per hour for that approach.

The technique used to compare the volume and capacity at an intersection is known as Intersection Capacity Utilization (ICU). ICU, usually expressed as a percent, is the proportion of an hour required to provide sufficient capacity to accommodate all intersection traffic if all approaches operate at capacity. If an intersection is operating at 80 percent of capacity (i.e., an ICU of 80 percent), then 20 percent of the signal cycle is not used. The signal could show red on all indications 20 percent of the time and the signal would just accommodate approaching traffic.

ICU analysis consists of (a) determining the proportion of signal time needed to serve each conflicting movement of traffic, (b) summing the times for the movements, and (c) comparing the total time required to the total time available. For example, if for north-south traffic the northbound traffic is 1600 vehicles per hour, the southbound traffic is 1200 vehicles per hour, and the capacity of either direction is 3200 vehicles per hour, then the northbound traffic is critical and requires 1600/3200 or 50 percent of the signal time. If for east-west traffic, 30 percent of the signal time is required, then it can be seen that the ICU is 50 plus 30, or 80 percent. When left turn arrows (left turn phasing) exist, they are incorporated into the analysis. The critical movements are usually the heavy left turn movements and the opposing through movements.

The ICU technique is an ideal tool to quantify existing as well as future intersection operation. The impact of adding a lane can be quickly determined by examining the effect the lane has on the Intersection Capacity Utilization.

#### ICU Worksheets That Follow This Discussion

The ICU worksheet table contains the following information:

- 1. Peak hour turning movement volumes.
- 2. Number of lanes that serve each movement.
- 3. For right turn lanes, whether the lane is a free right turn lane, whether it has a right turn arrow, and the percent of right turns on red that are assumed.
- 4. Capacity assumed per lane.
- 5. Capacity available to serve each movement (number of lanes times capacity per lane).
- Volume to capacity ratio for each movement.
- 7. Whether the movement's volume to capacity ratio is critical and adds to the ICU value.
- 8. The yellow time or clearance interval assumed.
- 9. Adjustments for right turn movements.
- 10. The ICU and LOS.

The ICU Worksheet also has two graphics on the same page. These two graphics show the following:

- Peak hour turning movement volumes.
- 2. Number of lanes that serve each movement.
- 3. The approach and exit leg volumes.

- 4. The two-way leg volumes.
- 5. An estimate of daily traffic volumes that is fairly close to actual counts and is based strictly on the peak hour leg volumes multiplied by a factor.
- 6. Percent of daily traffic in peak hours.
- 7. Percent of peak hour leg volume that is inbound versus outbound.

A more detailed discussion of ICU and LOS follows.

#### Level of Service (LOS)

Level of Service is used to describe the quality of traffic flow. Levels of Service A to C operate quite well. Level of Service C is typically the standard to which rural roadways are designed.

Level of Service D is characterized by fairly restricted traffic flow. Level of Service D is the standard to which urban roadways are typically designed. Level of Service E is the maximum volume a facility can accommodate and will result in possible stoppages of momentary duration. Level of Service F occurs when a facility is overloaded and is characterized by stop-and-go traffic with stoppages of long duration.

A description of the various Levels of Service appears at the end of the ICU description, along with the relationship between ICU and Level of Service.

#### Signalized and Unsignalized Intersections

Although calculating an ICU value for an unsignalized intersection is invalid, the presumption is that a signal can be installed and the calculation shows whether the geometrics are capable of accommodating the expected volumes with a signal. A traffic signal becomes warranted before Level of Service D is reached for a signalized intersection.

#### Signal Timing

The ICU calculation assumes that a signal is properly timed. It is possible to have an ICU well below 100 percent, yet have severe traffic congestion. This would occur if one or more movements is not getting sufficient green time to satisfy its demand, and excess green time exists on other movements. This is an operational problem that should be remedied.

#### **Lane Capacity**

Capacity is often defined in terms of roadway width; however, standard lanes have approximately the same capacity whether they are 11 or 14 feet wide. Our data indicates a typical lane, whether a through lane or a left turn lane, has a capacity of approximately 1750 vehicles per hour of green time, with nearly all locations showing a capacity greater than 1600 vehicles per hour of green per lane. Right turn lanes have a slightly lower capacity; however 1600 vehicles per hour is a valid capacity assumption for right turn lanes.

This finding is published in the August, 1978 issue of ITE Journal in the article entitled, "Another Look at Signalized Intersection Capacity" by William Kunzman. A capacity of 1600 vehicles per hour per lane with no yellow time penalty, or 1700 vehicles per hour with a 3 or 5 percent yellow time penalty is reasonable.

#### Yellow Time

The yellow time can either be assumed to be completely used and no penalty applied, or it can be assumed to be only partially usable. Total yellow time accounts for approximately 10 percent of a signal cycle, and a penalty of 3 to 5 percent is reasonable.

During peak hour traffic operation the yellow times are nearly completely used. If there is no left turn phasing, the left turn vehicles completely use the yellow time. Even if there is left turn phasing, the through traffic continues to enter the intersection on the yellow until just a split second before the red.

#### Shared Lanes

Shared lanes occur in many locations. A shared lane is often found at the end of an off ramp where the ramp forms an intersection with the cross street. Often at a diamond interchange off ramp, there are three lanes. In the case of a diamond interchange, the middle lane is sometimes shared, and the driver can turn left, go through, or turn right from that lane.

If one assumes a three lane off ramp as described above, and if one assumes that each lane has 1600 capacity, and if one assumes that there are 1000 left turns per hour, 500 right turns per hour, and 100 through vehicles per hour, then how should one assume that the three lanes operate. There are three ways that it is done.

One way is to just assume that all 1600 vehicles (1000 plus 500 plus 100) are served simultaneously by three lanes. When this is done, the capacity is 3 times 1600 or 4800, and the amount of green time needed to serve the ramp is 1600 vehicles divided by 4800 capacity or 33.3 percent. This assumption effectively assumes perfect lane distribution between the three lanes that is not realistic. It also means a left turn can be made from the right lane.

Another way is to equally split the capacity of a shared lane and in this case to assume there are 1.33 left turn lanes, 1.33 right turn lanes, and 0.33 through lanes. With this assumption, the critical movement is the left turns and the 1000 left turns are served by a capacity of 1.33 times 1600, or 2133. The volume to capacity ratio of the critical move is 1000 divided by 2133 or 46.9 percent.

The first method results in a critical move of 33.3 percent and the second method results in a critical move of 46.9 percent. Neither is very accurate, and the difference in the calculated Level of Service will be approximately 1.5 Levels of Service (one Level of Service is 10 percent).

The way Kunzman Associates does it is to assign fractional lanes in a reasonable way. In this example, it would be assumed that there is 1.1 right turn lanes, 0.2 through lanes, and 1.7 left turn lanes. The volume to capacity ratios for each movement would be 31.3 percent for the through traffic, 28.4 percent for the right turn movement, and 36.8 percent for the

left turn movement. The critical movement would be the 36.8 percent for the left turns.

#### Right Turn on Red

Kunzman Associates' software treats right turn lanes in one of five different ways. Each right turn lane is classified into one of five cases. The five cases are (1) free right turn lane, (2) right turn lane with separate right turn arrow, (3) standard right turn lane with no right turns on red allowed, (4) standard right turn lane with a certain percentage of right turns on red allowed, and (5) separate right turn arrow and a certain percentage of right turns on red allowed.

#### Free Right Turn Lane

If it is a free right turn lane, then it is given a capacity of one full lane with continuous or 100 percent green time. A free right turn lane occurs when there is a separate approach lane for right turning vehicles, there is a separate departure lane for the right turning vehicles after they turn and are exiting the intersection, and the through cross street traffic does not interfere with the vehicles after they turn right.

#### Separate Right Turn Arrow

If there is a separate right turn arrow, then it is assumed that vehicles are given a green indication and can proceed on what is known as the left turn overlap.

The left turn overlap for a northbound right turn is the westbound left turn. When the left turn overlap has a green indication, the right turn lane is also given a green arrow indication. Thus, if there is a northbound right turn arrow, then it can be turned green for the period of time that the westbound left turns are proceeding.

If there are more right turns than can be accommodated during the northbound through green and the time that the northbound right turn arrow is on, then an adjustment is made to the ICU to account for the green time that needs to be added to the northbound through green to accommodate the northbound right turns.

#### Standard Right Turn Lane, No Right Turns on Red

A standard right turn lane, with no right turn on red assumed, proceeds only when there is a green indication displayed for the adjacent through movement. If additional green time is needed above that amount of time, then in the ICU calculation a right turn adjustment green time is added above the green time that is needed to serve the adjacent through movement.

#### Standard Right Turn Lane, With Right Turns on Red

A standard right turn lane with say 20 percent of the right turns allowed to turn right on a red indication is calculated the same as the standard right turn case where there is no right turn on red allowed, except that the right turn adjustment is reduced to account for the 20 percent of the right turning vehicles that can logically turn right on a red light. The right turns on red are never allowed to exceed the time the overlap left turns take plus the unused part of the green cycle that the cross street traffic moving from left to right has.

As an example of how 20 percent of the cars are allowed to turn right on a red indication, assume that the northbound right turn volume needs 40 percent of the signal cycle to be satisfied. To allow 20 percent of the northbound right turns to turn right on red, then during 8 percent of the signal cycle (40 percent of signal cycle times 20 percent that can turn right on red) right turns on red will be allowed if it is feasible.

For this example, assume that 15 percent of the signal cycle is green for the northbound through traffic, and that means that 15 percent of the signal cycle is available to satisfy northbound right turns. After the northbound through traffic has received its green, 25 percent of the signal cycle is still needed to satisfy the northbound right turns (40 percent of the signal cycle minus the 15 percent of the signal cycle that the northbound through used).

Assume that the westbound left turns require a green time of 6 percent of the signal cycle. This 6 percent of the signal cycle is used by northbound right turns on red. After accounting for the northbound right turns that occur on the westbound overlap left turn, 19 percent of the signal cycle is still needed for the northbound right turns (25 percent of the cycle was needed after the northbound through green time was

accounted for [see above paragraph], and 6 percent was served during the westbound left turn overlap). Also, at this point 6 percent of the signal cycle has been used for northbound right turns on red, and still 2 percent more of the right turns will be allowed to occur on the red if there is unused eastbound through green time.

For purpose of this example, assume that the westbound through green is critical, and that 15 percent of the signal cycle is unused by eastbound through traffic. Thus, 2 percent more of the signal cycle can be used by the northbound right turns on red since there is 15 seconds of unused green time being given to the eastbound through traffic.

At this point, 8 percent of the signal cycle was available to serve northbound right turning vehicles on red, and 15 percent of the signal cycle was available to serve right turning vehicles on the northbound through green. So 23 percent of the signal cycle has been available for northbound right turns.

Because 40 percent of the signal cycle is needed to serve northbound right turns, there is still a need for 17 percent more of the signal cycle to be available for northbound right turns. What this means is the northbound through traffic green time is increased by 17 percent of the cycle length to serve the unserved right turn volume, and a 17 percent adjustment is added to the ICU to account for the northbound right turns that were not served on the northbound through green time or when right turns on red were assumed.

#### Separate Right Turn Arrow, With Right Turns on Red

A right turn lane with a separate right turn arrow, plus a certain percentage of right turns allowed on red is calculated the same way as a standard right turn lane with a certain percentage of right turns allowed on red, except the turns which occur on the right turn arrow are not counted as part of the percentage of right turns that occur on red.

#### Critical Lane Method

ICU parallels another calculation procedure known as the Critical Lane Method with one exception. Critical Lane Method dimensions capacity in terms of standardized vehicles per hour per lane. A Critical Lane Method result of 800 vehicles per hour means that the intersection

operates as though 800 vehicles were using a single lane continuously. If one assumes a lane capacity of 1600 vehicles per hour, then a Critical Lane Method calculation resulting in 800 vehicles per hour is the same as an ICU calculation of 50 percent since 800/1600 is 50 percent. It is our opinion that the Critical Lane Method is inferior to the ICU method simply because a statement such as "The Critical Lane Method value is 800 vehicles per hour" means little to most persons, whereas a statement such as "The Intersection Capacity Utilization is 50 percent" communicates clearly. Critical Lane Method results directly correspond to ICU results. The correspondence is as follows, assuming a lane capacity of 1600 vehicles per hour and no clearance interval.

Critical Lane Method Result	ICU Result
800 vehicles per hour	50 percent
960 vehicles per hour	60 percent
1120 vehicles per hour	70 percent
1280 vehicles per hour	80 percent
1440 vehicles per hour	90 percent
1600 vehicles per hour	100 percent
1760 vehicles per hour	110 percent

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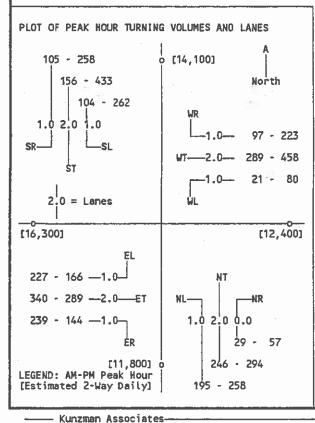
### LEVEL OF SERVICE DESCRIPTION<sup>1</sup>

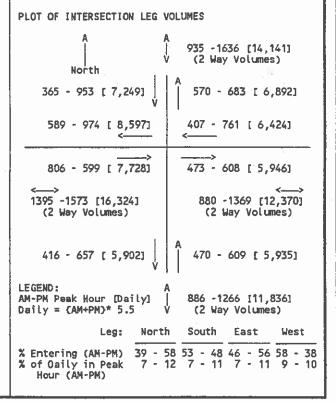
Level of Service	Description	Volume to Capacity Ratio
A (4)	Level of Service A occurs when progression is extremely favorable and vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	0.600 and below
В	Level of Service B generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.	0.601 to 0.700
С	Level of Service C generally results when there is fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.	0.701 to 0.800
D	Level of Service D generally results in noticeable congestion. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	0.801 to 0.900
E	Level of Service E is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume to capacity ratios. Individual cycle failures are frequent.	0.901 to 1.000
F	Level of Service F is considered to be unacceptable to most drivers. This condition often occurs when oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high volume to capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.	1.001 and up

<sup>1</sup>Source: <u>Highway Capacity Manual</u> Special Report 209, Transportation Research Board, National Research Council Washington D.C., 2000.



MOVEMENT	LANES	CAPACITY	8AS VOLU (AM)		ADD VOL		TOTA VOLL (AM)	IME	VOLU CAPA RAT (AM)	
Northbound Left Northbound Through Northbound Right Southbound Through Southbound Right Eastbound Left Eastbound Through Eastbound Through Westbound Left Westbound Left Westbound Right Westbound Right	1 2 0 1 2 1 2 1 1 2 1	1600 3200 0 1600 3200 1600 1600 3200 1600 3200 1600	195 246 29 104 156 105 227 340 239 21 289 97	258 294 57 262 433 258 166 289 144 80 458 223	000000000000000000000000000000000000000	0 0 0 0 0 0 0 0 0 0	195 246 29 104 156 105 227 340 239 21 289 97	258 294 57 262 433 258 166 289 144 80 458 223	0.122* 0.086 0.000 0.065 0.049* 0.066 0.142* 0.106 0.149 0.013 0.090* 0.061	0.110 0.000 0.164 0.135* 0.161 0.104* 0.090 0.090 0.050
Northbound Right Turn Southbound Right Turn Eastbound Right Turn Westbound Right Turn Clearance Interval	n Adjustment Adjustment	None of right will movement is	nen ther	e is s					0.000* 0.017* 0.000* 0.000* 0.100*	0.000* 0.026* 0.000* 0.000* 0.100*





INTERSECTION: TIERRA LAND USE: EXISTING	\ SUBIOA AVENU	E (NS) and 5T	H STREET	T WEST (	(EW)				DATE: 11 METRICS:	1-12-02 Existing
MOVEMENT	LANES	CAPACITY	BAS VOLU		A008 VOLU		TOTA VOLU			DME TO ACITY (10 (PM)
Northbound Left Northbound Through Northbound Right Southbound Left Southbound Through Southbound Right Eastbound Left Eastbound Through Eastbound Right Westbound Right Westbound Right Westbound Right Westbound Right	0 1 1 1 1 0 0 0	0 1600 1600 1600 1600 0 0 0 1600	0 375 53 24 400 0 0 0 0 79 0	0 521 127 31 459 0 0 0 71 0	000000000000000000000000000000000000000	00000000000	0 375 53 24 400 0 0 0 0 79 0	0 521 127 31 459 0 0 0 71 0	0.000* 0.234 0.033 0.015 0.250* 0.000 0.000* 0.000* 0.049* 0.000 0.016	0.000 0.326* 0.079 0.019* 0.287 0.000 0.000* 0.000* 0.000* 0.044* 0.000 0.016
Northbound Right Turn Southbound Right Turn Eastbound Right Turn Westbound Right Turn Clearance Interval	Adjustment Adjustment	None of right with movement is	hen ther	e is se					0.000* 0.000* 0.000* 0.000* 0.100*	0.000* 0.000* 0.000* 0.000*

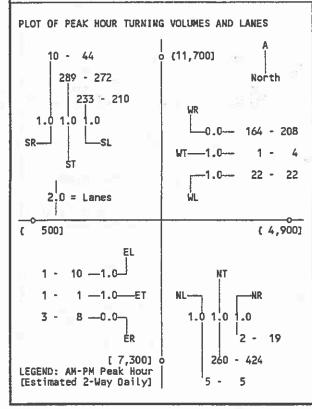
0.399 0.489 A A

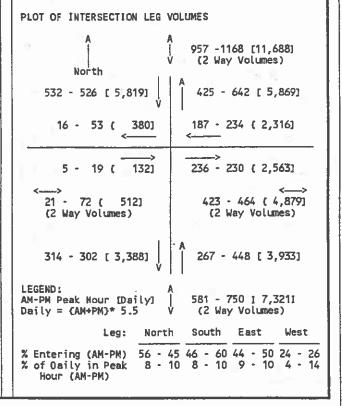
#### PLOT OF PEAK HOUR TURNING VOLUMES AND LANES 0 110,2001 400 - 459 North 24 - 31 0.0 1.0 1.0 0 -0 2.0 = Lanes 0] I 2,400] 0 --- 0.0-ET 0.0 1.0 1.0 0 --0.0-ĖR 53 - 127 [11,500] o - 521 LEGENO: AM-PM Peak Hour [Estimated 2-Way Oaily]

Kunzman Associates-

PLOT OF INTERSECTION LEG VOLUMES
A
0 - 0 [ 0] 77 - 158 [ 1,293]
0 - 0 [ 0] 182 - 255 [ 2,404] (2 Way Volumes)
479 - 530 [ 5,550] A 428 - 648 [ 5,918]
LEGENO: A AM-PM Peak Hour [DailyI   907 -1178 [11,468] Oaily = (AM+PM)* 5.5 V (2 Way Volumes)
Leg: North South East West
% Entering (AM-PM) 51 - 47 47 - 55 58 - 38 0 - 0 % of Oaily in Peak 8 - 10 8 - 10 8 - 11 0 - 0 Hour (AM-PM)

MOVEMENT	LANES	CAPACITY	8AS VOLU	IME	ADOI VOLI		TOTA VOLU		1	ME TO CITY 10 (PM)
Northbound Left Northbound Through Northbound Right Southbound Through Southbound Through Southbound Right Eastbound Through Eastbound Through Eastbound Right Westbound Left Westbound Left Westbound Right	1 1 1 1 1 1 1 0	1600 1600 1600 1600 1600 1600 1600 1600	5 260 2 233 289 10 1 1 3 22 1	5 424 19 210 272 44 10 1 8 22 4 208	000000000000	0 0 0 0 0 0 0 0 0 0	5 260 2 233 289 10 1 1 3 22 1	5 424 19 210 272 44 10 1 8 22 4 208	0.003 0.163* 0.001 0.146* 0.181 0.006 0.001* 0.003 0.000 0.014 0.103* 0.000	0.003 0.265* 0.012 0.131* 0.170 0.028 0.006* 0.006 0.000 0.014 0.132* 0.000
Northbound Right Turn Southbound Right Turn Eastbound Right Turn Westbound Right Turn Clearance Interval	n Adjustment Adjustment	None of right we movement is	nen ther	e is se	ere ass eparate	umed to RT lan	o occur ne & whe	on en	0.000* 0.000* 0.000* 0.000* 0.100*	0.000* 0.000* 0.000* 0.000*





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INTERSECTION: TIERS LAND USE: EXISTING	RA SUBIOA AVENUE	(NS) and CIT	RANCH ROAD	(EW)		DATE: 11-12-02 METRICS: Improved
MOVEMENT	LANES	CAPACITY	BASE VOLUME (AM) (PM)	ADOED VOLUME (AM) (PM)	TOTAL VOLUME (AM) (PM)	VOLUME TO CAPACITY RATIO (AM) (PM)
Northbound Left Northbound Through Northbound Right Southbound Left Southbound Through Southbound Right Eastbound Left Eastbound Through Eastbound Right Westbound Left Westbound Left Westbound Left Westbound Right Westbound Right	0 1 0 1 1 0 0 0 0	0 1600 0 1600 1600 0 0 0 0 1600	0 0 240 429 1 15 2 64 272 283 0 0 0 0 0 0 0 0 1 14 0 0 2 12		0 0	0.000* 0.000 0.151 0.278* 0.000 0.000 0.001 0.040* 0.170* 0.177 0.000 0.000 0.000 0.000 0.000* 0.000* 0.000* 0.000* 0.001* 0.009* 0.000 0.000 0.001 0.008
Northbound Right Tur Southbound Right Tur Eastbound Right Turn Westbound Right Turn Clearance Interval	n Adjustment Adjustment	None of right red light who movement is p	n there is s	are assumed to eparate RT la	o occur on ne & when	0.000* 0.000* 0.000* 0.000* 0.000* 0.000* 0.000* 0.000* 0.100* 0.100*
0 - 0 272 - 283 2 - 64	0 [ 7,200]	North	274	A       North  - 347 [ 3,410	51 V A 242	788 [ 7,172] ay Volumes) - 441 [ 3,757]
SR ST	WL		- O (2	- 0 [ 0] Way Volumes)	O) 3 - 6 (2	79 [ 451] - 105 [ 611] Way Volumes) - 444 [ 3,768]
0 - 0 - 0.0- 0 - 0 - 0.0- 0 - 0 - 0.0- ER [ 6,9 LEGENO: AM-PM Peak H [Estimated 2-Way Oai	0.0 1.001 0.	T NR 0 0.0 1 - 15 0 - 429 0	LEGENO: AM-PM P Daily = % Enter % of Oa	eak Hour [Dai : (AM+PM)* 5.5 Leg:	V      North South	741 [ 6,903] ay Volumes)

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INTERSECTION:	TIERRA	SUBIDA	AVENUE	(NS)	and	AVENUE	S	(EW)	
LAND DICE - FYIC								•=•	

COUNT DATE: 11-14-02 GEOMETRICS: Existing

MOVEMENT LANES CAPACE		CAPACITY BASE VOLUME			AD0		TOTA VOLU		VOLUME TO CAPACITY RATIO		
			(AM)	(PM)	(MA)	(PM)	(MA)	(PM)	(MA)	(PM)	
Northbound Left	0	0	1	1		0	1	1	0.000*	0.000*	
Northbound Through	1	1600	42	42	Ιŏ	Ď	42	42	0.047	0.048	
Northbound Right	0	0	32	33	l ŏ	0	32	33	0.000	0.000	
Southbound Left	0	0	258	220	0	0	258	220	0.000	0.000	
Southbound Through	1	1600	22	43	l o	0	22	43	0.179*	0.176	
Southbound Right	0	0	6	19	l o	0	6	19	0.000	0.000	
Eastbound Left	0	0	10	18	0	0	10	18	0.000*	0.000	
Eastbound Through	1	1600	18	17	0	0	18	17	0.018	0.023	
Eastbound Right	0	0	1	1	0	0	1	1	0.000	0.000	
Jestbound Left	0	0	12	40	0	0	12	40	0.000	0.000	
Jestbound Through	1	1600	6	25	0	0	6	25	0.126*	0.283	
Jestbound Right	0	0	183	387	0	0	183	387	0.000	0.000	

Northbound Right Turn Adjustment Southbound Right Turn Adjustment Eastbound Right Turn Adjustment Westbound Right Turn Adjustment Clearance Interval

None of right turns (RT) are assumed to occur on red light when there is separate RT lane & when movement is permitted. 0.000\* 0.000\* 0.000\* 0.000\* 0.000\* 0.000\* 0.000\* 0.000\* 0.100\* 0.100\*

0.405 || 0.559 A A

PLOT OF PEAK HOUR TURNING	O VOLUMES AND LANES
£	A (6,900)
22 - 43	North
0.0 1.0 0.0 SRSL	WR 
2.0 ≈ Lanes	0.0— 12 - 40
[ 700]	[ 6,800]
EL  10 - 180.0-  18 - 171.0ET  1 - 10.0	NL

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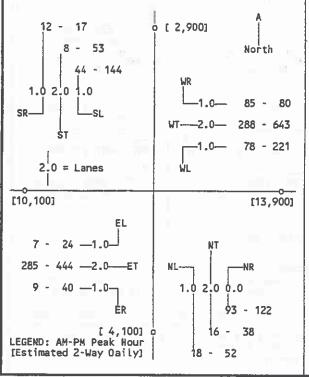
PLOT OF INTERSECTION LEG VO	LUMES
A A I	521 - 729 [ 6,875] (2 Way Volumes)
286 - 282 [ 3,124] V	A 235 - 447 [ 3,751]
13 - 45 [ 319]	201 - 452 [ 3,592]
29 - 36 [ 358]	308 - 270 [ 3,179]
<> 42 - 81 [ 677] (2 Way Volumes)	509 - 722 [ 6,771] (2 Way Volumes)
35 - 84 [ 655] V	A 75 - 76 [ 831]
LEGEND: A AM-PM Peak Hour [Daily]   Oaily = (AM+PM)* 5.5 V	110 - 160 I 1,485] (2 Way Volumes)
Leg: North	South East West
% Entering (AM-PM) 55 - 39 % of Daily in Peak 8 - 11 Hour (AM-PM)	68 - 48 39 - 63 69 - 44 7 - 11 8 - 11 6 - 12

LANO USE: EXISTING	INTERSECTION: 5TH LANO USE: EXISTING	STREET	WEST	(NS)	and	PALMDALE	BOULEVARD	(EW)
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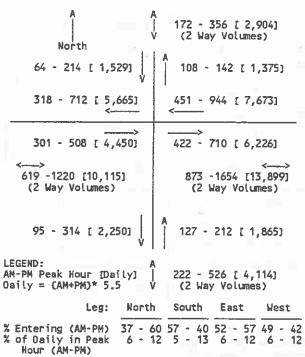
COUN	Т	OA	T	E	•	1	1	**	13	ζ	n	2	
			-	_	-					-	_	-	
GE	OM	EΤ	R	Ι	CS	4		E	хi	S	t	i	no

MOVEMENT	LANES	CAPACITY	ADDE VOLU	ME	VOLU	IME	VOLUME TO CAPACITY RATIO			
			(MA)	(PM)	(MA)	(PM)	(MA)	(PM)	(MA)	(PM)
Northbound Left Northbound Through Northbound Right Southbound Left Southbound Through Southbound Right Eastbound Left Eastbound Through Eastbound Right Westbound Left Westbound Through Westbound Through	1 2 0 1 2 1 1 2 1 1 2	1600 3200 0 1600 3200 1600 1600 3200 1600 3200 1600	18 16 93 44 8 12 7 285 9 78 288 85	52 38 122 144 53 17 24 444 40 221 643 80	000000000000000000000000000000000000000	0000000000	18 16 93 44 8 12 7 285 9 78 288 85	52 38 122 144 53 17 24 444 40 221 643 80	0.011 0.034* 0.000 0.028* 0.003 0.008 0.004 0.089* 0.006 0.049* 0.090 0.053	0.033 0.050 0.000 0.090 0.017 0.015 0.139 0.025 0.138 0.201
Northbound Right Turn Southbound Right Turn Eastbound Right Turn Westbound Right Turn Clearance Interval	n Adjustment Adjustment	None of right when movement is	nen ther	e is se	re assu parate	med to RT lar	occur se & whe	on n	0.000* 0.000* 0.000* 0.000* 0.100*	0.000° 0.000° 0.000° 0.000°



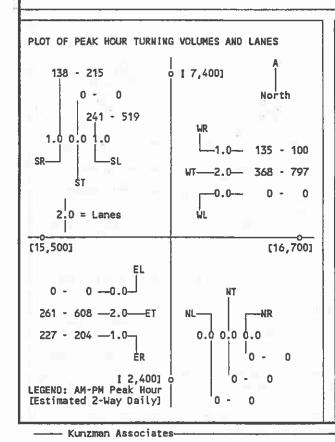


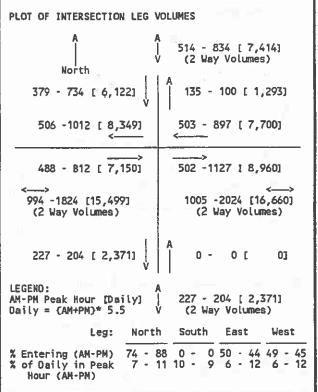
#### PLOT OF INTERSECTION LEG VOLUMES



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MOVEMENT	LANES	CAPAC1TY	BASE VOLUME	ADDED W	TOTAL VOLUME	VOLUME TO CAPACITY RATIO
			(AM) (PM)	(AM) (PM)	(AM) (PM)	(AM) (PM)
Northbound Left Northbound Through Northbound Right Southbound Through Southbound Right Eastbound Left Eastbound Through Eastbound Right Uestbound Right Westbound Right Westbound Right Westbound Right	0 0 0 1 0 free 1 2 Free 1 0 2 Free 1	0 0 1600 0 1600 0 3200 1600 0 3200 1600	0 0 0 0 0 0 241 519 0 0 138 215 0 0 261 608 227 204 0 0 368 797 135 100	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 241 519 0 0 138 215 0 0 261 608 227 204 0 0 368 797 135 100	0.000 0.000 0.000* 0.000* 0.000 0.000 0.151* 0.324* 0.000 0.000 0.086 0.134 0.000* 0.000* 0.082 0.190 0.142 0.128 0.000 0.000 0.115* 0.249* 0.084 0.063
Morthbound Right Tur Southbound Right Tur Eastbound Right Tur Westbound Right Tur Clearance Interval	rn Adjustment n Adjustment	Hone of right was movement is	ht turns (RT) hen there is so	are assumed to eparate RT la	o occur on ne & when	0.000* 0.000* 0.000* 0.000* 0.000* 0.000* 0.000* 0.000* 0.100* 0.100*





INTERSECTION: SR-14 LAND USE: EXISTING	4 FREEWAY SB RA	MPS (NS) and i	AVENUE S (EW)			DATE: 11-12-02 METRICS: Existing
MOVEMENT	LANES	CAPACITY	BASE	AD0E0	TOTAL	VOLUME TO

MOVEMENT	LANES	CAPACITY	BAS VOLU (AM)	_	ADOE VOLU	JME	TOTA VOLU (AM)			ME TO CITY 10 (PM)
Northbound Left Northbound Through Northbound Right Southbound Left Southbound Right Eastbound Left Eastbound Through Eastbound Through Eastbound Right Westbound Left Westbound Through Westbound Through	0 0 0 2 0 1 0 2 Free 1 1 2	0 0 0 2880 0 1600 0 3200 1600 1600 3200 0	0 0 0 359 0 24 0 266 55 244 148	0 0 565 0 42 0 302 43 158 414	00000000000	000000000000000000000000000000000000000	0 0 0 359 0 24 0 266 55 244 148	0 0 0 565 0 42 0 302 43 158 414	0.000 0.000* 0.000 0.125* 0.000 0.015 0.000 0.083* 0.034 0.153* 0.046 0.000	0.000 0.000* 0.000* 0.196* 0.000 0.026 0.000 0.094* 0.027 0.099* 0.129 0.000

Northbound Right Turn Adjustment Southbound Right Turn Adjustment Eastbound Right Turn Adjustment Westbound Right Turn Adjustment Clearance Interval None of right turns (RT) are assumed to occur on red light when there is separate RT lane & when movement is permitted.

0.000\* 0.000\* 0.000\* 0.000\* 0.000\* 0.000\* 0.000\* 0.000\* 0.100\* 0.100\*

INTERSECTION CAPACITY UTILIZATION, ICU (Sum of Components with \*) \_\_\_\_\_\_> LEVEL OF SERVICE (A=.000-.6 ICU; B=.601-.7; C=.701-.8; O=.801-.9; E=.901-1.0; F=1.001+)

0.461 0.489 A A

## 

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PLOT OF INTERSECTION LEG VOI	LUMÉS					
A A A I	383 - 607 [5,445] (2 Way Volumes)					
383 - 607 [ 5,445]	0 - 0 [ 0]					
172 - 456 [ 3,454]	392 - 572 [ 5,302]					
321 - 345 [ 3,663]	625 - 867 [ 8,206]					
493 - 801 [ 7,117] (2 Way Volumes)	1017 -1439 [13,508] (2 Way Volumes)					
299 - 201 [ 2,750]	0 - 0 [ 0]					
LEGENO: A AM-PM Peak Hour [Daily]   Oaily = (AM+PM)* 5.5 V	299 - 201 [ 2,750] (2 Way Volumes)					
Leg: North	South East West					
% Entering (AM-PM) 99 - 99 % of Oaily in Peak 7 - 11 Hour (AM-PM)	0 - 0 39 - 40 65 - 43 11 - 7 8 - 11 7 - 11					

MOVEMENT	LANES	CAPACITY		BASE OLUME	ADD ED VOLUM		TOT/			JME TO
			(A	M) (PM)	(MA)	_		(PM)		(PM)
Northbound Left Northbound Through Northbound Right Southbound Through Southbound Right Eastbound Left Eastbound Through Eastbound Right Westbound Right Westbound Right Westbound Left Westbound Right Westbound Right	1 0 Free 1 0 0 0 0 3 Free 1 0 3 Free 1	1600 0 1600 0 0 0 0 4800 1600 0 4800 1600	40	0 0 7 251 0 0 0 0 0 0 0 0 0 0 6 926 5 126 0 0	000000000000000000000000000000000000000	0000000000	131 0 177 0 0 0 0 406 85 0 416 336	236 0 251 0 0 0 926 126 0 709 391	0.082* 0.000 0.111 0.000 0.000* 0.000* 0.085 0.053 0.053 0.000 0.087* 0.210	0.000 0.157 0.000 0.000* 0.000 0.000 0.193* 0.079 0.000*
forthbound Right Tur Southbound Right Tur astbound Right Turr Jestbound Right Turr Learance Interval	n Adjustment	None of righ red light wh movement is	en t	here is s	are assum eparate R	ed to T lar	occur ne & whe	on	0.000* 0.000* 0.000* 0.000* 0.100*	0.000* 0.000* 0.000*
INTERSECTION CAPACIT LEVEL OF SERVICE (A=	Y UTILIZATION,	ICU (Sum of C =.6017; C=.7	отро 01	nents with 8; 0=.801	*) <del>-</del> .9; E=.9	01-1.	0; F=1.	> .001+]	0.269 A	0.440 A
PLOT OF PEAK HOUR TU	RNING VOLUMES	AND LANES		PLOT OF	INTERSEC	HOIT	LEG VOL	.UMES		
0 - 0	[ 4,000]	North		<u> </u>	North		Ŷ	336 - (2 Wa	391 [3, ay Volume	,999] es)
0.00.00.0	WR				- 0 E		ים עובי עוביע		= - 391 [ 3	<u> </u>
SRSL		) 336 - 391 ) 416 - 709		547	7 - 945 [	8,20	)6] — →	<u>&lt;</u> —→	1100 [10,	· · · · · · · · · · · · · · · · · · ·
2.0 = Lanes	Lanes WL <							1335	1177 [ 9, -2277 [1 Way Volu	<> 19,866]
0 - 0 -0.0-	ŀ	iT .		85	- 126 [	1,161	]   A	308	- 487 [ 4	,373]
406 - 926 —3.0— 85 - 126 —1.0—		NR 0 .0			eak Hour (AM+PM)*		γ1 Å		613 I 5, ay Volume	

177 - 251

131 - 236

0

[ 5,500] o LEGEND: AM-PM Peak Hour [Estimated 2-Way Daily]

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Leg:

% Entering (AM-PM)
% of Daily in Peak
Hour (AM-PM)

North

South

East

0 - 0 78 - 79 56 - 48 47 - 53 8 - 10 7 - 11 7 - 11 6 - 12

West

INTERSECTION:	SR-14	FREEWAY	NB	RAMPS	(NS)	and	AVENUE	S	(EW)	
LANO USE: EXIST	FING									

COUNT DATE: 11-12-02
GEOMETRICS: Existing

MOVEMENT	LANES	CAPACITY	BASE VOLUME		ADDED VOLUME		TOTAL VOLUME			ME TO CITY
			(MA)	(PM)	(MA)	(PM)	(MA)	(PM)	(MA)	(PM)
Northbound Left Northbound Through Northbound Right Southbound Left Southbound Through Southbound Right Eastbound Left Eastbound Through Eastbound Right Westbound Left Westbound Through Westbound Through	1 0 Free 1 0 0 0 1 2 0 0 2 Free 1	1600 0 1600 0 0 0 1600 3200 0 3200 1600	30 0 135 0 0 0 62 580 0 0 373 747	89 0 645 0 0 41 827 0 452 600	000000000000	0 0 0 0 0 0 0 0 0 0 0	30 0 135 0 0 0 62 580 0 0 373 747	89 0 645 0 0 41 827 0 0 452 600	0.019* 0.000 0.084 0.000 0.000* 0.000 0.039 0.181* 0.000 0.000* 0.117 0.467	0.056* 0.000 0.403 0.000 0.000* 0.000 0.026 0.258* 0.000 0.000* 0.141 0.375

Northbound Right Turn Adjustment Southbound Right Turn Adjustment Eastbound Right Turn Adjustment Westbound Right Turn Adjustment Clearance Interval

None of right turns (RT) are assumed to occur on red light when there is separate RT lane & when movement is permitted.

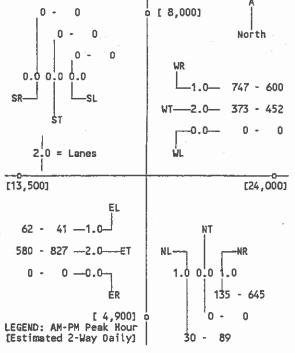
0.000\* 0.000\* 0.000\* 0.000\* 0.000\* 0.000\* 0.000\* 0.000\* 0.100\* 0.100\*

INTERSECTION CAPACITY UTILIZATION, ICU (Sum of Components with \*)

LEVEL OF SERVICE (A=.000-.6 ICU; B=.601-.7; C=.701-.8; D=.801-.9; E=.901-1.0; F=1.001+)

0.300 0.414 A A

# PLOT OF PEAK HOUR TURNING VOLUMES AND LANES 0 - 0 0 [ 8,000] A



PLOT OF INTERSECTION LEG V	/OLUMES
North	809 - 641 [ 7,975] (2 Way Volumes)
	A 809 - 641 [ 7,975]
403 - 541 [ 5,192]	1120 -1052 [11,946]
642 - 868 [ 8,305]	715 -1472 [12,029]
<> 1045 -1409 [13,497] (2 Way Volumes)	1835 -2524 [23,975] (2 Way Volumes)
0 - 0 [ 0]	A 165 - 734 [ 4,945]
LEGENO: AM-PM Peak Hour [Daily] Daily = {AM+PM}* 5.5	165 - 734 [ 4,945] 7 (2 Way Volumes)
Leg: North	n South East West

% Entering (AM-PM) 0 - 0 99 - 99 61 - 42 61 - 62 % of Daily in Peak 10 - 8 3 - 15 8 - 11 B - 10 Hour (AM-PM)

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<u>Existing Plus Project</u>
(Avergae Inflow of Material, 3,613 Tons per Day)

INTERSECTION: TIERRA SUBIDA AVENUE (NS) and PALMDALE BOULEVARD (EW)

COUNT DATE: 11-14-02

LAND USE: EXISTING PLUS PROJECT

COUNT DATE: 11-14-02

GEOMETRICS: Existing

MOVEMENT	LANES		VOLUME		ACITY BASE ADDED TOTAL VOLUME VOLUME VOLUME						ME TO CITY TO
			(MA)	(PM)	(MA)	(PM)	(MA)	(PM)	(MA)	(PM)	
dorthbound Left corthbound Through corthbound Right couthbound Through couthbound Right astbound Left astbound Through astbound Right lestbound Left lestbound Right lestbound Right lestbound Right lestbound Right	1 2 0 1 2 1 1 2 1 1 2	1600 3200 0 1600 3200 1600 1600 3200 1600 3200 1600	195 246 29 104 156 105 227 340 239 21 289 97	258 294 57 262 433 258 166 289 144 80 458 223	450050004000	3 4 0 0 1 0 0 0 0 0 0 0	199 251 29 104 161 105 227 340 243 21 289 97	261 298 57 262 434 258 166 289 144 80 458 223	0.124* 0.088 0.000 0.065 0.050* 0.066 0.142* 0.106 0.152 0.013 0.090* 0.061	0.163* 0.111 0.000 0.164 0.136* 0.161 0.090 0.090 0.050 0.143* 0.139	
Northbound Right Turn Adjustment Southbound Right Turn Adjustment Eastbound Right Turn Adjustment Westbound Right Turn Adjustment Westbound Right Turn Adjustment Clearance Interval  None of right turns (RT) are assumed to occur on red light when there is separate RT lane & when movement is permitted.							0.000* 0.016* 0.000* 0.000*	0.000* 0.025* 0.000* 0.000*			

PLOT OF PEAK HOUR TURNING VOLUMES AND LANES 105 - 258 o [14,200] 161 - 434 North 104 - 262 1.0 2.0 1.0 -2.0- 289 - 458 21 - 80 2.0 = Lanes[16,400I [12,400] EL 227 - 166 -1.0-340 - 289 -2.0-ET 1.0 2.0 0.0 243 - 144 -- 1.0-29 - 57 ĖR [12,000] 0 251 - 298 LEGENO: AM-PM Peak Hour [Estimated 2-Way Daily] 199 - 261

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ı	· · · · · · · · · · · · · · · · · · ·
	PLOT OF INTERSECTION LEG VOLUMES
	A A     945 -1641 [14,223]
	370 - 954 [ 7,282]   A 575 - 687 [ 6,941]
	593 - 977 [ 8,635]
	810 - 599 [ 7,750] 473 - 608 [ 5,946]
	<> 1403 -1576 [16,385]
	425 - 658 [ 5,957] V A 479 - 616 [ 6,023]
	LEGEND: A AM-PM Peak Hour [Daily]   904 -1274 [11,979] Daily = (AM+PM)* 5.5 V (2 Way Volumes)
1	Leg: North South East West
	% Entering (AM-PM) 39 - 58 53 - 48 46 - 56 58 - 38 % of Daily in Peak 7 - 12 8 - 11 7 - 11 9 - 10 Hour (AM-PM)
÷	

TIERRA SUBIOA AVENUE ING PLUS PROJECT	(NS) and 5TH	STREET WEST	(EW)	COUNT OATE: 11-12-02 GEOMETRICS: Existing

MOVEMENT	LANES	CAPACITY	BASE VOLUME		ADD: VOL		TOTA VOLU			IME TO
			(MA)	(PM)	(MA)	(PM)	(MA)	(PM)	(MA)	(PM)
Northbound Left Northbound Through Northbound Right Southbound Left Southbound Through Southbound Right Eastbound Left Eastbound Through Eastbound Right Westbound Left Westbound Through Westbound Right	011110000101	0 1600 1600 1600 1600 0 0 0 0 1600	0 375 53 24 400 0 0 0 79 0	0 521 127 31 459 0 0 0 71	09109000100	08101000000	0 384 54 24 409 0 0 0 0 80 0	0 529 128 31 460 0 0 0 71 0	0.000* 0.240 0.034 0.015 0.256* 0.000 0.000* 0.000* 0.000* 0.050* 0.000 0.016	0.000 0.331* 0.089 0.019* 0.288 0.000 0.000 0.000* 0.000 0.044* 0.000 0.016

Northbound Right Turn Adjustment Southbound Right Turn Adjustment Eastbound Right Turn Adjustment Westbound Right Turn Adjustment Clearance Interval

None of right turns (RT) are assumed to occur on red light when there is separate RT lane & when movement is permitted.

0.000\* 0.000\* 0.000\* 0.000\* 0.000\* 0.000\* 0.000\* 0.000\* 0.100\* 0.100\*

INTERSECTION CAPACITY UTILIZATION, ICU (Sum of Components with \*)
LEVEL OF SERVICE (A=.000-.6 ICU; B=.601-.7; C=.701-.8; D=.801-.9; E=.901-1.0; F=1.001+)

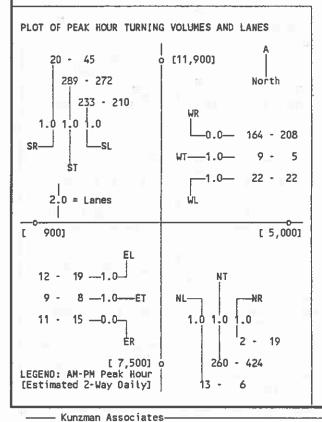
0.406 0.494 A A

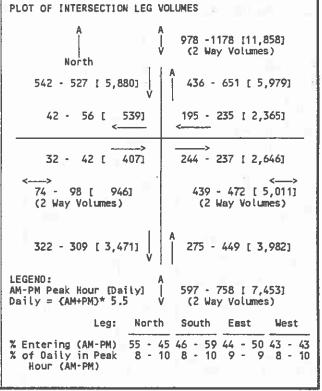
PLOT OF PEAK HOUR TURNING	VOLUMES AND LANES
0 - 0 409 - 460 24 - 31 0.0 1.0 1.0 SR ST 2.0 = Lanes	WR
0 - 0 - 0.0 - ET  0 - 0 - 0.0 - ET  0 - 0 - 0.0 - ET  111,600]  LEGENO: AM-PM Peak Hour [Estimated 2-Way Oaily]	NT NR 0.0 1.0 1.0 54 - 128 384 - 529 0 - 0

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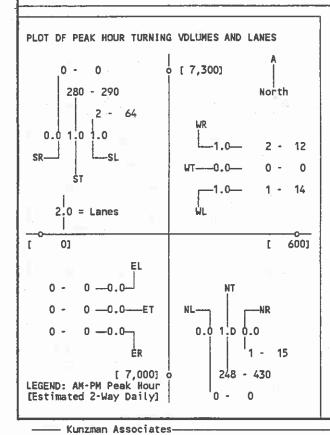
PLOT OF INTERSECTION LEG VOLUMES	
A A 843 -1046 [10,39 V (2 Way Volumes)	
433 - 491 [ 5,082]   A 410 - 555 [ 5,3	083
0 - 0 [ 0] 106 - 97 [ 1,11	71
0 - 0 [ 0] 78 - 159 [ 1,30	4]
0 - 0 [ 0] 184 - 256 [ 2, (2 Way Volume	
489 - 531 [ 5,610]   A 438 - 657 [ 6,0	23)
LEGENO: A AM-PM Peak Hour [Oaily]   927 -1188 [11,63 Daily = {AM+PM}* 5.5 V (2 Way Volumes)	3]
Leg: North South East	West
	0 - 0

INTERSECTION: TIER LAND USE: EXISTING I		E (NS) and RA	YBURN RO	DAD (EW	)				OATE: 11 METRICS:	
MOVEMENT	LANES	CAPACITY	BAS VOLU		ADO VOL		TOTA VOLU			JME TO ACITY TIO (PM)
Northbound Left Northbound Through Northbound Right Southbound Left Southbound Through Southbound Right Eastbound Left Eastbound Through Eastbound Right Westbound Left Westbound Right Westbound Right	1 1 1 1 1 1 1 0 1	1600 1600 1600 1600 1600 1600 1600 0 1600 1600	5 260 2 233 289 10 1 1 3 22 1	5 424 19 210 272 44 10 1 8 22 4 208	8 0 0 0 10 11 8 8 0 8	1 0 0 0 0 1 9 7 7	13 260 2 233 289 20 12 9 11 22 9	6 424 19 210 272 45 19 8 15 22 5 208	0.008 0.163* 0.001 0.146* 0.181 0.013 0.008* 0.013 0.000 0.014 0.108* 0.000	0.004 0.265* 0.012 0.131* 0.170 0.028 0.012* 0.014 0.000 0.014 0.133* 0.000
Northbound Right Tur Southbound Right Tur Eastbound Right Turr Westbound Right Turr Clearance Interval	n Adjustment n Adjustment	None of right who movement is	nen ther	e is s					0.000* 0.000* 0.000* 0.000* 0.100*	0.000* 0.000* 0.000* 0.000*
INTERSECTION CAPACIT							.0; F=1.	> 001+)	0.525 A	0.641 B





INTERSECTION: TIERF LANO USE: EXISTING F		E (NS) and CI	TY RANCH	ROAD	(EW)				DATE: 11 METRICS:	l-12-02 Improved
MOVEMENT	LANES	CAPACITY	BAS VOLL (AM)		ADOI VOLI		TOTA VOLU			ME TO CCLTY TIO (PM)
Northbound Left Northbound Through Northbound Right Southbound Left Southbound Right Southbound Right Eastbound Through Eastbound Through Eastbound Right Westbound Left Westbound Left Westbound Through	0 1 0 1 1 0 0 0 0	0 1600 0 1600 1600 0 0 0 1600	0 240 1 2 272 D 0 0 0 1	0 429 15 64 283 0 0 0 14	08008000000	0 1 0 7 D 0 0 0	0 248 1 2 280 0 0 0 0	0 430 15 64 290 0 0 0 14	0.000* 0.156 0.000 0.001 0.175* D.00D 0.000 0.000* 0.000* 0.000	0.000 0.278* 0.000 0.040* 0.181 0.00D 0.000* 0.000* 0.000* 0.0009* 0.000 0.008
Northbound Right Tur Southbound Right Tur Eastbound Right Tur Westbound Right Turr Clearance Interval	n Adjustment n Adjustment	None of right who movement is	hen ther	e is se					0.000* 0.000* 0.000* 0.000* 0.100*	0.000* 0.000* 0.000* 0.000* 0.100*
INTERSECTION CAPACIT LEVEL OF SERVICE (A=	TY UTILIZATION, =.0006 ICU; B	ICU (Sum of { =.6017; C=.7	Componer 7018;	its with D=.801	h *) — 9; E=	901-1	.D; F=1.	) 001+)	0.276 A	0.427 A-



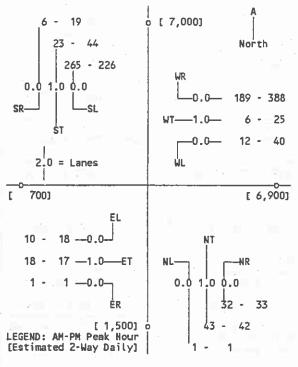
PLOT OF INTERSECTION LEG Y	/DLUMES					
North	(   532 - 796 [7,304] / (2 Way Volumes)					
282 - 354 [ 3,498]	A 250 - 442 [ 3,806]					
0 - 0 1 01	3 - 26 I 160]					
0 - 0 [ 0]	→ 3 - 79 [ 451]					
<> 0 - 0 [ 0] (2 Way Volumes)	6 - 105 I 611] (2 Way Volumes)					
281 - 304 [ 3,218] V	A 249 - 445 [ 3,817]					
LEGEND: AM-PM Peak Hour [Daily] Oaily = (AM+PM)* 5.5	53D - 749 I 7,035] (2 Way Volumes)					
Leg: North	n South East West					
% Entering (AM-PM) 53 - 4 % of Caily in Peak 7 - Hour (AM-PM)	44 47 - 59 50 - 25 0 - 0 11 8 - 11 1 - 17 0 - 0					

INTERSECTION:	TIERRA	SUBIDA	<b>AVENUE</b>	(NS)	and	AVENUE	\$ (EW)
LAND HOE. EYES	TIME DIE	IC DDO H	TOT				

COUNT DATE: 11-14-02 GEOMETRICS: Existing

MOVEMENT	LANES	CAPACITY	BASE VOLUME		ADDED VOLUME		TOTAL VOLUME		VOLUME TO CAPACITY RATIO	
			(MA)	(PM)	(MA)	(PM)	(MA)	(PM)	(MA)	(PM)
Jorthbound Left Jorthbound Through Jorthbound Right Jouthbound Through Jouthbound Through Jouthbound Right Jouthbound Left Jouthbound Through Jouthbound Right Jouthbound Right Jouthbound Left Jouthbound Left Jouthbound Through Jouthbound Through Jouthbound Right Jouthbound Right Jouthbound Right Jouthbound Right Jouthbound Right	0 1 0 1 0 0 1 0 0	1600 0 0 1600 0 1600 0 0 1600 0	1 42 32 258 22 6 10 18 1 12 6	1 42 33 220 43 19 18 17 1 40 25 387	0 1 0 7 1 0 0 0 0 0 6	0 0 0 6 1 0 0 0 0 0 1	1 43 32 265 23 6 10 18 1 12 6	1 42 33 226 44 19 18 17 1 40 25 388	0.000* 0.048 0.000 0.000 0.184* 0.000 0.000* 0.018 0.018 0.000 0.000 0.129* 0.000	0.000* 0.048 0.000 0.000 0.181* 0.000 0.000* 0.023 0.000 0.283* 0.000
orthbound Right Tu Gouthbound Right Tur astbound Right Tur Hestbound Right Tur Clearance Interval	rn Adjustment n Adjustment	None of right with movement is	hen ther	e is se					0.000* 0.000* 0.000* 0.000* 0.100*	0.000° 0.000° 0.000° 0.000°





— Kunzman Associates—

#### 536 - 737 [ 7,002] (2 Way Volumes) North 294 - 289 [ 3,207] 242 - 448 [ 3,795] 207 - 453 [ 3,630] 13 - 45 [ 319] 29 - 36 [ 358] 315 - 276 [ 3,251] 42 - 81 [ 677] 522 - 729 [ 6,881] (2 Way Volumes) (2 Way Volumes) 76 - 76 [ 836] LEGENO: AM-PM Peak Hour [Daily] Daily = (AM+PM)\* 5.5 112 - 161 [ 1,502] (2 Way Volumes) Leg: North South East % Entering (AM-PM) 55 - 39 68 - 47 40 - 62 69 - 44 % of Oaily in Peak 8 - 11 7 - 11 8 - 11 6 - 12 Hour (AM-PM)

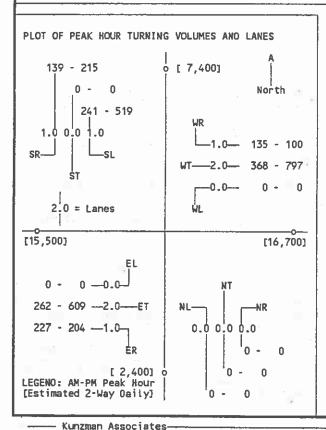
PLOT OF INTERSECTION LEG VOLUMES

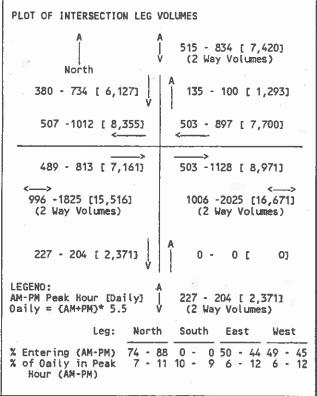
INTERSECTION: 5TH	STREET WEST (NS PLUS PROJECT	) and PALMDALI	E BOULE\	/ARD (EV	1)				OATE: 11 METRICS:	l-13-02 Existing
MOVEMENT	LANES	CAPACITY	8AS VOLU		ADD VOL		TOTA VOLU			ME TO ACITY 110 (PM)
Northbound Left Northbound Through Northbound Right Southbound Left Southbound Right Southbound Right Eastbound Through Eastbound Through Eastbound Right Westbound Left Westbound Left Westbound Right Westbound Right	1 2 0 1 2 1 1 2 1 2 1 1 2	1600 3200 0 1600 3200 1600 1600 3200 1600 3200 1600	18 16 93 44 8 12 7 285 9 78 288 85	52 38 122 144 53 17 24 444 40 221 643	00100000100	0 0 1 0 0 0 0	18 16 94 44 8 12 7 285 9 79 288 85	52 38 123 144 53 17 24 444 40 221 643 80	0.011 0.034* 0.000 0.028* 0.003 0.008 0.004 0.089* 0.006 0.049* 0.090 0.053	0.033 0.050* 0.000 0.090* 0.017 0.011 0.015 0.139* 0.025 0.138* 0.201 0.050
Northbound Right Tur Southbound Right Tur Eastbound Right Tur Westbound Right Turr Clearance Interval	n Adjustment n Adjustment	None of right who movement is	hen ther	e is se					0.000* 0.000* 0.000* 0.000* 0.100*	0.000* 0.000* 0.000* 0.000* 0.100*
INTERSECTION CAPACIT LEVEL OF SERVICE (A=	TY UTILIZATION, =.0006 ICU; B	ICU (Sum of (=.6017; C=.)	Componer 7018;	nts with 0=.801	*) <del>-</del> .9; E=	.901-1	.0; F=1.	<del>)</del> >	0.300 A	0.517 A

PLOT OF PEAK HOUR TURNING	G VOLUMES AND LANES
12 - 17	( 2,9003 A
8 - 53 44 - 144 1.0 2.0 1.0 SR - SL ST 2.0 = Lanes	WR
7 - 24 —1.0—ET 9 - 40 —1.0—ER	NT NR 1.0 2.0 0.0 94 - 123
[ 4,100] C LEGEND: AM-PM Peak Hour [Estimated 2-Way Daily]	16 - 38

PLOT OF INTERSECTION LEG V	OLUMES					
A A V	172 - 356 [ 2,904] (2 Way Volumes)					
64 - 214 [ 1,529]	A 108 - 142 [ 1,375]					
318 - 712 [ 5,665]	452 - 944 [ 7,678] <					
301 - 508 [ 4,4503	423 - 711 [ 6,237]					
<> 619 -1220 [10,115] (2 Way Volumes)	875 -1655 [13,915] (2 Way Volumes)					
96 - 314 [ 2,255] V	A 128 - 213 [ 1,876]					
LEGEND: A AM-PM Peak Hour [Daily]   Daily = (AM+PM)* 5.5 V	224 - 527 [ 4.131] (2 Way Volumes)					
Leg: North	South East West					
% Entering (AM-PM) 37 - 6 % of Oaily in Peak 6 - 1 Hour (AM-PM)	0 57 - 40 52 - 57 49 - 42 2 5 - 13 6 - 12 6 - 12					

INTERSECTION: SR-14 FREEWAY SB RAMPS (NS) and PALMDALE BOULEVARO (EW) COUNT OATE: 11-12-02 LANO USE: EXISTING PLUS PROJECT GEOMETRICS: Existing MOVEMENT LANES **CAPACITY** BASE ADOED TOTAL VOLUME TO VOLUME **VOLUME** VOLUME CAPACITY RATIO (AM) (PM) (AM) (PM) (MS) (PM) (PM) (AM) Northbound Left 0.000 n n n 0 0.000 Northbound Through 0 0.000\* 0.000\* 0 0 0 0 0 0 Û Northbound Right ñ Λ 0 0 0 n 0 0.000 0.000 Southbound Left 1600 241 519 0 0 241 519 0.151\* 0.324\* Southbound Through 0 Ð 0 0 0.000 0.000 Southbound Right 1600 215 θ 139 215 0.087 Free 138 0.134 Eastbound Left 0 0.000\* 0 0 0 0.000\* Eastbound Through 3200 261 608 262 609 0.082 0.190 Eastbound Right 1600 227 Ó 0 227 0.142 Free 204 204 0.128 0.000 Westbound Left 0 0 0 ٥ 0 0.000 0 0 0 Westbound Through 3200 797 797 0.115\* 0.249\* 368 2 Ð 368 Westbound Right 1600 135 Free 100 135 100 0.084 0.063 Northbound Right Turn Adjustment None of right turns (RT) are assumed to occur on 0.000\* 0.000\* Southbound Right Turn Adjustment red light when there is separate RT (ane & when 0.000\* 0.000\* Eastbound Right Turn Adjustment movement is permitted. 0.000\* 0.000\* Westbound Right Turn Adjustment 0.000\* 0.000\* 0.100\* Clearance Interval 0.100\* INTERSECTION CAPACITY UTILIZATION, ICU (Sum of Components with \*) \_\_\_\_\_> LEVEL OF SERVICE (A=.000-.6 ICU; B=.601-.7; C=.701-.8; 0=.801-.9; E=.901-1.0; F=1.001+) 0.366 0.673





	INTERSECTION: SR-14 FREEWAY SELANO USE: EXISTING PLUS PROJECT	COUNT DATE: 11-12-02 GEOMETRICS: Existing
ŀ		

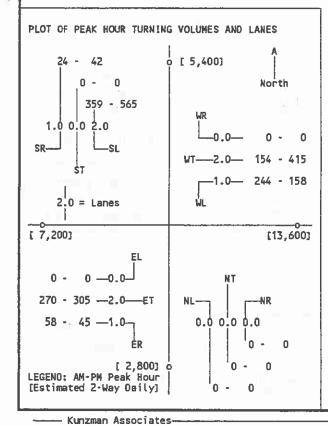
MOVEMENT		ANES	CAPACITY	VOLU		VOL		VOLU			ME TO CITY IO
			=_	(MA)	(PM)	(MA)	(PM)	(MA)	(PM)	(MA)	(PM)
Northbound Left	}	0	0	0	0	0	0	0	0	0.000	0.000
Northbound Through		0	0	0	ō	0	Ó	0	0	0.000*	0.000
Northbound Right		0	0	0	0 1	0	0	0	0	0.000	0.000
Southbound Left		2	2880	359	565	0	0	359	565	0.125*	0.196
Southbound Through	ļ	0	0	0	0	0	0	0	0	0.000	0.000
Southbound Right	ĺ	1	1600	24	42	0	0	24	42	0.015	0.026
Eastbound Left		0	0	0	0	0	0	0	0	0.000	0.000
Eastbound Through	}	2	3200	266	302	4	3	270	305	0.084*	0.095
Eastbound Right	Free	1	1600	55	43	3	2	58	45	0.036	0.028
Westbound Left	1	1	1600	244	158	0	0	244	158	0.153*	0.099
Westbound Through		2	3200	148	414	6	1	154	415	0.048	0.130
Westbound Right		0	0	0	0	0	0	0	0	0.000	0.000

Northbound Right Turn Adjustment Southbound Right Turn Adjustment Eastbound Right Turn Adjustment Westbound Right Turn Adjustment Clearance Interval None of right turns (RT) are assumed to occur on red light when there is separate RT lane & when movement is permitted.

0.000\* 0.000\* 0.000\* 0.000\* 0.000\* 0.000\* 0.000\* 0.000\* 0.100\* 0.100\*

INTERSECTION CAPACITY UTILIZATION, ICU (Sum of Components with \*) LEVEL OF SERVICE (A=.000-.6 ICU; B=.601-.7; C=.701-.8; 0=.801-.9; E=.901-1.0; F=1.001+)

0.462 0.490 A A



PLOT OF INTERSECTION LEG VOLUMES
A A     383 - 607 [ 5,445]
383 - 607 [ 5,445]         0 - 0 [ 0]
178 - 457 [ 3,493]
328 - 350 [ 3,729] 629 - 870 [ 8,245]
506 - 807 [ 7,222] 1027 -1443 [13,585] (2 Way Volumes)
302 - 203 [ 2,778]   A 0 - 0 [ 0]
LEGENO: A AM-PM Peak Hour [Oaily]   302 - 203 [ 2,778] Daily = (AM+PN)* 5.5 V (2 Way Volumes)
Leg: North South East West
% Entering (AM-PM) 99 - 99 0 - 0 39 - 40 65 - 43 % of Daily in Peak 7 - 11 11 - 7 8 - 11 7 - 11 Hour (AM-PM)

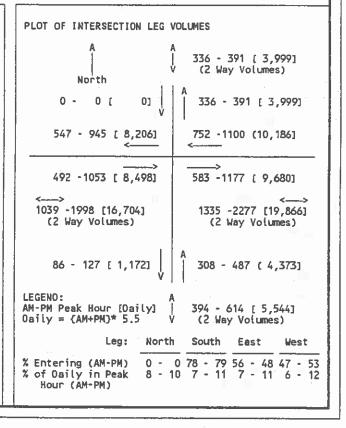
INTERSECTION: SR-1 LANO USE: EXISTING	4 FREEWAY NB R/ PLUS PRDJECT	AMPS (NS) and PALMDALE BOULEVARO (EW)						COUNT OATE: 11-12-02 GEOMETRICS: Existing			
MOVEMENT	LANES	CAPACITY	BAS VOLU		ADOE VOLU		TOTA VOLL (AM)			JME TO ACITY FIO (PM)	
Northbound Left Northbound Through Northbound Right Southbound Through Southbound Right Eastbound Left Eastbound Through Eastbound Right Westbound Left Westbound Right Westbound Right Westbound Right Westbound Right	1 0 Free 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1600 0 1600 0 0 0 0 4800 1600 0 4800 1600	131 0 177 0 0 0 0 406 85 0 416 336	236 0 251 0 0 0 0 926 126 0 709 391	00000001000	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	131 0 177 0 0 0 0 406 86 0 416 336	236 0 251 0 0 0 926 127 0 709 391	0.082* 0.000 0.111 0.000 0.000* 0.000* 0.085 0.054 0.000 0.087* 0.210	0.147* 0.000 0.157 0.000 0.000* 0.000 0.000 0.193* 0.079 0.000* 0.148 0.244	
Northbound Right Tur Southbound Right Tur Eastbound Right Turr Westbound Right Turr Clearance Interval	rn Adjustment n Adjustment	None of right with movement is	hen ther	e is se	ire assu parate	med to RT lar	occur ne & whe	on en	0.000* 0.000* 0.000* 0.000* 0.100*	0.000* 0.000* 0.000* 0.000* 0.100*	

INTERSECTION CAPACITY UTILIZATION, ICU (Sum of Components with \*) LEVEL OF SERVICE (A=.000-.6 ICU; B=.601-.7; C=.701-.8; 0=.801-.9; E=.901-1.0; F=1.001+)

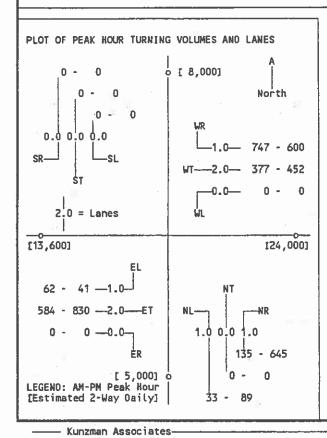
0.269 0.440 A A

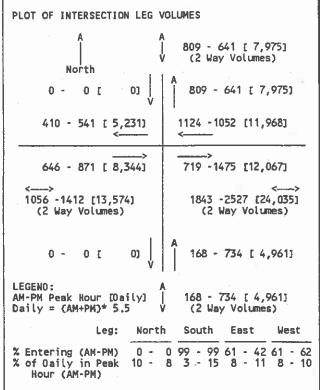
### PLOT OF PEAK HOUR TURNING VOLUMES AND LANES 6 [ 4,000] North 0.0 0.0 0.0 -1.0- 336 - 391 SR-416 - 709 2.0 = Lanes [16,700] [19,900] 0 --- 0.0-406 - 926 --- 3.0-ET -NR 86 - 127 -- 1.0-1.0 0.0 1.0 ÉR 177 - 251 [5,500] 6 0 -LEGEND: AM-PM Peak Hour [Estimated 2-Way Oaily]

--- Kunzman Associates-



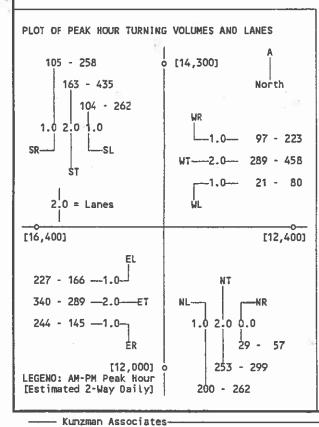
INTERSECTION: SR-1		MPS (NS) and	AVENUĖ S	(EW)	71				NT OATE: 11-12-02 EOMETRICS: Existing		
MOVEMENT	LANES	CAPACITY	BAS VOLU		ADD VOL		TOT# VOLU	JME		ME TO ACITY TIO (PM)	
Northbound Left Northbound Through Northbound Right Southbound Through Southbound Right Eastbound Left Eastbound Through Eastbound Right Westbound Left Westbound Through Westbound Right	1 0 Free 1 0 0 1 2 0 2 Free 1	1600 0 1600 0 0 0 1600 3200 0 3200 1600	30 0 135 0 0 0 62 580 0 0 373 747	89 0 645 0 0 41 827 0 452 600	30 00 00 00 04 00 40 04	0 0 0 0 0 0 0 0 0	33 0 135 0 0 0 62 584 0 0 377 747	89 0 645 0 0 0 41 830 0 452 600	0.021* 0.000 0.084 0.000* 0.000* 0.000 0.339 0.000* 0.000* 0.000* 0.118	0.056* 0.000 0.403 0.000 0.000* 0.000 0.259* 0.000 0.000* 0.141 0.375	
Northbound Right Tu Southbound Right Tur Eastbound Right Tur Westbound Right Tur Clearance Interval	rn Adjustment n Adjustment	None of rig red light w movement is	hen ther	e is s					0.000* 0.000* 0.000* 0.000* 0.100*	0.000* 0.000* 0.000* 0.000* 0.100*	
INTERSECTION CAPACI LEVEL OF SERVICE (A	TY UTILIZATION, =.0006 ICU; B	ICU (Sum of #.6017; C=.	Componer 7018;	nts with 0=.801	n *) —	.901-1	.0; F=1.		0.304 A	0.415 A	





Year 2007 With Project
(Avergae Inflow of Material, 3,613 Tons per Day)

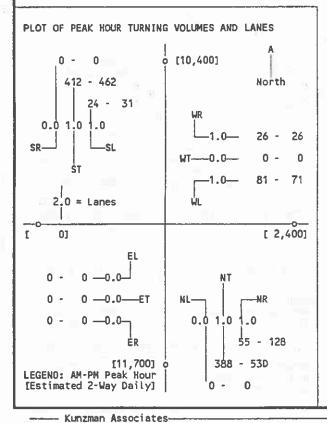
	INTERSECTION: TIERRA SUBIOA AVENUE (NS) and PALMDALE BOULEVARD (EW) AND USE: EXISTING PLUS PROJECT									
MOVEMENT	LANES	V		VOLUME VOLU		ADDED VOLUME (AM) (PM)		TOTAL VOLUME (AM) (PM)		ME TO CITY TO (PM)
Northbound Left Northbound Through Northbound Right Southbound Left Southbound Right Eastbound Left Eastbound Through Eastbound Right Westbound Right Westbound Through Westbound Through	1 2 0 1 2 1 1 2 1 1 2 1	1600 3200 0 1600 3200 1600 1600 3200 1600 3200 1600	195 246 29 104 156 105 227 340 239 21 289 97	258 294 57 262 433 258 166 289 144 80 458 223	570070005000	4500 0020 0001 0000	200 253 29 104 163 105 227 340 244 21 289 97	262 299 57 262 435 258 166 289 145 80 458 223	0.125* 0.088 0.000 0.065 0.051* 0.066 0.142* 0.106 0.153 0.013 0.090* 0.061	0.111 0.000 0.164 0.136* 0.161 0.104* 0.090 0.091 0.050
Northbound Right Turn Adjustment Southbound Right Turn Adjustment Eastbound Right Turn Adjustment Westbound Right Turn Adjustment Westbound Right Turn Adjustment Clearance Interval									0.000* 0.015* 0.000* 0.000*	0.000* 0.025* 0.000* 0.000* 0.100*
INTERSECTION CAPACIT LEVEL OF SERVICE (A=	INTERSECTION CAPACITY UTILIZATION, ICU (Sum of Components with *)  LEVEL OF SERVICE (A=.0006 ICU; B=.6017; C=.7018; 0=.8019; E=.901-1.0; F=1.001+)									0.672 B

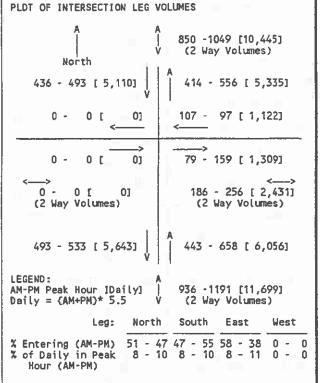


PLOT OF INTERSECTION LEG VO	LUMES						
A A V	949 -1643 [14,256] (2 Way Volumes)						
372 - 955 I 7,2991 V	A 577 - 688 I 6,958]						
594 - 978 [ 8,646]	407 - 761 [ 6,424]						
811 - 600 [ 7,761]	473 - 608 [ 5,946]						
1405 -1578 [16,407] (2 Way Volumes)	880 -1369 [12,370] (2 Way Volumes)						
428 - 660 [ 5,984] V	A 482 - 618 [ 6,050]						
LEGENO: A AM-PM Peak Hour [Daily]   Daily = (AM+PM)* 5.5 V	910 -1278 [12,034] (2 Way Volumes)						
Leg: North	South East West						
% Entering (AM-PM) 39 - 58 % of Daily in Peak 7 - 12 Hour (AM-PM)	53 - 48 46 - 56 58 - 38 8 - 11 7 - 11 9 - 10						

INTERSECTION: TIERRA SUBIDA AVENUE (NS) and 5TH STREET WEST (EW) COUNT DATE: 11-12-02 LAND USE: EXISTING PLUS PROJECT GEOMETRICS: Existing ADOEO VDLUME TO MOVEMENT LANES CAPACITY 8ASE TOTAL **VOLUME** VOLUME **VOLUME** CAPACITY RATIO (AM) (PM) (PM) (PM) (AM) (PM) (MA) (AM) Northbound Left 0.000\* 0.000 1600 375 521 9 388 530 0.243 0.331\* Northbound Through 13 53 24 127 31 55 24 412 Northbound Right 1600 2 1 128 0.034 0.080 Ö 0 31 D.015 0.019\* 1600 Southbound Left 16D0 400 459 12 462 0.258\* D.289 Southbound Through 10 ō ō 0.000 0.000 0 0 Southbound Right ۵ ۵ 0.000 Ŏ 0 Λ Λ 0 Λ 0 0.000 Eastbound Left 0 0.000\* 0.000\* 0 0 Ω 0 0 Eastbound Through 0 n ō 0.000 0.000 Eastbound Right 0 ñ n 0 0 0 0 0.051\* 79 0.044\* 71 81 Westbound Left 1600 0 0.000 Westbound Through 0 Û 0 O 0 ٥ 0 0.000 Westbound Right 1600 26 26 Ô 0 26 26 0.016 0.016 Northbound Right Turn Adjustment Southbound Right Turn Adjustment 0.000\* None of right turns (RT) are assumed to occur on 0.000\* 0.000\* red light when there is separate RT lane & when 0.000\* Eastbound Right Turn Adjustment movement is permitted. 0.000\* 0.000\* Westbound Right Turn Adjustment 0.000\* 0.000\* D.100\* 0.100\* Clearance Interval INTERSECTION CAPACITY UTILIZATION, 1CU (Sum of Components with \*)

LEVEL OF SERVICE (A=.DDD-.6 ICU; B=.601-.7; C=.701-.8; D=.8D1-.9; E=.901-1.0; F=1.001+) 0.409 D.494





INTERSECTION: TIERRA SUBIDA AVENUE (NS) and RAYBURN ROAD (EW)

LAND USE: EXISTING PLUS PROJECT

COUNT DATE: 11-12-02
GEOMETRICS: Improved

MOVEMENT	LANES	CAPACITY	BASE VOLUME		ADGED VOLUME		TOTAL VOLUME		VOLUME TO CAPACITY RATIO	
			(MA)	(PM)	(MA)	(PM)	(MA)	(PM)	(MA)	(PM)
Northbound Left	1 24	1600	-5	5	11	3	16	8	0.010	0.005
Northbound Through	1	1600	260	424	0	0	260	424	0.163*	0.265*
Northbound Right	] 1	1600	2	19	0	0	2	19	0.001	0.012
Southbound Left	1	1600	233	210	0	0	233	210	0.146*	0.131
Southbound Through	1	1600	289	272	0	0	289	272	0.181	0.170
Southbound Right	₩ 1	1600	10	44	14	4	24	48	0.015	0.030
Eastbound Left	1	1600	1	10	14	11	15	21	0.009*	0.013
Eastbound Through	1 1	1600	1	1	11	8	12	9	0.016	0.016
Eastbound Right	0	0	3	8	11	8	. 14	16	0.000	0.000
Westbound Left	1	1600	22	22	0	0	22	22	0.014	0.014
Westbound Through	1 1	1600	1	4	11	3	12	7	0.110*	0.1341
Westbound Right	0	0	164	208	0	0	164	208	0.000	0.000
Northbound Right Tur Southbound Right Tur Eastbound Right Turr Westbound Right Turr Clearance Interval	n Adjustment n Adjustment	None of right was movement is	hen ther	e is se					0.000* 0.000* 0.000* 0.000*	0.000* 0.000* 0.000* 0.000*

INTERSECTION CAPACITY UTILIZATION, ICU (Sum of Components with \*)

LEVEL OF SERVICE (A=.000-.6 ICU; B=.601-.7; C=.701-.8; D=.801-.9; E=.901-1.0; F=1.001+)

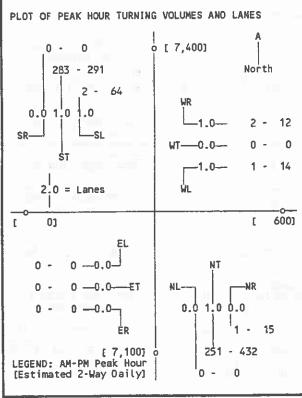
0.528 0.643 A B

#### PLOT OF PEAK HOUR TURNING VOLUMES AND LANES 6 [11,900] 24 - 48 289 - 272 North 233 - 210 1.0 1.0 1.0 164 - 208 SR-7 22 - 22 2.0 = Lanes[ 1,100] [ 5,100] 15 - 21 —1.0-9 -1.0-ET -NR 1.0 1.0 1.0 2 - 19 ĖR [7,500] 6 260 - 424 LEGENO: AM-PM Peak Hour [Estimated 2-Way Daily] 8

PLOT OF INTERSECTION LEG V	OLUMES -						
North	A   985 -1183 [11,924] V (2 Way Volumes)						
546 - 530 [ 5,918] V	439 - 653 [ 6,006]						
52 - 63 [ 633]	198 - 237 [ 2,393]						
41 - 46 [ 479]	247 - 238 [ 2,668]						
93 - 109 [ 1,111] (2 Way Volumes)	445 - 475 [ 5,060] (2 Way Volumes)						
325 - 310 [3,493] V	A 278 - 451 [ 4,010]						
LEGEND: AM-PM Peak Hour [Daily] Daily = {AM+PM}* 5.5	603 - 761 [ 7,502] (2 Way Volumes)						
Leg: North	n South East West						
% Entering (AM-PM) 55 - 4 % of Daily in Peak 8 - 4 Hour (AM-PM)							

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MOVEMENT	LANES	CAPACITY	BAS VOLU		ADOI VOLI		TOTA VOLU			ME TO CITY IO (PM)
Northbound Left Northbound Through Northbound Right Southbound Through Southbound Right Eastbound Right Eastbound Through Eastbound Right Westbound Left Westbound Through Westbound Through Westbound Through	0 1 0 1 1 0 0 0 0	0 1600 0 1600 1600 0 0 0 1600 0	0 240 1 2 272 0 0 0 0 1	0 429 15 64 283 0 0 0 14	0 11 0 0 11 0 0 0	030080000000000000000000000000000000000	0 251 1 2 283 0 0 0 0 1	0 432 15 64 291 0 0 0 14 0	0.000* 0.158 0.000 0.001 0.177* 0.000 0.000* 0.000* 0.000* 0.000* 0.000	0.000 0.000 0.000* 0.000
westbound illi ough									0.000* 0.000* 0.000* 0.000* 0.100*	0.000*
INTERSECTION CAPACITY UTILIZATION, ICU (Sum of Components with *)  LEVEL OF SERVICE (A=.0006 ICU; B=.6017; C=.7018; O=.8019; E=.901-1.0; F=1.001+)									0.278 A	0.428 A



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PLOT OF INTERSECTION LEG VOLUM	ES
North I I A	38 - 799 I 7,354] (2 Way Volumes) 253 - 444 [ 3,834]
0 - 0 E 01 <-	3 - 26 [ 160]
0 - 0 [ 0] -	<del></del> > 3 - 79 I 451]
<> 0 - 0 [ 0] (2 Way Volumes)	6 - 105 [ 611] (2 Way Volumes)
284 - 305 [ 3,240] V	252 - 447 [ 3,845]
LEGEND: A AM-PM Peak Hour [Daily]   5 Oaily = (AM+PM)* 5.5 V	36 - 752 [ 7,084] (2 Way Volumes)
Leg: North S	outh East West
% Entering (AM-PM) 53 - 44 47 % of Oaily in Peak 7 - 11 8 Hour (AM-PM)	2 - 59 50 - 25 0 - 0 3 - 11 1 - 17 0 - 0

INTERSECTION: SR-14 LAND USE: EXISTING F		MPS (NS) and Pa	ALMDALE BO	DULEVARO (E	W) iii			OATE: 11-12-02 METRICS: Existing
MOVEMENT	LANES	CAPACITY	BASE VOLUME	ADD VOL		TOTAL VOLUM	E	VOLUME TO CAPACITY RATIO (AM) (PM)
Northbound Left Northbound Through Northbound Right Southbound Inrough Southbound Right Eastbound Right Eastbound Through Eastbound Through Eastbound Right Westbound Left Westbound Right Westbound Right	0 0 0 1 0 Free 1 0 2 Free 1	0 0 0 1600 0 1600 0 3200 1600 0 3200 1600	0 0 0 241 5 0 138 21 0 261 60 227 20	0 0 0 0 0 0 9 0 0 5 2 0 0 8 2 04 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 241 0 140 0 263 227 0 368	0 0 0 519 0 215 0 609 204 0 797	0.000 0.000 0.000* 0.000* 0.000 0.000 0.151* 0.324* 0.000 0.000 0.88 0.134 0.000* 0.000* 0.082 0.190 0.142 0.128 0.000 0.000 0.115* 0.249* 0.084 0.063
Northbound Right Tur Southbound Right Turn Eastbound Right Turn Westbound Right Turn Clearance Interval	n Adjustment Adjustment	None of right red light who movement is p	en there	s separate				0.000* 0.000* 0.000* 0.000* 0.000* 0.000* 0.000* 0.000* 0.100* 0.100*
INTERSECTION CAPACIT LEVEL OF SERVICE (A=	Y UTILIZATION,	ICU (Sum of Co =.6017; C=.70	omponents 018; 0=.	with *) — 8019; E=	.901-1	.0; F=1.0	—→ 101+)	0.366 0.673 A B
PLOT OF PEAK HOUR TU	PRING VOLUMES	AND LANES  A  North	PL01	OF INTERS	111	Α	516 -	834 [ 7,425] ay Volumes)
1.0 0.0 1.0 SR— SL	WR 1.0 WT—2.0		381 - 734 [ 6,133] V 135 - 100 [ 1,293] 508 -1012 [ 8,360]					
2:0 = Lanes [15,500]	- WL	[16,700]	<- S	490 - 813 > 198 -1825 [ (2 Way Vol	15,527		1007	1128 [ 8,976] <> -2025 [16,676] Way Volumes)
0 - 0 - 0.0 - 2.0 - 263 - 609 - 2.0 - 227 - 204 - 1.0	ET NL-			227 - 204 ND: M Peak Hou y = {AM+PM	r [Dai	V       A  y]	227 -	- 0 [ 0] 204 [ 2,371] ay Volumes)
ER  [ 2,4  LEGEND: AM-PM Peak H [Estimated 2-Wey Dai	00] o	0 - 0	<b>%</b> 01		Peak		South 0 -	East West 0 50 - 44 49 - 45 9 6 - 12 6 - 12

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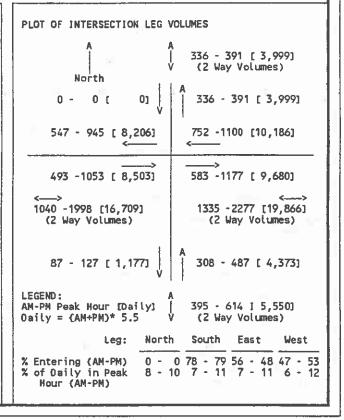
INTERSECTION: SR-14 FREEWAY SB RAMPS (NS) and AVENUE S (EW)  LAND USE: EXISTING PLUS PROJECT  COUNT DATE: 11-12-02 GEOMETRICS: Existing												
MOVEMENT	LANES	CAPACITY	BASE VOLUME (AM) (PM)	ADOEO VOLUME (AM) (PM)	TOTAL VOLUME (AN) (PM)	VOLUME TO CAPACITY RATIO (AM) (PM)						
Northbound Left Northbound Through Northbound Right Southbound Through Southbound Through Southbound Right Eastbound Left Eastbound Through Eastbound Right Westbound Left Westbound Through Westbound Through Westbound Through	0 0 0 2 0 1 0 2 Free 1 1 2	0 0 2880 0 1600 0 3200 1600 1600 3200 0	0 0 0 0 0 0 359 565 0 0 24 42 0 0 266 302 55 43 244 158 148 414 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 359 565 0 0 0 24 42 0 0 0 271 306 59 46 244 158 157 416 0 0	0.000 0.000 0.000* 0.000* 0.000 0.000 0.125* 0.196* 0.000 0.000 0.015 0.026 0.000 0.000 0.085* 0.096* 0.037 0.029 0.153* 0.099* 0.049 0.130 0.000 0.000						
Northbound Right Turn Adjustment Southbound Right Turn Adjustment Eastbound Right Turn Adjustment Westbound Right Turn Adjustment Westbound Right Turn Adjustment Westbound Right Turn Adjustment Underweit is permitted.  Wone of right turns (RT) are assumed to occur on red light when there is separate RT lane & when movement is permitted.  0.000* 0.000* 0.000* 0.000* 0.000* 0.000* 0.100* 0.100*												
INTERSECTION CAPACITY UTILIZATION, ICU (Sum of Components with *) O.463												
PLOT OF PEAK HOUR TURNING VOLUMES AND LANES  24 - 42  0 - 0  359 - 565  1.0 0.0 2.0  SR												

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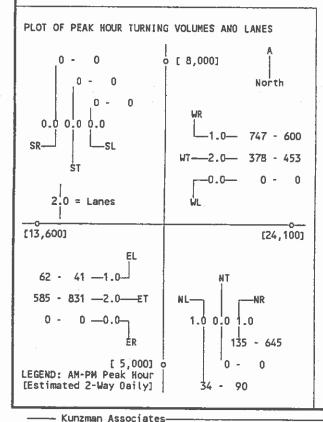
	INTERSECTION: SR-1 LANO USE: EXISTING		MPS (NS) and I	PS (NS) and PALMDALE BOULEVARD (EW)						COUNT DATE: 11-12-02 GEOMETRICS: Existing				
	MOVEMENT	LANES	CAPACITY	BAS VOLU (AM)		ADO VOL		TOTA VOLU	ME		JME TO CCITY TO (PM)			
	Northbound Left Northbound Through Northbound Right Southbound Left Southbound Through Southbound Right Eastbound Left Eastbound Through Eastbound Right Westbound Left Westbound Through Westbound Right	1 0 Free 1 0 0 0 0 3 Free 1 0 3	1600 0 1600 0 0 0 0 4800 1600 0 4800 1600	131 0 177 0 0 0 406 85 0 416 336	236 0 251 0 0 0 926 126 0 709 391	000000000000000000000000000000000000000	0 0 0 0 0 0 0	131 0 177 0 0 0 0 406 87 0 416 336	236 0 251 0 0 0 926 127 0 709 391	0.082* 0.000 0.111 0.000* 0.000* 0.000* 0.085 0.054 0.000 0.087* 0.210	0.147* 0.000 0.157 0.000 0.000* 0.000 0.193* 0.079 0.000* 0.148 0.244			
	Northbound Right Turn Adjustment Southbound Right Turn Adjustment Eastbound Right Turn Adjustment Westbound Right Turn Adjustment Westbound Right Turn Adjustment Clearance Interval									0.000* 0.000* 0.000* 0.000* 0.100*	0.000* 0.000* 0.000* 0.000* 0.100*			
0.0	INTERSECTION CAPACI LEVEL OF SERVICE (A	TY UTILIZATION, =.0006 ICU; B	ICU (Sum of (	Componer 7018;	nts with 0=.801-	1 *) —	.901-1	.0; F=1.	) 001+)	0.269 A	0.440 A			

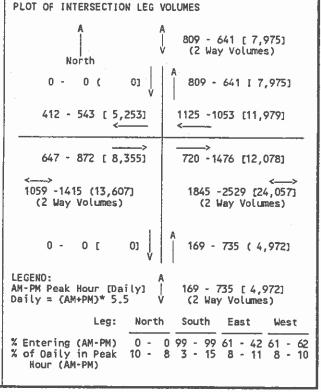
PLOT OF PEAK HOUR TURNING	VOLUMES AND LANES
0 - 0	[ 4,000] A
0 - 0 0 - 0 0 - 0 SR -	WR
2:0 = Lanes -0- [16,700]	₩Ł [19,900]
0 - 0 -0.0	11
406 - 9263.0ET	NLNRNR
87 - 127 —1.0— ER	1.0 0.0 1.0
[ 5,500] c LEGENO: AM-PM Peak Hour [Estimated 2-Way Oaily]	0 - 0

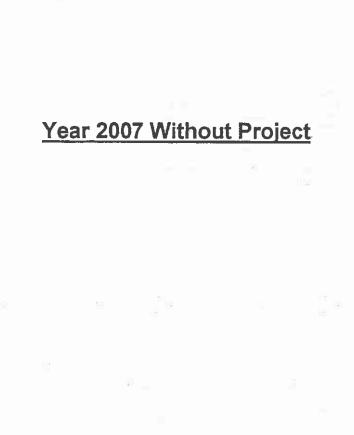
— Kunzman Associates—



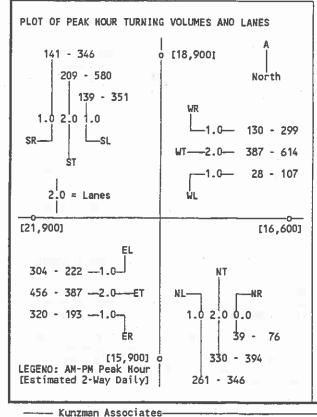
INTERSECTION: SR-14 FREEWAY NB RAMPS (NS) and AVENUE S (EW) COUNT OATE: 11-12-02 LANO USE: EXISTING PLUS PROJECT GEOMETRICS: Existing MOVEMENT LANES CAPACITY BASE ADDEO TOTAL VOLUME TO VOLUME VOLUME VOLUME CAPACITY **RATIO** (MA) (PM) (AM) (PM) (AM) (PM) CAMO (PM) Northbound Left 1600 30 89 34 90 0.021\* 0.056\* Northbound Through 0 0 0 0 0 0 0 0.000 0.000 Northbound Right 1600 free 135 645 0 0 135 645 0.084 0.403 Southbound Left 0 0 0 0 0 0 0 0 0.000 0.000 Southbound Through 0 0 0 0 0.000\* 0.000\* 0 Southbound Right 0 0 0 0 0 0 n 0.000 0.000 n Eastbound Left 1600 62 41 Ö 0 62 41 0.039 0.026 Eastbound Through 3200 580 827 585 831 0.183\* 0.260\* Eastbound Right 0 0 0 n 0 0 0 0.000 0.000 Westbound Left 0 0 0 0 0 0 0 0 0.000\* 0.000\* Westbound Through 2 3200 373 452 5 378 453 0.118 0.142 Westbound Right Free 1600 600 0 747 0.467 Northbound Right Turn Adjustment Southbound Right Turn Adjustment None of right turns (RT) are assumed to occur on 0.000\* 0.000\* red light when there is separate RT lane & when 0.000\* 0.000\* Eastbound Right Turn Adjustment movement is permitted. 0.000\* 0.000\* Westbound Right Turn Adjustment 0.000\* 0.000\* Clearance Interval 0.100\* 0.100\* INTERSECTION CAPACITY UTILIZATION, ICU (Sum of Components with \*)  $\longrightarrow$  LEVEL OF SERVICE (A=.000-.6 ICU; B=.601-.7; C=.701-.8; O=.801-.9; E=.901-1.0; F=1.001+) 0.304 0.416

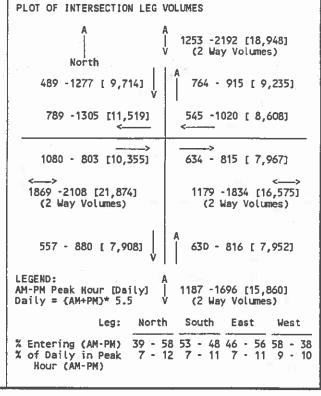






INTERSECTION: TIER LANO USE: YEAR 2007	RA SUBIDA AVENU WITHOUT PROJEC	E (NS) and PA	LMDALE E	BOULEVA	RD (EW)		Ţ		OATE: 11	1-14-02 Existing
MOVEMENT	LANES	CAPACITY	BAS VOLU		ADOI VOLI		TOTA VOLU			
Northbound Left Northbound Through Northbound Right Southbound Through Southbound Right Eastbound Eft Eastbound Through Eastbound Right Westbound Left Westbound Right Westbound Right	1 2 0 1 2 1 1 2 1 2	1600 3200 0 1600 3200 1600 1600 3200 1600 3200 1600	3200         330         394         0         0         330         394           0         39         76         0         0         39         76           1600         139         351         0         0         139         351           3200         209         580         0         0         209         580           1600         141         346         0         0         141         346           1600         304         222         0         0         304         222           3200         456         387         0         0         456         387           1600         320         193         0         0         320         193           1600         28         107         0         0         28         107           3200         387         614         0         0         387         614							0.216* 0.147 0.000 0.219 0.181* 0.216 0.139* 0.121 0.121 0.067 0.192* 0.187
Northbound Right Tur Southbound Right Tur Eastbound Right Turn Westbound Right Turn Clearance Interval	n Adjustment n Adjustment	None of right when movement is	hen ther	e is se	are assu	amed to	occur ne & whe	on in	0.000* 0.023* 0.000* 0.000*	0.000* 0.035* 0.000* 0.000*
INTERSECTION CAPACIT LEVEL OF SERVICE (A=	Y UTILIZATION, :.0006 ICU; B:	ICU (Sum of 0 =.6017; C=.7	componen 7018;	ts with D=.801-	1 *) <del></del>	.901-1.	.0; F=1.	<del>&gt;</del>	0.662	0.863 D





INTERSECTION: TIERRA SUBIDA AVENUE (NS) and 5TH STREET WEST (EW) LAND USE: YEAR 2007 WITHOUT PROJECT COUNT DATE: 11-12-02 GEOMETRICS: Existing

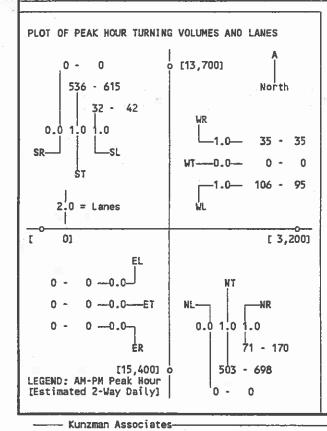
MOVEMENT	LANES	CAPACITY	VOLU		VOL:		VOLU			ME TO CITY 10
			(MA)	(PM)	(MA)	(PM)	(MA)	(PM)	(MA)	(PM)
Northbound Left			0	0	0	0	. 0	0 1	0.000*	0.000
Northbound Through	1	1600	503	698	ŏ	ŏ	503	698	0.314	0.436
Northbound Right	l= i	1600	71	170	ŏ	ŏ	71	170	0.044	0.106
Southbound Left	1 1	1600	32	42	ŏ	ō	32	42	0.020	0.026
Southbound Through	1 1	1600	536	615	Ö	Ŏ	536	615	0.335*	0.384
Southbound Right	Ó	0	0	0	Ŏ	. 0	0	0	0.000	0.000
astbound Left	0	0	о	ōl	Ō	ō	. 0	Ö	0.000	0.000
astbound Through	0	0	0	0	0	-0	0	0	0.000*	0.000
astbound Right	0	0	0	. 0	0	0	0	0	0.000	0.000
lestbound Left	1	1600	106	95	0	0	106	95	0.066*	0.059
lestbound Through	0 -	0	0	0	0	- 0	0	0	0.000	0.000
lestbound Right	1	1600	35	35	0	0	35	35	0.022	0.022

Eastbound Right Turn Adjustment | movement is permitted. Westbound Right Turn Adjustment Clearance Interval

0.000\* 0.000\* 0.000\* 0.100\* 0.100\*

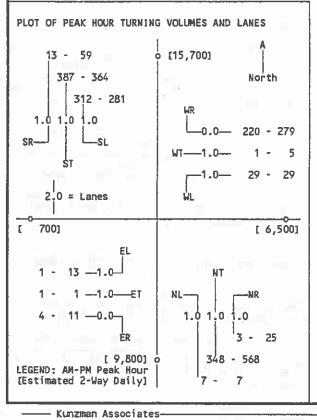
INTERSECTION CAPACITY UTILIZATION, ICU (Sum of Components with \*) LEVEL OF SERVICE (A=.000-.6 ICU; B=.601-.7; C=.701-.8; D=.801-.9; E=.901-1.0; F=1.001+)

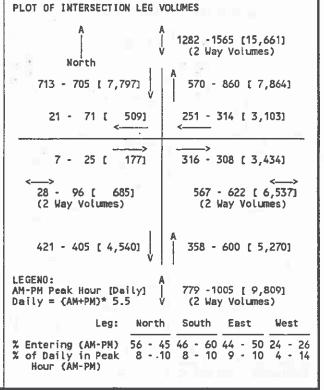
0.501 0.621 A



PLOT OF INTERSECTION LEG V	/OLUMES
North	l   1105 -1390 [13,723] / (2 Way Volumes)
568 - 657 [ 6,736] V	537 - 733 1 6,987]
0 - 0 t <	141 - 130 [ 1,489]
0 - 0 [ 0]	103 - 212 [ 1,732]
0 - 0 I 01 (2 Way Volumes)	<> 244 - 342 [ 3,221] (2 Way Volumes)
642 - 710 [ 7,436] V	A   574 - 868 [ 7,930]
LEGEND: AM-PM Peak Hour [Daily] Daily = (AM+PM)* 5.5	1215 -1579 [15,366] (2 Way Volumes)
Leg: Norti	n South East West
% Entering (AM-PM) 51 - 4 % of Daily in Peak 8 - 4 Hour (AM-PM)	47 47 - 55 58 - 38 0 - 0 10 8 - 10 8 - 11 0 - 0

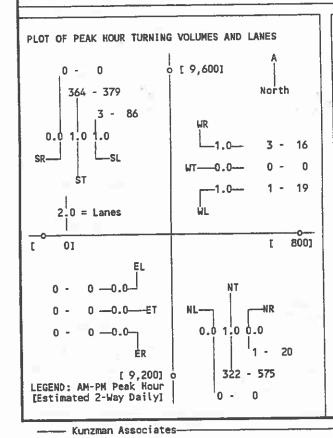
MOVEMENT	LANES	CAPACITY	BAS VOLU (AM)		ADOI VOLI (AM)		TOTA VOLU			ME TO CITY TIO (PM)
Northbound Left Northbound Through Northbound Right Southbound Left Southbound Right Southbound Right astbound Left astbound Through estbound Right Nestbound Right Nestbound Through Nestbound Right Nestbound Right Nestbound Right	1 1 1 1 1 1 0 1 0	1600 1600 1600 1600 1600 1600 1600 1600	7 348 3 312 387 13 1 1 4 29 1 220	7 568 25 281 364 59 13 11 29 5	000000000000000000000000000000000000000	00000000000	7 348 3 312 387 13 1 1 4 29	7 568 25 281 364 59 13 1 11 29 5	0.004 0.218* 0.002 0.195* 0.242 0.008 0.001* 0.003 0.000 0.018 0.138* 0.000	0.004 0.355* 0.016 0.176* D.228 0.037 0.008* 0.008 0.000 0.018 0.178* 0.000
Northbound Right Tur Southbound Right Tur Eastbound Right Turr Westbound Right Turr Clearance Interval	n Adjustment Adjustment	None of right when the movement is	nen ther	e is se	are assu eparate	med to RT lan	occur ne & Whe	on en	0.000* 0.000* 0.000* 0.000* 0.100*	0.000* 0.000* 0.000* 0.000* 0.100*

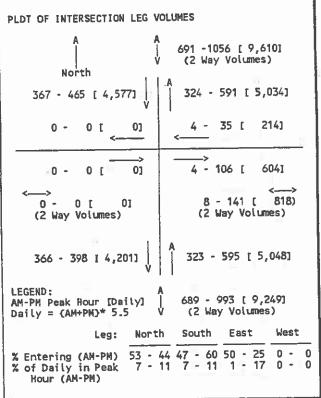




MOVEMENT	LANES	CAPACITY	BAS VOLU		ADOI VOL		TOTA		VOLU CAPA RAT	10
<u>88</u>			(MA)	(PM)	(AM)	(PM)	(MA)	(PM)	(NA)	(PM)
Northbound Left Northbound Through Northbound Right Southbound Through Southbound Through Southbound Right Eastbound Through Eastbound Through Eastbound Right Westbound Through Westbound Through	0 1 0 1 1 0 0 0 0	0 1600 0 1600 1600 0 0 0 1600	0 322 1 3 364 0 0 0 0	0 575 20 86 379 0 0 0 19	000000000000000000000000000000000000000	0 0 0 0 0 0 0 0 0 0	0 322 1 3 364 0 0 0 1	0 575 20 86 379 0 0 0 19	0.000* 0.202 0.000 0.002 0.22B* 0.000 0.000* 0.000* 0.001* 0.000	0.000 0.372 0.000 0.054 0.237 0.000 0.000 0.000 0.000 0.012 0.000 0.012
Northbound Right Tur Southbound Right Tur Eastbound Right Turn Westbound Right Turn Clearance Interval	n Adjustment Adjustment	None of rig red light w movement is	then the	re is s	are ass eparate	umed t	o occur ne & who	on en	0.000* 0.000* 0.000* 0.001* 0.100*	0.000 0.000 0.000 0.000 0.100

INTERSECTION CAPACITY UTILIZATION, ICU (Sum of Components with \*) LEVEL OF SERVICE (A=.000-.6 ICU; B=.601-.7; C=.701-.8; D=.801-.9; E=.901-1.0; F=1.001+)





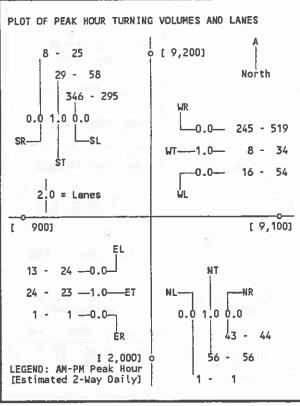
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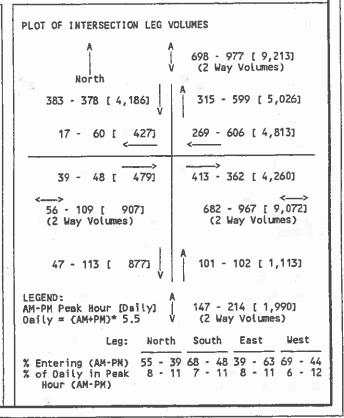
0,538

INTERSECTION: TIERRA SUBIDA AVENUE (NS) and AVENUE S (EW) LAND USE: YEAR 2007 WITHOUT PROJECT

COUNT DATE: 11-14-02 GEOMETRICS: Existing

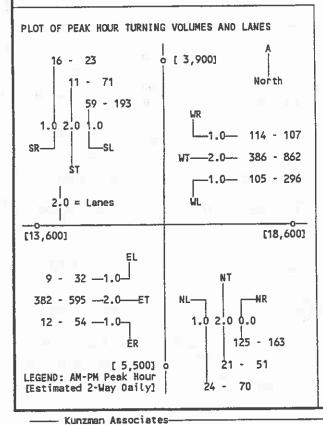
MOVEMENT	LANES	CAPACITY	BAS VOLU	IME	ADOE VOLU		TOTA VOLU (AM)	ME		ME TO CITY TO (PM)
Northbound Left Northbound Through Northbound Right Southbound Through Southbound Right Eastbound Left Eastbound Left Eastbound Through Eastbound Right Westbound Left Westbound Right Westbound Right	0 1 0 0 1 0 0 1 0	1600 0 1600 0 1600 0 1600 0	1 56 43 346 29 8 13 24 1 16 8 245	1 56 44 295 58 25 24 23 1 54 34 519	00000000000	0000000000000	1 56 43 346 29 8 13 24 1 16 8 245	1 56 44 295 58 25 24 23 1 54 34 519	0.000* 0.063 0.000 0.000 0.240* 0.000* 0.024 0.000 0.168* 0.000	0.000* 0.064 0.000 0.000 0.236* 0.000 0.000* 0.030 0.000 0.000 0.379* 0.000
Northbound Right Tur Southbound Right Tur Eastbound Right Tur Westbound Right Tur Clearance Interval	rn Adjustment n Adjustment	None of rig red light w movement is	hen ther	e is se					0.000* 0.000* 0.000* 0.000* 0.100*	0.000* 0.000* 0.000* 0.000*

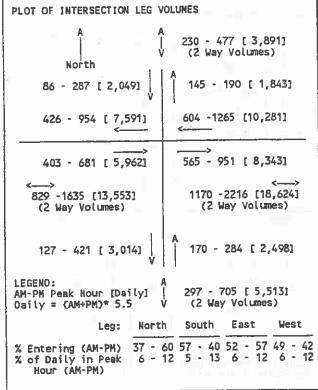




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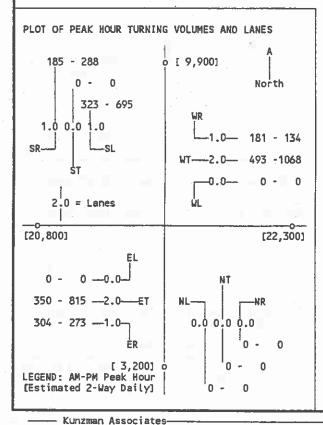
MOVEMENT	LANES	CAPACITY	BAS VOLU	_	ADD VOL	UME	TOTA VOLU	ME	CAPA RAT	
·			(MA)	(PM)	(MA)	(PM)	(MA)	(PM)	(AH)	(PM)
Northbound Left Northbound Through Northbound Right Southbound Left Southbound Through Southbound Right Eastbound Left Eastbound Right Eastbound Right Westbound Left Westbound Right	1 2 0 1 2 1 1 2 1 1 2 1	1600 3200 0 1600 3200 1600 1600 3200 1600 3200 1600	24 21 125 59 11 16 9 382 12 105 386 114	70 51 163 193 71 23 32 595 54 296 862 107	000000000000000000000000000000000000000	000000000000000000000000000000000000000	24 21 125 59 11 16 9 382 12 105 386 114	70 51 163 193 71 23 32 595 54 296 862 107	0.015 0.046* 0.000 0.037* 0.003 0.010 0.006 0.119* 0.008 0.065* 0.121 0.071	0.022 0.014 0.020
Northbound Right Tur Southbound Right Tur Eastbound Right Tur Westbound Right Tur Clearance Interval	n Adjustment   n Adjustment	None of rig red light w movement is	hen ther	e is s	are ass eparate	umed to RT la	o occur ne & whe	on en	0.000* 0.000* 0.000* 0.000* 0.100*	0.000* 0.000* 0.000* 0.000* 0.100*

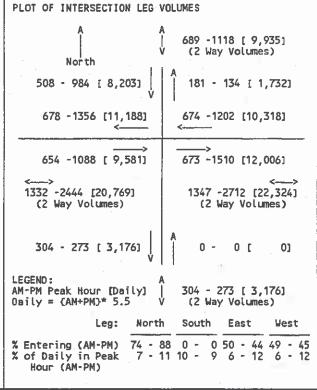




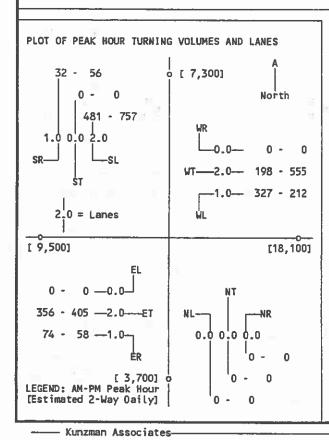
INTERSECTION: SR-14 FREEWAY SB RAMPS (NS) and PALMDALE BOULEVARO (EW) LAND USE: YEAR 2007 WITHOUT PROJECT	COUNT DATE: 11-12-02 GEOMETRICS: Existing
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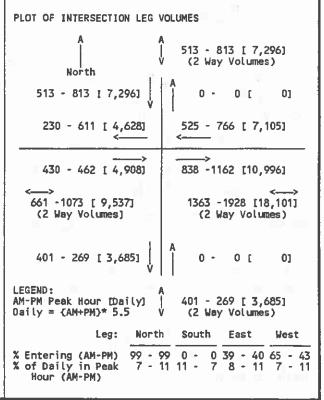
MOVEMENT	LANES	CAPACITY	BA VOL		ADOE VOLU		TOTA VOLI	UME		ME TO CITY TO (PM)
Northbound Left Northbound Through Northbound Right Southbound Through Southbound Through Southbound Right Eastbound Through Eastbound Through Eastbound Right Westbound Left Westbound Right Westbound Right	0 0 0 1 0 Free 1 0 2 Free 1 0 2 Free 1	0 0 0 1600 0 1600 0 3200 1600 0 3200 1600	0 0 0 323 0 185 0 350 304 0 493 181	0 0 0 695 0 288 0 815 273 0 1068 134	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 323 0 185 0 350 304 0 493 181	0 0 0 695 0 288 0 815 273 0 1068 134	0.000 0.000* 0.000* 0.202* 0.000 0.116 0.000* 0.190 0.000 0.154* 0.113	0.000 0.000* 0.000 0.435* 0.000 0.180 0.000* 0.255 0.171 0.000 0.334* 0.084
Northbound Right Tu Southbound Right Tur Eastbound Right Tur Westbound Right Tur Clearance Interval	rn Adjustment n Adjustment	None of right with movement is	hen the	re is s					0.000* 0.000* 0.000* 0.000*	0.000* 0.000* 0.000* 0.000*



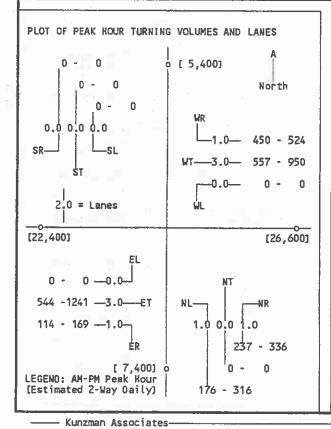


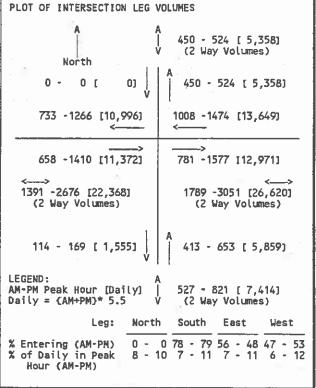
MOVEMENT	LANES	CAPACITY	8AS VOLU	ME	ADD! VOL	JME	TOTA VOLU	ME	CAPA RAT	ME TO CITY TIO
			(MA)	(PM)	(MA)	(PM)	(MA)	(PM)	(MA)	(PM)
Northbound Left Northbound Through Northbound Right Southbound Left Southbound Through Southbound Right Eastbound Left Eastbound Left Eastbound Right Westbound Right Westbound Left Westbound Right Westbound Right	0 0 0 2 0 1 0 2 Free 1 1 2	0 0 0 2880 0 1600 0 3200 1600 1600 3200 0	0 0 0 481 0 32 0 356 74 327 198	0 0 757 0 56 0 405 58 212 555	00000000000	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 481 0 32 0 356 74 327 198	0 0 757 0 56 0 405 58 212 555 0	0.000 0.000* 0.000 0.167* 0.000 0.020 0.000 0.111* 0.046 0.204* 0.062 0.000	0.000 0.000* 0.000 0.263* 0.000 0.035 0.000 0.126* 0.036 0.132* 0.173 0.000
Northbound Right Tur Southbound Right Tur Eastbound Right Turr Westbound Right Turr Clearance Interval	rn Adjustment n Adjustment	None of right who movement is	en ther	e is se					0.000* 0.000* 0.000* 0.000* 0.100*	0.000* 0.000* 0.000* 0.000* 0.100*



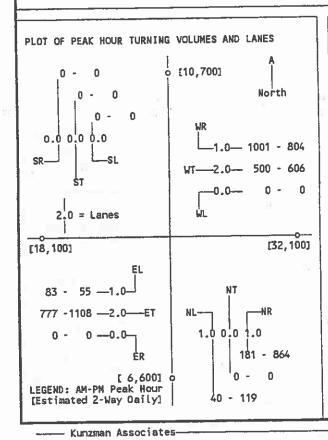


INTERSECTION: SR-1 LANO USE: YEAR 2007	4 FREEWAY NB RA WITHOUT PROJEC	MPS (NS) and I	PALMDALE BOULE	VARO (EW)		OATE: 11-12-02 METRICS: Existing
MOVEMENT	LANES	CAPACITY	BASE VOLUME	ADOE0 VOLUME	TOTAL VOLUME	VOLUME TO CAPACITY RATIO
			(AM) (PM)	(AM) (PM)	(AM) (PM)	(AM) (PM)
Northbound Left Northbound Through Northbound Right Southbound Left Southbound Through Southbound Right Eastbound Left Eastbound Left Eastbound Through Eastbound Right Westbound Left Westbound Right Westbound Right	1 0 Free 1 0 0 0 0 3 Free 1 0 3 Free 1	1600 0 1600 0 0 0 4800 1600 0 4800 1600	176 316 0 0 237 336 0 0 0 0 0 0 0 0 544 1241 114 169 0 0 557 950 450 524		176 316 0 0 237 336 0 0 0 0 0 0 0 0 544 1241 114 169 0 0 557 950 450 524	0.110* 0.198* 0.000 0.000 0.148 0.210 0.000 0.000 0.000* 0.000 0.000* 0.000 0.113 0.259* 0.071 0.106 0.000 0.000* 0.116* 0.198 0.281 0.327
Northbound Right Tur Southbound Right Tur Eastbound Right Turr Westbound Right Turr Clearance Interval	rn Adjustment n Adjustment	None of right who movement is	ht turns (RT) a hen there is se permitted.	ire assumed to parate RT lar	occur on ne & when	0.000* 0.000* 0.000* 0.000* 0.000* 0.000* 0.000* 0.000* 0.100* 0.100*
INTERSECTION CAPACIT LEVEL OF SERVICE (A=	TY UTILIZATION, =.0006 ICU; B	ICU (Sum of ( =.6017; C=.7	Components with 7018; D=.B01-	1 *> ==.901-1.	.0; F=1.001+)	0.326 0.557 A A





MOVEMENT	LANES		CAPACITY	BASE VOLUME (AM) (PM)		ADOEO VOLUME (AM) (PM)		TOTAL VOLUME (AM) (PM)		VOLUME TO CAPACITY RATIO (AM) (PM)	
Northbound Left Northbound Through Northbound Right Southbound Left Southbound Through Southbound Right Eastbound Left Eastbound Through Eastbound Through Westbound Left Westbound Left Westbound Through Westbound Right	Free	1 0 1 0 0 0 0 1 2 0 0 2	1600 0 1600 0 0 0 1600 3200 0 3200 1600	40 0 181 0 0 0 83 777 0 0 500 1001	119 0 864 0 0 0 55 1108 0 606 804	000000000000000000000000000000000000000	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	40 0 181 0 0 0 83 777 0 0 500 1001	119 0 864 0 0 0 55 1108 0 606 804	0.025* 0.000 0.113 0.000 0.000* 0.052 0.243* 0.000 0.000* 0.156 0.626	0.075* 0.000 0.540 0.000 0.000* 0.034 0.346* 0.000 0.000* 0.189 0.503
Northbound Right Turn Adjustment Southbound Right Turn Adjustment Eastbound Right Turn Adjustment Wone of right turns (RT) are assumed to occur on red light when there is saparate RT lane & when movement is permitted.								0.000* 0.000* 0.000* 0.000* 0.100*	0.000 0.000 0.000 0.000 0.100		



PLOT OF INTERSECTION LEG VOLUMES							
A A A V	1084 - 859 [10,687] (2 Way Volumes)						
0 - 0 [ 0]	1084 - 859 [10,687]						
540 - 725 [ 6,957]	1501 -1410 [16,008]						
860 -1163 [11,129]	958 - 1972 [16,118]						
1400 -1888 [18,086] (2 Way Volumes)	<> 2459 -3382 [32,126] (2 Way Volumes)						
0 - 0 [ 0]	A 221 - 984 [ 6,626]						
LEGENO: A AM-PM Peak Hour [Daily]   221 - 984   6,626] Oaily = (AM+PM)* 5.5 V (2 Way Volumes)							
Leg: Nort	h South East West						
% Entering (AM-PM) 0 - % of Daily in Peak 10 - Hour (AM-PM)	0 99 - 99 61 - 42 61 - 62 8 3 - 15 8 - 11 8 - 10						

Year 2007 With Project
(Avergae Inflow of Material, 3,613 Tons per Day)

INTERSECTION: TIERRA LAND USE: YEAR 2007 W		(NS) and PA	LMDALE BOULEVAR	RD (EW)		DATE: 11-14-02 METRICS: Existing
MOVEMENT	LANES	CAPACITY	BASE VOLUME (AM) (PM)	ADDED VOLUME (AM) (PM)	TOTAL VOLUME (AM) (PM)	VOLUME TO CAPACITY RATIO (AM) (PM)
Northbound Left Northbound Through Northbound Right Southbound Left Southbound Through Southbound Right Eastbound Left Eastbound Right Westbound Through Westbound Through Westbound Right Westbound Right Northbound Right Turn Southbound Right Turn Eastbound Right Turn Westbound Right Turn Clearance Interval	Adjustment Adjustment	1600 3200 0 1600 3200 1600 1600 3200 1600 3200 1600 Wone of rigit we movement is	261 346 330 394 39 76 139 351 209 580 141 346 304 222 456 387 320 193 28 107 387 614 130 299	4 3 5 4 0 0 0 0 0 5 1 0 0 0 0 0 0 0 0 0 0 0 0 0	265 349 335 398 39 76 139 351 214 581 141 346 304 222 456 387 324 193 28 107 387 614 130 299	0.166* 0.218* 0.117
INTERSECTION CAPACITY LEVEL OF SERVICE (A=.	UTILIZATION, 0006 ICU; 8=	ICU (Sum of .6017; C=.	Components with 7018; 0=.801	*) ==.901-1.	o; F=1.001+j	0.665 0.865 B 0
PLOT OF PEAK HOUR TUR 141 - 346 214 - 581 139 - 351 1.0 2.0 1.0 SR ST	(19,000) WR 1.0	ND LANES  A North  130 - 29 387 - 61 28 - 10	9 793	INTERSECTION  A North -1278 [ 9,747 3 -1308 [11,55	A 1263 - V (2 W 7) A 769  58) 545	2197 [19,031] ay Volumes) - 919 [ 9,284] 1020 [ 8,608]

304 - 2221.0 NT 456 - 3872.0 ET NL NR 324 - 1931.0 1.0 2.0 0.0 39 - 76	PLOT OF PEAK HOUR TURNING	AOLOMES WAD TWWE?
1.0 2.0 1.0 WR  SR SL SL WI -2.0 387 - 614  -1.0 28 - 107  2.0 = Lanes  EL WL  304 - 222 -1.0 NT  456 - 387 -2.0 ET  324 - 193 -1.0 RR  1.0 2.0 0.0 39 - 76	] ]	(19,000)
304 - 2221.0 NT 456 - 3872.0 ET NL NR 324 - 1931.0 1.0 2.0 0.0 39 - 76	1.0 2.0 1.0 SR SL	1.0— 130 - 299 WT2.0 387 - 614 1.0 28 - 107
304 - 2221.0 NT 456 - 3872.0 ET NL NR 324 - 1931.0 1.0 2.0 0.0 39 - 76	[21,900]	[16,600]
LEGENO: AM-PM Peak Hour	304 - 222 —1.0— 456 - 387 —2.0—ET 324 - 193 —1.0— ER	NL NR 1.0 2.0 0.0 39 - 76

North	1263 -2197 [19,031] / (2 Way Volumes)
494 -1278 [ 9,747] V	A 769 - 919 [ 9,284]
793 -1308 [11,558]	545 -1020 [ 8,608]
1084 - 803 [10,377]	634 - 815 [ 7,967]
<> 1877 -2111 [21,935] (2 Way Volumes)	1179 -1834 [16,575] (2 Way Volumes)
566 - 881 [ 7,963] V	639 - 823 [ 8,040]
LEGENO: AM-PM Peak Hour [Daily] Daily = (AM+PM)* 5.5	A   1205 -1704 [16,003] V (2 Way Volumes)
Leg: Norti	n South East West
% Entering (AM-PM) 39 - 1 % of Oaily in Peak 7 - Hour (AM-PM)	58 53 - 48 46 - 56 58 - 38 12 8 - 11 7 - 11 9 - 10

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INTERSECTION: TIERI LAND USE: YEAR 2007	WITH PROJECT	. (110) and 311	, JIRELI WEST	,		DATE: 11-12-02 METRICS: Existin
MOVEMENT	LANES	CAPACITY	8ASE VOLUME (AM) (PM)	AOOED VOLUME (AM) (PM)	TOTAL VOLUME (AM) (PM)	VOLUME TO CAPACITY RATIO (AM) (PM)
Northbound Left Northbound Through Northbound Right Southbound Left Southbound Right Eastbound Right Eastbound Through Eastbound Through Eastbound Right Westbound Left Westbound Right Westbound Right	0 1 1 1 1 0 0 0	0 1600 1600 1600 1600 0 0 0 0 1600	0 0 503 698 71 170 32 42 536 615 0 0 0 0 0 0 106 95 0 0 35 35	0 0 9 1 0 0	0 0 512 706 72 171 32 42 545 616 0 0 0 0 0 0 107 95 0 0 35 35	0.000* 0.000 0.320 0.441* 0.045 0.107 0.020 0.026* 0.341* 0.385 0.000 0.000 0.000 0.000 0.000* 0.000* 0.000 0.000 0.067* 0.059* 0.000 0.000 0.022 0.022
forthbound Right Tur Southbound Right Turn Eastbound Right Turn Westbound Right Turn Clearance Interval	n Adjustment Adjustment	None of right who movement is	et turns (RT) a en there is se permitted.	ire assumed to eparate RT lar	o occur on he & when	0.000* 0.000* 0.000* 0.000* 0.000* 0.000* 0.000* 0.000* 0.100* 0.100*
INTERSECTION CAPACIT EVEL OF SERVICE (A=					-	0.508 0.626 A 8
0 - 0 545 - 616 32 - 42 0.0 1.0 1.0 SR ST ST Lanes	WR	A North - 35 - 35 - 0 - 0 - 0 - 107 - 95	577 	] 0 - 0	A 1123 - (2 William)    A 546 - (2 William)	1399 [13,871] ay Volumes)  - 741 [ 7,080]  130 [ 1,494]  213 [ 1,743]  - 343 [ 3,237] Way Volumes)

LEGEND:

AM-PM Peak Hour [Daily] Daily = (AM+PM)\* 5.5

Leg:

North

% Entering (AM-PM) 51 - 47 47 - 55 58 - 38 0 - % of Daily in Peak 8 - 10 8 - 10 8 - 11 0 - Hour (AM-PM)

1235 -1589 [15,531] (2 Way Volumes)

West

South East

0 -0.0 ET

I15,500] o

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[Estimated 2-Way Daily]

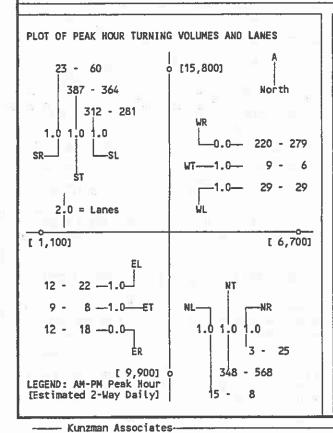
0.0 1:0 1.0

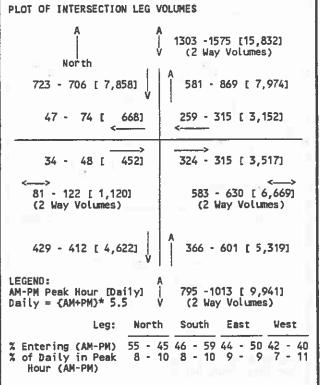
0 -

72 - 171

512 - 706

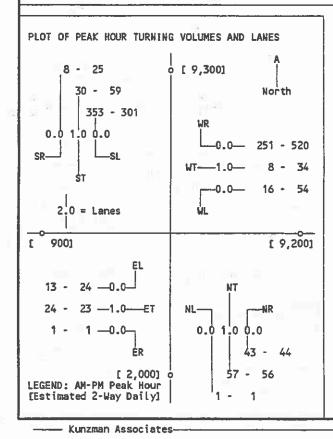
MOVEMENT	LANES	CAPACITY	BAS VOLU (AM)		ADO VOL		TOTA VOLU		VOLU CAPA RAT (AM)	
Northbound Left Northbound Through Northbound Right Southbound Through Southbound Through Southbound Right Eastbound Left Eastbound Through Eastbound Right Westbound Left Westbound Right Westbound Right	1 1 1 1 1 1 1 0	1600 1600 1600 1600 1600 1600 1600 1600	7 348 3 312 387 13 1 1 4 29	7 568 25 281 364 59 13 11 29 5	8 0 0 0 10 11 8 8 0 8 0	10000	15 348 3 312 387 23 12 9 12 29 9 220	8 568 25 281 364 60 22 8 18 29 6	0.009 0.218* 0.002 0.195* 0.242 0.015 0.008* 0.013 0.000 0.018 0.143* 0.000	0.228 0.037 0.014* 0.016 0.000 0.018
Northbound Right Turn Southbound Right Turn Eastbound Right Turn Westbound Right Turn Clearance Interval	n Adjustment Adjustment	None of rig red light w movement is	hen ther	e is se					0.000* 0.000* 0.000* 0.000* 0.100*	0.000*

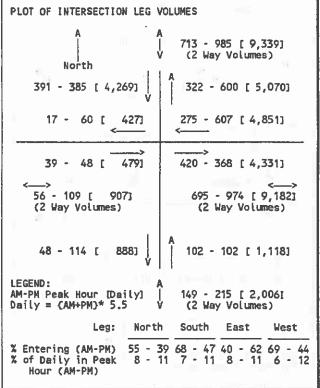




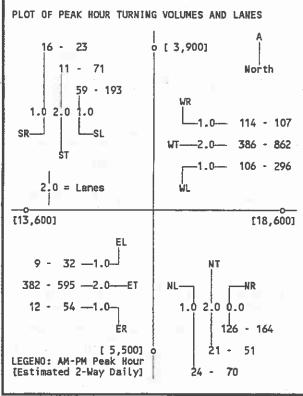
MOVEMENT	LANES	CAPACITY	VOL	SE JME (PM)	ADDE VOLU	ME	TOT/ VOLU			ME TO CITY 10 (PM)
Northbound Left Northbound Through Northbound Right Southbound Through Southbound Right Eastbound Left Eastbound Through Eastbound Right Westbound Left Westbound Through Westbound Through Westbound Through Westbound Right	0 1 0 1 1 0 0 0 0	0 1600 0 1600 1600 0 0 0 1600	0 322 1 3 364 0 0 0 0 1 1 0 3	0 575 20 86 379 0	0 8 0 0 8	0 1 0 0 7 0 0 0	0 330 1 3 372	0 576 20 86 386	0.000* 0.207 0.000 0.002 0.233* 0.000 0.000* 0.000* 0.000 0.001* 0.000	0.000 0.372* 0.000 0.054* 0.241 0.000 0.000 0.000* 0.000*
Northbound Right Turn Southbound Right Turn Eastbound Right Turn Westbound Right Turn Clearance Interval	Adjustment Adjustment	None of right who movement is	en thei	e is s	eparate	med to RT lan	occur e & whe	on en	0.000* 0.000* 0.000* 0.001* 0.100*	0.000* 0.000* 0.000*
INTERSECTION CAPACITY LEVEL OF SERVICE (A=.	UTILIZATION, 0006 ICU; B=	ICU (Sum of C:.6017; C=.7	omponer 018;	nts with 0=.801	.9; E=.	901-1.	0; F=1.	001+)	0.335 A	0.53B A
0 - 0 372 - 386 3 - 86 0.0 1.0 1.0 SR ST	[ 9,700] WR	A North 3 - 16		375 ( ———————————————————————————————————	A   North   - 472 [   - 0   0   0   0   0   0   0   0   0	4,659 [ < [	A	707 (2 War 332	1064 [ 9, ay Volume - 592 [ 5 35 [ 106 [ - 141 [ Way Volu	,083) 214] 604]
0 - 0 - 0.0 - EL 0 - 0 - 0.0 - ER 0 - 0 - 0.0 - ER ER 1 9,40 EGENO: AM-PM Peak Ho EEStimated 2-Way Dail	0.0 1. 0.0 33	NR 0 0.0 1 - 20 0 - 576	A	EGEND: M-PM Pe aily =	na (AM-I	(Dail 5.5 eg:	$\begin{array}{c c} V & A \\ y^3 & V \\ \hline North \\ \hline 3 - 44 \end{array}$	705 -1 (2 Wa South	- 596 [ 5 1001 [ 9, ay Volume East 3 50 - 25 1 1 - 17	3811 s) West

MOVEMENT	LANES	CAPACITY	BASE VOLUME		ADDED VOLUNE		TOTAL		VOLUME TO CAPACITY RATIO	
8,			(AM)	(PM)	(MA)	(PM)	(MA)	(PM)	(AM)	(PM)
Northbound Left Northbound Through Northbound Right Southbound Left Southbound Through Southbound Right Eastbound Left Eastbound Through Eastbound Right Westbound Left Westbound Right Westbound Right	0 1 0 0 1 0 0 1 0 0	0 1600 0 1600 0 1600 0 1600 0	1 56 43 346 29 8 13 + 24 1 16 8 245	1 56 44 295 58 25 24 23 1 54 34 519	0 1 0 7 1 0 0 0 0 0 6	00061000001	1 57 43 353 30 8 13 24 1 16 8 251	1 56 44 301 59 25 24 23 1 54 34 520	0.000* 0.063 0.000 0.000 0.245* 0.000 0.024 0.024 0.000 0.172* 0.000	0.000* 0.064 0.000 0.000 0.241* 0.000 0.000* 0.000 0.000 0.379* 0.000
Northbound Right Turn Southbound Right Turn Eastbound Right Turn / Westbound Right Turn / Clearance Interval	Adjustment Adjustment	None of right who movement is	hen ther	e is s					0.000* 0.000* 0.000* 0.000* 0.100*	0.000* 0.000* 0.000* 0.000* 0.100*





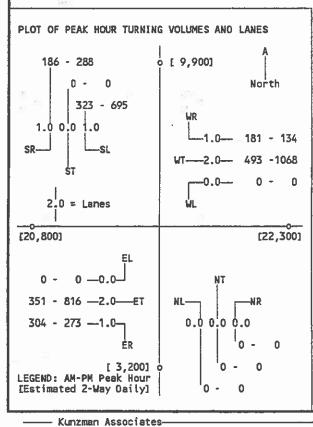
MOVEMENT	LANES	CAPACITY	VOLU		AD0		TOT# VOLU			ME TO CITY 10
==			(MA)	(PH)	(MA)	(PM)	(MA)	(PM)	(MA)	(PM)
Northbound Left Northbound Through Northbound Right Southbound Through Southbound Right Eastbound Left Eastbound Through Eastbound Through Eastbound Through Eastbound Right Westbound Left Westbound Through Westbound Right	1 2 0 1 2 1 1 2 1 2	1600 3200 0 1600 3200 1600 1600 1600 1600 3200 1600	24 21 125 59 11 16 9 382 12 105 386 114	70 51 163 193 71 23 32 595 54 296 862 107	001000000100	0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	24 21 126 59 11 16 9 382 12 106 386	70 51 164 193 71 23 32 595 54 296 862 107	0.015 0.046* 0.000 0.037* 0.003 0.010 0.006 0.119* 0.008 0.066* 0.121 0.071	0.044 0.067* 0.000 0.121* 0.022 0.014 0.020 0.186* 0.034 0.185* 0.269 0.067
Northbound Right Turn Southbound Right Turn Eastbound Right Turn Westbound Right Turn Clearance Interval	n Adjustment Adjustment	None of rig red light w movement is	hen ther	e is se					0.000* 0.000* 0.000* 0.000* 0.100*	0.000* 0.000* 0.000* 0.000*
INTERSECTION CAPACITY	Y UTILIZATION, .0006 ICU; B	:: ICU (Sum of : ≃.6017; C=.	Componer 7018;	ts with 0=.801-	*) —	.901-1.	.0; F=1.	> .001+)	0.368 A	0.659 B



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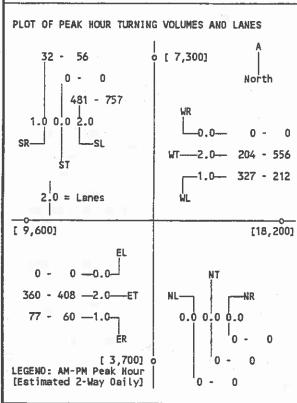
LUMES
230 - 477 [ 3,891] (2 Way Volumes)
A 145 - 190 [ 1,843]
605 -1265 [10,287]
566 - 952 [ 8,354]
1172 -2217 [18,640] (2 Way Volumes)
A   171 - 285 [ 2,509]
299 - 706 [ 5,529] (2 Way Volumes)
South East West
57 - 40 52 - 57 49 - 42 5 - 13 6 - 12 6 - 12

MOVEMENT	LANES	CAPACITY	BAS VOLL (AM)	IME	ADD: VOLI		TOT/ VOLU (AM)			
Northbound Left Northbound Through Northbound Right Southbound Through Southbound Right Eastbound Left Eastbound Through Eastbound Right Westbound Left Westbound Right Westbound Right	0 0 0 1 0 Free 1 2 Free 1 0 2 Free 1	0 0 1600 0 1600 3200 1600 0 3200	0 0 323 0 185 0 350 304 0 493 181	0 0 0 695 0 288 0 815 273 0 1068 134	000001010000	0 0 0 0 0 0 0	0 0 323 0 186 0 351 304 0 493 181	0 0 0 695 0 288 0 816 273 0 1068	0.000 0.000* 0.000* 0.202* 0.000 0.116 0.000* 0.110 0.190 0.000 0.154* 0.113	0.000 0.435* 0.000 0.180 0.000* 0.255 0.171 0.000
Northbound Right Tun Southbound Right Tun Eastbound Right Tun Westbound Right Tun Clearance Interval	rn Adjustment n Adjustment	None of right who movement is	nen ther	e is se					0.000* 0.000* 0.000* 0.000*	0.000*

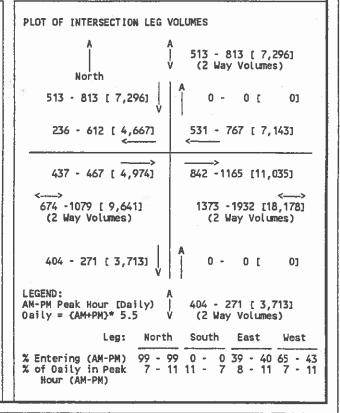


PLOT OF INTERSECTION LEG \	OLUMES a a
North 509 - 984 [ 8,208] V	A 690 -1118 [ 9,940] V (2 Way Volumes) A 181 - 134 [ 1,732]
679 -1356 [11,193]	674 -1202 [10,318]
655 -1089 [ 9,592]	674 -1511 [12,017]
<> 1334 -2445 [20,785] (2 Way Volumes)	> 1348 -2713 [22,335] (2 Way Volumes)
304 - 273 [ 3,176]	A 0 - 0 [ 0]
LEGEND: AM-PM Peak Hour [Daily] Oaily = {AM+PM}* 5.5	A   304 - 273 [3,176] V (2 Way Volumes)
Leg: Norti	n South East West
% Entering (AM-PM) 74 - 8 % of Oaily in Peak 37 - 9 Hour (AM-PM)	88 0 - 0 50 - 44 49 - 45 11 10 - 9 6 - 12 6 - 12

INTERSECTION: SR-14 FREEWAY SB RAMPS (NS) and AVENUE S (EW) COUNT DATE: 11-12-02 LANO USE: YEAR 2007 WITH PROJECT GEOMETRICS: Existing LANES MOVEMENT CAPACITY BASE AD0E0 TOTAL VOLUME TO **VOLUME** VOLUME VOLUME CAPACITY RAT10 (AM) (PM) (AM) (PM) (AM) (PM) (PM) (AA) Northbound Left 0 0.000 0.000 Northbound Through Ö Õ Ŏ 0 0 Ó 0 0 0.000\* 0.000\* Northbound Right 0 Õ 0 ō ŏ Ō 0 0.000 0.000 Southbound Left 2 2880 481 757 Õ Ō 481 757 0.167\* 0.263\* Southbound Through Ö ō ō 0 0 0.000 0.000 0 Southbound Right 32 1600 56 0 32 56 0.020 0.035 Eastbound Left 0 0 Ō 0 0.000 0 0 n 0.000 Eastbound Through 356 74 360 77 3200 3 405 408 0.113\* 0.127\* Eastbound Right Free 1600 58 60 0.048 0.037 0.204\* 0.132\* Westbound Left 1600 327 212 0 0 327 212 Westbound Through 2 3200 198 555 204 556 0.064 0.174 Westbound Right 0 0.000 0.000 Northbound Right Turn Adjustment None of right turns (RT) are assumed to occur on 0.000\* 0.000\* Southbound Right Turn Adjustment red light when there is separate RT lane & when 0.000\* 0.000\* Eastbound Right Turn Adjustment movement is permitted. 0.000\* 0.000\* Westbound Right Turn Adjustment 0.000\* 0.000\* Clearance Interval 0.100\* 0.100\* 0.584 0.622



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MOVEMENT	LANES		CAPACITY	BASE		ADOED		TOTAL		VOLUME TO	
1101211211					VOLUME		UME	VOL		CAPA	CITY
				(AM)	(PM)	(MA)	(PM)	(MA)	(PM)	RAT (AM)	(PM)
Northbound Left		1	1600	176	316	0	0	176	316	0.110*	0.198*
Northbound Through	l	Ó	0	0	0	ŏ	ŏ	Ö	0	0.000	0.000
Northbound Right	Free	1	1600	237	336	0	0	237	336	0.148	0.210
Southbound Left		0	0	0	0	0	0	0	0	0.000	0.000
Southbound Through		Ü	0	0	0	Ŏ	0	0	0	0.000*	0.000*
Southbound Right Eastbound Left		0	6	6	0	V	0	Ö	ő	0.000	0.000
Eastbound Through		ž	4800	544	1241	ň	ő	544	1241	0.113	0.259*
Eastbound Right	Free	1	1600	114	169	í	ĭ	115	170	0.072	0.106
Westbound Left		ó	0	Ò	0	Ġ	ò	110		0.000	0.000*
Westbound Through		3	4800	557	950	Ō	Ō	557	950	0.116*	0.198
Westbound Right	Free	1	1600	450	524	0	0	450	524	0.281	0.327

Northbound Right Turn Adjustment Southbound Right Turn Adjustment Eastbound Right Turn Adjustment Westbound Right Turn Adjustment Clearance Interval None of right turns (RT) are assumed to occur on red light when there is separate RT lane & when movement is permitted.

0.000\* 0.000\* 0.000\* 0.000\* 0.000\* 0.000\* 0.000\* 0.000\* 0.100\* 0.100\*

INTERSECTION CAPACITY UTILIZATION, ICU (Sum of Components with \*) \_\_\_\_\_> LEVEL OF SERVICE (A=.000-.6 ICU; B=.601-.7; C=.701-.8; D=.801-.9; E=.901-1.0; F=1.001+)

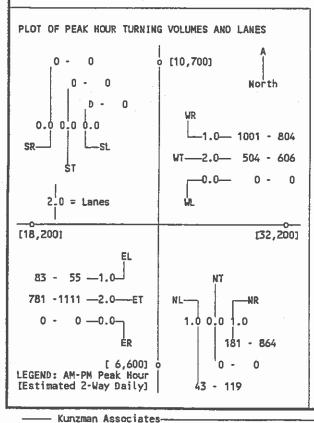
0.326 0.557 A A

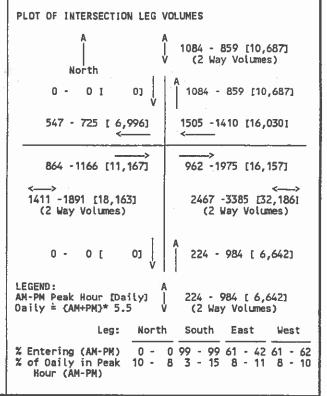
UMES ANO	LANES
	North 450 - 524 557 - 950 0 - 0
	[26,600]
NT 1.0 0.0 1	NR .0 .7 - 336
	23

PLOT OF INTERSECTION LEG VOLUMES
A 450 - 524 [ 5,358] V (2 Way Volumes)  North
659 -1411 [11,383] 781 -1577 [12,971]  1392 -2677 [22,379] 1789 -3051 [26,620] (2 Way Volumes) (2 Way Volumes)
115 - 170 [ 1,566] A 413 - 653 [ 5,859]
LEGEND: A AM-PM Peak Hour [Daily]   528 - 822 [ 7,425] Daily = (AM+PM)* 5.5 V (2 Way Volumes)
Leg: North South East West
% Entering (AM-PM) 0 - 0 78 - 79 56 - 48 47 - 53 % of Oaily in Peak 8 - 10 7 - 11 7 - 11 6 - 12 Hour (AM-PM)

---- Kunzman Associates-

MOVEMENT	LANES	CAPACITY	8AS VOLU (AM)	JME	ADOI VOLI (AM)		TOTA VOLL (AM)			ME TO CITY TO (PM)
Northbound Left Northbound Through Northbound Right Southbound Left Southbound Through Southbound Right Eastbound Left Eastbound Through Eastbound Right Westbound Right Westbound Right Westbound Through	1 0 0 0 0 0 1 2 0 0 2 7	1600 0 1600 0 0 0 1600 3200 0 3200 1600	40 0 181 0 0 0 83 777 0 0 500	119 0 864 0 0 0 55 1108 0 606 804	300000040040	0 0 0 0 0 0 0 0 0 0 0 0	43 0 181 0 0 0 83 781 0 0 504	119 0 864 0 0 55 1111 0 0 606 804	0.027* 0.000 0.113 0.000 0.000* 0.000 0.052 0.244* 0.000 0.000* 0.157 0.626	0.075* 0.000 0.540 0.000 0.000* 0.0347* 0.000 0.0347* 0.000 0.189 0.503
Northbound Right Tur Southbound Right Tur Eastbound Right Turr Westbound Right Turr Clearance Interval	n Adjustment Adjustment	None of right with movement is	hen ther	e is se					0.000* 0.000* 0.000* 0.000* 0.100*	0.000* 0.000* 0.000* 0.000* 0.100*



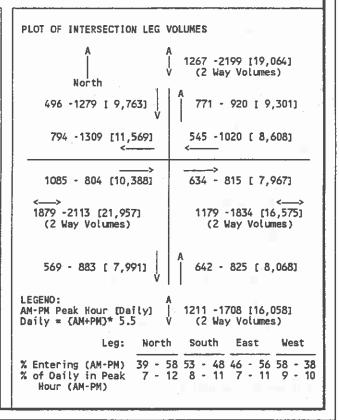


### <u>Existing Plus Project</u> (Peak Inflow of Material, 5,548 Tons per Day)

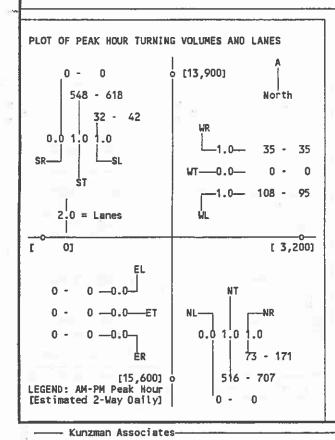
INTERSECTION: TIERRA SUBIOA AVENUE (NS) and PALMDALE BOULEVARO (EW) COUNT DATE: 11-14-02 LANO USE: YEAR 2007 WITH PROJECT GEOMETRICS: Existing MOVEMENT LANES CAPACITY BASE ADOEO TOTAL VOLUME TO VOLUME VOLUME VOLUME CAPACITY RATIO (AM) (PM) (AM) (PM) (PM) (MM) (PM) (MA) Northbound Left 0.166\* 0.219\* Northbound Through 330 394 337 3200 399 0.117 0.149 Northbound Right 0 39 76 Ó 0 39 76 0.000 0.000 139 351 Southbound Left 1600 351 07 139 0.0B7 0 0.219 Southbound Through 3200 209 580 \*860.0 0.182\* 582 2 216 Southbound Right 141 0 0 1600 346 141 346 0.088 0.216 Eastbound Left 304 Ó 222 0.190\* 0.139\* 1600 222 0 304 Eastbound Through 3200 456 387 0 0 456 387 0.142 0.121 325 28 Eastbound Right 1600 320 193 5 194 0.203 0.121 Westbound Left 1600 28 107 0 0 107 0.018 0.067 Westbound Through 3200 387 614 387 614 0.121\* 0.192\* Westbound Right 1600 130 0.081 0.187 Northbound Right Turn Adjustment 0.000\* None of right turns (RT) are assumed to occur on 0.000\* Southbound Right Turn Adjustment Eastbound Right Turn Adjustment red light when there is separate RT lane & when 0.020\* 0.034\* movement is permitted. 0.000\* 0.000\* Westbound Right Turn Adjustment 0.000\* 0.000\* 0.100\* Clearance Interval 0.100\* INTERSECTION CAPACITY UTILIZATION, ICU (Sum of Components with \*) LEVEL OF SERVICE (A=.000-.6 ICU; 8=.601-.7; C=.701-.8; D=.801-.9; E=.901-1.0; F=1.001+) 0.665 0.866

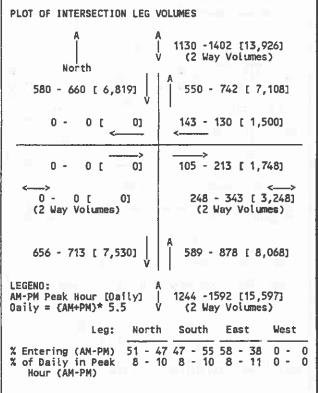
L	
PLOT OF PEAK HOUR TURNING	1
141 - 346 216 - 582 139 - 351 1.0 2.0 1.0 SR SL ST	WR
[22,000]	[16,600]
EL  304 - 222 — 1.0  456 - 387 — 2.0 — ET  325 - 194 — 1.0 — ER  [16,100] CEGEND: AM-PM Peak Hour [Estimated 2-Way Oaily]	NT NR 1.0 2.0 0.0 39 - 76 337 - 399 266 - 350

Kunzman Associates-



MOVEMENT	LANES	CAPACITY	BAS VOLU		ADD VOL		TOTA VOLU			ME TO ACITY TIO (PM)
Northbound Left Northbound Through Northbound Right Southbound Left Southbound Through Southbound Right Eastbound Through Eastbound Through Eastbound Right Westbound Left Westbound Through Westbound Through Westbound Through	0 1 1 1 1 0 0 0 0	0 1600 1600 1600 1600 0 0 0 0 1600	0 503 71 32 536 0 0 0 106 0 35	0 698 170 42 615 0 0 0 95 0	0 13 2 0 12 0 0 0 0 2 0	091033000000000000000000000000000000000	0 516 73 32 548 0 0 0 108 0 35	0 707 171 42 618 0 0 0 0 95 0	0.000* 0.322 0.046 0.020 0.343* 0.000 0.000* 0.000* 0.067* 0.000 0.022	0.000 0.442* 0.107 0.026* 0.386 0.000 0.000* 0.000* 0.000 0.059* 0.000 0.022
Northbound Right Turn Southbound Right Turn Eastbound Right Turn Westbound Right Turn Clearance Interval	n Adjustment Adjustment	None of right who movement is	en ther	e is se					0.000* 0.000* 0.000* 0.000*	0.000* 0.000* 0.000* 0.000*

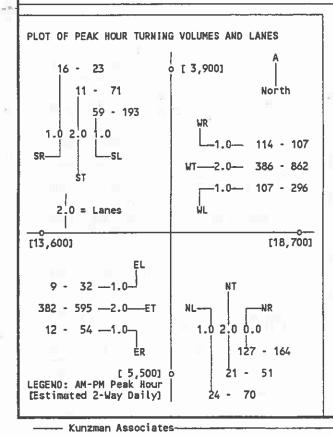




INTERSECTION: TIERR LANO USE: YEAR 2007		E (NS) and AVE	NUE S (EW)			DATE: 11-14-02 METRICS: Existing
MOVEMENT	LANES	CAPACITY	BASE VOLUME (AM) (PM)	ADDEO VOLUME (AM) (PM)	TOTAL VOLUME (AM) (PM)	VOLUME TO CAPACITY RATIO (AM) (PM)
Northbound Left Northbound Through Northbound Right Southbound Through Southbound Right Eastbound Left Eastbound Through Eastbound Through Eastbound Right Westbound Left Westbound Right Westbound Right Westbound Right	0 1 0 1 0 0 1 0	0 1600 0 0 1600 0 1600 0 0	1 1 56 56 43 44 346 295 29 58 8 25 13 24 24 23 1 1 16 54 8 34 245 519	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 1 58 56 43 44 355 302 31 59 8 25 13 24 24 23 1 1 16 54 8 34 254 521	0.000* 0.000* 0.004 0.064 0.064 0.000 0.000 0.000 0.246* 0.241* 0.000 0.000* 0.000* 0.004 0.030 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000
Northbound Right Turn Southbound Right Turn Eastbound Right Turn Westbound Right Turn Clearance Interval	n Adjustment Adjustment	None of right who movement is	en there is s	are assumed to eparate RT las	o occur on ne & when	0.000* 0.000* 0.000* 0.000* 0.000* 0.000* 0.000* 0.000* 0.100* 0.100*
INTERSECTION CAPACITY LEVEL OF SERVICE (A=	Y UTILIZATION, .0006 ICU; B=	ICU (Sum of Co =.6017; C=.70	omponents wit 018; 0=.801	h *) 9; E=.901-1	.0; F=1.001+)	0.520 0.721 A C
PLOT OF PEAK HOUR TUI  8 - 25  31 - 59  355 - 302  0.0 1.0 0.0  SR	WR	North  254 - 521  8 - 34  16 - 54  1 9,200	394 1 	INTERSECTION  A  North - 386 I 4,29  7 - 60 [ 42  9 - 48 [ 47  - 109 [ 907] Way Volumes)  - 114 [ 894  eak Hour [Dail (AM+PM)* 5.5	720 - (2 We	987 [ 9,389] ay Volumes)  - 601 [ 5,098]  - 608 [ 4,873]  - 976 [ 9,221] Way Volumes)  - 102 [ 1,124]  - 215 [ 2,017] ay Volumes)
ER [ 2,00 LEGEND: AM-PM Peak H (Estimated 2-Way Oai)	00] o 5	43 - 44 8 - 56	% Enter	Leg:	North South 55 - 39 68 - 47	East West 7 40 - 62 69 - 44 8 - 11 6 - 12

- Kunzman Associates---

						DATE: 11 METRICS:	-13-02 Existing			
MOVEMENT	LANES	CAPACITY	BAS VOLU		ADDE VOLU		TOTA VOLU			ME TO CITY TID (PM)
Northbound Left Northbound Through Northbound Right Southbound Through Southbound Through Southbound Right Eastbound Through Eastbound Through Eastbound Right Westbound Left Westbound Through Westbound Through	1 2 0 1 1 1 1 2 1 1 2	1600 3200 0 1600 3200 1600 1600 1600 3200 1600	24 21 125 59 11 16 9 382 12 105 386 114	70 51 163 193 71 23 32 595 54 296 862 107	00200000200	0 0 1 0 0 0 0 0 0 0 0 0 0 0 0	24 21 127 59 11 16 9 382 12 107 386 114	70 51 164 193 71 23 32 595 54 296 862 107	0.015 0.046* 0.000 0.037* 0.003 0.010 0.006 0.119* 0.008 0.067* 0.121 0.071	0.000 0.121* 0.022 0.014 0.02D 0.186* 0.034
Northbound Right Tur Southbound Right Tur Eastbound Right Tur Westbound Right Turr Clearance Interval	n Adjustment n Adjustment	None of right who were not not the movement is	hen ther	e is s	are assu eparate	med to	o occur ne & whe	on en	0.000* 0.000* 0.000* 0.000* 0.100*	0.000* 0.000*
INTERSECTION CAPACIT LEVEL OF SERVICE (A	TY UTILIZATION, =.0006 1CU; B	ICU (Sum of (	Componen 7018;	ts with D=.801	h *) — 9; E=.	,901-1	.0; F=1.	) 001+)	0.369 A	0.659 B



PLOT OF INTERSECTION LEG VOLUMES
A   230 - 477 [ 3,891] V (2 Way Volumes)
86 - 287 [ 2,049] V 145 - 190 [ 1,843]
426 - 954 [ 7,591]
403 - 681 [ 5,962] 567 - 952 [ 8,359]
829 -1635 [13,553]
129 - 421 [ 3,025]   A 172 - 285 [ 2,515]
LEGEND: A AM-PM Peak Hour [Daily]   301 - 706 [ 5,540] Daily = {AM+PM}* 5.5 V (2 Way Volumes)
Leg: North South East West
% Entering (AM-PM) 37 - 60 57 - 40 52 - 57 49 - 42 % of Daily in Peak 6 - 12 5 - 13 6 - 12 6 - 12 Hour (AM-PM)

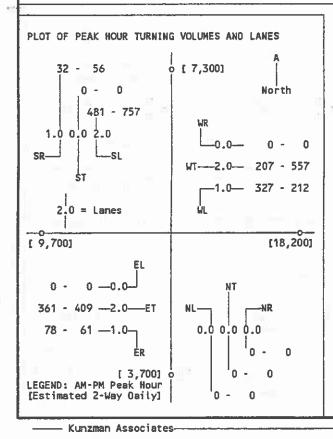
Southbound Through         0	0 0 0 0 0 0 323 695	0.000* 0	0.000 0.000* 0.000
Westbound Left 0 0 0 0 0 0 0 Westbound Through 2 3200 493 1068 0 0	187 288 0 0 352 816 304 273 0 0 493 1068 181 134	0.000 0 0.117 0 0.000* 0 0.110 0 0.190 0 0.000 0	0.435* 0.000 0.180 0.000* 0.255 0.171 0.000 0.334* 0.084
Northbound Right Turn Adjustment Southbound Right Turn Adjustment Eastbound Right Turn Adjustment Westbound Right Turn Adjustment Westbound Right Turn Adjustment Clearance Interval	ccur on & when	0.000* 0 0.000* 0	0.000* 0.000* 0.000* 0.000* 0.100*
INTERSECTION CAPACITY UTILIZATION, ICU (Sum of Components with *) LEVEL OF SERVICE (A=.0006 ICU; B=.6017; C=.7018; 0=.8019; E=.901-1.0;	F=1.001+)	0.456 C	0.869 D

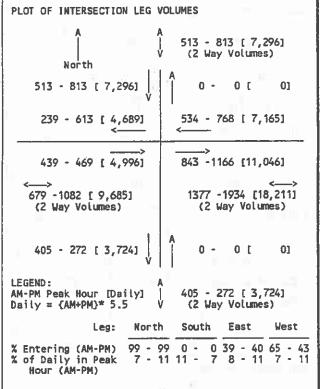
PLOT OF PEAK HOUR TURNING	G VOLUMES AND LANES
187 - 288 0 - 0 323 - 695 1.0 0.0 1.0 SR ST 2.0 = Lanes	WR 1.0- 181 - 134 WT-2.0- 493 -1068 WL
[20,800]	[22,300]
EL 0 - 0 - 0.0 - 5 352 - 816 - 2.0 - ET 304 - 273 - 1.0 - ER [ 3,200] C LEGENO: AM-PM Peak Hour [Estimated 2-Way Daily]	NL NR 0.0 0.0 0.0 0 - 0 0 - 0 0 - 0

- Kunzman Associates-

PLOT OF INTERSECTION LEG \	OLUMES
North	(   691 -1118 [ 9,946] / (2 Way Volumes)
510 - 984 [ 8,214] V	A 181 - 134 [ 1,732]
680 -1356 [11,199]	674 - 1202 [10,318]
656 -1089 [ 9,598]	675 -1511 [12,022]
<> 1336 -2445 [20,796] (2 Way Volumes)	1349 -2713 [22,340] (2 Way Volumes)
304 - 273 [ 3,176] V	A 0 - 0 t 01
LEGEND: AM-PM Peak Hour [Daily]   Daily = (AM+PM)* 5.5	304 - 273 [3,176] (2 Way Volumes)
Leg: North	South East West
% Entering (AM-PM) 74 - 8 % of Daily in Peak 7 - 1 Hour (AM-PM)	

MOVEMENT	LANES	CAPACITY	BAS VOLU (AM)		ADO VOL		TOTA VOLU (AM)	ME		
Northbound Left Northbound Through Northbound Right Southbound Left Southbound Right Eastbound Right Eastbound Through Eastbound Through Eastbound Right Westbound Through Westbound Through	0 0 0 2 0 1 0 2 Free 1 1 2	0 0 0 2880 0 1600 0 3200 1600 1600 3200 0	0 0 481 0 32 0 356 74 327 198	0 0 0 757 0 56 0 405 58 212 555 0	00000054090	00000043020	0 0 0 481 0 32 0 361 78 327 207 0	0 0 0 757 0 56 0 409 61 212 557	0.000 0.000* 0.000 0.167* 0.000 0.020 0.000 0.113* 0.049 0.204* 0.065 0.000	0.000 0.035 0.000
Northbound Right Tu Southbound Right Tur Eastbound Right Tur Westbound Right Tur Clearance Interval	rn Adjustment n Adjustment	None of rigit red light with movement is	hen ther	e is s	are ass eparate	umed to RT lar	occur ne & whe	on en	0.000* 0.000* 0.000* 0.000* 0.100*	0.000* 0.000* 0.000* 0.000* 0.100*

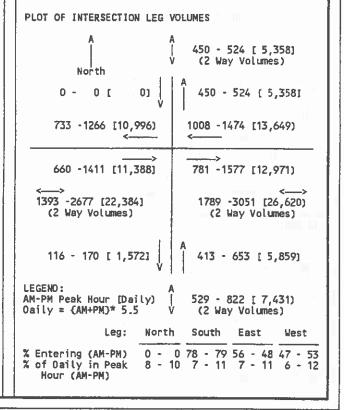




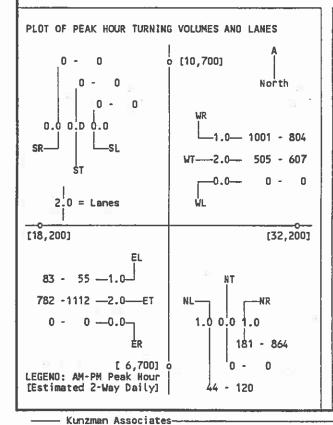
					-				1	
MOVEMENT	LANES	CAPACITY	BAS VOLU		ADO VOL		TOT/ VOLU			ME TO
			(MA)	(PM)	(AM)	(PM)	(MA)	(PM)	(AM)	(PM)
Southbound Left Southbound Through Southbound Right Eastbound Through Eastbound Through Eastbound Right Westbound Left Westbound Through	1 0 Free 1 0 0 0 0 3 Free 1 0 3	1600 0 1600 0 0 0 4800 1600 0 4800	176 0 237 0 0 0 544 114 0 557 450	316 0 336 0 0 0 1241 169 0 950	000000000000000000000000000000000000000	000000000000000000000000000000000000000	176 0 237 0 0 0 544 116 0 557 450	316 0 336 0 0 0 1241 170 0 950	0.110* 0.000 0.148 0.000 0.000* 0.000 0.000* 0.113 0.072 0.000 0.116* 0.281	0.198* 0.000 0.210 0.000 0.000* 0.000 0.259* 0.106 0.000* 0.198 0.327
Northbound Right Turn Adjustment Southbound Right Turn Adjustment Eastbound Right Turn Adjustment Westbound Right Turn Adjustment Westbound Right Turn Adjustment Clearance Interval  None of right turns (RT) are assumed to occur on red light when there is separate RT lane & when movement is permitted.							0.000* 0.000* 0.000* 0.000* 0.100*	0.000* 0.000* 0.000* 0.000* 0.100*		

PLOT OF PEAK HOUR TURNIN	G VOLUMES AND LANES
	[ 5,400] A
0 - 0	North
0 - 0	₩R
0.0 0.0 0.0 SRSL	1.0- 450 - 524
	WT3.0 557 - 950
ST	0.00 - 0
2.0 = Lanes	WL
[22,400]	[26,600)
0 - 0 -0.0-	ŅŦ
544 -12413.0ET	NLNR
116 - 170 —1.0	1.0 0.0 1.0
ER	237 - 336
[ 7,400] ( LEGENO: AM-PM Peak Hour [Estimated 2-Way Daily)	176 - 316

— Kunzman Associates-



INTERSECTION: SR-1 LAND USE: YEAR 2007	4 FREEWAY NB RA	MPS (NS) and a	AVENUE S (EW)			OATE: 11-12-02 METRICS: Existing
MOVEMENT	LANES	CAPACITY	BASE VOLUME (AM) (PM)	ADDED VOLUME (AM) (PM)	TOTAL VOLUME (AM) (PM)	VOLUME TO CAPACITY RATIO (AM) (PM)
Northbound Left Northbound Through Northbound Right Southbound Left Southbound Right Southbound Right Eastbound Through Eastbound Through Eastbound Right Westbound Right Westbound Through Westbound Through Westbound Right	1 0 Free 1 0 0 0 1 2 0 0 2 Free 1	1600 0 1600 0 0 0 1600 3200 0 3200 1600	40 119 0 0 181 864 0 0 0 0 0 0 83 55 777 1108 0 0 500 606 1001 804	4 1 0 0 0 0 0 0 0 0 0 0 0 0 5 4 0 0 0 0 5 1 0 0	44 120 0 0 181 864 0 0 0 0 0 0 83 55 782 1112 0 0 0 0 505 607 1001 804	0.028* 0.075* 0.000 0.000 0.113 0.540 0.000 0.000 0.000* 0.000* 0.000 0.000 0.052 0.034 0.244* 0.348* 0.000 0.000 0.000* 0.000 0.158 0.190 0.626 0.503
Northbound Right Tu Southbound Right Tu Eastbound Right Tur Westbound Right Tur Clearance Interval	rn Adjustment n Adjustment		nt turns (RT) a nen there is so permitted.			0.000* 0.000* 0.000* 0.000* 0.000* 0.000* 0.000* 0.000* 0.100* 0.100*
INTERSECTION CAPACIT LEVEL OF SERVICE (A:	TY UTILIZATION, =.0006 ICU; B	ICU (Sum of 0 =.6017; C=.7	Components with 7018; D=.801	h *) 9; E=.901-1.	.0; F=1.001+)	0.372 0.523 A A



PLOT OF INTERSECTION LEG V	/OLUMES						
North	1084 - 859 [10,687] 7 (2 Way Volumes)						
0 - 0 [ 03	A 1084 - 859 [10,687]						
549 - 727 [ 7,018]	1506 -1411 [16,041]						
865 -1167 [11,178]	963 - 1976 [16,168]						
<> 1414 -1894 [18,196] (2 Way Volumes)	2469 -3387 [32,208] (2 Way Volumes)						
0 - 0 [ 0] V	A   225 - 985 [ 6,653]						
LEGENO: AM-PM Peak Hour [Daily] Daily = (AM+PM)* 5.5	225 - 985 [6,653] (2 Way Volumes)						
Leg: North	South East West						
% Entering (AM-PM) 0 - % of Oaily in Peak 10 - Hour (AM-PM)	0 99 - 99 61 - 42 61 - 62 8 3 - 15 8 - 11 8 - 10						

### **APPENDIX D**

**Traffic Signal Warrant Worksheets** 

# PEAK HOUR VOLUME WARRANT (Rural Areas)

#### **Existing**

Major Street Name = Tierra Subida Avenue

Total of Both Approaches (VPH) = 1138

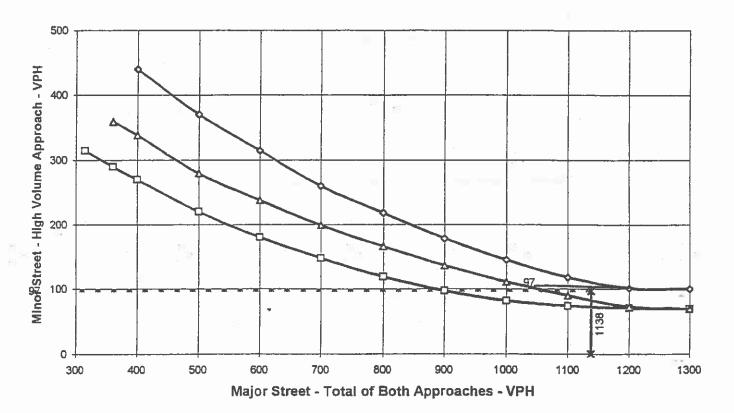
Number of Approach Lanes Major Street = 1

Minor Street Name = 5th Street West

High Volume Approach (VPH) = 97

Number of Approach Lanes Minor Street = 1

#### WARRANTED FOR A SIGNAL



- -D-1 Lane (Major) & 1 Lane (Minor)
- 2+ Lanes (Major) & 1 Lane (Minor) OR 1 Lane (Major) & 2+ Lanes (Minor)
- 2+ Lanes (Major) & 2+ Lanes (Minor)
- -X Major Street Approaches
- \* Minor Street Approaches

#### \*\* NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

# PEAK HOUR VOLUME WARRANT (Rural Areas)

#### Existing

Major Street Name = Tierra Subida Avenue

Total of Both Approaches (VPH) = 980

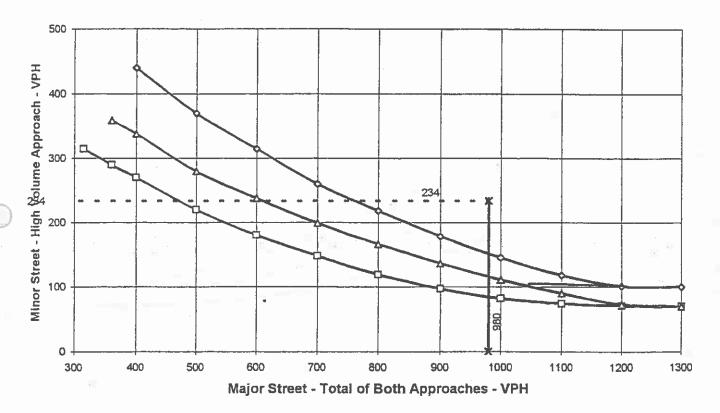
Number of Approach Lanes Major Street = 1

Minor Street Name = Rayburn Road

High Volume Approach (VPH) = 234

Number of Approach Lanes Minor Street = 1

#### WARRANTED FOR A SIGNAL



- 1 Lane (Major) & 1 Lane (Minor)
- 2+ Lanes (Major) & 1 Lane (Minor) OR 1 Lane (Major) & 2+ Lanes (Minor)
- 2+ Lanes (Major) & 2+ Lanes (Minor)
- → Major Street Approaches
- \* Minor Street Approaches

#### \*\* NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

# PEAK HOUR VOLUME WARRANT (Rural Areas)

#### **Existing**

Major Street Name = Avenue S

Total of Both Approaches (VPH) = 488

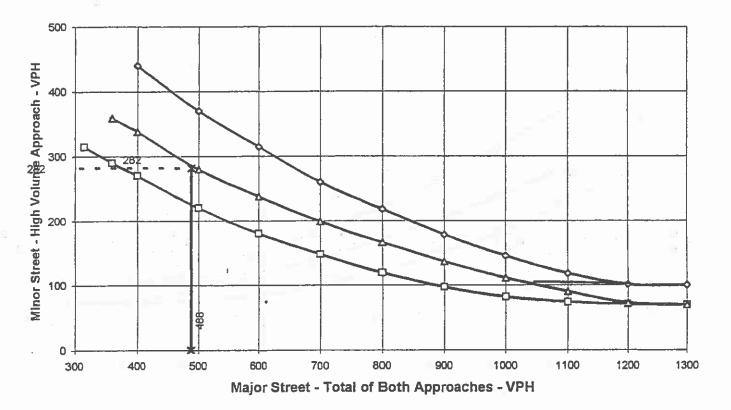
Number of Approach Lanes Major Street = 1

Minor Street Name = Tierra Subida Avenue

High Volume Approach (VPH) = 282

Number of Approach Lanes Minor Street = 1

#### WARRANTED FOR A SIGNAL



- 2+ Lanes (Major) & 1 Lane (Minor) OR 1 Lane (Major) & 2+ Lanes (Minor)
- 2+ Lanes (Major) & 2+ Lanes (Minor)
- --- Major Street Approaches
- \* Minor Street Approaches

#### \*\* NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

### APPENDIX E

Approved County CUP #93041 September, 1993 Supplemental Traffic Analysis of 3,564 Tons per Day at AVPL

## EDAW

Mr. Joaquin Herrera L.A. County Public Works 900 South Fremont Alhambra, California 91803-1331

RE:

Antelope Valley Landfill - Modification to Conditional Use Permit #86162

(CUP #93041)

Dear: Mr. Herrera:

I am forwarding additional traffic information related to the Supplemental Traffic analysis (Revised April, 1993) Antelope Valley Public Landfill Expansion. My enclosed letter to Dick Frazier summarizes what this informatin is and why it was generated. Although our traffic engineer said that no additional mitigation measures are necessary as a result of the analysis, Dick would like you to review your May 20th, 1993 memo and confirm that this is the case. I would appreciate it if you could prepare another memo to Dick Frazier after you have completed your review of the enclosed information and let him know that your recommendations still apply.

Landscape Architecture Planning Urban Design Environmental Analysis Site Engineering Craphic Design

EDAW, Inc. 1920 Main Street, Suite 450 Irvine, CA 92714 714 660-8044 FAX 714 660-1046

Additionally, we would like further clarification added to the end of the recommendation presented on page 2 of your 5/20/93 memo. Per the note listed on page 3 of the April 1993 traffic study, we requested that the following wording be added to the recommendations on page 2 of your memo: "Prior to the payment of prorata contributions listed above, the applicant shall have the traffic conditions re-evaluated after the installation of Palmdale Boulevard signals in order to confirm the need for the mitigations listed above." This additional clarification is important since the traffic analysis concludes that the future signals on Palmdale Boulevard at SR-14 may significantly reduce existing traffic on Avenue S at SR-14. The analysis also points out that a continued slow housing market may result in less than the projected traffic increases.

As you can probably guess, this is on a tight time schedule. Could you please let me know when you can get Dick Frazier a response. I can be reached at (714) 660-8044.

Very Truly Yours,

Jayna Morgan Senior Associate

Enclosure

cc Project Team

San Francisco Alexandria Atlanta Fort Collins/Denver Irvine Scattle Phocnix Sydney, Australia

## **EDAW**

September 7, 1993

Mr. Richard Frazier, Regional Planner II
Zoning Permits Section
Department of Regional Planning
320 West Temple Street
Los Angeles, California 90012

Landscape Architecture Planning Urban Design Environmental Analysis Site Engineering Graphic Design

RE: Antelope Valley Landfill - Modification to Conditional Use Permit #86162 (CUP #93041)

Dear Dick:

At our meeting August 26th, we discussed wording condition 10d consistent with the previous CUP (ie. net vs gross). You indicated that in order for you to change this condition, the traffic analysis prepared by Kunzman Associates needs to contain the same scenario which was included in the DKS traffic study. I am forwarding this additional traffic scenario prepared by Kunzman Associates last week. Per your direction, I have also sent a copy to Mr. Joaquin Herrera of Traffic and Lighting.

Per my review of the enclosed tables and discussions with Mr. Gary Hansen of Kunzman Associates, this analysis does not result in the need for any additional mitigation measures. The measures suggested in the original Kunzman Associates study (March, 1993) and required by the Traffic and Lighting Division in their My 20, 1993 Memorandum are still applicable. I am sure Traffic and Lighting will confirm this conclusion.

It should be noted that Table 9 compares the 2010 condition presented in the DKS report (1,188 tons/day) to the new condition we discussed at our 8/26 meeting (3,564 tons/day). The original conclusion from the DKS study was as follows:

"As shown in Table 4-12, the proposed project traffic contributes to less than 1% of the intersection capacity utilization at the study intersection. The maximum capacity of the proposed project for a worst case daily waste stream of 1.188 tons, therefore, would not result in a significant impact on the area circulation system..."

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Mr. Richard Frazier, Regional Planner II September 7, 1993 Page 2

Per conversations with Mr. Gary Hansen, he indicated that under the new scenario, proposed project traffic contributes less than 2% of the intersection capacity unitization at the study intersections. Therefore the original conclusion of the DKS study would remain unchanged.

I will let you know when you can expect a buy-off from Traffic and Lighting. Hopefully they can prepare an additional memo confirming their requirements in their May 20, 1993 memo by the end of this week. You indicated once you receive their buy-off we can reschedule this item for Planning Commission hearing.

Please give me a call if you have any questions regarding this information.

Very Truly Yours,

Jayna Morgan

cc: Project Team

Joaquin Herrera

Jaya Micipan

Table 4
ESTIMATED PROTECT TRAFFIC GENERATION

	Mor	ning Hour	Peak			
Scenario	In	out	In	out	Daily	
EXISTING - 1993		= 72				
Material (600 tons/day)	10	10	10	10	190	
(130) Employees	10	*	10	10	280	
Total	. 50	10	20	20	470	
POTENTIAL EXPANSION						
Material (3,564 tons/day)	70	40	70	70	1,100	
Employees (170)	20	*	10	10	360	
Total	90	40	80	80	1,460	

Note: Trips generated are rounded to hearest 10.

\* Nominal (i.e. less than 5)

Table 9
COMPARISON OF YEAR 2010 INTERSECTION LEVELS OF SERVICE

Intersection	AM: Peak					PM Peak						
	Vithout Project					/Day	Without Project		1,168 Tons/Day		3,564 Tone/Day	
	Delay	Los	Delay	LOS	Delay	FOS	Delay	LOF	Delmy	LOS	Delay	LDS
Palmdele Rd./ Tierra Subida Ave. (1)	21.2	С	21.0	t	20.8	e e	27.7	D	28.2	, D	29.2	ם
SR-14 SB Off Ramp/ Palmdale Blvd.	18.6	c	18.8	C =	19.1	c	24.3	E	24.6	ε	26.2	D
SR-14 NB Off Ramp/ Paindale Blvd.	4.1	A	4.1	A	=4.1	A	15-4	С	15.4	C	15.5	С
[nteresction	iai	1.06	ία	for	ton	LDS	100	LOS	100	Los	teu	LOS
City Rench Rd./ Tierra Subida Avo.	0.77	С	0.78	С	ž8.0	D	0.69	D	0.89	D	0.90	b
Avenue S/Tierra Subide Ave.	0.89	D	0.89	b	0.90	D	0.89	Ð	0.87	ID.	0.89	D
SR-14 SB Ramps/ Avenue S	0.24	A	0.26	A	D.36	A	0.81	0	0.81	D	0.91	E
SR-14 NB Romps/ Avenue S	0.33	177	0,33		0.41		0.87	D D	0.87	D	0.90	D

(1) With southbound free right turn

88 = southbound NB = northbound