



Appendix A

Air Quality

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**AIR QUALITY IMPACT REPORT
LIBERTY CANYON OFFICE EXPANSION PROJECT
AGOURA HILLS, CALIFORNIA**

Prepared for:

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Prepared by:

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November 2006

AIR QUALITY IMPACT REPORT
LIBERTY CANYON OFFICE EXPANSION PROJECT
AGOURA HILLS, CALIFORNIA

Prepared by:
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SUMMARY

The implementation of the proposed Liberty Canyon Office Expansion Project (Project) will result in the generation of air pollutants during both the Project's construction and operational phases. The construction phase will include grubbing, grading, and building construction that includes the erection of structures, the application of architectural coatings, asphalt and concrete paving, and landscaping. The operational phase takes into account air pollutant emissions associated with the normal operations of the building complex. These emissions include exhaust from the building and water heating systems, volatilization of cleaning products, and exhaust from delivery and service vehicles as well as from tenant and customer vehicles.

Specific air pollutants emitted during the construction phase will consist of particulate matter less than 10 microns in aerodynamic diameter (PM₁₀) emitted by diesel equipment and vehicles, fugitive dust generated by on-site construction activities, and volatile organic compounds (VOC), carbon monoxide (CO), and oxides of nitrogen (NO_x) emitted by heavy equipment diesel exhaust. The primary operational pollutant emissions will consist of VOC, NO_x, and CO from building and water heating systems and landscape maintenance equipment, as well as NO_x, CO, and PM₁₀ from employee and client motor vehicle exhaust and road dust. URBEMIS2002 (Version 8.7.0), a land use and air emissions estimation model, was used to estimate the unmitigated construction and operational emissions. The unmitigated results from this model run show that the thresholds of significance for VOC, NO_x, CO, Sulfur Oxides (SO_x), and PM₁₀ would not be exceeded, and the air quality impacts of Project would be less than significant.

INTRODUCTION

The Project is located in the western edge of the South Coast Air Basin (SCAB). The SCAB is a severe-17 nonattainment area for the federal 8-hour ozone standard and an extreme nonattainment area with respect to the California 1-hour ozone standard. The SCAB is a serious nonattainment area with respect to the federal 24-hour PM₁₀ standard and designated as nonattainment with respect to the California 24-hour and annual PM₁₀ standards. It is designated as attainment or unclassified for all other federal and state ambient air quality standards. The ozone precursors VOC and NO_x, in addition to PM₁₀, are the

pollutants of concern for projects located in the South Coast Air Quality Management District (SCAQMD), which governs sources of air pollutants in the SCAB.

The Project consists of the construction of a one-story, 10,000-square-foot office building, and a two-story, 20,400-square-foot medical office building on the 4.18-acre site at corner of Liberty Canyon Road and Agoura Road in the City of Agoura Hills. The new buildings will adjoin an existing two-story, 24,540-square-foot office building.

THRESHOLDS OF SIGNIFICANCE

Table 1, Thresholds of Significance, shows the threshold criteria for construction and operational emissions recommended by the SCAQMD for determining whether a development project has the potential to generate significant adverse air quality impacts. Tests of significance are not limited to the criteria listed below.

Table 1
Thresholds of Significance

Pollutant	Construction (lbs/day) ¹	Operations (lbs/day) ¹
VOC	75	55
NO _x	100	55
CO	550	550
SO _x	150	150
PM ₁₀	150	150

¹ Source: California Environmental Quality Act (CEQA) Air Quality Handbook, SCAQMD, 1993.

In addition to the above listed emission-based thresholds, the SCAQMD also recommends that the potential impacts on ambient air concentrations due to construction emissions be evaluated. This evaluation requires that anticipated ambient air concentrations, determined using a computer-based air quality dispersion model, be compared to localized significance thresholds for PM₁₀, nitrogen dioxide (NO₂), and CO.¹ The significance threshold for PM₁₀ represents compliance with Rule 403 (Fugitive Dust), while the thresholds for NO₂ and CO represent the allowable increase in concentrations above background levels in the vicinity of the project that would not cause or contribute to an exceedance of the relevant ambient air quality standards. For project sites of 5 acres or less, the SCAQMD *Localized Significance Threshold Methodology* (LST document) includes "lookup tables" for 1-, 2-, and 5-acre project

¹ South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology* (Diamond Bar, California: South Coast Air Quality Management District, June 2003).

sites, which can be used to determine the maximum allowable daily emissions that would satisfy the localized significance criteria (i.e., not cause an exceedance of the applicable concentration limits) without project-specific dispersion modeling. The allowable emission rates depend on (a) the Source Receptor Area (SRA) in which the project is located, (b) the size of the project site, and (c) the distance between the project site and the nearest sensitive receptor (e.g., residences, schools, hospitals).

A project would also be considered to result in significant air quality impacts if it could generate vehicle trips that cause a CO "hotspot" or if the project could be occupied by sensitive receptors that would be exposed to a CO "hotspot." A CO "hotspot" occurs if motor vehicle emissions at an intersection would cause or contribute to exceedances of the federal or state ambient air quality standards for CO.

ESTIMATED EMISSIONS AND IMPACTS

URBEMIS2002 (Version 8.7.0) was used to estimate the emissions for criteria pollutants as directed by SCAQMD's *CEQA Air Quality Handbook*. Results for the construction and operational phases were prepared separately. Construction periods, heavy-duty equipment mix, and architectural coating types were supplied by the contractor. Construction emission estimates for fugitive PM₁₀ assumes compliance with Rule 403. No mitigation measures applied to the model run.

The following assumptions were made to estimate the Project's construction emissions:

- URBEMIS Run:
 - Pass-by and Diverted trips were eliminated because these trips are related to internal trips between residential and commercial land uses, and the majority of the Project trips would be dedicated trips to and from the Project;
 - The VOC architectural coating factor was reduced to 0.0116 pounds per square foot coated in accordance with SCAQMD recommendations;
 - The year analyzed was 2008, which is the year that construction would be completed;
 - "Demolition" consisted of grubbing that will be conducted over a period of five days. The emissions associated with this component were added to the grading phase;
 - The grading and construction equipment list was provided by the applicant; and
 - Asphalt acreage was provided by the applicant.
- LST Analysis
 - The project is located in the SCAQMD SRA 6. Allowable Emission Values for NO_x and CO were based on ambient air monitoring data collected at the SCAQMD Reseda Air Quality Monitoring Station and a distance to the nearest sensitive receptor of 25 meters;

- The emissions associated with construction worker trips were eliminated for the LST analysis because these emissions are for the most part off site;
- The actual Allowable Emission Values were interpolated from the values in the SCAQMD lookup tables for 2- and 5-acre project sites to the Project area of 4.18 acres.

The construction emission results presented in **Table 2, Estimated Unmitigated Grading and Construction Emissions**, are less than the thresholds of significance for construction.

Table 2
Estimated Unmitigated Grading and Construction Emissions

Year	Emissions in Pounds per Day				
	VOC	NO _x	CO	SO _x	PM ₁₀
2007	10.84	70.03	91.04	0.00	2.87
2008	4.37	24.47	34.46	0.00	0.76
Maximum Emissions in Any Year	10.84	70.03	91.04	0.00	2.87
SCAQMD Thresholds	75	100	550	150	150
Exceeds Thresholds?	NO	NO	NO	NO	NO

Source: Impact Sciences, Inc. Emissions calculations are provided in **Attachment 1**.

Totals in table may not appear to add exactly due to rounding in the computer model calculations.

Assumes compliance with SCAQMD Rule 403 (Fugitive Dust).

As indicated in the discussion of the thresholds of significance, the SCAQMD recommends that the localized construction impacts on the ambient air concentrations due to construction emissions of NO_x, CO, and PM₁₀ be evaluated. The SCAQMD LST document includes "lookup tables" that can be used to determine the maximum allowable daily emissions that would satisfy the localized significance criteria (i.e., not cause an exceedance of the applicable concentration limits). The allowable emission rates depend on (a) the SRA in which the project is located, (b) the size of the project site, and (c) the distance between the project site and the nearest sensitive receptor (e.g., residences, schools, hospitals). The project-specific localized significance thresholds for SRA 6 (West San Fernando Valley) are shown in **Table 3, Localized Significance Thresholds Analysis During Construction**, and are compared with the maximum daily on-site construction emissions. The construction site is 4.18 acres. The LST construction emission thresholds shown below were interpolated for a 4.18-acre site from the LST lookup tables for 2-acre and 5-acre project sites. The nearest sensitive receptors (single-family and multi-family residences) are located approximately 25 meters south of the construction site boundary.

Table 3
Localized Significance Thresholds Analysis During Construction

Pollutant	Averaging Period	On-Site Emissions lbs/day	LST Criteria ¹ lbs/day	Exceeds LST?
Respirable Particulate Matter (PM ₁₀)	24 hours	2.87	9	NO
Nitrogen Dioxide (NO ₂)	1 hour	70.03	260	NO
Carbon Monoxide (CO)	1 hour	91.04	532	NO
	8 hours	91.04	532	NO

Source: Impact Sciences, Inc.

¹ South Coast Air Quality Management District, Final Localized Significance Threshold Methodology, June 2003, <http://www.aqmd.gov/ceqa/handbook/LST/appC.pdf>

The operational emission results presented in Table 4, Estimated Operational Emissions without Mitigation, are substantially less than the operational thresholds of significance. The operational emissions were based on the trip generation provided in the traffic impact analysis for the Project² and the default assumptions in URBEMIS2002.

Table 4
Estimated Operational Emissions without Mitigation

Emissions Source	Emissions in Pounds per Day				
	VOC	NOx	CO	SOx	PM ₁₀
Summertime Emissions¹					
Operational (Mobile) Sources	0.24	0.32	1.39	0.00	0.00
Area/Stationary Sources	0.26	0.02	3.29	0.00	0.33
Summertime Emission Totals	0.50	0.34	4.68	0.00	0.33
SCAQMD Threshold	55	55	550	150	150
Exceeds Threshold?	NO	NO	NO	NO	NO
Wintertime Emissions²					
Operational (Mobile) Sources	0.26	0.46	3.22	0.00	0.33
Area/Stationary Sources	0.03	0.01	0.01	0.00	0.00
Wintertime Emission Totals	0.29	0.47	3.23	0.00	0.33
Recommended Threshold	55	55	550	150	150
Exceeds Threshold?	NO	NO	NO	NO	NO

Source: Impact Sciences, Inc. Emissions calculations are provided in Attachment 1.

Totals in table may not appear to add exactly due to rounding in the computer model calculations.

¹ "Summertime Emissions" are representative of worst-case conditions that may occur during the ozone season (May 1 to October 31).

² "Wintertime Emissions" are representative of worst-case conditions that may occur during the balance of the year (November 1 to April 30).

² Kaku Associates. 2006. Draft Traffic Study for the Liberty Canyon Road Office Expansion Project, October.

CO HOTSPOTS

The simplified CALINE4 screening procedure was used to predict cumulative future CO concentrations at 0 and 25 feet from the intersections in the study area. The simplified model is intended as a screening analysis that identifies a potential CO hotspot. If a hotspot is identified, the complete CALINE4 model is then utilized to determine precisely the CO concentrations predicted at the intersections in question. This methodology assumes worst-case conditions (i.e., wind direction is parallel to the primary roadway and 90 degrees to the secondary road, wind speed of less than one meter per second and extreme atmospheric stability) and provides a screening of maximum, worst-case, CO concentrations. According to the *Bay Area Air Quality Management District (BAAQMD) CEQA Guidelines, Assessing the Air Quality Impacts of Projects and Plans*, the simplified approach is acceptable for projects and plans that generate fewer than 10,000 new trips per day. This method is acceptable to the SCAQMD as long as it is used consistently with the *BAAQMD Guidelines*.³ Background CO concentrations used for the model were obtained from the Reseda air monitoring station, the selected monitoring station for SRA 6.

The results of the CO hotspots screening model for the project study area are shown in **Table 5, Carbon Monoxide Concentrations with Cumulative Plus Project Traffic (2008)**. Values in this table reflect the ambient air quality impacts of motor vehicle emissions resulting from cumulative traffic increases due to growth in the area and related projects, along with traffic resulting from the Project as predicted in the traffic impact analysis for the Project.

Table 5
Carbon Monoxide Concentrations with Cumulative Plus Project Traffic (2008)
(Parts Per Million)

Intersection	At Edge of Roadway		25 Feet	
	1-Hour ¹	8-Hour ²	1-Hour ¹	8-Hour ²
Liberty Canyon Rd. and 101 Southbound Ramp	8.2	6.8	7.6	6.4
Liberty Canyon Rd. and Agoura Rd.	8.5	7.0	7.9	6.6

¹ State standard is 20 ppm. Federal standard is 35 ppm.

² State standard is 9.0 ppm. Federal standard is 9 ppm.

Source: Impact Sciences, Inc. The CO concentration calculations are provided in Attachment 2.

³ Personal communication with Steve Smith, Program Supervisor, South Coast Air Quality Management District, Diamond Bar, California, May 12, 2004.

As shown in **Table 5**, the state and federal 1-hour and 8-hour CO standards would not be exceeded at any of the modeled intersections. Thus, the impact on local CO concentrations would be considered less than significant.

CONCLUSION

The estimated construction and operational emissions are below the significance thresholds set by the SCAQMD. The Project's construction emissions would not violate any of the Localized Significance Thresholds. The cumulative plus project traffic would not generate CO hotspots. Therefore, the air quality impacts of the Project would be less than significant.

ATTACHMENT 1

URBEMIS2002 Output

URBEMIS 2002 For Windows 8.7.0

File Name: M:\Camarillo\9. Air Quality\URBEMIS Files\27489 Agoura Road\27489
 Agoura Road.urb
 Project Name: 27489 Agoura Road
 Project Location: South Coast Air Basin (Los Angeles area)
 On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
 (Pounds/Day - Summer)

CONSTRUCTION EMISSION ESTIMATES

	PM10	PM10
PM10		
*** 2007 ***		
ROG		
NOx		
CO		
SO2		
TOTAL		
EXHAUST		
DUST		
TOTALS (lbs/day, unmitigated)	10.86	69.99
3.53	91.56	0.00
TOTALS (lbs/day, mitigated)	10.86	69.99
1.14	91.56	0.00

	PM10	PM10
PM10		
*** 2008 ***		
ROG		
NOx		
CO		
SO2		
TOTAL		
EXHAUST		
DUST		
TOTALS (lbs/day, unmitigated)	4.37	24.47
0.01	34.46	0.00
TOTALS (lbs/day, mitigated)	4.37	24.47
0.01	34.46	0.00

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day, unmitigated)	0.24	0.02	1.39	0.00	0.00
TOTALS (lbs/day, mitigated)	0.24	0.02	1.39	0.00	0.00

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day, unmitigated)	0.28	0.34	3.57	0.00	0.36

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day, unmitigated)	0.51	0.36	4.96	0.00	0.36

Both Area and Operational Mitigation must be turned on to get a combined mitigated total.

URBEMIS 2002 For Windows 8.7.0

File Name: M:\Camarillo\9. Air Quality\URBEMIS Files\27489 Agoura Road\27489
 Agoura Road.urb
 Project Name: 27489 Agoura Road
 Project Location: South Coast Air Basin (Los Angeles area)
 On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
 (Pounds/Day - Winter)

Construction Start Month and Year: April, 2007
 Construction Duration: 13
 Total Land Use Area to be Developed: 0.1 acres
 Maximum Acreage Disturbed Per Day: 0 acres
 Single Family Units: 0 Multi-Family Units: 0
 Retail/Office/Institutional/Industrial Square Footage: 2000

CONSTRUCTION EMISSION ESTIMATES UNMITIGATED (lbs/day)

Source	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
*** 2007***							
Phase 1 - Demolition Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 2 - Site Grading Emissions							
Fugitive Dust	-	-	-	-	3.52	-	3.52
Off-Road Diesel	10.75	69.72	89.06	-	2.87	2.87	0.00
On-Road Diesel	0.01	0.15	0.03	0.00	0.00	0.00	0.00
Worker Trips	0.10	0.12	2.47	0.00	0.01	0.00	0.01
Maximum lbs/day	10.86	69.99	91.56	0.00	6.40	2.87	3.53
Phase 3 - Building Construction							
Bldg Const Off-Road Diesel	3.01	18.04	25.61	-	0.60	0.60	0.00
Bldg Const Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00
Arch Coatings Off-Gas	0.00	-	-	-	-	-	-
Arch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Off-Gas	0.00	-	-	-	-	-	-
Asphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Asphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	3.02	18.05	25.67	0.00	0.60	0.60	0.00
Max lbs/day all phases	10.86	69.99	91.56	0.00	6.40	2.87	3.53

*** 2008***							
Phase 1 - Demolition Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase 2 - Site Grading Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase 3 - Building Construction

Bldg Const Off-Road Diesel	3.01	18.04	25.61	-	0.60	0.60	0.00
Bldg Const Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00
Arch Coatings Off-Gas	0.00	-	-	-	-	-	-
Arch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Off-Gas	0.00	-	-	-	-	-	-
Asphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Asphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	3.02	18.05	25.67	0.00	0.60	0.60	0.00
Max lbs/day all phases	10.86	69.99	91.56	0.00	4.01	2.87	1.14

*** 2008***

Phase 1 - Demolition Emissions

Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase 2 - Site Grading Emissions

Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase 3 - Building Construction

Bldg Const Off-Road Diesel	3.01	17.65	25.61	-	0.53	0.53	0.00
Bldg Const Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00
Arch Coatings Off-Gas	2.11	-	-	-	-	-	-
Arch Coatings Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00
Asphalt Off-Gas	0.30	-	-	-	-	-	-
Asphalt Off-Road Diesel	4.00	23.58	33.99	-	0.73	0.73	0.00
Asphalt On-Road Diesel	0.06	0.88	0.21	0.00	0.02	0.02	0.00
Asphalt Worker Trips	0.02	0.01	0.25	0.00	0.00	0.00	0.00
Maximum lbs/day	4.37	24.47	34.46	0.00	0.76	0.75	0.01
Max lbs/day all phases	4.37	24.47	34.46	0.00	0.76	0.75	0.01

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
General office building	0.03	0.05	0.34	0.00	0.04
Medical office building	0.25	0.45	3.10	0.00	0.32
TOTAL EMISSIONS (lbs/day)	0.28	0.50	3.44	0.00	0.36

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

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2008 Temperature (F): 50 Season: Winter

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Acreage	Trip Rate	No. Units	Total Trips
General office building		3.32 trips/1000 sq. ft.	1.00	3.32
Medical office building		36.13 trips/1000 sq. ft.	1.00	36.13
Sum of Total Trips				39.45
Total Vehicle Miles Traveled				234.69

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	55.00	1.60	98.00	0.40
Light Truck < 3,750 lbs	15.00	2.70	95.30	2.00
Light Truck 3,751- 5,750	16.20	1.20	97.50	1.30
Med Truck 5,751- 8,500	7.20	1.40	95.80	2.80
Lite-Heavy 8,501-10,000	1.10	0.00	81.80	18.20
Lite-Heavy 10,001-14,000	0.40	0.00	50.00	50.00
Med-Heavy 14,001-33,000	1.00	0.00	20.00	80.00
Heavy-Heavy 33,001-60,000	0.90	0.00	11.10	88.90
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.20	0.00	50.00	50.00
Motorcycle	1.70	76.50	23.50	0.00
School Bus	0.10	0.00	0.00	100.00
Motor Home	1.20	8.30	83.30	8.40

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	11.5	4.9	6.0	10.3	5.5	5.5
Rural Trip Length (miles)	11.5	4.9	6.0	10.3	5.5	5.5
Trip Speeds (mph)	35.0	40.0	40.0	40.0	40.0	40.0
% of Trips - Residential	20.0	37.0	43.0			

% of Trips - Commercial (by land use)

General office building	35.0	17.5	47.5
Medical office building	7.0	3.5	89.5

URBEMIS 2002 For Windows 8.7.0

File Name: M:\Camarillo\9. Air Quality\URBEMIS Files\27489 Agoura Road\27489 Agoura Road.urb
 Project Name: 27489 Agoura Road
 Project Location: South Coast Air Basin (Los Angeles area)
 On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
 (Pounds/Day - Summer)

Construction Start Month and Year: April, 2007
 Construction Duration: 13
 Total Land Use Area to be Developed: 0.1 acres
 Maximum Acreage Disturbed Per Day: 0 acres
 Single Family Units: 0 Multi-Family Units: 0
 Retail/Office/Institutional/Industrial Square Footage: 2000

CONSTRUCTION EMISSION ESTIMATES UNMITIGATED (lbs/day)

Source	ROG	NOx	CO	SO2	PM10 TOTAL	PM10 EXHAUST	PM10 DUST
*** 2007***							
Phase 1 - Demolition Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Phase 2 - Site Grading Emissions							
Fugitive Dust	-	-	-	-	3.52	-	3.52
Off-Road Diesel	10.75	69.72	89.06	-	2.87	2.87	0.00
On-Road Diesel	0.01	0.15	0.03	0.00	0.00	0.00	0.00
Worker Trips	0.10	0.12	2.47	0.00	0.01	0.00	0.01
Maximum lbs/day	10.86	69.99	91.56	0.00	6.40	2.87	3.53
Phase 3 - Building Construction							
Bldg Const Off-Road Diesel	3.01	18.04	25.61	-	0.60	0.60	0.00
Bldg Const Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00
Arch Coatings Off-Gas	0.00	-	-	-	-	-	-
Arch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Off-Gas	0.00	-	-	-	-	-	-
Asphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Asphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	3.02	18.05	25.67	0.00	0.60	0.60	0.00
Max lbs/day all phases	10.86	69.99	91.56	0.00	6.40	2.87	3.53

*** 2008***							
Phase 1 - Demolition Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase 2 - Site Grading Emissions							
Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase 3 - Building Construction

Bldg Const Off-Road Diesel	3.01	18.04	25.61	-	0.60	0.60	0.00
Bldg Const Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00
Arch Coatings Off-Gas	0.00	-	-	-	-	-	-
Arch Coatings Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Off-Gas	0.00	-	-	-	-	-	-
Asphalt Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
Asphalt On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Asphalt Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	3.02	18.05	25.67	0.00	0.60	0.60	0.00
Max lbs/day all phases	10.86	69.99	91.56	0.00	4.01	2.87	1.14

*** 2008***

Phase 1 - Demolition Emissions

Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase 2 - Site Grading Emissions

Fugitive Dust	-	-	-	-	0.00	-	0.00
Off-Road Diesel	0.00	0.00	0.00	-	0.00	0.00	0.00
On-Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Maximum lbs/day	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase 3 - Building Construction

Bldg Const Off-Road Diesel	3.01	17.65	25.61	-	0.53	0.53	0.00
Bldg Const Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00
Arch Coatings Off-Gas	2.11	-	-	-	-	-	-
Arch Coatings Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00
Asphalt Off-Gas	0.30	-	-	-	-	-	-
Asphalt Off-Road Diesel	4.00	23.58	33.99	-	0.73	0.73	0.00
Asphalt On-Road Diesel	0.06	0.88	0.21	0.00	0.02	0.02	0.00
Asphalt Worker Trips	0.02	0.01	0.25	0.00	0.00	0.00	0.00
Maximum lbs/day	4.37	24.47	34.46	0.00	0.76	0.75	0.01
Max lbs/day all phases	4.37	24.47	34.46	0.00	0.76	0.75	0.01

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
General office building	0.04	0.03	0.36	0.00	0.04
Medical office building	0.24	0.31	3.21	0.00	0.32
TOTAL EMISSIONS (lbs/day)	0.28	0.34	3.57	0.00	0.36

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

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2008 Temperature (F): 90 Season: Summer

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Acreage	Trip Rate	No. Units	Total Trips
General office building		3.32 trips/1000 sq. ft.	1.00	3.32
Medical office building		36.13 trips/1000 sq. ft.	1.00	36.13
			Sum of Total Trips	39.45
			Total Vehicle Miles Traveled	234.69

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	55.00	1.60	98.00	0.40
Light Truck < 3,750 lbs	15.00	2.70	95.30	2.00
Light Truck 3,751- 5,750	16.20	1.20	97.50	1.30
Med Truck 5,751- 8,500	7.20	1.40	95.80	2.80
Lite-Heavy 8,501-10,000	1.10	0.00	81.80	18.20
Lite-Heavy 10,001-14,000	0.40	0.00	50.00	50.00
Med-Heavy 14,001-33,000	1.00	0.00	20.00	80.00
Heavy-Heavy 33,001-60,000	0.90	0.00	11.10	88.90
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.20	0.00	50.00	50.00
Motorcycle	1.70	76.50	23.50	0.00
School Bus	0.10	0.00	0.00	100.00
Motor Home	1.20	8.30	83.30	8.40

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	11.5	4.9	6.0	10.3	5.5	5.5
Rural Trip Length (miles)	11.5	4.9	6.0	10.3	5.5	5.5
Trip Speeds (mph)	35.0	40.0	40.0	40.0	40.0	40.0
% of Trips - Residential	20.0	37.0	43.0			

% of Trips - Commercial (by land use)

General office building	35.0	17.5	47.5
Medical office building	7.0	3.5	89.5

ATTACHMENT 2

Carbon Monoxide Hotspots Analysis

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2002

Project Title: 27489 Agoura Road
 Intersection: Liberty Rd. and 101 Southbound Ramp
 Analysis Condition: Cumulative (2008) Plus Project
 Nearest Air Monitoring Station measuring CO: 18330 Gault Street, Reseda, CA 91335
 Background 1-hour CO Concentration (ppm): 6.9
 Background 8-hour CO Concentration (ppm): 5.9
 Persistence Factor: 0.7
 Analysis Year: 2008

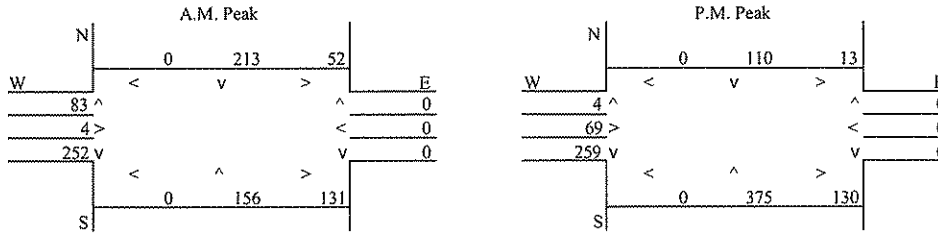
Roadway Type	No. of Lanes	Approach/Departure Speed		
		A.M.	P.M.	
North-South Roadway: Liberty Road	AT GRADE	2	5	5
East-West Roadway: 101 Southbound Ramp	AT GRADE	0	5	5

EMFAC2002 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: South Coast County: Los Angeles
 Assumes lowest mean wintertime temperature of 47 degrees F and 30% humidity.

Year	Average Speed (miles per hour)									
	5	8	11	14	17	20	23	26	29	32
2004	14.389	12.507	11.033	9.862	8.921	8.158	7.535	7.024	6.606	6.266
2005	13.055	11.365	10.039	8.985	8.136	7.447	6.883	6.420	6.040	5.730
2006	12.159	10.599	9.375	8.400	7.615	6.975	6.452	6.021	5.666	5.377
2007	11.221	9.796	8.677	7.784	7.064	6.477	5.995	5.597	5.270	5.002
2008	10.296	9.003	7.985	7.173	6.516	5.979	5.538	5.173	4.872	4.625
2009	9.384	8.218	7.299	6.565	5.969	5.483	5.081	4.749	4.474	4.247
2010	8.524	7.478	6.653	5.992	5.455	5.015	4.652	4.350	4.099	3.892
2011	7.734	6.799	6.058	5.464	4.981	4.583	4.254	3.980	3.752	3.562
2012	7.025	6.187	5.523	4.988	4.553	4.194	3.895	3.646	3.438	3.265
2013	6.384	5.634	5.039	4.558	4.165	3.841	3.570	3.344	3.154	2.995
2014	5.804	5.134	4.600	4.169	3.815	3.521	3.276	3.070	2.896	2.751
2015	5.288	4.689	4.210	3.821	3.501	3.235	3.012	2.824	2.665	2.531
2020	3.367	3.023	2.743	2.512	2.318	2.155	2.015	1.894	1.791	1.701
2025	2.343	2.125	1.945	1.793	1.665	1.554	1.458	1.374	1.300	1.236
2030	1.793	1.627	1.491	1.376	1.279	1.195	1.123	1.059	1.003	0.954
2035	1.491	1.351	1.236	1.140	1.059	0.990	0.930	0.877	0.831	0.791
2040	1.338	1.211	1.107	1.020	0.947	0.885	0.831	0.784	0.744	0.708

PEAK HOUR TURNING VOLUMES



Representative Traffic Volumes (Vehicles per Hour)

N-S Road	752	N-S Road	874
E-W Road	339	E-W Road	332
Primary Road = N-S Road		Primary Road = N-S Road	

ROADWAY CO CONTRIBUTIONS

Roadway	Reference CO Concentrations			*	Traffic Volume	*	Emission Factor	+	
	0 Feet	25 Feet	50 Feet						
A.M. Peak Hour									
N-S Road	14.0	7.6	5.7	*	752	*	10.30	+	100,000
E-W Road	0.0	0.0	0.0	*	339	*	10.30	+	100,000
P.M. Peak Hour									
N-S Road	14.0	7.6	5.7	*	874	*	10.30	+	100,000
E-W Road	0.0	0.0	0.0	*	332	*	10.30	+	100,000

TOTAL CO CONCENTRATIONS (ppm)

	A.M. Peak Hour	P.M. Peak Hour	8-Hour
0 Feet from Roadway Edge	8.0	8.2	6.8
25 Feet from Roadway Edge	7.5	7.6	6.4
50 Feet from Roadway Edge	7.3	7.4	6.3

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Summary Report for Summer Emissions (Pounds/Day)

File Name:

Project Name: Liberty Canyon MND 3-7-08

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10 Dust</u>	<u>PM10 Exhaust</u>	<u>PM10</u>	<u>PM2.5 Dust</u>	<u>PM2.5 Exhaust</u>	<u>PM2.5</u>	<u>CO2</u>
2009 TOTALS (lbs/day unmitigated)	3.50	30.06	15.56	0.01	7.02	1.49	8.51	1.47	1.37	2.84	2,802.17
2010 TOTALS (lbs/day unmitigated)	34.29	9.62	7.21	0.00	0.01	0.60	0.61	0.00	0.55	0.55	1,197.59

AREA SOURCE EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	0.45	0.24	3.38	0.00	0.01	0.01	248.70

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	6.77	9.90	86.33	0.08	13.61	2.65	8,078.64

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SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	<u>ROG</u>	<u>NOX</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
TOTALS (lbs/day, unmitigated)	7.22	10.14	89.71	0.08	13.62	2.66	8,327.34

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Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name:

Project Name: Liberty Canyon MND 3-7-08

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 3/3/2009-3/20/2009 Active Days: 14	1.36	9.38	6.41	0.00	1.02	0.69	1.71	0.21	0.64	0.85	965.97
Demolition 03/03/2009- 03/21/2009	1.36	9.38	6.41	0.00	1.02	0.69	1.71	0.21	0.64	0.85	965.97
Fugitive Dust	0.00	0.00	0.00	0.00	1.01	0.00	1.01	0.21	0.00	0.21	0.00
Demo Off Road Diesel	1.23	8.15	4.78	0.00	0.00	0.64	0.64	0.00	0.59	0.59	700.30
Demo On Road Diesel	0.09	1.16	0.47	0.00	0.00	0.05	0.06	0.00	0.05	0.05	141.28
Demo Worker Trips	0.04	0.07	1.16	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.39
Time Slice 3/24/2009-6/19/2009 Active Days: 64	<u>3.50</u>	<u>30.06</u>	<u>15.56</u>	<u>0.01</u>	<u>7.02</u>	<u>1.49</u>	<u>8.51</u>	<u>1.47</u>	<u>1.37</u>	<u>2.84</u>	<u>2,802.17</u>
Mass Grading 03/24/2009- 06/20/2009	3.50	30.06	15.56	0.01	7.02	1.49	8.51	1.47	1.37	2.84	2,802.17
Mass Grading Dust	0.00	0.00	0.00	0.00	7.00	0.00	7.00	1.46	0.00	1.46	0.00
Mass Grading Off Road Diesel	3.18	26.46	12.98	0.00	0.00	1.33	1.33	0.00	1.23	1.23	2,247.32
Mass Grading On Road Diesel	0.28	3.53	1.43	0.00	0.01	0.15	0.17	0.00	0.14	0.15	430.46
Mass Grading Worker Trips	0.04	0.07	1.16	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.39

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Time Slice 6/23/2009-7/31/2009 Active Days: 29	3.22	26.53	14.14	0.00	7.01	1.34	8.34	1.46	1.23	2.69	2,371.70
Fine Grading 06/23/2009-08/01/2009	3.22	26.53	14.14	0.00	7.01	1.34	8.34	1.46	1.23	2.69	2,371.70
Fine Grading Dust	0.00	0.00	0.00	0.00	7.00	0.00	7.00	1.46	0.00	1.46	0.00
Fine Grading Off Road Diesel	3.18	26.46	12.98	0.00	0.00	1.33	1.33	0.00	1.23	1.23	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.07	1.16	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.39
Time Slice 8/4/2009-8/14/2009 Active Days: 9	2.22	18.97	9.48	0.00	0.01	0.93	0.94	0.00	0.86	0.86	1,839.02
Trenching 08/04/2009-08/15/2009	2.22	18.97	9.48	0.00	0.01	0.93	0.94	0.00	0.86	0.86	1,839.02
Trenching Off Road Diesel	2.18	18.90	8.32	0.00	0.00	0.93	0.93	0.00	0.86	0.86	1,714.64
Trenching Worker Trips	0.04	0.07	1.16	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.39
Time Slice 8/18/2009-8/28/2009 Active Days: 9	2.29	13.16	9.28	0.00	0.01	1.11	1.13	0.00	1.02	1.03	1,256.07
Asphalt 08/18/2009-08/29/2009	2.29	13.16	9.28	0.00	0.01	1.11	1.13	0.00	1.02	1.03	1,256.07
Paving Off-Gas	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.08	12.55	7.05	0.00	0.00	1.09	1.09	0.00	1.00	1.00	979.23
Paving On Road Diesel	0.04	0.49	0.20	0.00	0.00	0.02	0.02	0.00	0.02	0.02	59.17
Paving Worker Trips	0.07	0.12	2.03	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.67
Time Slice 9/1/2009-12/31/2009 Active Days: 88	1.40	10.29	7.50	0.00	0.01	0.66	0.67	0.00	0.60	0.61	1,197.66
Building 09/01/2009-04/24/2010	1.40	10.29	7.50	0.00	0.01	0.66	0.67	0.00	0.60	0.61	1,197.66
Building Off Road Diesel	1.30	9.79	4.94	0.00	0.00	0.63	0.63	0.00	0.58	0.58	893.39
Building Vendor Trips	0.03	0.37	0.30	0.00	0.00	0.02	0.02	0.00	0.01	0.02	62.27
Building Worker Trips	0.07	0.14	2.26	0.00	0.01	0.01	0.02	0.00	0.01	0.01	242.00
Time Slice 1/1/2010-4/23/2010 Active Days: 81	1.30	9.62	7.21	0.00	0.01	0.60	0.61	0.00	0.55	0.55	1,197.59
Building 09/01/2009-04/24/2010	1.30	9.62	7.21	0.00	0.01	0.60	0.61	0.00	0.55	0.55	1,197.59
Building Off Road Diesel	1.21	9.16	4.81	0.00	0.00	0.58	0.58	0.00	0.53	0.53	893.39
Building Vendor Trips	0.03	0.33	0.28	0.00	0.00	0.01	0.02	0.00	0.01	0.01	62.28
Building Worker Trips	0.07	0.13	2.12	0.00	0.01	0.01	0.02	0.00	0.01	0.01	241.92

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Off-Road Equipment:

- 1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
- 1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
- 1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Trenching 8/4/2009 - 8/15/2009 - Default Trenching Description

Off-Road Equipment:

- 2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
- 1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day

Phase: Paving 8/18/2009 - 8/29/2009 - Default Paving Description

Acres to be Paved: 0.35

Off-Road Equipment:

- 4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
- 1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
- 1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Building Construction 9/1/2009 - 4/24/2010 - Default Building Construction Description

Off-Road Equipment:

- 1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day
- 2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
- 1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 4/27/2010 - 5/22/2010 - Default Architectural Coating Description

- Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
- Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
- Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
- Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
- Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
- Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Detail Report for Summer Area Source Unmitigated Emissions (Pounds/Day)

File Name:

Project Name: Liberty Canyon MND 3-7-08

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

AREA SOURCE EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

<u>Source</u>	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	<u>PM2.5</u>	<u>CO2</u>
Natural Gas	0.01	0.20	0.17	0.00	0.00	0.00	243.20
Hearth - No Summer Emissions							
Landscape	0.26	0.04	3.21	0.00	0.01	0.01	5.50
Consumer Products	0.00						
Architectural Coatings	0.18						
TOTALS (lbs/day, unmitigated)	0.45	0.24	3.38	0.00	0.01	0.01	248.70

Area Source Changes to Defaults

3/7/2008 1:16:52 PM

Urbemis 2007 Version 9.2.4

Detail Report for Summer Operational Unmitigated Emissions (Pounds/Day)

File Name:

Project Name: Liberty Canyon MND 3-7-08

Project Location: Los Angeles County

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

OPERATIONAL EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
General office building	1.01	1.40	12.45	0.01	1.94	0.38	1,153.88
Medical office building	5.76	8.50	73.88	0.07	11.67	2.27	6,924.76
TOTALS (lbs/day, unmitigated)	6.77	9.90	86.33	0.08	13.61	2.65	8,078.64

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2009 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
General office building		11.01	1000 sq ft	10.00	110.10	1,120.54
Medical office building		36.13	1000 sq ft	20.40	737.05	6,748.08
					847.15	7,868.62

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Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	53.7	1.3	98.3	0.4
Light Truck < 3750 lbs	6.8	2.9	94.2	2.9
Light Truck 3751-5750 lbs	22.8	0.9	99.1	0.0
Med Truck 5751-8500 lbs	10.0	1.0	99.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.4	0.0	85.7	14.3
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.3	73.9	26.1	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.8	0.0	87.5	12.5

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			

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Travel Conditions

	Home-Work	Home-Shop	Home-Other	Commuter	Commercial	Customer
% of Trips - Commercial (by land use)				35.0	17.5	47.5
General office building				7.0	3.5	89.5
Medical office building						

Operational Changes to Defaults

Appendix B

Traffic Study



April 3, 2008

Valerie Darbouze
City of Agoura Hills
30001 Ladyface Court
Agoura Hills, California 91301

Re: Traffic Study for the Liberty Canyon Road
Office Expansion Project, Agoura Hills, CA

Ref: 2064

Dear Mr. Althaus:

In January 2007, Fehr & Peers/Kaku Associates submitted a Revised Draft Traffic Study for the Liberty Canyon Project. This study concluded that there would be no significant traffic impacts and that adequate parking would be provided.

Recently, the site plan has been modified slightly and the total square footage reduced by approximately 1,100 square feet. The parking has been reduced from 219 to 215 spaces, per City Code.

These changes do not alter the conclusions of the January 2007 Traffic Study.

Please feel free to contact me at (310) 458-9916 if you have any questions regarding these conclusions.

Sincerely,

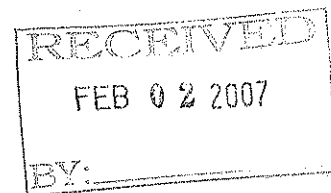


John M. Stutsman, AICP

REVISED DRAFT

**TRAFFIC STUDY
FOR THE
LIBERTY CANYON ROAD OFFICE EXPANSION PROJECT
AGOURA HILLS, CALIFORNIA**

JANUARY 2007



PREPARED FOR
27489 AGOURA ROAD, LLC

PREPARED BY


FEHR & PEERS

KAKU ASSOCIATES

REVISED DRAFT

**TRAFFIC STUDY
FOR THE
LIBERTY CANYON ROAD OFFICE EXPANSION PROJECT
AGOURA HILLS, CALIFORNIA**

January 2007

Prepared for:

27489 AGOURA ROAD, LLC

Prepared by:

FEHR & PEERS/KAKU ASSOCIATES
201 Santa Monica Boulevard, Suite 500
Santa Monica, California 90401
(310) 458-9916

Ref: 2064

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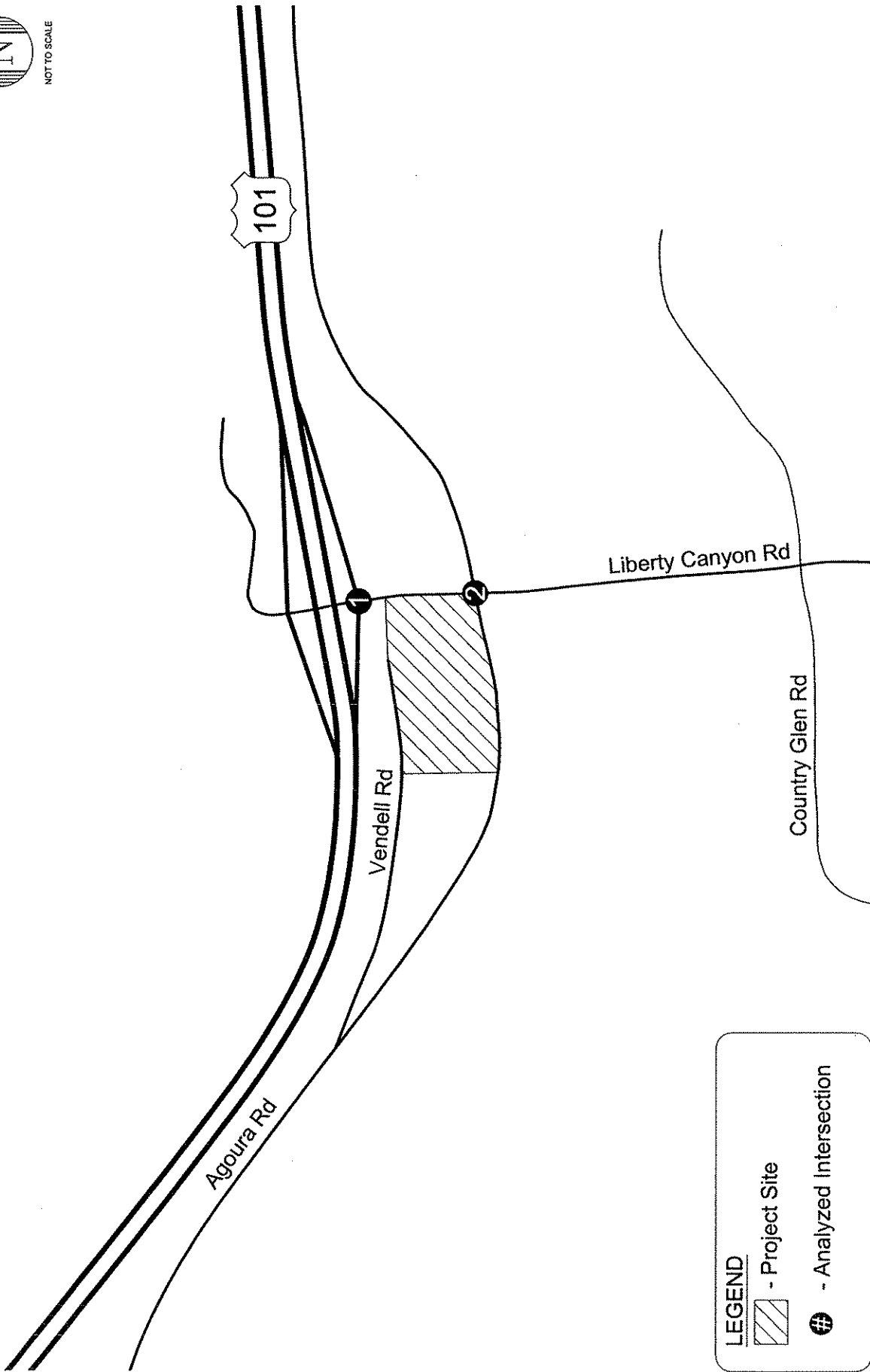
I. INTRODUCTION

This report documents the results of a study conducted by Fehr & Peers/Kaku Associates to evaluate potential traffic impacts of the proposed Liberty Canyon Road office expansion at 27489 Agoura Road, located in the City of Agoura Hills, California.

PROJECT DESCRIPTION

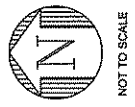
The proposed project, as shown in Figure 1, is located at the northwest corner of the intersection of Liberty Canyon Road and Agoura Road. The proposed 54,940 square foot (sf) project has an existing 24,540 sf general office building and two new buildings in the expansion program: one 10,000 sf building for general office use and one 20,400 sf building for medical office use. Figure 2 shows the conceptual site plan for the existing office building (Building A) and the new office building (Building B) and medical office building (Building C).

Two driveways are currently provided for Building A. The driveway on Liberty Canyon Road is currently limited to right-in and right-out operation, while another driveway on Agoura Road allows two-way operation. Under the proposed site plan, vehicular circulation between the two driveways would no longer be available. The driveway on Liberty Canyon Road, as proposed, would serve the 34-space parking area for the proposed Building B and would be configured to restrict the project outbound traffic to southbound Liberty Canyon Road. As part of the project, the existing raised median on Liberty Canyon Road would also be extended closer to the Ventura Freeway (US-101) ramps with an opening and a left-turn pocket to accommodate inbound traffic from northbound Liberty Canyon Road. Employees and visitors to the proposed Building C and the existing office building would access the 185-space common parking area via the two-way driveway on Agoura Road.



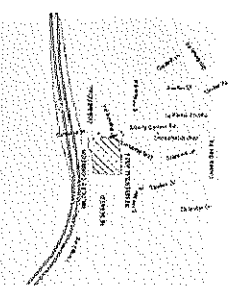
FEHR & PEERS
KAKU ASSOCIATES

FIGURE 1
STUDY AREA AND ANALYZED INTERSECTIONS

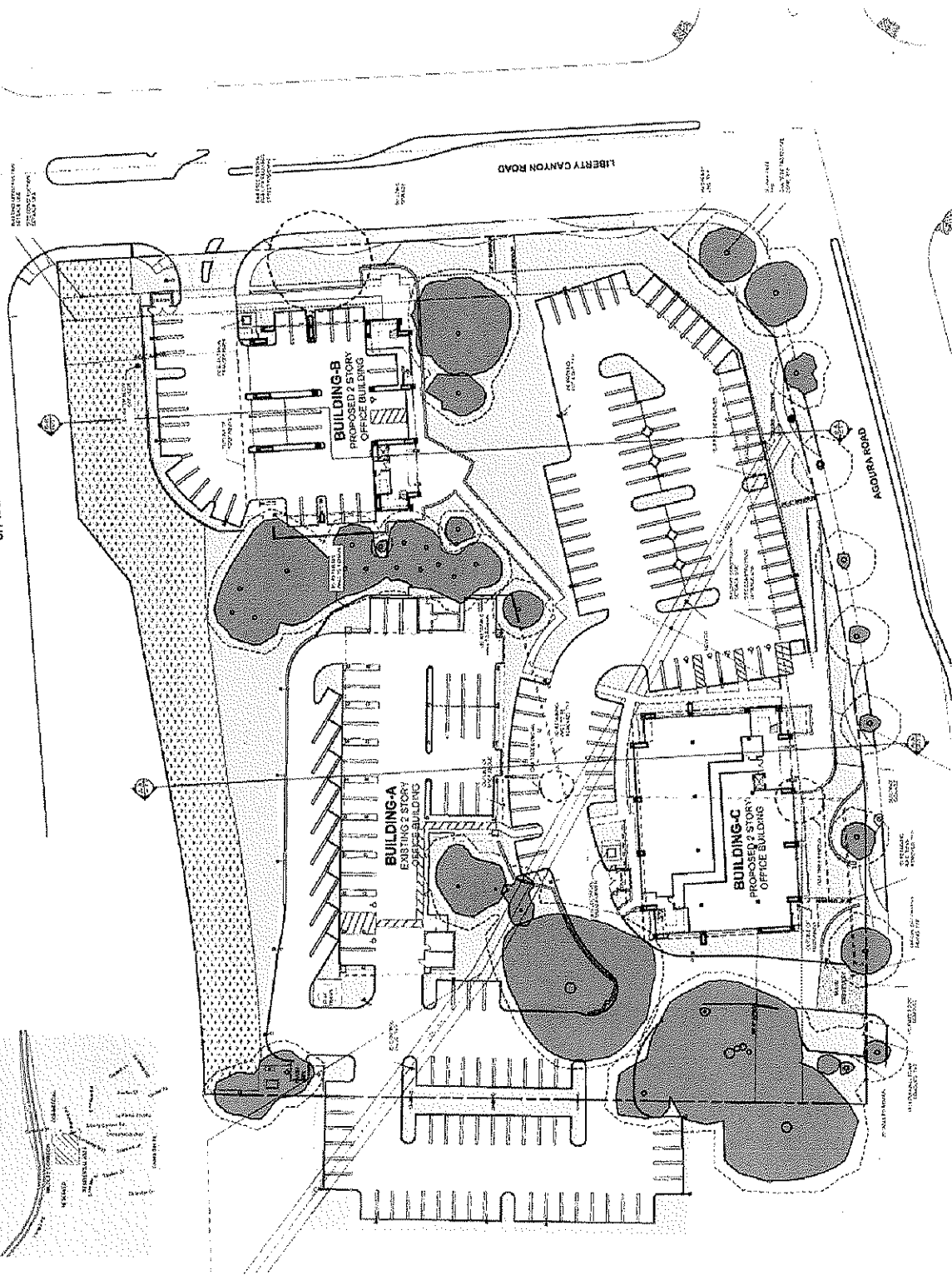


HWY 101 SB ON RAMP

VICINITY MAP



HWY 60 SB OFF RAMP



FEHR & PEERS
KAKU ASSOCIATES

Source: Behr Browers Architects Inc.

FIGURE 2
PROPOSED SITE PLAN

STUDY SCOPE

The scope of analysis for this study was developed in conjunction with the traffic engineer for the City of Agoura Hills. The base assumptions, technical methodologies, and geographic coverage of the study were all identified as part of the study approach.

The study, which analyzed potential project-generated traffic impacts on the adjacent street system, expected that the project would be completed by 2008. The analysis of future year traffic forecasts was based on projected conditions in 2008 both with and without the addition of the project traffic. The following traffic scenarios were developed and analyzed as part of this study:

- Existing Conditions (2006) - The analysis of existing traffic conditions intends to provide a basis for the remainder of the study. The existing conditions analysis includes an assessment of streets and highways, traffic volumes, and operating conditions.
- Cumulative Base Conditions (2008) - Future traffic conditions without the proposed projects are projected for the year 2007. This analysis forecasts future traffic growth and estimates operating conditions that could be expected without the addition of project traffic by the year 2008.
- Cumulative plus Project Conditions (2008) - Future project-only traffic patterns were developed for the proposed project. The existing driveways off Liberty Canyon Road and Agoura Road would be reconfigured. No vehicular circulation would be provided between the two driveways. Employee and visitor traffic to the existing office building would be shifted to use Agoura Road for access. The future traffic pattern for existing and proposed new buildings was compared with the existing office building traffic pattern to obtain the (net) project-only traffic volumes (new traffic generated by Buildings B and C to the site and the traffic shifts of existing Building A). Future project-only traffic was then added to the cumulative base traffic forecasts. The impacts of the proposed project on future traffic operating conditions were then identified

For the purposes of this report, all streets that run parallel to US-101 are described as east/west streets, and all streets that run parallel to Liberty Canyon Road are described as north/south streets. The City traffic engineer identified the following two locations in the project vicinity to be analyzed for each of the scenarios described above:

1. Liberty Canyon Road and US-101 eastbound off-ramp
2. Liberty Canyon Road and Agoura Road

Figure 1 illustrates the locations of these two analyzed intersections.

ORGANIZATION OF REPORT

This report is divided into seven chapters, including this introduction. Chapter II describes the existing circulation system, traffic volumes, and traffic conditions in the study area. The methodologies used to forecast future traffic volumes are described and applied in Chapter III. Chapter IV presents an assessment of potential traffic impacts for the cumulative plus project scenario. Issues related to on-site parking, site access and internal circulation are evaluated in Chapter V. Chapter VI presents the regional Congestion Management Program (CMP) analysis. Chapter VII summarizes the analyses and study conclusions. Details of the technical analysis are included in the appendices.

II. EXISTING CONDITIONS

A comprehensive data collection effort was undertaken to develop a detailed description of existing conditions in the study area. The assessment of conditions relevant to this study includes an inventory of the street system, the traffic volumes on these facilities, operating conditions at key intersections, and transit service in the study area.

EXISTING STREET SYSTEM

The Ventura Freeway provides primary access to the proposed project. The Ventura Freeway is a national route (US-101) aligned in a southeast-northwest direction adjacent to the project that, traveling south, provides access to the Los Angeles area. US-101 provides five travel lanes in each direction in the vicinity of the proposed project and access is available north of the project site via the on- and off-ramps at Liberty Canyon Road.

Liberty Canyon Road and Agoura Road provide local access to the project site. Liberty Canyon Road is a north-south road that provides one to two travel lanes in each direction from Country Glen Road to US-101. Agoura Road is a northwest-southeast road that runs essentially parallel to US-101 in the study area. It provides one travel lane in each direction from Las Virgenes Road in Calabasas to South Westlake Boulevard (also known as the State Route 23) in Thousand Oaks.

Table 1 summarizes the roadway characteristics of the key streets in the study area. Appendix A contains diagrams of the existing lane configurations at the analyzed intersections.

**TABLE 1
EXISTING SURFACE STREET CHARACTERISTICS**

SEGMENT	FROM	TO	LANE		MEDIAN TYPE	PARKING RESTRICTIONS		SPEED LIMIT
			NB/EB	SB/WB		NB/EB	SB/WB	
Agoura Rd	<road end>	Vendell Rd	1	1	SDY	NSAT	NSAT	40
	Vendell Rd	Rondell St	1	1	SDY	NSAT	NSAT	40
	Rondell St	Liberty Canyon Rd	1	2	RM	PA	NSAT	40
	Liberty Canyon Rd	Malibu Hills Road	1/2	1/2	RM	NSAT	NSAT	40
Liberty Canyon Rd	Country Glen	Agoura Rd	1/2	2/1	RM	NSAT	PA	35
	Agoura Rd	US 101 SB Ramps	2/1	1/2	RM/DY	PA	PA	35
	US 101 SB Ramps	US 101 NB Ramps	1	1	DY	NSAT	NSAT	35
Canwood St	US 101 NB Ramps	<road end>	1	1	DY	NSAT	NSAT	35
Vendell Rd	<road end>	Agoura Rd	1	1	UD	NSAT	NSAT	25
Rondell St	Agoura Rd	<road end>	1	1	UD	PA	PA	10

Notes:

MEDIAN TYPE: DY = Double Yellow Centerline

SDY = Single Dashed Yellow Centerline

RM = Raised Median

UD = Undivided Lane

PARKING: PA = Parking Allowed

NSAT = No Stopping Anytime

LANES: # = Number of lanes

EXISTING TRAFFIC VOLUMES AND LEVELS OF SERVICE

The following sections present the existing peak hour traffic volumes, a description of the methodology used to analyze operating conditions, and the resulting level of service (LOS) at each study intersection.

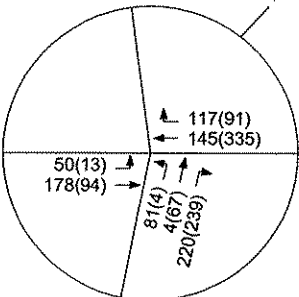
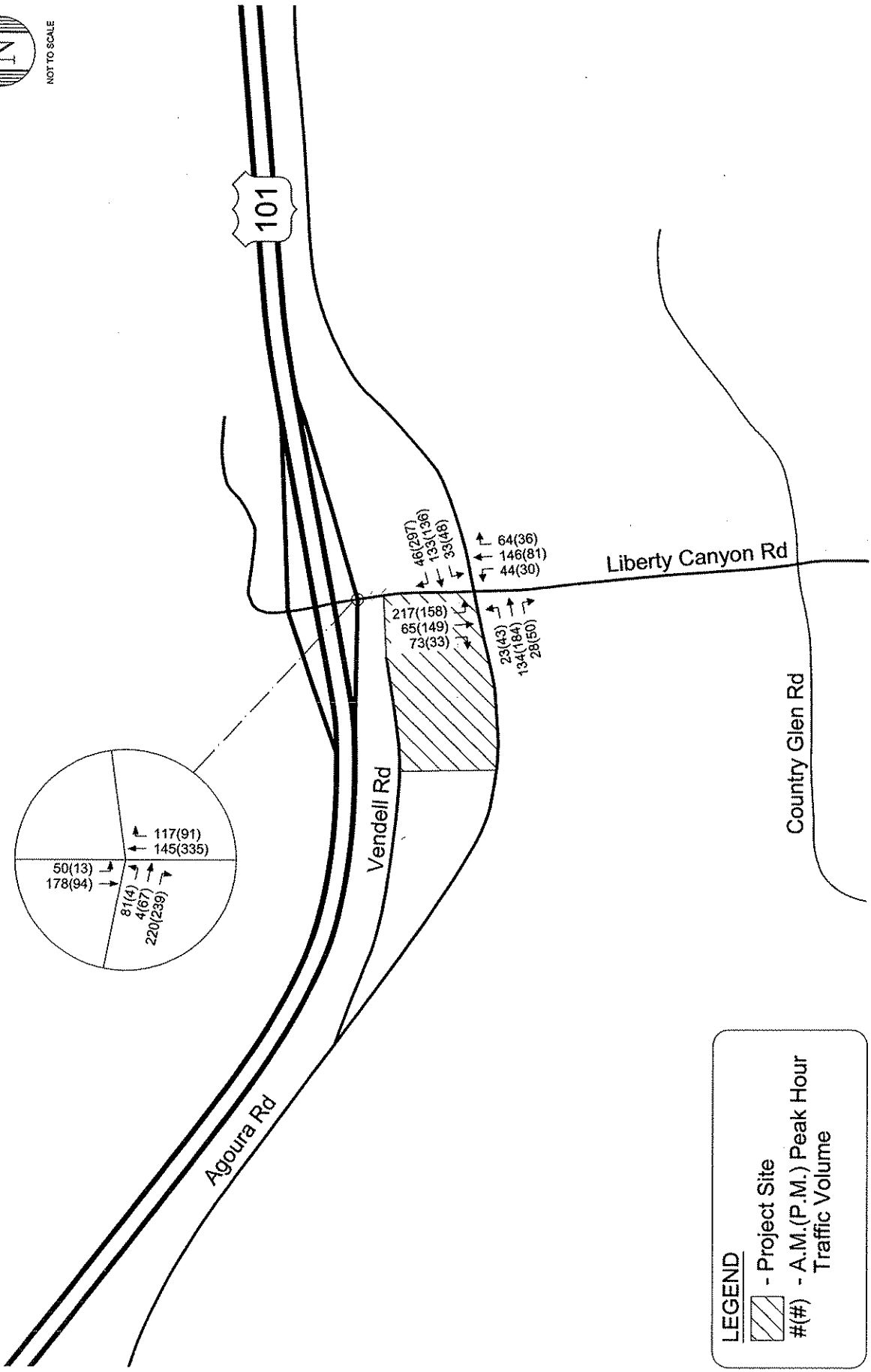
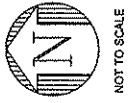
Existing Traffic Volumes

New peak period traffic counts were collected for this project on Tuesday, September 26, 2006 during the weekday morning peak period (7:00 to 9:00 a.m.) and afternoon peak period (4:00 to 6:00 p.m.). Figure 3 illustrates weekday morning and afternoon peak hour traffic volumes.

Level of Service Methodology

LOS is a qualitative measure used to describe the condition of traffic flow, ranging from excellent conditions at LOS A to overload conditions at LOS F. The analyzed intersection of Liberty Canyon Road and Agoura Road is controlled by traffic signals. Table 2 provides LOS definitions for signalized intersections. The intersection capacity utilization (ICU) method of intersection analysis was used to determine the intersection volume-to-capacity (V/C) ratio and the corresponding LOS for this signalized intersection.

The other analyzed intersection of Liberty Canyon Road and the US-101 eastbound off-ramp is unsignalized. A stop sign currently controls the vehicles on the US-101 eastbound off-ramp. This intersection was analyzed using the "Two-Way Stop-Controlled" method from *2000 Highway Capacity Manual (HCM)* (Transportation Research Board, 2000). The HCM methodology determines the average vehicle delay to find the corresponding LOS based on the definitions in Table 3.



LEGEND

- Project Site
- #(#)** - A.M.(P.M.) Peak Hour Traffic Volume

FEHR & PEERS
KAKU ASSOCIATES

FIGURE 3
EXISTING PEAK HOUR TRAFFIC VOLUMES

**TABLE 2
LEVEL OF SERVICE DEFINITIONS FOR SIGNALIZED INTERSECTIONS**

Level of Service	Volume/Capacity Ratio	Definition
A	0.000 - 0.600	EXCELLENT. No vehicle waits longer than one red light and no approach phase is fully used.
B	>0.600 - 0.700	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	>0.700 - 0.800	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	>0.800 - 0.900	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	>0.900 - 1.00	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	>1.000	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

Source: Transportation Research Board.

**TABLE 3
LEVEL OF SERVICE DEFINITIONS FOR
STOP-CONTROLLED INTERSECTIONS
HCM METHODOLOGY**

Level of Service	Average Total Delay (seconds/vehicle)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Source: *Highway Capacity Manual, Special Report 209*,
Transportation Research Board, 2000.

Existing Levels of Service

Table 4 summarizes the peak hour V/C ratio along with the corresponding LOS at each of the study intersections under existing conditions on weekdays. The stop-controlled intersection of Liberty Canyon Road at the US-101 eastbound off-ramp currently operates at LOS B during both the morning and afternoon peak hours. The signalized intersection at Liberty Canyon Road and Agoura Road currently operates at LOS A during both weekday morning and afternoon peak hours.

EXISTING TRANSIT SERVICE

Existing transit service in the study area is provided by the Los Angeles County Metropolitan Transportation Authority (Metro), LADOT Commuter Express and the City of Agoura Hills Dial-A-Ride service, as described below:

- Metro Line 161: This line provides local service between Thousand Oaks and the Warner Transit Center in Woodland Hills. In the study area, Line 161 travels east and west along Agoura Road.
- Commuter Express Line 422: The LADOT Commuter Express is a limited-stop service. Line 422 travels nonstop between Agoura Hills and the San Fernando Valley, and between the San Fernando Valley and downtown Los Angeles, via the Ventura Freeway. This line travels through the study area but does not provide direct access to the study area. There is, however, a Park & Ride Station at Kanan Road, approximately two miles from the study area.
- Commuter Express Line 423: Line 423 is a limited-stop service that travels through the communities of Newbury Park, Thousand Oaks, Agoura Hills, Calabasas, Woodland Hills, and Encino, and then nonstop to and from downtown Los Angeles by way of the Ventura Freeway. Line 423 travels east and west along the Ventura Freeway in the study area, with stops at the intersection of the Ventura Freeway and Liberty Canyon Road.
- Agoura Hills Dial-A-Ride: Dial-A-Ride is a curb-to-curb transportation service provided to the general public by the City of Agoura Hills. The Dial-A-Ride provides service within and between the city limits of Agoura Hills (including the study area), Oak Park, Lost Hills, and Malibu Lake. Additional transportation is provided to areas in the City of Westlake Village and Thousand Oaks for people with disabilities and/or over the age of 56.

**TABLE 4
EXISTING WEEKDAY INTERSECTION PEAK HOUR LEVELS OF SERVICE**

Intersection	Peak Hour	Cumulative Base	
		Delay or V/C	LOS
1. Liberty Canyon Road & US-101 EB Off-Ramp [a]	A.M.	11	B
	P.M.	11	B
2. Liberty Canyon Road & Agoura Road	A.M.	0.387	A
	P.M.	0.369	A

[a] Intersection is two-way stop-controlled. Average vehicular delay in seconds per vehicle is reported rather than V/C ratio for the worst approach.

III. FUTURE TRAFFIC CONDITIONS

To evaluate the potential impact of the proposed project on the local street system, it was necessary to develop estimates of future traffic conditions both with and without the project. Forecasts of future traffic conditions without the proposed projects, the cumulative base conditions, reflect traffic increases due to general regional growth as well as development and traffic increases generated by other specific developments in the vicinity of the project site. The cumulative base conditions were analyzed for 2008. The estimated project traffic was then added to the cumulative base traffic forecast. This resulted in projected volumes reflecting future conditions with the addition of project traffic. This is known as cumulative plus project conditions.

CUMULATIVE BASE TRAFFIC PROJECTIONS

The cumulative base traffic projections include two elements. The first is growth in the existing background traffic volumes reflecting the effects of overall regional growth and development in and around the study area, referred to as ambient growth. The second is the traffic generated by specific cumulative projects located in or near the study area.

Ambient Growth in Traffic (Year 2008)

The regional ambient growth in traffic was estimated by adjusting upward the existing traffic volumes along Liberty Canyon Road. Based on historical trends, an ambient growth factor of 1.5% per year was used to adjust the existing year 2006 traffic volumes to reflect the effects of regional growth and development by the year 2008, consistent with the growth factor generally used in the adjacent municipalities. With the anticipated completion date of 2008, the existing 2006 traffic volumes were adjusted upward by a factor of 3% to reflect this areawide regional growth.

Traffic Generated by Cumulative Development Projects

Traffic expected from other specific development projects in the study area was also considered. Information regarding potential future projects either under construction or planned for development was obtained from several sources, including recently conducted traffic studies, City of Agoura Hills files, and County of Los Angeles files. Table 5 lists the cumulative projects and Figure 4 shows the locations of these projects.

Although most of the cumulative projects are in the planning stages or under construction, the cumulative base conditions conservatively assume that all of the projects would be fully built by 2008. Trip generation estimates for these projects were either obtained from *Agoura Village Specific Plan Final EIR* (City of Agoura Hills, March 2006) or prepared using rates contained in *Trip Generation, 7th Edition* (Institute of Transportation Engineers, 2003). As shown in Table 5, cumulative projects are projected to generate approximately 1,120 weekday morning peak hour trips, and 1,051 weekday afternoon peak hour trips.

The geographic distribution of the traffic generated by the future development projects depends on several factors. These factors include the type and density of the proposed land use, the geographic distribution of population from which the patrons and employees of the proposed development are drawn, and the location of the projects in relation to the surrounding street system. Because land uses for the projects included in the cumulative projects list in Table 4 would serve the immediate area rather than the entire region, the traffic distribution patterns are generally local in nature, based on the population within the City of Agoura Hills and adjacent Los Angeles County. The traffic from the list of cumulative projects was then assigned to the local street system.

Cumulative Base Traffic Volumes

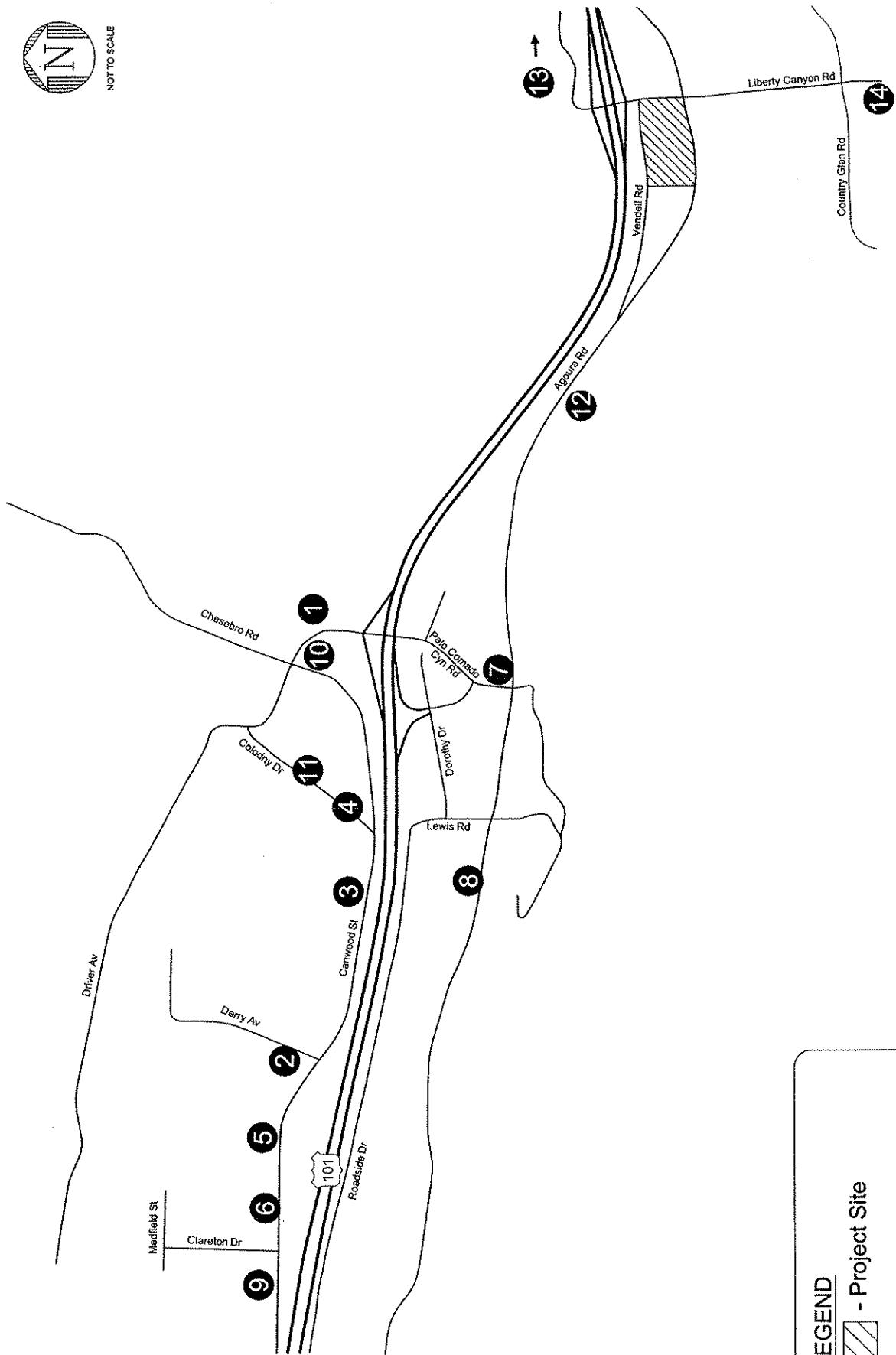
The cumulative base traffic volumes, future conditions without the proposed project, were developed by adding the traffic expected from the cumulative projects to the existing weekday volumes, which were increased by 3.0% to reflect ambient growth. Figure 5 illustrates the

TABLE 5
TRIP GENERATION ESTIMATES FOR RELATED PROJECTS



ID	Project Name	Project Location	Jurisdiction	Project Description	Project Status	Size	A.M. Peak Hour			P.M. Peak Hour		
							In	Out	Total	In	Out	Total
1	Heschel West Day School [d]	East of Palo Comado Canyon Road	Agoura Hills	Private School, K-8	Approved	750 students	371	304	675	215	242	458
2	Agoura Business Center [a]	5301 Derry Avenue	Agoura Hills	Warehouse/Manufacturing/Office	Under Review	20 ksf	8	1	9	2	7	9
3	Adler Realty [a]	Canwood Street between Lewis Road and Derry Avenue	Agoura Hills	Furniture Store	Under Construction	120 ksf	14	6	20	25	30	55
4	Minder [a]	5241 Colony Drive	Agoura Hills	Condominium	Approved	19 DU	1	7	8	7	3	10
5	Shirvanian Family Investment [e]	Between 28700 and 28811 Canwood Street	Agoura Hills	Industrial Park	Under Review	113 ksf	78	17	95	20	77	97
6	Stockton for Levy [a]	28211 Canwood Street	Agoura Hills	Furniture Store General Office	Approved	10 ksf 7 ksf	1 21	1 3	2 24	2 4	3 19	5 23
7	Alasco Development [a]	Northeast Corner of Chesebro and Agoura Roads	Agoura Hills	Office	Under Review	67 units	122	17	139	22	109	131
8	BBA Properties LLC for Michael Browsers [a]	28371 Agoura Road	Agoura Hills	Office	Approved	9 ksf	26	4	30	5	23	28
9	HBF Holdings [a]	West of Clariton, North of Canwood	Agoura Hills	Hotel/Homewood Suites	Approved	125 rooms	40	20	60	29	40	69
10	Hillel Car Wash [f]	Southeast Corner of Chesebro and Driver Avenue	Agoura Hills	Auto Wash and Detailing	Proposed	7 ksf	-	-	-	46	46	92
11	Stockton [a]	5310 Colony Drive	Agoura Hills	Apartments	Approved	4 DU	0	2	2	2	1	3
12	Riopharm [a]	27754 Agoura Road	Agoura Hills	Single Family	Under Review	28 DU	5	16	21	18	10	28
13	Condominiums [b]	24141 & 24121 Ventura Boulevard	Calabasas	Condominiums	Under Review	66 DU	5	24	29	23	11	34
14	Single-Family Homes [c]	West of Liberty Canyon Road, North of Park Vista Road	Los Angeles County	Single Family Homes	Approved	8 DU	2	4	6	5	3	8
Total							694	426	1,120	426	625	1,051

Notes:

- [a] Project description and trip generation information were obtained from *Agoura Village Specific Plan Final EIR*, City of Agoura Hills, March 2006.
- [b] Project information obtained from County of Los Angeles Department of Regional Planning staff. Daily trips and total peak hour trips were estimated based on average rates from Land Use Code 220 (Residential Condominiums) in *Trip Generation, 7th Edition* (ITE, 2003).
- [c] Project information obtained from County of Los Angeles Department of Regional Planning staff. Daily trips and total peak hour trips were estimated based on average rates from Land Use Code 210 (Single Family Housing) in *Trip Generation, 7th Edition*.
- [d] A.M. and P.M. peak hour rate for the proposed school use were obtained from ITE's *Trip Generation, 7th Edition*. Daily rate for Land use 534 Private School (K-8) was adjusted from the daily rate of Land Use 536 in *Trip Generation, 7th Edition* (Private School (K-12), 2.48 trips per day) by 14% increase, based on relationship of ITE's A.M. peak hour trip generation rates for both uses.
- [e] Project information obtained from City of Agoura Hills Department of Planning and Community Development staff. Daily trips and total peak hour trips were estimated based on average rates from Land Use Code 110 (Light Industrial Use) in *Trip Generation, 7th Edition*.
- [f] Project information obtained from City of Agoura Hills Department of Planning and Community Development staff. P.M. peak hour rate for the proposed school use were obtained from *Trip Generation, 7th Edition* for Land Use Code 948 (Automated Car Wash). A.M. peak hour trip generation for operations of the proposed use is considered to be negligible.

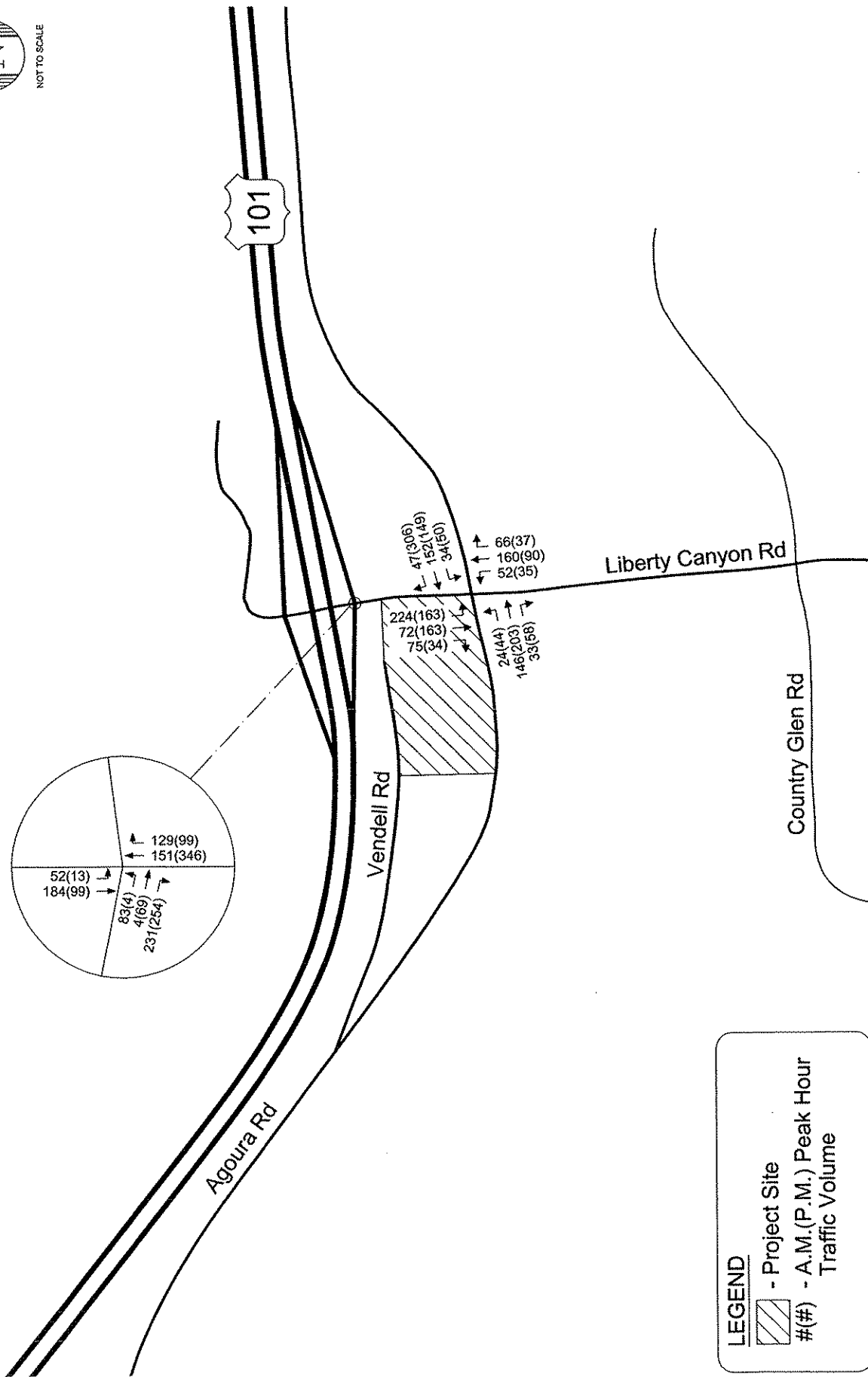
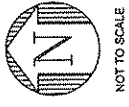


LEGEND

-  - Project Site
-  - Related Project

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KAKU ASSOCIATES

FIGURE 4
LOCATIONS OF RELATED PROJECTS



LEGEND

- Project Site
- #(#)** - A.M.(P.M.) Peak Hour Traffic Volume

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K&K ASSOCIATES

FIGURE 5
CUMULATIVE BASE PEAK HOUR TRAFFIC VOLUMES

resulting weekday peak hour traffic volumes at the two analyzed intersections. These volumes represent cumulative base conditions for 2008.

PROJECT TRAFFIC VOLUMES

The process used to develop traffic forecasts for the projects involved the use of a three-step process similar to that described above for the cumulative projects. This process included trip generation, trip distribution, and traffic assignment.

Project Traffic Generation

Table 6 presents the trip generation rates and resulting trip generation estimates for the proposed project, with the application of the trip generations rates from *Trip Generation, 7th Edition*. As indicated in Table 6, the proposed addition of Buildings B and C would result in an increase of approximately 847 vehicular trips to the site on a typical weekday, including 67 morning peak hour trips (54 inbound, 13 outbound) and 91 weekday afternoon peak hour trips (24 inbound, 67 outbound).

Project Traffic Distribution/Assignment

Like the cumulative projects, the geographic distribution of trips generated by the proposed project would be dependent on the locations of employment and commercial centers from which patrons and employees of the project uses would be drawn, characteristics of the street system serving the site, and the level of accessibility of the routes to and from the proposed project site.

The general distribution pattern for the proposed project was developed from observed travel patterns and from the location of the project site relative to the surrounding regional development, as illustrated in Figure 6.

As previously mentioned, two driveways are currently provided for the existing office building, with one limited to right-in and right-out operations at Liberty Canyon Road and another having two-

**TABLE 6
PROJECT TRIP GENERATION ESTIMATES**

Land Use	Size	Unit	ITE Code	Weekday Daily Trips	A.M. Peak Hour		P.M. Peak Hour	
					In	Out	In	Out
Existing Condition								
General Office (Building A only)	24,540	ksf	710	270	5	33	6	37
			Subtotal	270	5	33	6	37
Future Condition								
General Office (Existing Building A)	24,540	ksf	710	270	5	33	6	37
General Office (New Building B)	10,000	ksf	710	110	2	14	3	15
Medical Office (New Building C)	20,400	ksf	720	737	11	40	21	76
			Subtotal	1117	18	87	30	128
			Net Incremental Trips	847	13	54	24	91

Notes:

KSF = 1,000 square feet.

Trip generation from *Trip Generation, 7th Edition*.

Office rates vary according to the size of the development. Trip generation for general office was calculated using the following formula:

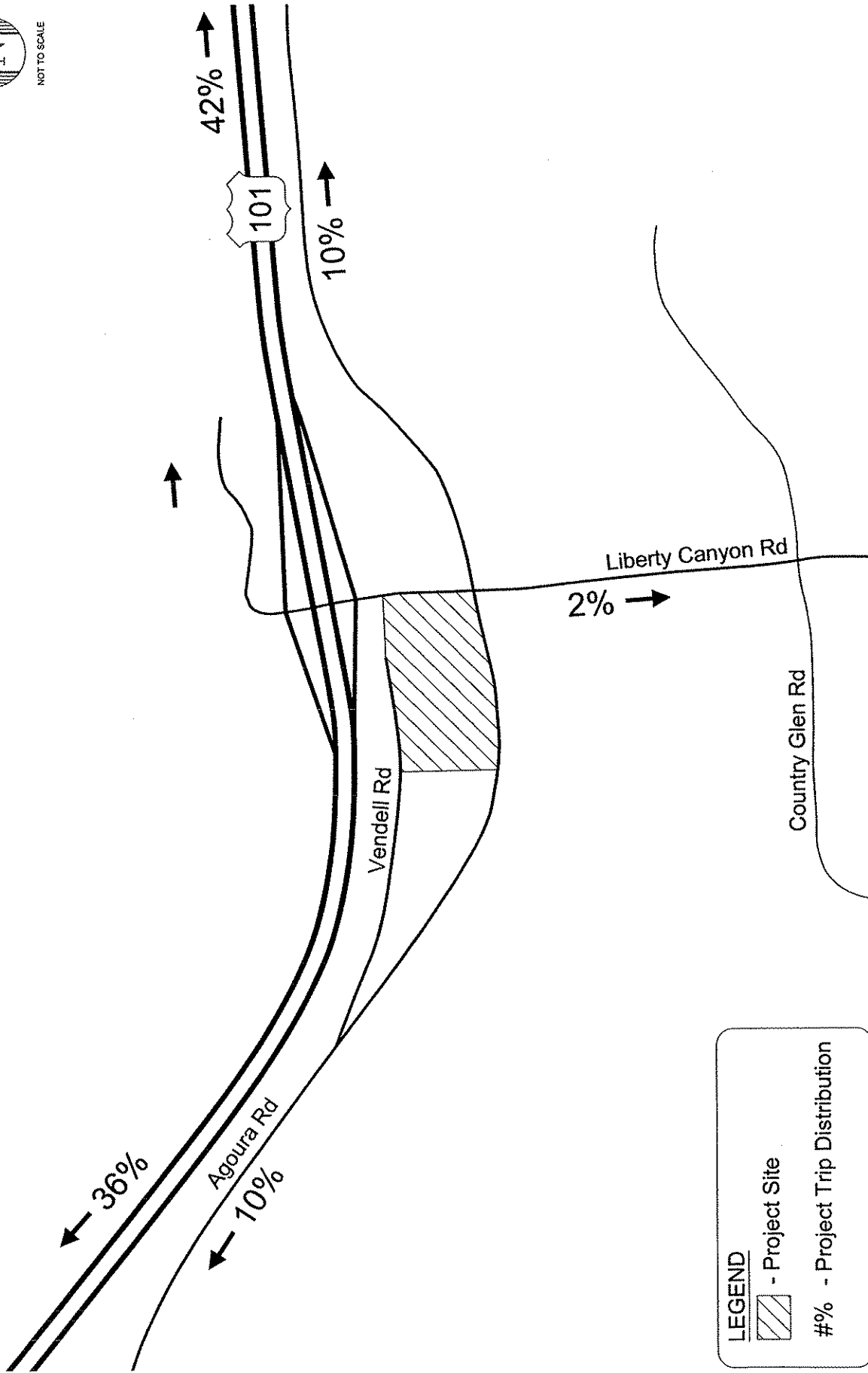
- Daily Rate: 11.01
- A.M. Rate: 1.55
- P.M. Rate: 1.49

Medical-Dental

- Daily Rate: 36.13
- A.M. Rate: 2.48
- P.M. Rate: 3.72



NOT TO SCALE



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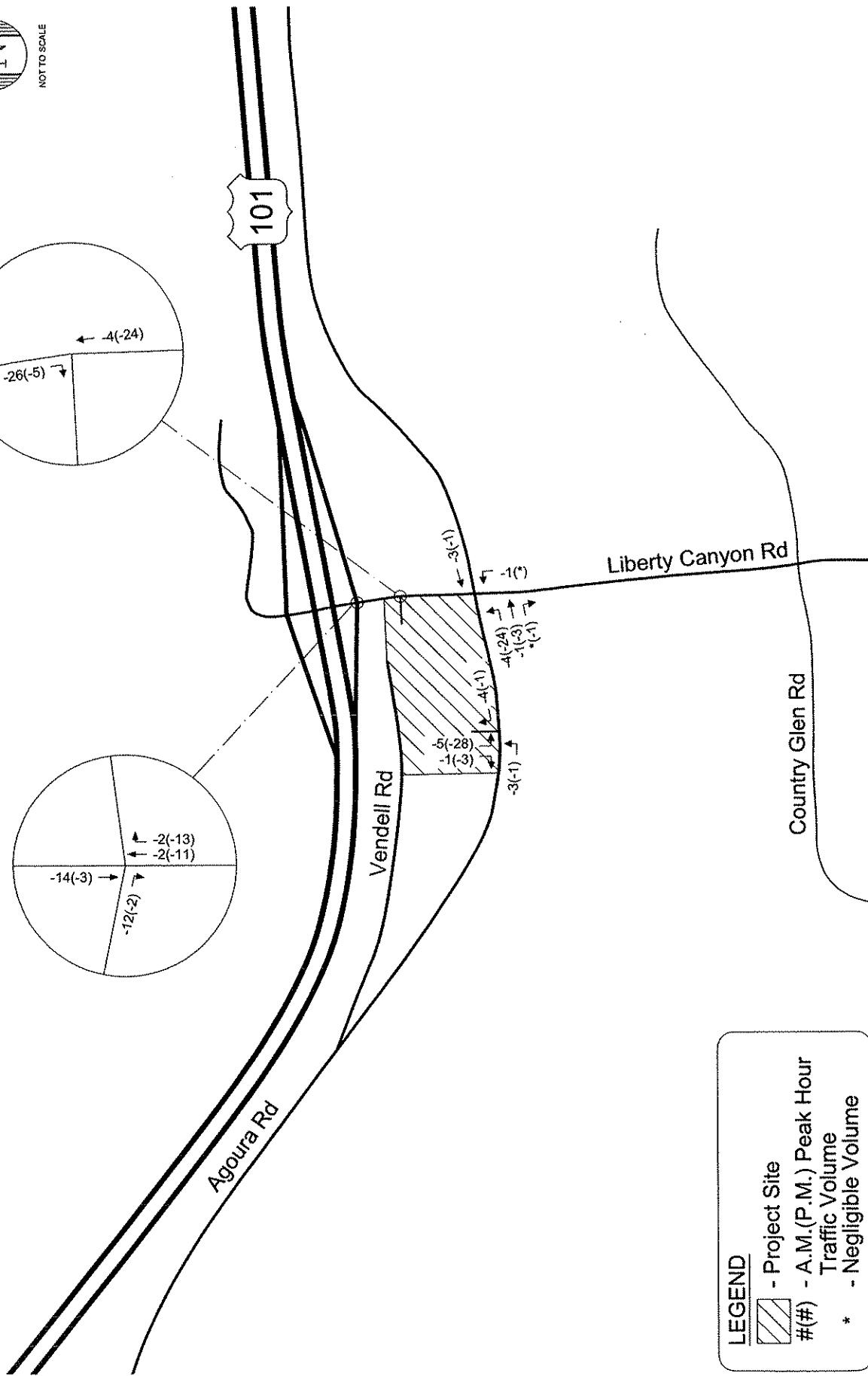
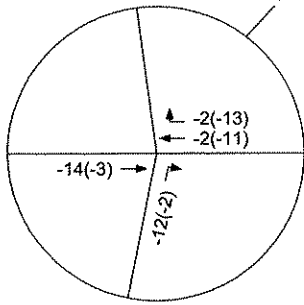
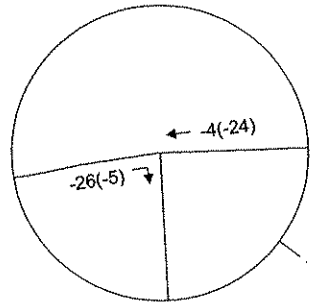
FIGURE 6
PROJECT TRIP DISTRIBUTION

way operations at Agoura Road. Under the proposed site plan, the driveway on Liberty Canyon would only provide access to the new office Building B and would be configured to prevent project vehicles from making an eastbound left turn onto Liberty Canyon Road. Employee and visitor traffic flow to the existing office building would be altered to use the driveway at Agoura Road for access. Figure 7A illustrates the negative assignment of the existing office building vehicle traffic affected by the reassignment of driveway access.

The driveway at Agoura Road would also be used for access to the proposed Building C. Due to the restriction of eastbound left turns at the driveway on Liberty Canyon Road, employees and visitors exiting the site and intending to use US-101 might make U-turns at the intersection of Liberty Canyon Road and Agoura Road. Based on the project traffic pattern described above, the trips generated by the proposed project and were assigned to the street system. Figure 7B illustrates the resulting future project only volumes at the driveways and the study intersections for weekday analysis, representing the combined effect of traffic shifts for the existing office building and traffic increases due to the proposed expansion program.

CUMULATIVE PLUS PROJECT TRAFFIC PROJECTIONS

The project-generated traffic volumes from Figures 7A and 7B were added to the 2008 cumulative base traffic volumes illustrated in Figure 5 to develop the cumulative plus project peak hour traffic volumes shown in Figure 8. The traffic volumes generated by the project were added to the cumulative base traffic projections to develop the cumulative plus project traffic forecasts. Figure 8 illustrates the resultant traffic volumes that represent future conditions in the year 2008 with the addition of project traffic for the weekday morning and afternoon peak hours.

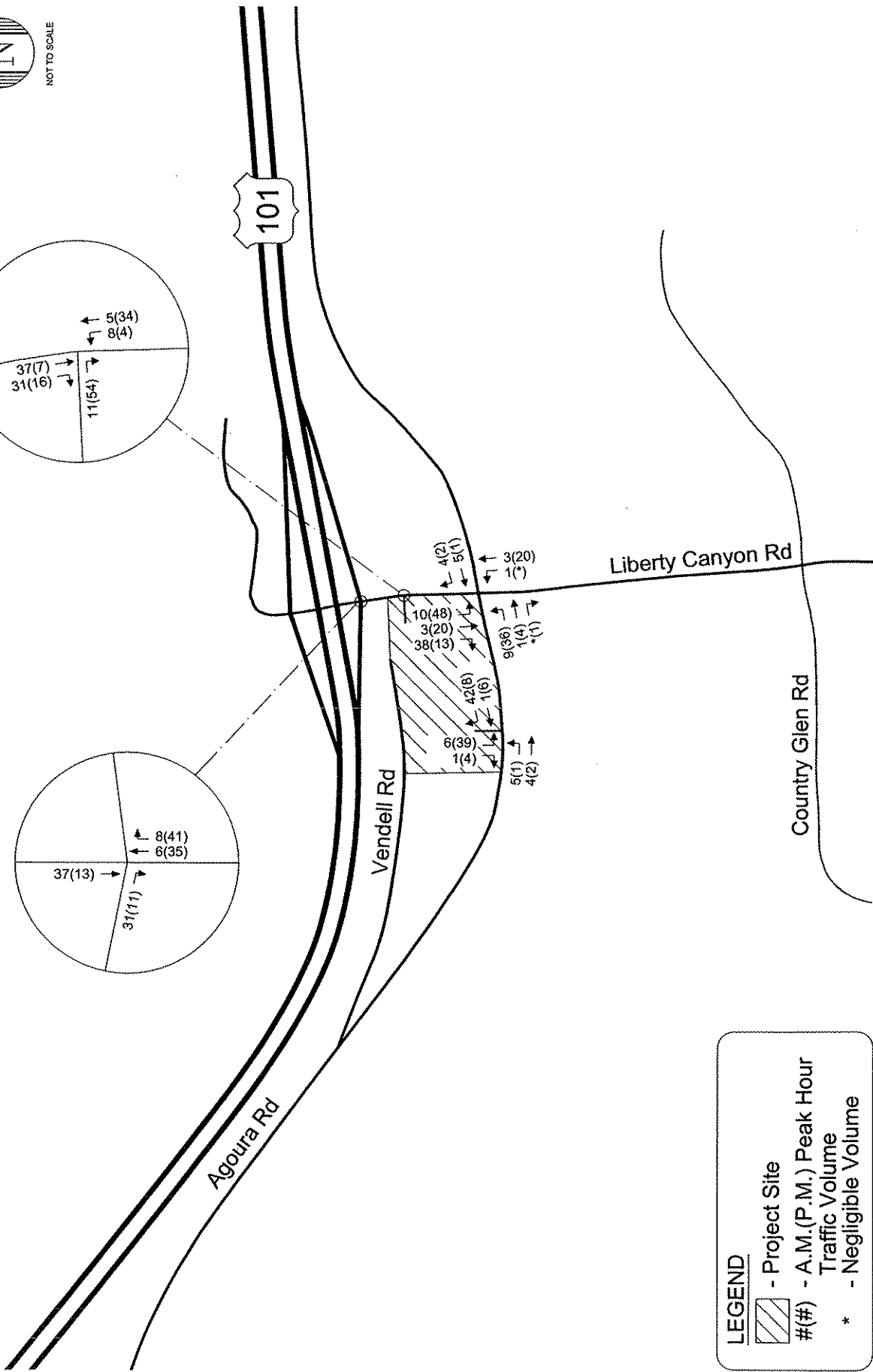
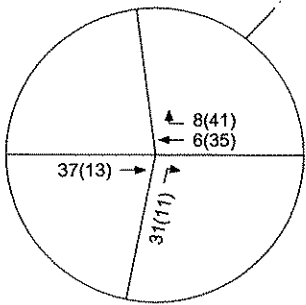
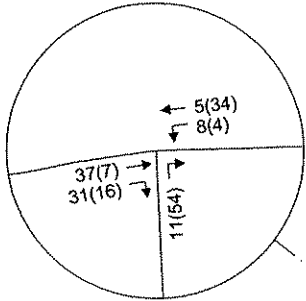
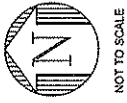


LEGEND

- Project Site
- #(#) - A.M.(P.M.) Peak Hour Traffic Volume
- * - Negligible Volume

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FIGURE 7A
SHIFTED PEAK HOUR TRAFFIC VOLUMES OF EXISTING OFFICE BUILDING

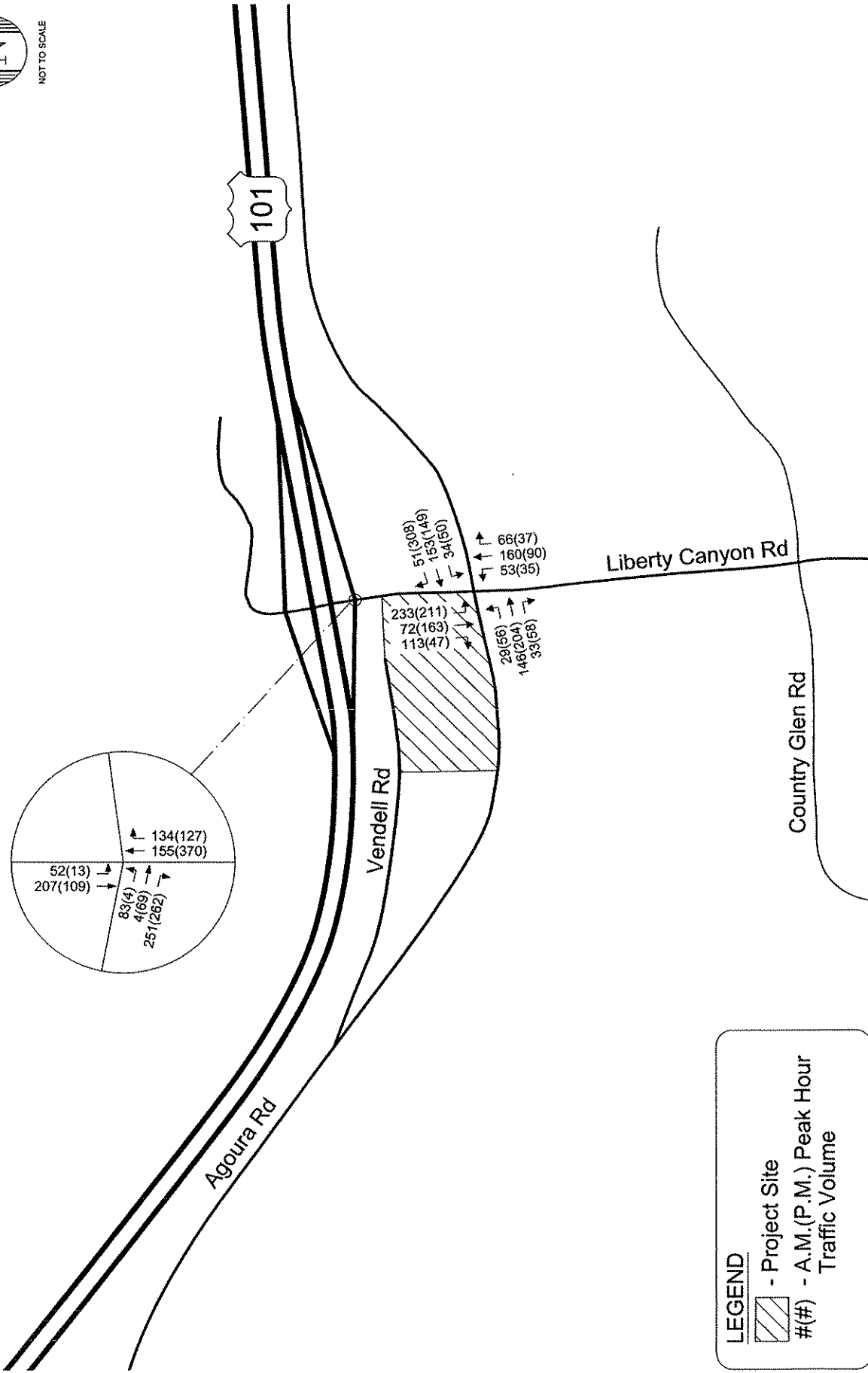
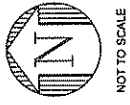


LEGEND

- Project Site
- #(#) - A.M.(P.M.) Peak Hour Traffic Volume
- * - Negligible Volume

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FIGURE 7B
FUTURE PROJECT ONLY PEAK HOUR TRAFFIC VOLUMES



LEGEND

- Project Site
- #(#)** - A.M.(P.M.) Peak Hour Traffic Volume

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FIGURE 8
CUMULATIVE PLUS PROJECT PEAK HOUR TRAFFIC VOLUMES

IV. TRAFFIC IMPACT ANALYSIS

The results of the analysis of potential impacts of project traffic on the local street system are summarized in this chapter. The analysis compared the projected operating conditions at each study intersection under the cumulative base and cumulative plus project conditions for 2008. The potential impacts were identified using significance criteria established by the City of Agoura Hills.

SIGNIFICANT TRAFFIC IMPACT CRITERIA

According to City of Agoura Hills criteria, a project would be considered to have a significant traffic impact if the following conditions are met:

<u>Intersection Conditions with Project Traffic</u>		<u>Project-related Increase in V/C Ratio</u>
<u>LOS</u>	<u>V/C Ratio</u>	
D, E, or F	>0.800	equal to or greater than 0.020

Using these criteria, a project would not have a significant impact at an intersection if it were projected to operate at LOS A, B or C after the addition of project traffic, regardless of the magnitude of the increase in the V/C ratio. If the intersection, however, were operating at a LOS D, E, or F after the addition of project traffic and if the incremental change in the V/C ratio were 0.020 or greater, the project would be considered to have a significant impact.

CUMULATIVE BASE TRAFFIC CONDITIONS

The first step in the impact analysis was to analyze the projected operating conditions at each of the intersections under future conditions without the project, i.e., the cumulative base scenario. The cumulative base traffic volumes for weekday peak hours provided in Figure 5

were analyzed to determine the V/C ratio and corresponding LOS for each location under these conditions. Table 7 summarizes the results of the analysis for the weekday peak hours under cumulative base conditions and shows that both analyzed intersections are projected to continue operating at LOS B or better during both the morning and afternoon peak hours.

PROJECT TRAFFIC IMPACT ANALYSIS

The cumulative plus project peak hour traffic volumes illustrated in Figure 8 were analyzed to determine the projected year 2008 future operating conditions with the completion of the proposed project. These results are presented in Table 7. The cumulative plus project conditions follow the trend set by the cumulative base conditions. As shown in Table 7, both analyzed intersections would continue to operate at equivalent peak hour levels of service under future plus project conditions (i.e., LOS A or B during the morning peak hour and LOS A or B during the afternoon peak hour).

Using the traffic impact significance criteria described above, the proposed project would not have a significant impact at either of the two study intersections during the morning and afternoon peak hours. Therefore, no project mitigation measures would be required for the proposed office expansion project.

**TABLE 7
FUTURE (2008) WEEKDAY INTERSECTION PEAK HOUR LEVELS OF SERVICE**

Intersection	Peak Hour	Cumulative Base		Cumulative plus Project				Significant Project Impact
		Delay or V/C	LOS	Delay or V/C	LOS	Project Increase in V/C	LOS	
1. Liberty Canyon Road & US-101 EB Off-Ramp [a]	A.M.	12	B	12	B			
	P.M.	11	B	12	B			
	A.M.	0.371		0.387		0.016		NO
	P.M.	0.483		0.503		0.020		NO
2. Liberty Canyon Road & Agoura Road	A.M.	0.402	A	0.410	A	0.008		NO
	P.M.	0.388	A	0.419	A	0.031		NO

[a] Intersections are controlled by stop signs on the minor approach, the US-101 southbound off-ramp. For the purpose of evaluating the operating condition of the intersection, the top row shows analysis using HCM stop-controlled methodology and average vehicular delay in seconds on the most constrained approach is reported. For the purpose of application of City of Agoura Hills criteria, the V/C ratios also shown, assuming the presence of a two-phase signal.

V. PARKING AND SITE CIRCULATION ANALYSIS

This chapter presents an analysis of the parking supply and access system proposed for the project. The required parking supply was estimated based on the applicable code requirements specified by the City of Agoura Hills. Issues relating to the project's proposed site access and internal circulation scheme were also evaluated.

PARKING ANALYSIS

The parking analysis for the proposed project compared the proposed parking supply to the requirements of *City of Agoura Hills Municipal Code* (City of Agoura Hills, March 1983). According to the Code, a proposed development project is required to provide an adequate supply of parking spaces based on the proposed land use for the site. The proposed project is considered to have a significant parking impact if the proposed parking supply does not meet the parking demand specified by the Code.

The City of Agoura Hills requires one space be provided for each 300 sf of general office uses and one space be provided for each 200 sf of medical office uses. Table 8 summarizes the parking code analysis. The proposed future parking supply of 219 spaces would provide a surplus of two spaces over the required 217 spaces, thereby meeting the Code requirement. The proposed project would provide sufficient parking for the existing office building as well as the two new buildings.

SITE ACCESS AND CIRCULATION

Traffic circulation within the surface parking lot for proposed Building B and the common parking area for existing Building A and proposed Building C were evaluated. Drive aisles ranging from approximately 25 to 30 feet would be set up for two-way operation to directly access the

**TABLE 8
SUMMARY OF PARKING REQUIREMENTS AND PROPOSED SUPPLY**

LAND USE	SIZE [a]	PARKING RATIO [b]	REQUIRED PARKING SPACES
Existing Office Building A	24,540 sf	1 spaces per 300 sf	82
New Office Building B	10,000 sf	1 spaces per 300 sf	33
New Medical Office C	20,400 sf	1 spaces per 200 sf	102
		Total Spaces Required By Code	217
Spaces Provided [a]			
Parking supply for Building A			82
Parking supply for Building B			34
Parking supply for Building A			103
		Total Spaces Supplied	219
Surplus		Surplus	2

Notes

- a. Source: Behr Browers Architects, Inc (per 10/24/2006 email)
- b. Source: *City of Agoura Hills Municipal Code* (City of Agoura Hills, March 1983).

90-degree surface parking spaces. The drive aisle to the angled parking behind existing Building A would be approximately 12 feet wide and set up for one-way circulation. Given the design of the proposed parking lot and the estimated volumes that would access the proposed project site, it was determined that the proposed site plan provides adequate traffic access and internal circulation.

In addition, as part of the project improvement, the existing raised median on Liberty Canyon Road would also be extended closer to the US-101 ramps. A median opening accompanied by a left-turn pocket at the project driveway would facilitate the inbound project traffic from Liberty Canyon Road northbound. The driveway off Liberty Canyon Road would be reconfigured to prevent project traffic from making left-turn maneuvers to northbound Liberty Canyon Road. Project traffic leaving proposed Building B and intending to use US-101 (approximately two cars in the morning peak hour and nine in the afternoon peak hour) could utilize the existing southbound left-turn pocket at Liberty Canyon Road/Agoura Road for U-turns. These project-related U-turning vehicles would yield to northbound through traffic on Liberty Canyon Road and the westbound right-turn traffic on Agoura Road until a suitable gap occurs and then proceed with the U-turn maneuvers. The southbound left-turn pocket at Liberty Canyon Road/Agoura Road is approximately 112 feet long and is adequate to accommodate the total projected volume of left-turning and U-turning vehicles (233 in the a.m. peak hour and 211 in the p.m. peak hour under cumulative plus project conditions) with projected queue lengths of approximately 108 feet or less during the peak hour 95% of the time.

Finally, due to the vertical curve on Liberty Canyon Road in the project vicinity, the City has recommended that on-site grading be considered to maintain the northward visibility for the project traffic exiting the driveway to the US-101 eastbound off-ramp.

VI. CONGESTION MANAGEMENT ANALYSIS

Additional analyses were conducted to comply with the requirements of the *Congestion Management Program for Los Angeles County* (Los Angeles County Metropolitan Transportation Authority, 2004). In accordance with CMP Transportation Impact Analysis (TIA) requirements, it is necessary to conduct a regional analysis to quantify potential impacts of the proposed project on the CMP freeway monitoring locations and CMP arterial intersection monitoring stations, and to prepare cost estimates and estimated fair share contributions for any suggested improvements at CMP arterial intersections.

CMP SIGNIFICANT TRAFFIC IMPACT CRITERIA

The CMP TIA guidelines indicate that if a proposed development project would add 150 or more trips in either direction during either the morning or evening peak hour to the mainline freeway monitoring location, then a CMP freeway analysis must be conducted. If a proposed project would add 50 or more peak hour trips (of adjacent street traffic) to a CMP arterial intersection, then a CMP arterial intersection analysis must be conducted.

For the purposes of a CMP TIA, a project impact is considered to be significant if the proposed project increases traffic demand on a CMP facility by 2% of capacity ($V/C \geq 0.02$), causing or worsening LOS F ($V/C > 1.00$). Under this criterion, a project would not be considered to have a regionally-significant impact if the analyzed facility is operating at LOS E or better after the addition of project traffic regardless of the increase in V/C ratio caused by the project. If the facility is operating at LOS F with project traffic and the incremental change in the V/C ratio caused by the project is 0.02 or greater, then the project would be considered to have a significant impact.

CMP FREEWAY AND ARTERIAL INTERSECTION ANALYSIS

The CMP freeway monitoring station closest to the project site is on the Ventura Freeway north of Reyes Adobe Road. Based on the project trip generation and distribution described in Chapter III, the proposed project would generate fewer than 150 trips (in either direction) during either the weekday a.m. or p.m. peak hours at the above CMP freeway monitoring station in the project vicinity and, thus, no further traffic analysis would be required.

None of the CMP arterial monitoring stations identified in the CMP are located within a five-mile radius of the proposed project site. According to the project trip generation and distribution described in Chapter III, the proposed project would add fewer than 50 trips to any of the CMP monitoring intersections during either the weekday a.m. or p.m. peak hours and, thus, no further traffic analysis would be required.

VII. SUMMARY AND CONCLUSIONS

This study was undertaken to analyze the potential traffic impacts of the proposed Liberty Canyon Road Office Expansion Project at 27489 Agoura Road, located in the City of Agoura Hills, California. The following summarizes the results of this analysis:

- The proposed 54,940 sf project has an existing 24,540 sf general office building and two new buildings in the expansion program: one 10,000 sf building for general office use and one 20,400 sf building for medical office use.
- Two intersections were analyzed for this project as determined by the City of Agoura Hills, including one stop-controlled intersection at Liberty Canyon Road and the US-101 eastbound off-ramp and one signalized intersection at Liberty Canyon Road and Agoura Road. Both intersections operate at LOS B or better during the weekday morning and afternoon peak hours. Under year 2008 cumulative base conditions, both intersections are projected to operate at LOS B or better during the weekday morning and afternoon peak hours.
- The proposed office expansion program is expected to generate an increase in traffic of approximately 847 weekday daily trips, including 67 morning peak hour trips (54 inbound, 13 outbound) and 91 weekday afternoon peak hour trips (24 inbound, 67 outbound).
- Application of the City of Agoura Hills traffic impact criteria indicates that the proposed project would not create significant impacts at either of the study intersections under cumulative plus project conditions.
- The parking code requirement for the proposed project is 217 spaces. The proposed project will provide 219 surface parking spaces, thereby satisfying the Code requirement. Given the design of the proposed parking lot and the estimated volumes that would access the proposed project site, it was determined that the proposed site plan provides adequate traffic access and internal circulation.
- Additional analysis of potential impacts on the regional transportation system conducted in accordance with CMP requirements determined that the project would not have a significant impact on either the CMP arterial highway network or the mainline freeway system.

REFERENCES

2000 Highway Capacity Manual, Transportation Research Board, 2000.

Agoura Village Specific Plan Final EIR, City of Agoura Hills, March 2006

City of Agoura Hills Municipal Code, City of Agoura Hills, March 2, 1983.

Congestion Management Program for Los Angeles County, Los Angeles County Metropolitan Transportation Authority, July 2004.

Trip Generation, 7th Edition, Institute of Transportation Engineers, 2003.

APPENDIX A

INTERSECTION LANE CONFIGURATIONS

INTERSECTION LANE CONFIGURATIONS

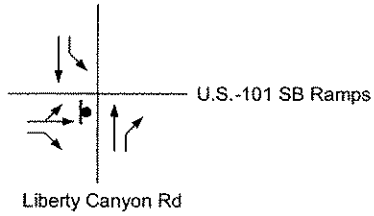


NOT TO SCALE

EXISTING CONDITIONS

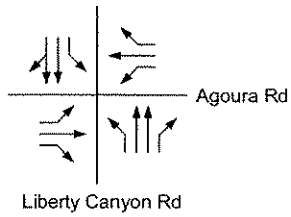
FUTURE CONDITIONS

1. Liberty Canyon Rd &
U.S.-101 SB Ramps




Same As Existing

2. Liberty Canyon Rd &
Agoura Rd



Same As Existing

LEGEND

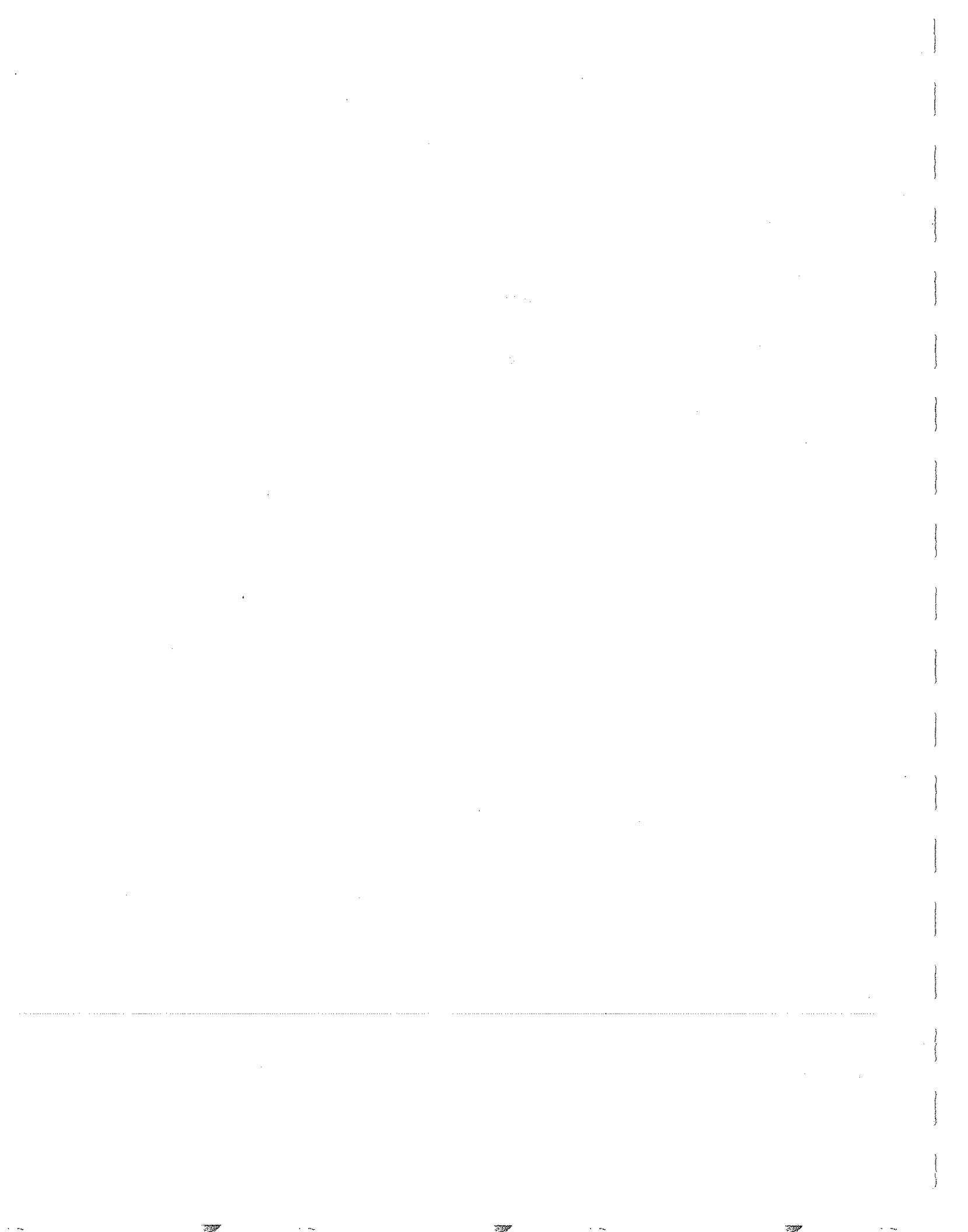
 Stop Controlled

APPENDIX B

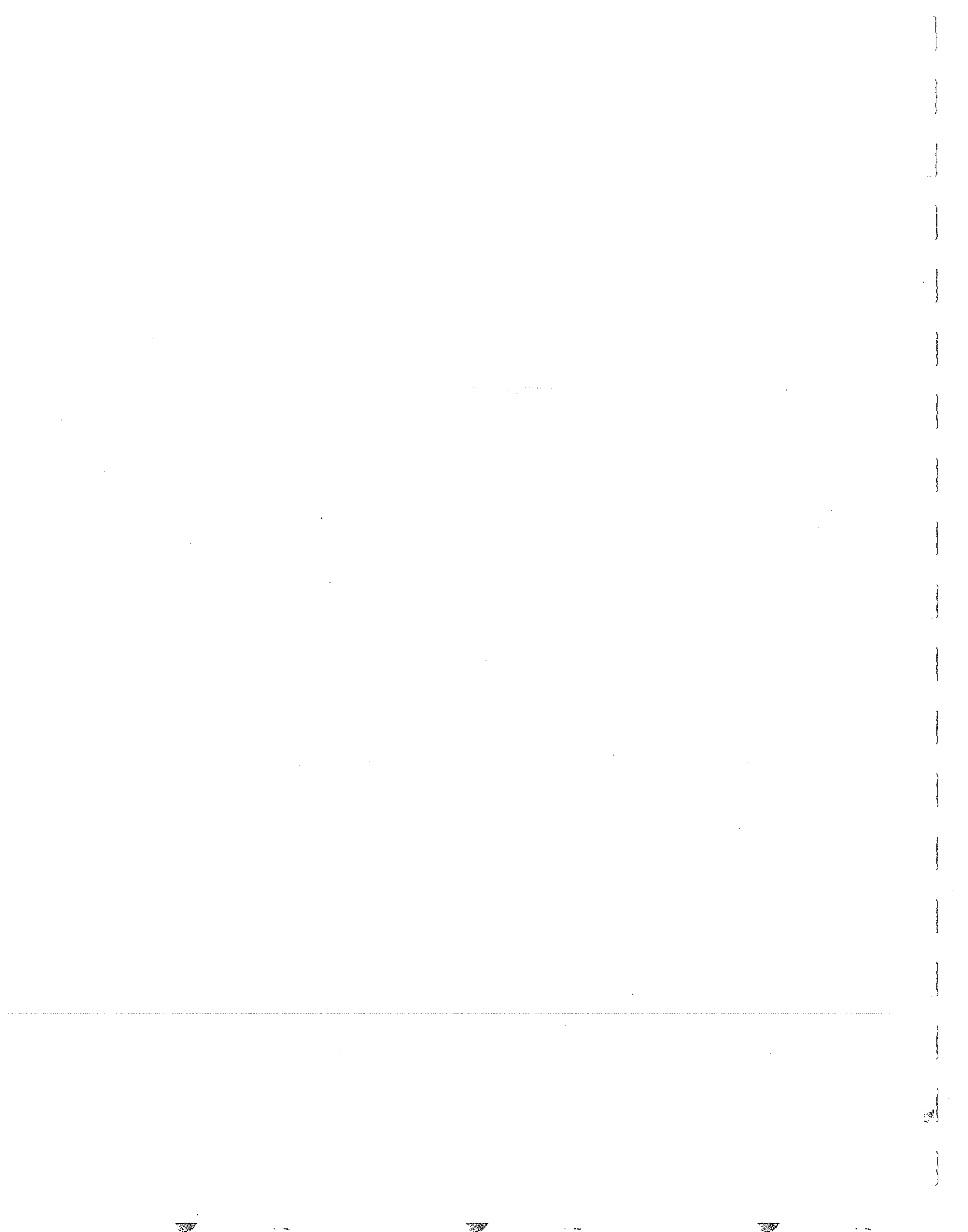
TRAFFIC COUNTS

APPENDIX C

LEVEL OF SERVICE WORKSHEETS



EXISTING CONDITIONS



Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1

Average Delay (sec/veh): 4.8 Worst Case Level Of Service: B[11.3]

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module:

Table with 12 columns representing different volume metrics and 4 rows of adjustment factors.

Critical Gap Module:

Table with 12 columns for gap and follow-up time metrics.

Capacity Module:

Table with 12 columns for capacity-related metrics.

Level Of Service Module:

Table with 12 columns for level of service metrics, including delay and LOS.

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1

Average Delay (sec/veh): 4.2 Worst Case Level Of Service: B[11.0]

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module:

Table with 13 columns representing different volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module:

Table with 13 columns showing critical gap and follow-up time values for different movements.

Capacity Module:

Table with 13 columns showing capacity-related metrics like Conflict Vol, Potent Cap., Move Cap., etc.

Level Of Service Module:

Table with 13 columns showing level of service metrics like 2Way95thQ, Control Del, LOS by Move, etc.

Note: Queue reported is the number of cars per lane.

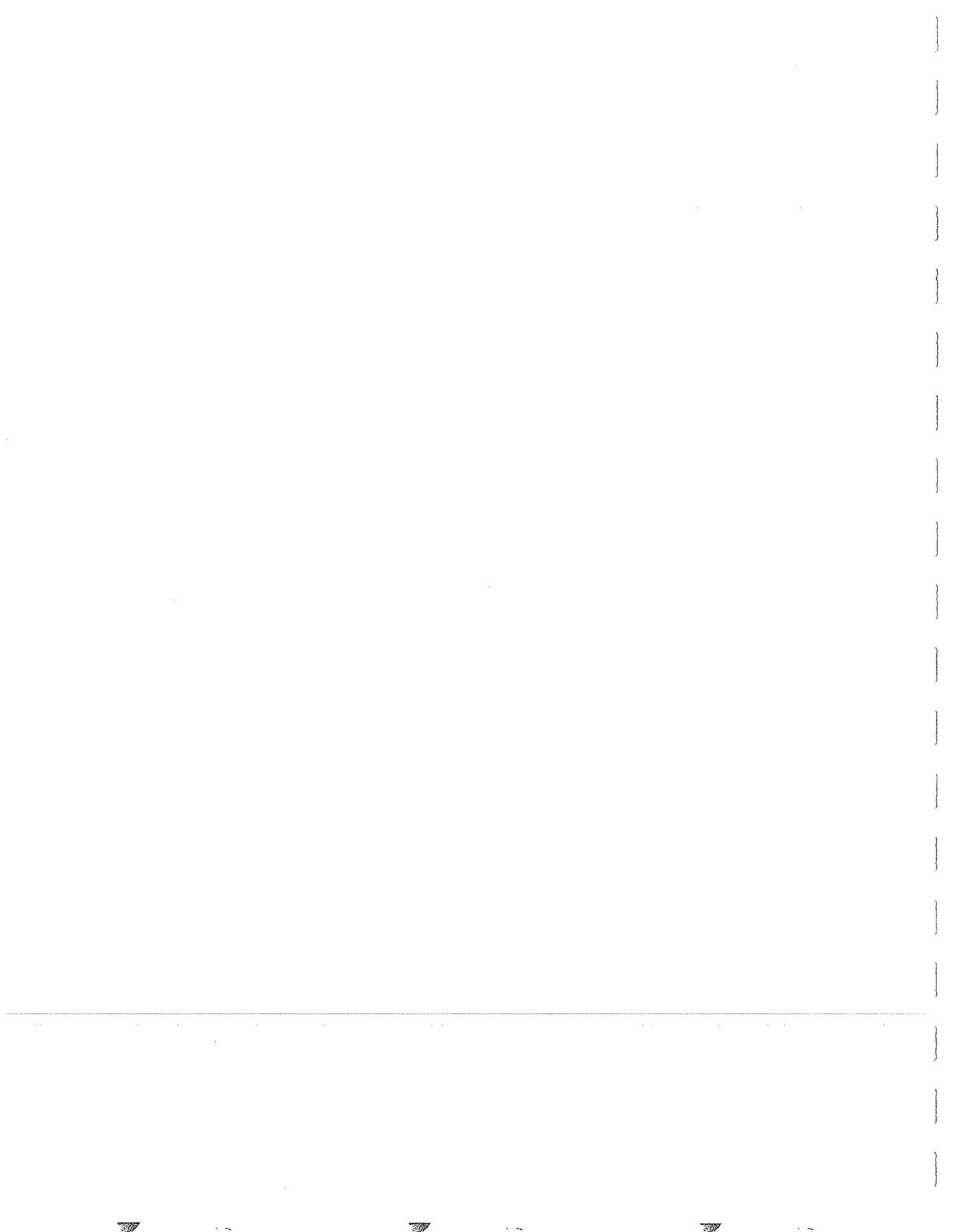
Project Title:	LIBERTY CANYON ROAD OFFICE EXPANSION		
Intersection:	LIBERTY CANYON AND AGOURA ROAD		
Description:	EXISTING CONDITIONS		
Date/Time:	AM PEAK HOUR (7:30-8:30)		
Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	N
Double Lt Penalty:	20 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	73	1,600	0.046	N-S(1): 0.182 *
	TH	2.00	65	1,600	0.041	N-S(2): 0.074
	LT	1.00	217	1,600	0.136 *	E-W(1): 0.105 *
Westbound	RT	1.00	46	1,600	0.000	E-W(2): 0.097
	TH	1.00	133	1,600	0.083	V/C: 0.287
	LT	1.00	33	1,600	0.021 *	Lost Time: 0.100
Northbound	RT	1.00	64	1,600	0.019	
	TH	2.00	146	3,200	0.046 *	
	LT	1.00	44	1,600	0.028	
Eastbound	RT	1.00	28	1,600	0.000	ICU: 0.387
	TH	1.00	134	1,600	0.084 *	
	LT	1.00	23	1,600	0.014	LOS: A

Date/Time:	PM PEAK HOUR (7:30-8:30)		
-------------------	---------------------------------	--	--

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	33	0	0.000	N-S(1): 0.124 *
	TH	2.00	149	3,200	0.057	N-S(2): 0.076
	LT	1.00	158	1,600	0.099 *	E-W(1): 0.145 *
Westbound	RT	1.00	297	1,600	0.087	E-W(2): 0.114
	TH	1.00	136	1,600	0.085	V/C: 0.269
	LT	1.00	48	1,600	0.030 *	Lost Time: 0.100
Northbound	RT	1.00	36	1,600	0.000	
	TH	2.00	81	3,200	0.025 *	
	LT	1.00	30	1,600	0.019	
Eastbound	RT	1.00	50	1,600	0.013	ICU: 0.369
	TH	1.00	184	1,600	0.115 *	
	LT	1.00	43	1,600	0.027	LOS: A

* - Denotes critical movement



CUMULATIVE BASE CONDITIONS

SECRET

Level of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1

Average Delay (sec/veh): 4.9 Worst Case Level Of Service: B[11.5]

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module:

Table with 13 columns for volume metrics: Base Vol, Growth Adj, Initial Bse, User Adj, PHF Adj, PHF Volume, Reduct Vol, Final Volume.

Critical Gap Module:

Table with 13 columns for critical gap metrics: Critical Gp, FollowUpTim.

Capacity Module:

Table with 13 columns for capacity metrics: Cnflct Vol, Potent Cap., Move Cap., Volume/Cap.

Level Of Service Module:

Table with 13 columns for level of service metrics: 2Way95thQ, Control Del, LOS by Move, Movement, Shared Cap., SharedQueue, Shrd ConDel, Shared LOS, ApproachDel, ApproachLOS.

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1

Average Delay (sec/veh): 4.3 Worst Case Level Of Service: B[11.2]

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module:

Table with 13 columns representing different volume and adjustment factors like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module:

Table with 13 columns showing critical gap and follow-up time values.

Capacity Module:

Table with 13 columns showing capacity-related metrics like Conflict Vol, Potent Cap., Move Cap., etc.

Level Of Service Module:

Table with 13 columns showing level of service metrics like 2Way95thQ, Control Del, LOS by Move, etc.

Note: Queue reported is the number of cars per lane.

Project Title:	LIBERTY CANYON ROAD OFFICE EXPANSION		
Intersection:	LIBERTY CANYON AND US-101 EB RAMPS		
Description:	CUMULATIVE BASE CONDITIONS		
Date/Time:	AM PEAK HOUR (7:30-8:30)		
Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	N
Double Lt Penalty:	20 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	0	0	0.000	N-S(1): 0.127 *
	TH	1.00	184	1,600	0.115	N-S(2): 0.115
	LT	1.00	52	1,600	0.033 *	E-W(1): 0.144 *
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.052
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	V/C: 0.271
Northbound	RT	1.00	129	1,600	0.081	Lost Time: 0.100
	TH	1.00	151	1,600	0.094 *	
	LT	0.00	0	0	0.000	
Eastbound	RT	1.00	231	1,600	0.144 *	ICU: 0.371
	TH	1.00	4	1,600	0.054	
	LT	0.00	83	1,600	0.052	LOS: A

Date/Time:	PM PEAK HOUR (7:30-8:30)		
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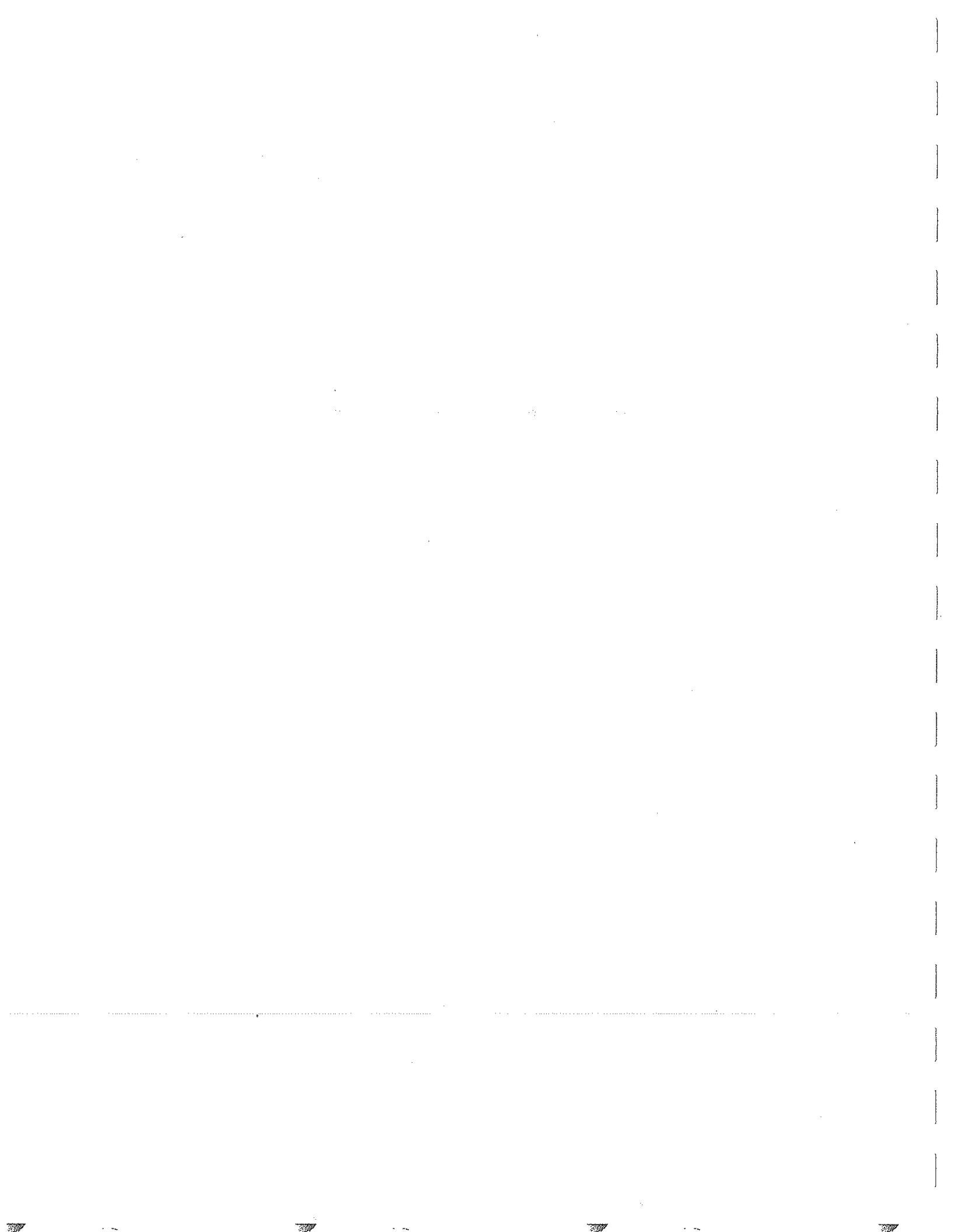
APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	0	0	0.000	N-S(1): 0.224 *
	TH	1.00	99	1,600	0.062	N-S(2): 0.062
	LT	1.00	13	1,600	0.008 *	E-W(1): 0.159 *
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.003
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	V/C: 0.383
Northbound	RT	1.00	99	1,600	0.062	Lost Time: 0.100
	TH	1.00	346	1,600	0.216 *	
	LT	0.00	0	0	0.000	
Eastbound	RT	1.00	254	1,600	0.159 *	ICU: 0.483
	TH	1.00	69	1,600	0.046	
	LT	0.00	4	1,600	0.003	LOS: A

* - Denotes critical movement

Project Title:		LIBERTY CANYON ROAD OFFICE EXPANSION				
Intersection:		LIBERTY CANYON AND AGOURA ROAD				
Description:		CUMULATIVE BASE CONDITIONS				
Date/Time:		AM PEAK HOUR (7:30-8:30)				
Thru Lane:	1600 vph				N-S Split Phase :	N
Left Lane:	1600 vph				E-W Split Phase :	N
Double Lt Penalty:	20 %				Lost Time (% of cycle) :	10
ITS:	0 %				V/C Round Off (decs.) :	3
APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	75	1,600	0.047	N-S(1): 0.190 *
	TH	2.00	72	1,600	0.045	N-S(2): 0.080
	LT	1.00	224	1,600	0.140 *	E-W(1): 0.112 *
Westbound	RT	1.00	47	1,600	0.000	E-W(2): 0.110
	TH	1.00	152	1,600	0.095	
	LT	1.00	34	1,600	0.021 *	V/C: 0.302
Northbound	RT	1.00	66	1,600	0.020	Lost Time: 0.100
	TH	2.00	160	3,200	0.050 *	
	LT	1.00	52	1,600	0.033	
Eastbound	RT	1.00	33	1,600	0.000	ICU: 0.402
	TH	1.00	146	1,600	0.091 *	
	LT	1.00	24	1,600	0.015	LOS: A
Date/Time:		PM PEAK HOUR (7:30-8:30)				
APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	34	0	0.000	N-S(1): 0.130 *
	TH	2.00	163	3,200	0.062	N-S(2): 0.084
	LT	1.00	163	1,600	0.102 *	E-W(1): 0.158 *
Westbound	RT	1.00	306	1,600	0.089	E-W(2): 0.121
	TH	1.00	149	1,600	0.093	
	LT	1.00	50	1,600	0.031 *	V/C: 0.288
Northbound	RT	1.00	37	1,600	0.000	Lost Time: 0.100
	TH	2.00	90	3,200	0.028 *	
	LT	1.00	35	1,600	0.022	
Eastbound	RT	1.00	58	1,600	0.014	ICU: 0.388
	TH	1.00	203	1,600	0.127 *	
	LT	1.00	44	1,600	0.028	LOS: A

* - Denotes critical movement

CUMULATIVE PLUS PROJECT CONDITIONS



Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1

Average Delay (sec/veh): 5.0 Worst Case Level Of Service: B[11.8]

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module:

Table with 12 columns representing different volume components like Base Vol, Growth Adj, Initial Bse, etc.

Critical Gap Module:

Table with 12 columns showing critical gap and follow-up time values.

Capacity Module:

Table with 12 columns showing capacity-related metrics like Conflict Vol, Potent Cap., etc.

Level Of Service Module:

Table with 12 columns showing level of service metrics like 2Way95thQ, Control Del, LOS by Move, etc.

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #1

Average Delay (sec/veh): 4.1 Worst Case Level Of Service: B[11.5]

Table with 4 columns: North Bound, South Bound, East Bound, West Bound. Rows include Movement, Control, Rights, and Lanes.

Volume Module:

Table with 12 columns representing different volume metrics and 4 columns for North, South, East, and West bounds.

Critical Gap Module:

Table with 12 columns for critical gap and follow-up time metrics across four directions.

Capacity Module:

Table with 12 columns for capacity metrics such as conflict volume, potent capacity, and volume/capacity ratio.

Level Of Service Module:

Table with 12 columns for level of service metrics including delay, LOS by move, shared capacity, and shared queue.

Note: Queue reported is the number of cars per lane.

Project Title:	LIBERTY CANYON ROAD OFFICE EXPANSION		
Intersection:	LIBERTY CANYON AND US-101 EB RAMPS		
Description:	CUMULATIVE PLUS PROJECT CONDITIONS		
Date/Time:	AM PEAK HOUR (7:30-8:30)		
Thru Lane:	1600 vph	N-S Split Phase :	N
Left Lane:	1600 vph	E-W Split Phase :	N
Double Lt Penalty:	20 %	Lost Time (% of cycle) :	10
ITS:	0 %	V/C Round Off (decs.) :	3

APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	0	0	0.000	N-S(1): 0.130 *
	TH	1.00	207	1,600	0.129	N-S(2): 0.129
	LT	1.00	52	1,600	0.033 *	E-W(1): 0.157 *
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.052
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	V/C: 0.287
Northbound	RT	1.00	134	1,600	0.084	Lost Time: 0.100
	TH	1.00	155	1,600	0.097 *	
	LT	0.00	0	0	0.000	
Eastbound	RT	1.00	251	1,600	0.157 *	ICU: 0.387
	TH	1.00	4	1,600	0.054	
	LT	0.00	83	1,600	0.052	LOS: A

Date/Time:	PM PEAK HOUR (7:30-8:30)		
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APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	0	0	0.000	N-S(1): 0.239 *
	TH	1.00	109	1,600	0.068	N-S(2): 0.068
	LT	1.00	13	1,600	0.008 *	E-W(1): 0.164 *
Westbound	RT	0.00	0	0	0.000	E-W(2): 0.003
	TH	0.00	0	0	0.000	
	LT	0.00	0	0	0.000 *	V/C: 0.403
Northbound	RT	1.00	127	1,600	0.079	Lost Time: 0.100
	TH	1.00	370	1,600	0.231 *	
	LT	0.00	0	0	0.000	
Eastbound	RT	1.00	262	1,600	0.164 *	ICU: 0.503
	TH	1.00	69	1,600	0.046	
	LT	0.00	4	1,600	0.003	LOS: A

* - Denotes critical movement

Project Title:		LIBERTY CANYON ROAD OFFICE EXPANSION				
Intersection:		LIBERTY CANYON AND AGOURA ROAD				
Description:		CUMULATIVE PLUS PROJECT CONDITIONS				
Date/Time:		AM PEAK HOUR (7:30-8:30)				
Thru Lane:	1600 vph				N-S Split Phase :	N
Left Lane:	1600 vph				E-W Split Phase :	N
Double Lt Penalty:	20 %				Lost Time (% of cycle) :	10
ITS:	0 %				V/C Round Off (decs.) :	3
APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	113	1,600	0.071	N-S(1): 0.196 *
	TH	2.00	72	1,600	0.045	N-S(2): 0.104
	LT	1.00	233	1,600	0.146 *	E-W(1): 0.112
Westbound	RT	1.00	51	1,600	0.000	E-W(2): 0.114 *
	TH	1.00	153	1,600	0.096 *	
	LT	1.00	34	1,600	0.021	V/C: 0.310
Northbound	RT	1.00	66	1,600	0.020	Lost Time: 0.100
	TH	2.00	160	3,200	0.050 *	
	LT	1.00	53	1,600	0.033	
Eastbound	RT	1.00	33	1,600	0.000	ICU: 0.410
	TH	1.00	146	1,600	0.091	
	LT	1.00	29	1,600	0.018 *	LOS: A
Date/Time:		PM PEAK HOUR (7:30-8:30)				
APPROACH	MVMT	LANES	VOLUME	CAPACITY	V/C	ICU ANALYSIS
Southbound	RT	0.00	47	0	0.000	N-S(1): 0.160 *
	TH	2.00	163	3,200	0.066	N-S(2): 0.088
	LT	1.00	211	1,600	0.132 *	E-W(1): 0.159 *
Westbound	RT	1.00	308	1,600	0.061	E-W(2): 0.128
	TH	1.00	149	1,600	0.093	
	LT	1.00	50	1,600	0.031 *	V/C: 0.319
Northbound	RT	1.00	37	1,600	0.000	Lost Time: 0.100
	TH	2.00	90	3,200	0.028 *	
	LT	1.00	35	1,600	0.022	
Eastbound	RT	1.00	58	1,600	0.014	ICU: 0.419
	TH	1.00	204	1,600	0.128 *	
	LT	1.00	56	1,600	0.035	LOS: A

* - Denotes critical movement