DRAFT REPORT

STANFORD UNIVERSITY
TRAFFIC MONITORING REPORT
2005

Prepared for:

Santa Clara County
Department of Planning Development

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FOREWORD FROM THE COUNTY OF SANTA CLARA PLANNING OFFICE

Background

The purpose of this report is to compare traffic volumes entering and exiting Stanford campus during the inbound AM peak and the outbound PM commute peak to a traffic baseline. This comparison is completed on an annual basis. The requirements for establishment of the traffic baseline and performing annual comparisons to the baseline are contained within the December 2000 Stanford Community Plan/General Use Permit (GUP)/Environmental Impact Report (EIR) and within the 2000 Stanford General Use Permit. These documents can be reviewed at the County website or at the County Planning Office. Essentially, Stanford is required to attain a "no net new commute trip" standard as defined in the GUP and EIR.

The Process

Following the adoption of the GUP by the County Board of Supervisors in December 2000, the County Planning Office selected Korve Engineering (KORVE) to conduct the monitoring process outlined in the conditions of approval. Because of the type of data to be collected (particularly license plate numbers), the data could not be collected until after the start of daylight savings time in Spring 2001. The data collection involved three, 2-week periods in the Spring and one, 2-week period in the Fall 2001.

Condition of Approval G.7 outlines the process for establishing the baseline counts and for continuing monitoring in subsequent years. The process can be summarized as follows:

- Peak hour traffic is counted at least three times per year for a two-week period each time. The three counts shall be averaged to determine the annual traffic level.
- All counts are recorded at the 16 campus entry and exit points forming a cordon around the campus.
- License plate numbers are recorded for each entering and exiting vehicle to determine the amount of non-campus traffic.
- Cordon volumes are adjusted for parking lots within the cordon used by the hospital (these volumes are subtracted from the cordon line counts) and parking lots outside the cordon used by the university (these volumes are added to the cordon line counts).
- A peak hour is then established for the campus based on the counts, adjusted for cut through and parking lot location.

Condition of Approval G.6 defines the peak commute directions as entering the campus in the morning peak commute period and leaving the campus in the evening commute period. The peak commute period is defined as the one-hour period of time between 7 AM and 9 AM and again between 4 PM and 6 PM with the highest volume of traffic, as defined by the counts.

Therefore, the two peak hours are considered to be independent events. For example, an increase in AM peak traffic for two out of three years would trigger the additional elements of the monitoring program without a change, or even a decrease, in PM peak traffic, or the reverse. Also, a significant increase during one year in the AM and a sufficient increase in the PM for the following year would not trigger additional mitigation.

Activities Related to Traffic Baseline and Annual Monitoring Counts to Date

Stanford University Traffic Monitoring Report -- 2001 GUP Baseline

The 2001 Baseline Report was originally issued on July 3, 2002. An update to that report was issued on October 15, 2003. Per the provisions of the GUP, this original Traffic Baseline Report established the standard for measuring future traffic impacts to the "no net new commute" standard.

The following were the count dates of the 2001 Baseline Report:

- Week of April 2, 2001
- Week of April 9, 2001
- Week of April 23, 2001
- Week of April 30, 2001
- Week of May 7, 2001
- Week of May 14, 2001
- Week of October 22, 2001
- Week of October 29, 2001

The following were the results of the 2001 Baseline Monitoring:

Inbound AM:	
Average count	3,319
90% confidence interval	+/- 120
significant traffic increase	3,439
1% increase trigger	3,474
Outbound PM:	
Average	3,446
90% confidence interval	+/- 109
significant traffic increase	3,555
1% trigger	3,591

Stanford University Traffic Monitoring Report – 2002 Monitoring Report

The 2002 Monitoring Report was originally issued in July 2003. The count dates for the 2002 Monitoring Report were as follows:

- Week of April 15, 2002
- Week of April 22, 2002
- Week of April 29, 2002
- Week of May 13, 2002
- Week of May 20, 2002
- Week of October 14, 2002

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- Week of May 6, 2002
- Week of October 21, 2002

The 2002 Monitoring Report concluded that the adjusted AM inbound count totaled 3,390 vehicles. This represented an increase of 71 vehicles, which fell within the 90% confidence interval and did not represent a significant AM inbound traffic increase. The PM outbound count totaled 3,678 vehicles which was an increase of 232 vehicles from the baseline, which was higher than the 90% confidence interval. This count exceeded the 1% trigger of 3,591 vehicles by 87. The following is a summary of the results of the 2002 Monitoring Report as contained in the July 2003 document.

Inbound AM:

Adjusted average 2002 count	3,390
Baseline-established 90% confidence interval (2001)	+/- 120
Baseline-established significant traffic increase (2001)	3,439
Baseline-established 1% increase trigger (2001)	3,474
Result (falls below the 1% trigger by 84)	-84

Outbound PM:

Adjusted average 2002 count	3,678
Baseline-established 90% confidence interval (2001)	+/- 109
Baseline-established significant traffic increase (2001)	3,555
Baseline-established 1% increase trigger (2001)	3,591
Result (232 increase in vehicles exceeds the trigger by 87 vehicles)	+87

Adjustment 1 to 2002 Monitoring Report

An update to the original 2002 Monitoring Report was issued on October 15, 2003. Following the publication of the July 2003 report, Stanford and the County separately analyzed traffic data for the Stanford Homecoming Week. Based on consultation with Stanford and independent analysis of County consultant traffic data, the County determined that data collected for the week of Homecoming should not be included in the comparison data set. The rationale for this decision was that this event (Homecoming) had been ongoing for years, was not included in the baseline count, and would continue to be an annual event. The County communicated to Stanford that other future "large events" would not be excluded from future counts. The revised report substituted the week of October 28, 2002 for the previously counted week of October 14, 2002. The following are the results of the Revised 2002 Monitoring Report.

Inbound AM:

Adjusted average 2002 count	3,287
Baseline-established 90% confidence interval (2001)	+/- 120
Baseline-established significant traffic increase (2001)	3,439
Baseline-established 1% increase trigger (2001)	3,474
Result (falls below the 1% trigger by 187)	-187

Outbound PM:

Adjusted average 2002 count	3,598
Baseline-established 90% confidence interval (2001)	+/- 109
Baseline-established significant traffic increase (2001)	3,555
Baseline-established 1% increase trigger (2001)	3,591
Result (152 increase in vehicles exceeds the trigger by 7 vehicles)	+7

Adjustment 2 to the 2002 Monitoring Report

Subsequent to the first adjustment to the 2002 Monitoring Report, Stanford informed the County that additional Marguerite shuttle runs had been introduced to campus since the completion of the baseline count, and thus counted in the Year 1 (2002) comparison counts. This resulted in an increase of 12 vehicles in each peak hour. County staff determined that these new bus lines should be subtracted from the comparison count. This provided an end result as follows:

Inbound AM:

Adjusted average 2002 count	3,275
Baseline-established 90% confidence interval (2001)	+/- 120
Baseline-established significant traffic increase (2001)	3,439
Baseline-established 1% increase trigger (2001)	3,474
Result (falls below the 1% trigger by 199)	-199

Outbound PM:

Adjusted average 2002 count	3,586
Baseline-established 90% confidence interval (2001)	+/- 109
Baseline-established significant traffic increase (2001)	3,555
Baseline-established 1% increase trigger (2001)	3,591
Result (falls below the 1% trigger by 5 vehicles)	-5

Stanford University Traffic Monitoring Report – 2003 Monitoring Report

This report represents the 2003 Monitoring Report. The count dates for the 2003 Monitoring Report were as follows:

- Week of April 7, 2003
- Week of April 21, 2003
- Week of April 28, 2003
- Week of May 5, 2003
- Week of May 12, 2003
- Week of May 19, 2003
- Week of September 29, 2003
- Week of October 20, 2003

The 2003 Monitoring Report concluded that the adjusted AM inbound count totaled 3,413 vehicles. This represented an increase of 94 vehicles, which fell within the 90% confidence interval and did not represent a significant AM inbound traffic increase. The PM outbound count totaled 3,476 vehicles which was an increase of 30 vehicles from the baseline, which also fell

within the 90% confidence interval. The following is a summary of the results of the 2003 Monitoring Report.

Inbound AM:

Adjusted average 2003 count	3,413
Baseline-established 90% confidence interval (2001)	+/- 120
Baseline-established significant traffic increase (2001)	3,439
Baseline-established 1% increase trigger (2001)	3,474
Result (falls below the 90% confidence interval by 26)	-26
Result (falls below the 1% trigger by 61 vehicles)	-61

Outbound PM:

Adjusted average 2003 count	3,476
Baseline-established 90% confidence interval (2001)	+/- 109
Baseline-established significant traffic increase (2001)	3,555
Baseline-established 1% increase trigger (2001)	3,591
Result (falls below the 90% confidence interval by 79 vehicles)	-79
Result (falls below the 1% trigger by 115 vehicles)	-115

Stanford University Traffic Monitoring Report – 2004 Monitoring Report

This report represents the 2004 Monitoring Report. The count dates for the 2004 Monitoring Report were as follows:

- Week of April 12, 2004
- Week of April 19, 2004
- Week of April 26, 2004
- Week of May 3, 2004
- Week of May 10, 2004
- Week of May 17, 2004
- Week of September 27, 2004
- Week of October 4, 2004

The 2004 Monitoring Report concluded that the adjusted AM inbound count totaled 3,176 vehicles. This represented a decrease of 143 vehicles, which fell within the 90% confidence interval and did not represent a significant AM inbound traffic increase. The PM outbound count totaled 3,642 vehicles which was an increase of 196 vehicles from the baseline, which is 87 vehicles above 90% confidence interval and 51 vehicles more than the 1% established trigger. The following is a summary of the results of the initial 2004 Monitoring Report.

Inbound AM:

Adjusted average 2004 count	3,176
Baseline-established 90% confidence interval (2001)	+/- 120
Baseline-established significant traffic increase (2001)	3,439
Baseline-established 1% increase trigger (2001)	3,474
Result (falls below the 90% confidence interval by 263)	-263
Result (falls below the 1% trigger by 298 vehicles)	-298

Outbound PM:	
Adjusted average 2004 count	3,642
Baseline-established 90% confidence interval (2001)	+/- 109
Baseline-established significant traffic increase (2001)	3,555
Baseline-established 1% increase trigger (2001)	3,591
Result (falls above the 90% confidence interval by 87 vehicles)	+87
Result (falls above the 1% trigger by 51 vehicles)	+51
Outbound PM:	
Adjusted average 2004 count	3,642
Baseline-established 90% confidence interval (2001)	+/- 109
Baseline-established significant traffic increase (2001)	3,555
Baseline-established 1% increase trigger (2001)	3,591
Result (falls above the 90% confidence interval by 87 vehicles)	+87
Result (falls above the 1% trigger by 51 vehicles)	+51
2004 trip credit	-66
Result with trip credit (falls below the 1% trigger by 15 vehicles)	-15

Stanford University Traffic Monitoring Report – 2005 Monitoring Report

This report represents the 2005 Monitoring Report. The count dates for the 2005 Monitoring Report were as follows:

- Week of April 4, 2005
- Week of April 11, 2005
- Week of April 18, 2005
- Week of April 25, 2005
- Week of May 2, 2005
- Week of May 9, 2005
- Week of September 26, 2005
- Week of October 3, 2005

The 2005 Monitoring Report concluded that the adjusted AM inbound count totaled 3,383 vehicles. This represented an increase of 64 vehicles, which fell within the 90% confidence interval and did not represent a significant AM inbound traffic increase. The PM outbound count totaled 3,868 vehicles which was an increase of 422 vehicles from the baseline, which is above the 90% confidence interval by 313 vehicles and above the 1% increase trigger by 277 vehicles. The following is a summary of the results of the 2005 Monitoring Report.

Inbound AM:	
Adjusted average 2005 count	3,383
Baseline-established 90% confidence interval (2001)	+/- 120
Baseline-established significant traffic increase (2001)	3,439
Baseline-established 1% increase trigger (2001)	3,474
Result (falls below the 90% confidence interval by 56)	-56
Result (falls below the 1% trigger by 91 vehicles)	-91
Outbound PM:	
Adjusted average 2005 count	3,735
Baseline-established 90% confidence interval (2001)	+/- 109

Baseline-established significant traffic increase (2001)	3,555
Baseline-established 1% increase trigger (2001)	3,591
Result (falls above the 90% confidence interval by 313 vehicles)	+180
Result (falls above the 1% trigger by 277 vehicles)	+144

The 2000 Stanford GUP Condition G.8 specifies that the County will recognize and "credit" Stanford off-campus trip reduction efforts within defined geographic boundaries. These credits will be applied to Stanford's attainment of the "no net new commute trip" standard. In 2003, Stanford and the County discussed potential methodologies for providing credits to Stanford. The County developed draft guidelines, which were reviewed by the Community Resource Group, and the Planning Office approved the final guidelines on October 9, 2003. These guidelines are presented in the "Stanford Traffic Cordon Count Credit Guidelines" dated October 28, 2003.

On April 24, 2006, Stanford submitted a 2005 trip credit report that was reviewed by Korve Engineering. This report documented a credit of 174 trips for the increase in the number of bus trips across the cordon points and the number of transit passengers served outside the cordon area in the PM peak hour between the 2001 baseline and 2005. Using the new Marguerite shuttle Automated Transportation Management System, the number of passengers getting on and off the shuttle at each stop was counted. Most of the trip credits claimed are for passengers (primarily Stanford Hospital employees) getting on the shuttle outside the cordon area and traveling to the Palo Alto Caltrain station. As outlined in the adopted guidelines, full credits are claimed for trips in the peak commute direction and 1/3 credit claimed for trips in the reverse direction. Pass through credits are claimed for those passengers who board outside the cordon, pass through the campus, and then alight outside the campus based on onboard surveys. As summarized below, with the trip credit of 174 trips Stanford did not exceed the no net new commute trip standard based on the 2005 monitoring program.

Outbound PM:

Adjusted average 2005 count	3,735
Baseline-established 90% confidence interval (2001)	+/- 109
Baseline-established significant traffic increase (2001)	3,555
Baseline-established 1% increase trigger (2001)	3,591
Result (falls above the 90% confidence interval by 313 vehicles)	+180
Result (falls above the 1% trigger by 277 vehicles)	+144
2005 trip credit	-174
Result with trip credit (falls below the 1 percent trigger by 30 vehicles)	-30

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PHONE: (408) 299-5770 **WEB SITE:** www.sccplanning.org

INTRODUCTION

This report presents the traffic and parking data that has been collected at Stanford University by Korve Engineering during the Spring and Fall monitoring periods of 2005. Traffic volumes were collected for six weeks during the Spring and two weeks during the Fall. The Spring counts were conducted for the weeks of April 4, April 11, April 18, April 25, May 2 and May 9. The Fall counts were conducted for the weeks of September 26 and October 3. The data include vehicle counts at all of the access points to the campus and parking lots. Parking lot counts and cut-through percentages were used to adjust the raw traffic counts in order to determine the total amount of peak hour traffic generated by Stanford University. The parking data were used to add in campus traffic that park outside of the count area and subtract out hospital traffic from parking inside the count area. License plate surveys were used to calculate the amount of traffic that cuts through the campus and thus is not University-generated traffic. Data collection methodology is described in greater detail in Task 1. A description of the data analysis procedures is presented in Task 2. The data collected in calendar year 2005 is compared to the baseline counts collected in calendar year 2001. Differences between the two years are then analyzed to determine if traffic is increasing to a significant degree.

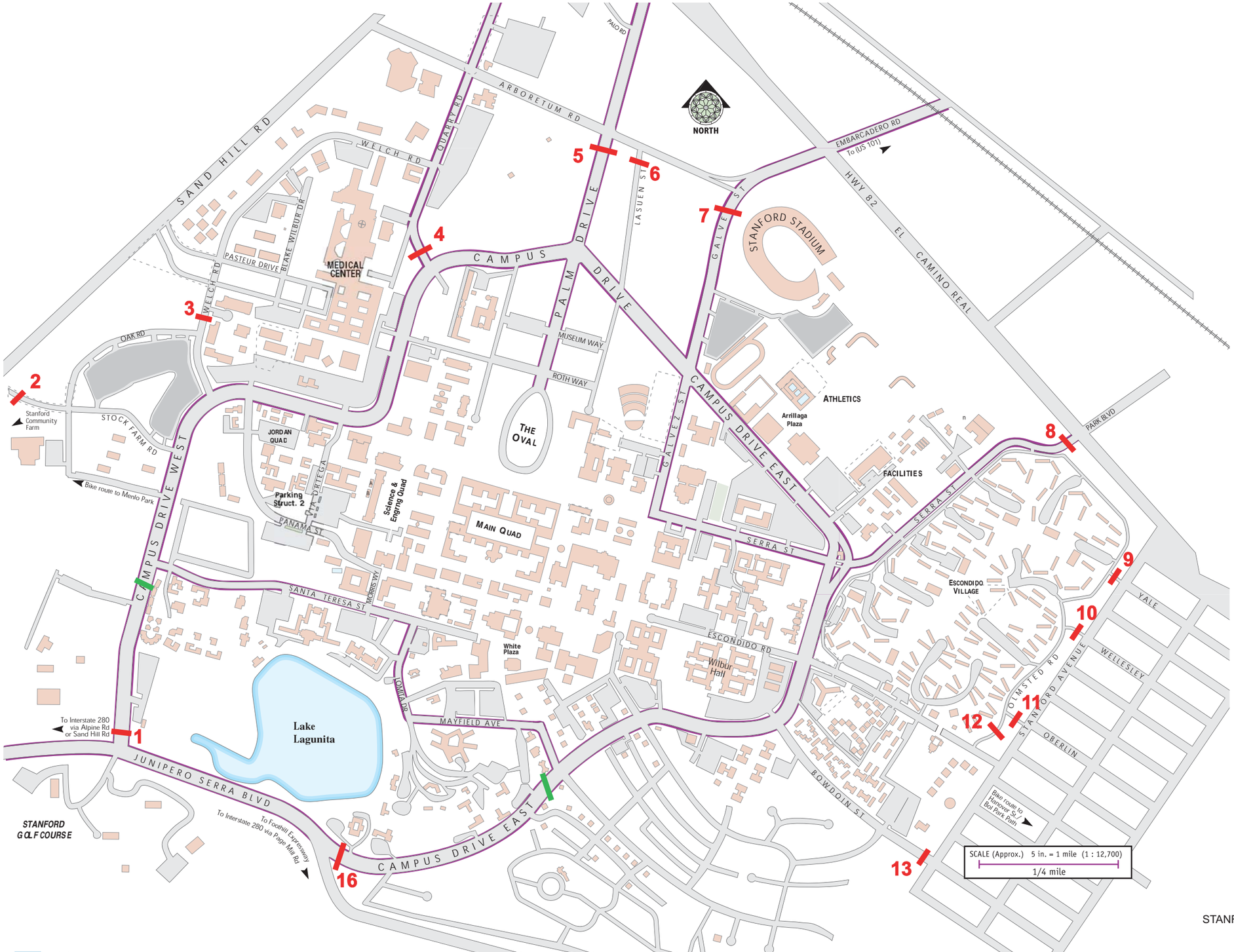
Task 1.0 Traffic Monitoring Data Collection Methodology

Data collection is a critical component of the traffic monitoring program. The following work elements were conducted to collect all relevant traffic data for the monitoring program.

Task 1.1 Machine Cordon Line Traffic Counts

Directional traffic counts were collected at Stanford University for eight weeks in 2005 on each of the 16 roadways that provide access to and from the campus. The location of the 16 cordon counts are listed below and shown graphically in Figures 1 and 2.

1. Campus Drive West, north of Junipero Serra Boulevard
2. Stock Farm Road, east of Sand Hill Road
3. Welch Road, north of Oak Road
4. Quarry Road, north of Campus Drive West
5. Palm Drive, south of Arboretum Road
6. Lasuen Street, south of Arboretum Road
7. Galvez Street, south of Arboretum Road
8. Serra Street, southwest of El Camino Real
9. Yale Street, west of Stanford Avenue
10. Wellesley Street, west of Stanford Avenue
11. Oberlin Street, west of Stanford Avenue
12. Olmsted Road, north of Escondido Road
13. Bowdoin Street, west of Stanford Avenue
14. Raimundo Way, west of Stanford Avenue
15. Santa Maria Avenue, north of Junipero Serra Boulevard
16. Campus Drive East, east of Junipero Serra Boulevard



Cordon Count Locations

1. Campus Drive West north of Junipero Serra Blvd.
2. Stock Farm Road east of Sand Hill Road
3. Welch Road north of Oak Road
4. Quarry Road north of Campus Drive
5. Palm Drive south of Arboretum Road
6. Lasuen Street south of Arboretum Road
7. Galvez Street south of Arboretum Road
8. Serra Street southwest of El Camino Real
9. Yale Street west of Stanford Avenue
10. Wellesley Street west of Stanford Avenue
11. Oberlin Street west of Stanford Avenue
12. Olmsted Road north of Escondido Road
13. Bowdoin west of Stanford Avenue
14. Raimundo west of Stanford Avenue
15. Santa Maria Avenue north of Junipero Serra Blvd.
16. Campus Drive East east of Junipero Serra Blvd.

NOTES

License plate survey for Location 1 and Location 16 shifted for more accurate recording. Cordon tube counts continued at campus boundary.

Escondido Drive no longer continuous street from Campus Drive East to Stanford Avenue.

For count locations 14 and 15 see Figure 2

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Figure 1

DAILY MACHINE CORDON COUNT LOCATIONS

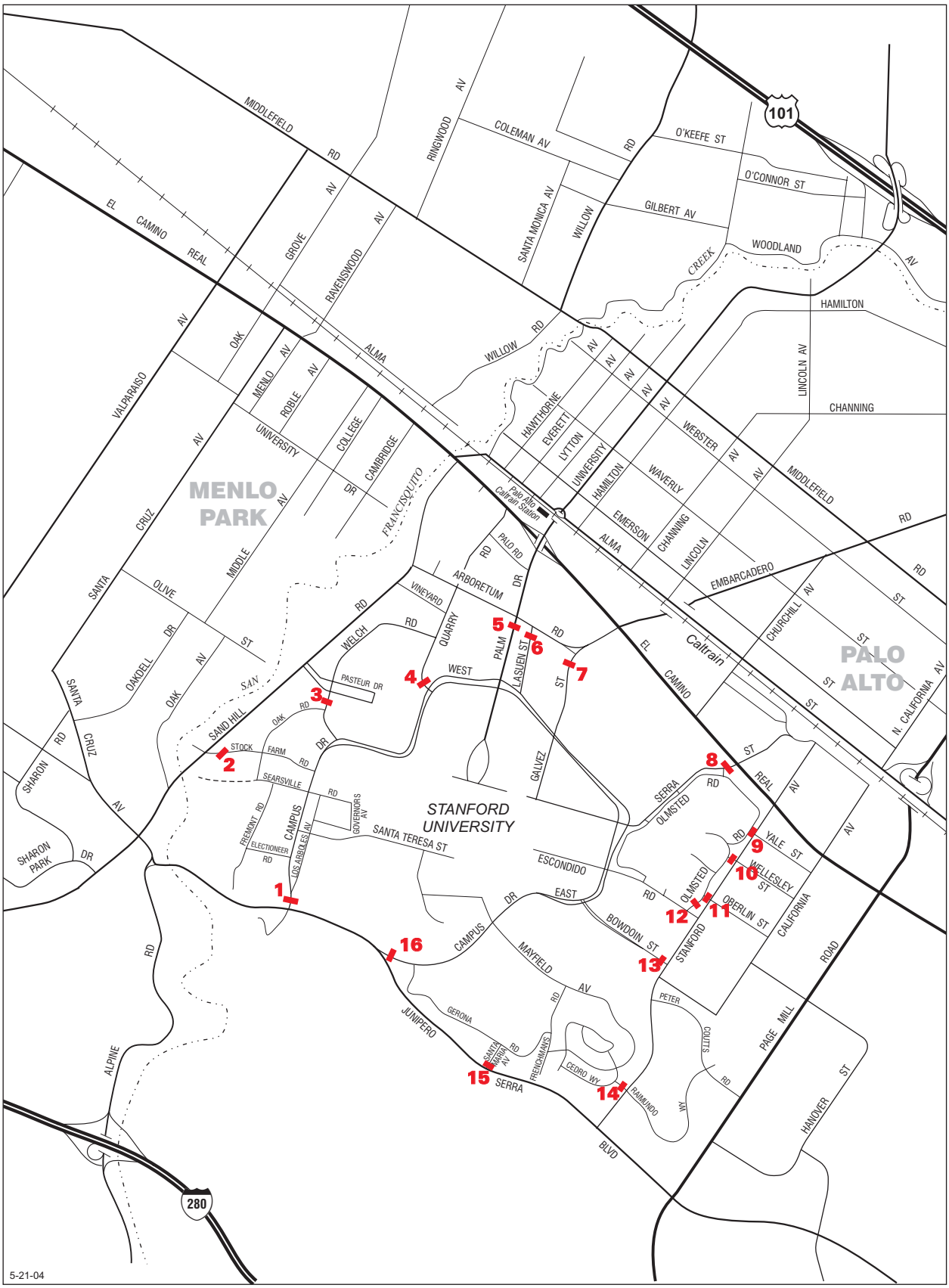

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Figure 2

DAILY MACHINE CORDON COUNT LOCATIONS

The detailed traffic counts at the 16 cordon locations are presented in Appendix A and are summarized in Table 1. Table 1 shows the AM inbound and PM outbound peak hour volumes for each day that traffic was monitored. As indicated in Table 1, the AM peak hour usually occurred from 7:45 to 8:45 and the PM peak hour generally occurred between 5:00 to 6:00. The unadjusted AM inbound traffic volumes ranged from a low of 4,009 on Friday, April 22 to a high of 4,725 on Tuesday, September 27. The PM peak hour traffic volumes ranged from a low of 4,597 on Tuesday, October 4 to a high of 5,271 on Friday, May 13.

Task 1.2 Parking Lot Driveway Counts

There are two parking lots (L1 – Rectangle Lot and L2 – Quarry Lot) outside the cordon line that serve some campus uses. There are also several parking lots (L3, L4 – Beckman Lot, L5 – Stock Farm Road Lot, and L6) along with parking structures 1 (PS1) and 3 (PS3) that are inside the established cordon line that serve some hospital uses. Traffic was counted by direction into and out of these parking lots during the entire count period. The detailed count sheets for the driveway traffic at these lots are included in Appendix B.

The driveway count locations are presented below and in Figure 3.

1. PS1a – Parking Structure 1 North Access to Campus Drive
2. PS1b – Parking Structure 1 South Access to Roth Way
3. PS3a – Parking Structure 3 Northwest Access
4. PS3b – Parking Structure 3 Northeast Access
5. L1a – Rectangle Lot (Lot 1) Quarry Road Access
6. L1b – Rectangle Lot (Lot 1) North Access
7. L2a – Quarry Lot (Lot 2) North Access to Quarry Road
8. L2b – Quarry Lot (Lot 2) Middle Access to Quarry Road
9. L2c – Quarry Lot (Lot 2) South Access to Quarry Road
10. L3a – Near Medical Drive, west of Campus Drive
11. L4a – Driveway to Lot 4 from Campus Drive West
12. L5a – West Driveway to Lot 5 from Oak Road
13. L5b – Center Driveway to Lot 5 from Oak Road
14. L5c – East Driveway to Lot 5 from Oak Road
15. L5d – East Driveway to Lot 5 from Stock Farm Road
16. L5e – West Driveway to Lot 5 from Stock Farm Road
17. L6a – West Driveway to Lot 6 from Oak Road
18. L6b – South Driveway to Lot 6 from Stockfarm Road

Table 1 2005 Raw Traffic Count Summary

Date	AM Inbound			PM Outbound		
	Weather	Volume	Period	Weather	Volume	Period
Week 1						
April 4, 2005	Scattered Clouds	4390	7:00 to 8:00	Scattered Clouds	4845	4:00 to 5:00
April 5, 2005	Clear	4285	7:00 to 8:00	Clear	4822	4:00 to 5:00
April 6, 2005	Scattered Clouds	4400	7:00 to 8:00	Scattered Clouds	5072	4:00 to 5:00
April 7, 2005	Overcast	4391	7:00 to 8:00	Mostly Cloudy	5016	4:00 to 5:00
April 8, 2005	Overcast	4149	7:00 to 8:00	Mostly Cloudy	4812	4:00 to 5:00
Week 2						
April 11, 2005	Mostly Cloudy	4561	7:45 to 8:45	Scattered Clouds	4828	5:00 to 6:00
April 12, 2005	Scattered Clouds	4488	7:45 to 8:45	Scattered Clouds	4987	5:00 to 6:00
April 13, 2005	Partly Cloudy	4452	7:45 to 8:45	Scattered Clouds	5015	5:00 to 6:00
April 14, 2005	Clear	4395	7:45 to 8:45	Clear	4940	5:00 to 6:00
April 15, 2005	Partly Cloudy	4258	7:45 to 8:45	Scattered Clouds	4672	5:00 to 6:00
Week 3						
April 18, 2005	Clear	4448	7:45 to 8:45	Partly Cloudy	4719	4:45 to 5:45
April 19, 2005	Clear	4473	7:45 to 8:45	Partly Cloudy	4728	5:00 to 6:00
April 20, 2005	Partly Cloudy	4328	7:45 to 8:45	Partly Cloudy	4881	5:00 to 6:00
April 21, 2005	Scattered Clouds	4398	7:45 to 8:45	Scattered Clouds	5040	5:00 to 6:00
April 22, 2005	Clear	4009	8:00 to 9:00	Overcast	4692	4:45 to 5:45
Week 4						
April 25, 2005	Clear	4357	7:45 to 8:45	Clear	4813	5:00 to 6:00
April 26, 2005	Partly Cloudy	4507	7:45 to 8:45	Scattered Clouds	4710	5:00 to 6:00
April 27, 2005	Clear	4601	7:45 to 8:45	Clear	4935	5:00 to 6:00
April 28, 2005	Scattered Clouds	4665	7:45 to 8:45	Clear	5204	5:00 to 6:00
April 29, 2005	Clear	4492	7:45 to 8:45	Scattered Clouds	5155	5:00 to 6:00
Week 5						
May 2, 2005	Clear	4574	7:45 to 8:45	Scattered Clouds	4752	5:00 to 6:00
May 3, 2005	Partly Cloudy	4553	7:45 to 8:45	Overcast	4873	5:00 to 6:00
May 4, 2005	Overcast	4578	7:45 to 8:45	Light Rain	4773	5:00 to 6:00
May 5, 2005	Light Rain	4589	7:45 to 8:45	Overcast	4932	5:00 to 6:00
May 6, 2005	Mostly Cloudy	4436	7:45 to 8:45	Mostly Cloudy	4947	4:45 to 5:45
Week 6						
May 9, 2005	Mostly Cloudy	4523	7:45 to 8:45	Mostly Cloudy	4710	5:00 to 6:00
May 10, 2005	Partly Cloudy	4608	7:45 to 8:45	Partly Cloudy	4834	5:00 to 6:00
May 11, 2005	Clear	4651	7:45 to 8:45	Partly Cloudy	5061	5:00 to 6:00
May 12, 2005	Mostly Cloudy	4498	7:45 to 8:45	Mostly Cloudy	4931	5:00 to 6:00
May 13, 2005	Overcast	4497	8:00 to 9:00	Mostly Cloudy	5271	4:45 to 5:45
Week 7						
Sep 26	Scattered Clouds	4553	7:45 to 8:45	Scattered Clouds	4704	5:00 to 6:00
Sep 27	Overcast	4725	7:45 to 8:45	Clear	4809	5:00 to 6:00
Sep 28	Clear	4414	8:00 to 9:00	Clear	4655	5:00 to 6:00
Sep 29	Clear	4443	8:00 to 9:00	Clear	4670	5:00 to 6:00
Sep 30	Clear	4361	7:45 to 8:45	Clear	4706	5:00 to 6:00
Week 8						
Oct 3	Partly Cloudy	4523	7:45 to 8:45	Clear	4629	5:00 to 6:00
Oct 4	Clear	4373	7:45 to 8:45	Clear	4597	5:00 to 6:00
Oct 5	Clear	4515	8:00 to 9:00	Clear	4722	5:00 to 6:00
Oct 6	Clear	4477	8:00 to 9:00	Clear	4806	5:00 to 6:00
Oct 7	Overcast	4309	8:00 to 9:00	Clear	4767	5:00 to 6:00

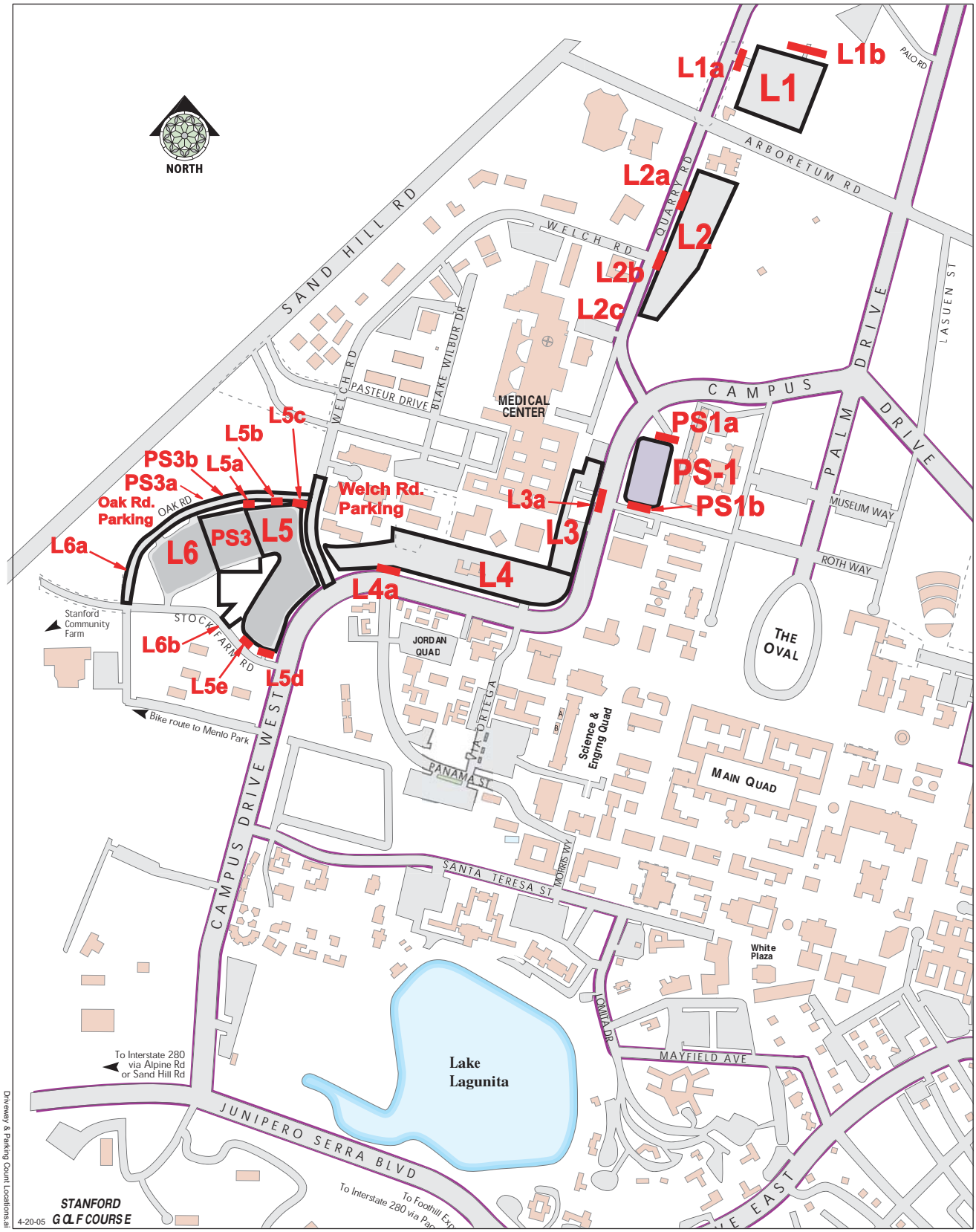

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Figure 3

DRIVEWAY AND PARKING COUNT LOCATIONS

Hospital trips from parking lots inside the cordon line were subtracted from the cordon counts, while campus trips from lots outside the cordon line were added to the raw counts. This was done to properly identify all trips generated by Stanford University and not by other adjacent land uses, particularly the medical complex.

Task 1.3 Parking Permit Scanning/Count

At the beginning and end of both the morning and evening peak period, the number of vehicles in each of the lots identified in Figure 3 was counted. Each vehicle permit was also scanned to determine if it was related to campus or hospital uses. Both Campus and Medical related parking stickers were Blue, Orange or Grey in color with white lettering. During the counts, Medical Center vehicles were identified by a windshield sticker stating hospital on the bottom right hand corner. Campus vehicles were identified by the windshield sticker stating Campus on the bottom left hand corner.

On-street parking on Oak Road between Stock Farm Road and Welch Road, and on Welch Road between Campus Drive West and the cordon station just north of Oak Road was counted and classified in the same manner as described above. Since these on-street parking facilities are located within the cordon line, hospital vehicles were subtracted out of the cordon count and no adjustment was made to add in campus trips. The parking lot and on-street parking occupancy data is included in Appendix B along with the parking counts.

Korve Engineering used the traffic counts in Task 1.1 and the parking counts in Tasks 1.2 and 1.3 to adjust the raw traffic counts. If campus parking permits were observed in lots outside the cordon area, they were added back into the cordon count. If hospital trips were observed inside the cordon area, they were subtracted from the cordon count. All vehicles without a parking permit were assumed to be campus trips.

Task 1.4 License Plate Survey

The purpose of the license plate survey was to identify vehicles that are only passing through the Stanford campus, not beginning or ending their trip there. License plate numbers were recorded for vehicles entering and leaving each cordon location. Vehicles that entered the cordon and left within a period of 15 minutes were considered to be “cut-through” vehicles. Surveys were done during one day each week for both of the peak hours. The license plate matching process showed that during the Spring counts the average AM and PM cut-through percentages were 15.10% and 17.29%, respectively. During the Fall count period, the AM cut-through percentage was 18.73%, while the PM was 19.15%. The average Spring and Fall percentages were used to adjust their respective vehicle counts.

Task 2.0 Traffic Monitoring Data Analysis

Task 2.1 Daily Cordon Count Spreadsheets

First, the raw cordon count numbers were entered into spreadsheets. Two spreadsheets – one for the AM peak period and one for the PM peak period – were created for each weekday that a cordon count was conducted. Each spreadsheet shows the AM inbound and PM outbound vehicles passing all 16 cordon locations during five hourly increments. For the AM peak, the hours were 7:00-8:00, 7:15-8:15, 7:30-8:30, 7:45-8:45, and 8:00-9:00. For the PM peak, the hours were 4:00-500, 4:15-5:15, 4:30-5:30, 4:45-5:45, and 5:00-6:00. Since cordon counts were collected for eight weeks, there are a total of 80 daily cordon count spreadsheets (40 AM and 40 PM). These sheets are included in Appendix C of this report.

Task 2.2 Daily Parking Spreadsheets

The number of vehicles coming in and out of the parking lots in the vicinity of the Stanford Medical Center was also monitored during the eight-week period. The AM inbound and PM outbound volumes at all lot entrances were entered into spreadsheets for the AM and PM peak periods of each day just as described for the cordon counts in Task 2.1. All 80 daily parking spreadsheets are included in Appendix D.

Task 2.3 Adjustments For Parking and Cut-Through Vehicles

The parking sticker counts performed at the lots were used to compute the percentage of campus and hospital vehicles present in each lot during the AM and PM peak hours. Since a sticker survey was done at the beginning and end of each two-hour peak period count, the two values for every lot were averaged. Sticker surveys were completed for both peak hours of one day during each week.

The parking lot AM inbound and PM outbound volumes were used along with the averaged campus and hospital vehicle percentages in order to adjust the cordon count spreadsheets. Since Lots 1 and 2 are outside of the cordon boundary, some campus-related vehicles will park in those lots and not get counted in the cordon count. To add them in, the average percentage of campus vehicles in those lots was multiplied by the AM inbound and PM outbound volumes at each corresponding lot entrance (from Task 2.2), and then added to the cordon counts.

Lots 3, 4, 5, and 6, as well as the two parking structures (PS-1 and PS-3) are located inside the cordon boundary. Thus, hospital-related vehicles parking in these lots need to be subtracted out of the cordon counts. To do this, the average percentage of hospital-related vehicles was multiplied by the AM inbound and PM outbound volumes at each respective lot entrance (from Task 2.2), and then subtracted from the cordon counts.

A parking sticker survey was also conducted at two on-street locations during the same days as the surveys for the parking lots. The streets surveyed were Oak Road and the portion of Welch Road between Campus Drive West and the cordon location just north of Oak Road. Since both streets were inside the cordon, only the hospital vehicles were of importance. If more hospital vehicles were present at the end of the

period than at the beginning, the change in vehicles was subtracted from the inbound totals for that period. If fewer hospital vehicles were present at the end of the period, the difference was subtracted from the outbound totals.

The average observed cut-through traffic percentages during the Spring monitoring period were about 15.10% percent during the AM peak hour and 17.29% percent during the PM peak hour. These numbers were 18.73% and 19.15%, respectively, during the Fall monitoring period. The traffic counts were reduced by these percentages in order to subtract out vehicles lacking a destination within the Stanford University campus. Spreadsheets showing the detailed license plate matching data are shown in Appendix E. A summary table showing the 80 daily cordon counts adjusted for parking lot factors and cut-through traffic is shown in Table 2 along with the average AM inbound and PM outbound traffic volume. Table 3 shows the traffic data collected in the 2001 baseline Stanford Traffic Monitoring Program, including the baseline average and the 90% confidence interval.

INBOUND AM TRAFFIC

The 2001 baseline counts determined that an average of 3,439 inbound vehicles during the AM peak hour would constitute a significant increase in traffic at the 90% confidence level. The 2005 AM average of 3,383 vehicles does not represent a statistically significant increase over the AM baseline average with an upper threshold of 3,439 at the 90% confidence level. The average AM inbound volume of 3,383 is in fact 56 vehicles lower than the +90% confidence level. A scatter plot of the 2005 AM inbound data is shown in Figure 4. Lines representing the baseline average, baseline 90% confidence interval, and 2005 average are also shown in this figure. As shown in the figure the average 2005 volume is lower than the upper 90 percent confidence boundary established from 2001.

OUTBOUND PM TRAFFIC

The 2001 baseline counts determined that an average of 3,555 outbound vehicles during the PM peak hour would constitute a significant increase in traffic at the 90% confidence level. The PM outbound adjusted average shows an increase of 422 vehicles from the baseline count, this increase falls above the +90% confidence interval by 313 vehicles. The 1% significant increase trigger was developed from 2001 baseline counts as 3,591 vehicles. The average 2005 PM outbound volume is calculated as 3,868 vehicles, this increase falls above the 1% increase trigger by 277 vehicles. Since the established 1% increased trigger requirement is met, additional mitigation is required if the trigger is exceeded in two out of three consecutive years for the same peak hour. Subsequent analysis is necessary to determine if sufficient trip credits are available to reduce the 2005 outbound PM peak traffic volume by 277 vehicles.

A scatter plot of the 2005 PM outbound data is shown in Figure 5. Lines representing the baseline average, baseline 90% confidence interval, and 2001 average are shown in this figure. As shown in Figure 5, the average 2005 data line falls above the +90% confidence level.

Table 2 2005 Adjusted Traffic Totals

	AM Inbound		PM Outbound	
Date	Volume	Period	Volume	Period
Week 1				
April 4, 2005	3275	7:00 to 8:00	3787	4:00 to 5:00
April 5, 2005	3145	7:00 to 8:00	3775	4:00 to 5:00
April 6, 2005	3249	7:00 to 8:00	3955	4:00 to 5:00
April 7, 2005	3204	7:00 to 8:00	3901	4:00 to 5:00
April 8, 2005	3072	7:00 to 8:00	3809	4:00 to 5:00
Week 2				
April 11, 2005	3509	7:45 to 8:45	3832	5:00 to 6:00
April 12, 2005	3418	7:45 to 8:45	3965	5:00 to 6:00
April 13, 2005	3406	7:45 to 8:45	3997	5:00 to 6:00
April 14, 2005	3319	7:45 to 8:45	3959	5:00 to 6:00
April 15, 2005	3237	7:45 to 8:45	3725	5:00 to 6:00
Week 3				
April 18, 2005	3359	7:45 to 8:45	3771	4:45 to 5:45
April 19, 2005	3372	7:45 to 8:45	3743	5:00 to 6:00
April 20, 2005	3250	7:45 to 8:45	3878	5:00 to 6:00
April 21, 2005	3304	7:45 to 8:45	4018	5:00 to 6:00
April 22, 2005	2975	8:00 to 9:00	3713	4:45 to 5:45
Week 4				
April 25, 2005	3348	7:45 to 8:45	3828	5:00 to 6:00
April 26, 2005	3458	7:45 to 8:45	3745	5:00 to 6:00
April 27, 2005	3526	7:45 to 8:45	3906	5:00 to 6:00
April 28, 2005	3576	7:45 to 8:45	4169	5:00 to 6:00
April 29, 2005	3481	7:45 to 8:45	4130	5:00 to 6:00
Week 5				
May 2, 2005	3716	7:45 to 8:45	3919	5:00 to 6:00
May 3, 2005	3635	7:45 to 8:45	3999	5:00 to 6:00
May 4, 2005	3658	7:45 to 8:45	3886	5:00 to 6:00
May 5, 2005	3672	7:45 to 8:45	4034	5:00 to 6:00
May 6, 2005	3532	7:45 to 8:45	4026	4:45 to 5:45
Week 6				
May 9, 2005	3527	7:45 to 8:45	3771	5:00 to 6:00
May 10, 2005	3547	7:45 to 8:45	3844	5:00 to 6:00
May 11, 2005	3584	7:45 to 8:45	4054	5:00 to 6:00
May 12, 2005	3474	7:45 to 8:45	3950	5:00 to 6:00
May 13, 2005	3496	8:00 to 9:00	4233	4:45 to 5:45
Week 7				
Sep 26, 2005	3377	7:45 to 8:45	3755	5:00 to 6:00
Sep 27, 2005	3470	7:45 to 8:45	3793	5:00 to 6:00
Sep 28, 2005	3233	8:00 to 9:00	3685	5:00 to 6:00
Sep 29, 2005	3283	8:00 to 9:00	3677	5:00 to 6:00
Sep 30, 2005	3212	7:45 to 8:45	3720	5:00 to 6:00
Week 8				
Oct 3, 2005	3357	7:45 to 8:45	3704	5:00 to 6:00
Oct 4, 2005	3214	7:45 to 8:45	3687	5:00 to 6:00
Oct 5, 2005	3375	8:00 to 9:00	3769	5:00 to 6:00
Oct 6, 2005	3299	8:00 to 9:00	3822	5:00 to 6:00
Oct 7, 2005	3160	8:00 to 9:00	3778	5:00 to 6:00
Average	3383		3868	

Table 3 2001 Baseline Adjusted Traffic Totals

Date	AM Inbound		PM Outbound	
	Volume	Period	Volume	Period
Week 1				
April 2, 2001	3036	7:45 to 8:45	3323	5:00 to 6:00
April 3, 2001	3059	7:45 to 8:45	3285	4:45 to 5:45
April 4, 2001	2884	8:00 to 9:00	3334	4:45 to 5:45
April 5, 2001	3000	7:45 to 8:45	3216	5:00 to 6:00
April 6, 2001	2610	8:00 to 9:00	3092	4:45 to 5:45
Week 2				
April 9, 2001	3265	8:00 to 9:00	3329	5:00 to 6:00
April 10, 2001	3141	8:00 to 9:00	3362	5:00 to 6:00
April 11, 2001	3107	8:00 to 9:00	3473	4:45 to 5:45
April 12, 2001	3081	8:00 to 9:00	3397	5:00 to 6:00
April 13, 2001	2973	8:00 to 9:00	3413	4:45 to 5:45
Week 3				
April 23, 2001	3285	7:45 to 8:45	3311	4:30 to 5:30
April 24, 2001	3322	7:45 to 8:45	3281	5:00 to 6:00
April 25, 2001	3186	7:30 to 8:30	3326	4:45 to 5:45
April 26, 2001	3129	7:45 to 8:45	3286	5:00 to 6:00
April 27, 2001	2723	8:00 to 9:00	3154	4:45 to 5:45
Week 4				
April 30, 2001	2502	7:30 to 8:30	2681	4:15 to 5:15
May 1, 2001	2826	7:45 to 8:45	2967	5:00 to 6:00
May 2, 2001	2742	7:45 to 8:45	2912	5:00 to 6:00
May 3, 2001	2632	8:00 to 9:00	2861	5:00 to 6:00
May 4, 2001	2595	8:00 to 9:00	2744	4:45 to 5:45
Week 5				
May 7 2001	3604	8:00 to 9:00	3410	4:45 to 5:45
May 8, 2001	3559	8:00 to 9:00	3422	5:00 to 6:00
May 9, 2001	3455	8:00 to 9:00	3326	5:00 to 6:00
May 10, 2001	3478	8:00 to 9:00	3396	4:45 to 5:45
May 11, 2001	3393	8:00 to 9:00	3090	5:00 to 6:00
Week 6				
May 14 2001	3479	8:00 to 9:00	3235	4:45 to 5:45
May 15, 2001	3756	8:00 to 9:00	3450	5:00 to 6:00
May 16, 2001	3830	8:00 to 9:00	3374	5:00 to 6:00
May 17, 2001	3533	8:00 to 9:00	3456	5:00 to 6:00
May 18, 2001	3246	8:00 to 9:00	3386	4:45 to 5:45
Week 7				
October 22, 2001	3221	8:00 to 9:00	3505	5:00 to 6:00
October 23, 2001	3835	8:00 to 9:00	3805	5:00 to 6:00
October 24, 2001	3550	8:00 to 9:00	3959	5:00 to 6:00
October 25, 2001	3908	7:45 to 8:45	3991	5:00 to 6:00
October 26, 2001	3371	8:00 to 9:00	4072	4:45 to 5:45
Week 8				
October 29, 2001	4241	8:00 to 9:00	4115	5:00 to 6:00
October 30, 2001	4251	8:00 to 9:00	4217	5:00 to 6:00
October 31, 2001	4139	8:00 to 9:00	4394	5:00 to 6:00
November 1, 2001	4037	8:00 to 9:00	4193	5:00 to 6:00
November 2, 2001	3789	7:45 to 8:45	4277	5:00 to 6:00
Average	3319		3446	
90% confidence interval	+/- 120		+/- 109	

Figure 4 2005 AM Peak Inbound vs. 2001 Baseline

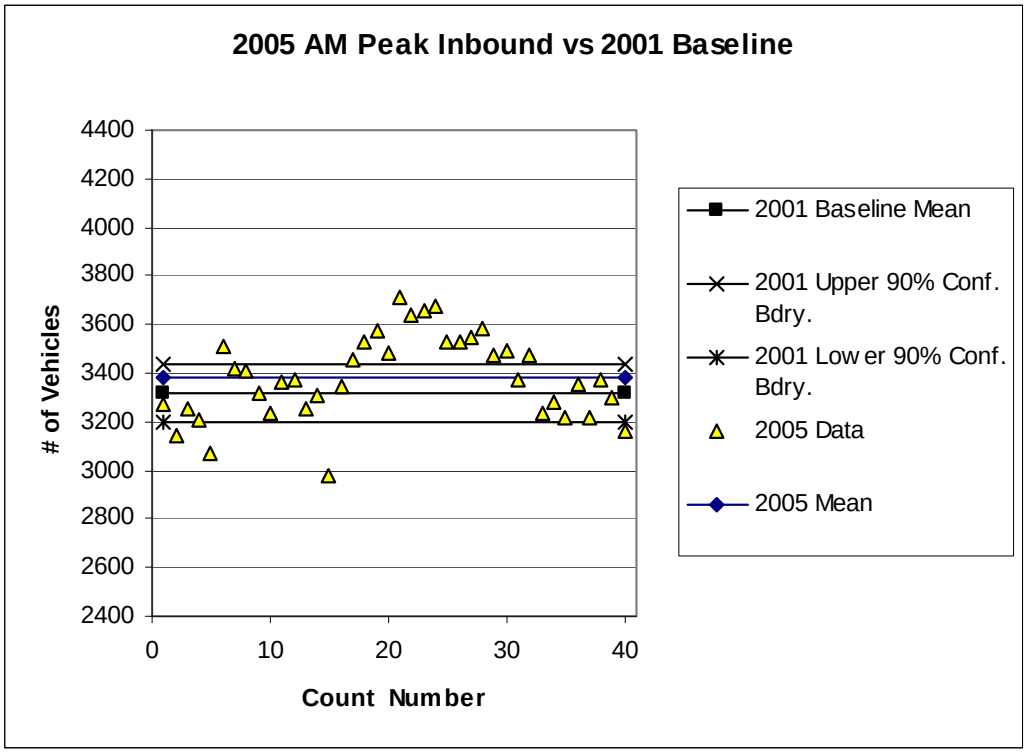
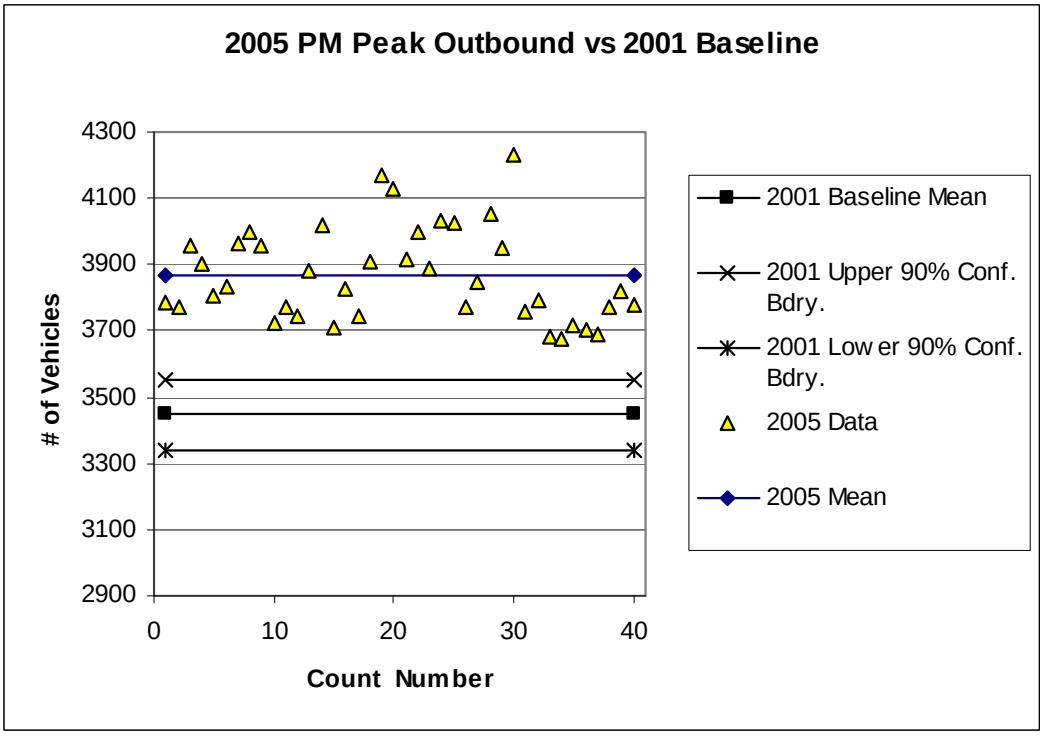


Figure 5 2005 PM Peak Outbound vs. 2001 Baseline



Adjustments to the 2005 Monitoring Counts

During the entire 2005 monitoring periods, Sand Hill Road between Junipero Serra Boulevard/Santa Cruz Avenue and Stock Farm Road was closed to complete the construction of Sand Hill Road across San Francisquito Creek. The closure of Sand Hill Road caused traffic to be detoured through the Stanford campus via Junipero Serra Boulevard, Campus Drive West, and Stock Farm Road. This detour was in place for both directions of travel. While the total amount of traffic was recorded by the tube counters, the license plate survey was not able to accurately record the increase in cut-through traffic caused by the detour and therefore, the amount of traffic associated with the university may have been overstated.

Initial Adjustment

As noted above, the traffic volumes during the PM peak hour were 277 vehicles over the threshold. Stanford provided detailed review of the PM peak hour traffic volumes for 2005 and this information was reviewed by KORVE.

The analysis included comparisons of raw counts, as well as license plate survey data in an effort to determine the correctness of the cut-through trip information recorded as a part of the data collection process. A comparison was made between the inbound PM cut-through percentages at the major gates for 2004 and 2005. The inbound cut-through percentages in 2005 were generally lower for all major gates when compared to 2004, but were particularly lower for Gates 2 and 3. The outbound cut-through percentages in 2004 and 2005 match nearly exactly.

The 2005 major gates raw counts match the 2004 counts very closely except Gates 1 and 2. Construction related closure of Sand Hill Road in 2005 caused traffic to be diverted into the Stanford network. The diverted traffic primarily used Gates 1 and 2, causing a significant change in peak hour volumes at these gates form the 2004 levels. Raw counts indicate a significant increase in inbound volumes at Gates 1 and 2. The majority of the diverted volume entering Gate 1 would likely exit via Gate 2, causing Gate 2 outbound volume to increase. However, a similar assumption that the inbound traffic at Gate 2 would likely to use Gate 1 to exit the Stanford network is not supported by the raw counts, as the 2005 raw outbound PM peak hour volume at Gate 1 is lower than the 2004 raw counts at that gate.

A comparison of the cut-through at the major gates found that for most weeks, the percentages are lower in 2005 than in 2004. The inbound PM cut-through percentages at Gates 1, 2, and 3 during the second week of counts we significantly decreased in 2005. Week 2 values are significantly lower at Gates 1, 2 and 3 as compared to the data from the other seven weeks. However, there was no significant difference in raw volumes during the second week at the respective gates. Thus, the cause of the Week 2 difference is likely to be the reduction in recorded cut-through trips. This reduction is likely caused by the increased volume associated with the detour and a lower accuracy rate for the license plate match. Further analysis of the total PM peak hour cut-through trips entering and exiting the cordon confirms those findings. While the total inbound and outbound volumes are relatively constant from one week to another,

the cut-through volume in Week 2 declines substantially and uncharacteristically as compared to other weeks.

Given the large difference between Week 2 outbound PM cut-through percentage and the other values recorded during the other seven weeks, it is likely that traffic conditions that caused the discrepancy are of an incidental nature. Therefore, it is appropriate to adjust the Week 2 outbound cut-through percentage up to the average of the five remaining spring weeks. Fall cut-through percentages will not change.

The average PM cut-through percentage of Weeks 1, 3, 4, 5 and 6 is 18.57 percent. Replacing the original Week 2 percentage, results in an increase in the overall PM outbound cut-through percent. Table 4 shows the original and recommended modified cut-through percentages. The overall modified cut-through percentage adjustment was applied to the 2005 raw traffic counts resulting in slight reductions of the adjusted daily PM outbound volumes.

Table 4 2005 Outbound PM Cut-Through Percentages

Week	Original %	Modified %
Week 1	21.52%	21.52%
Week 2	10.89%	18.57%
Week 3	17.92%	17.92%
Week 4	19.54%	19.54%
Week 5	15.74%	15.74%
Week 6	18.13%	18.13%
Average Fall%	17.29%	18.57%

Adjusting Week 2 outbound cut-through percentage would result in a decrease in the adjusted average 2005 count from the original value of 3868 to a new value of 3822. The adjustment is noted in Table 5 as the Initial Adjustment.

Second Adjustment

Further review suggested that additional adjustments to the 2005 counts were necessary to calibrate the amount of traffic recorded by the license plate surveys to the amount of traffic recorded by the traffic tube counters. The traffic tube counters are assumed to correctly record the traffic volumes. The license plate surveys are less accurate since entries may be missed for multiple vehicles passing in quick succession. Using the average differences between the counts and the average raw traffic volumes in combination with the average cut-through percentages, discrepancies for inbound and outbound traffic are calculated. The discrepancies are then used to calculate the corrected cut-through percentage of outbound trips by adjusting the average value of cut-through collected during the license plate survey. The ratio of actual cut-through percentage to apparent cut-through percentage is used to adjust the cut-through percentages previously calculated.

Two ratios of the actual cut-through percentage to the apparent cut-through percentage were calculated, one ratio to adjust the spring data and the second ratio to adjust the fall data. The previous adjusted cut-through percentage 18.57 during the spring and 19.15 during the fall are factored by 1.09 and 1.12 to arrive at the revised cut-through percentages of 20.26 in the spring

and 21.54 in the fall. Modifying the results from the initial adjustment for the second adjustment would result in a decrease in the adjusted average 2005 count from 3822 to a new value of 3735. The adjustment is noted in Table 5 as the Second Adjustment.

2005 PM PEAK HOUR TRIP CREDITS

The 2000 Stanford GUP Condition G.8 specifies that the County will recognize and "credit" Stanford off-campus trip reduction efforts within defined geographic boundaries. These credits will be applied to Stanford's attainment of the "no net new commute trips" standard. In 2003, Stanford and the County discussed potential methodologies for providing credits to Stanford. The County developed draft guidelines, which were reviewed by the Community Resource Group, and the Planning Office approved the final guidelines on October 9, 2003. These guidelines are presented in the "Stanford Traffic Count Credit Guidelines" dated October 28, 2003.

Stanford University's cordon count credits for 2005 are related to the increase in the number of bus trips across the cordon points and the number of passengers served outside the cordon area traveling in the PM peak hour. The credits compare the level of activity in 2000 to that in 2005. An average of 36.15 peak hour non-campus riders were estimated on the Marguerite A and B lines between 5:00 p.m. and 6:00 p.m. in the base year.

The number of boardings and alightings were measured on each Marguerite shuttle bus (A line, B line, C line, SLAC, Shopping Express, Research Park, and U line) in 2005 using the system's new Automated Transportation Management System. Most of the credits claimed are for the 138.5 average passengers getting on the shuttle outside the cordon area and traveling to either the Palo Alto Caltrain Station or the California Caltrain Station and 53 traveling in the opposite direction for which a 1/3 credit is awarded of 17.49 credits. Smaller credits are claimed for other peak hour trips outside the cordon area, including 41.2 credits for Stanford Hospital employees using the U-line to reach the East Bay Express. Thirteen credits are claimed for the increase in the number of shuttle bus crossings over the cordon points in the peak direction. Based on the trip credits discussed above, there are a total of 210.19 credits in 2005 (138.5 + 17.49 +41.2 + 13). The net trip credits are then calculated by subtracting the average number of non-campus riders on the shuttle system in the base year (36.15) from 210.19 to get the 2005 PM peak hour trip credit of 174.04.

CONCLUSION

The AM inbound adjusted average shows an increase of 64 vehicles from the baseline count to the 2005 average count. The 2005 AM inbound volume also shows the decrease from the 90% confidence interval of $\pm$120 by -56 vehicles and +184 vehicles, respectively. Since the AM inbound volumes are lower in 2005 compared to the 2001 baseline +90% confidence boundary by 56 vehicles, no mitigation measures are required if the trigger is not exceeded in two out of three consecutive years for the same peak hour.

The PM outbound count totaled 3,868 vehicles which was an increase of 422 vehicles from the baseline, which is 313 vehicles above the 90% confidence interval and 277 vehicles more than the 1% established trigger. The PM peak hour outbound volume was adjusted to 3,822 to

reflect the modifications for week 2 spring data as previously documented. This value was further adjusted to 3,735 to reflect the calibration of tube counts to license plate counts.

The 3,735 vehicle total represents an increase of 289 vehicles from the baseline, which is 180 vehicles above the 90 percent confidence interval and 144 vehicles more than the 1 percent established trigger. However, after applying the 174 trip credits, the volume is 30 trips below exceeding the 1 percent established trigger. Therefore, this increase is not significant. Mitigation measures are required if the trigger is exceeded in two out of three consecutive years for the same peak hour.

Table 5 summarizes the comparison between the baseline 2001 counts and the 2005 monitoring counts, including the applicable trip credits.

Table 5 2005 Monitoring Comparison to Baseline

Inbound AM:	
Adjusted average 2005 count	3,383
Baseline-established 90% confidence interval (2001)	+/- 120
Baseline-established significant traffic increase (2001)	3,439
Baseline-established 1% increase trigger (2001)	3,474
Result (falls below the 90% confidence interval by 56 vehicles)	-56
Result (falls below the 1% increase trigger by 91 vehicles)	-91
Outbound PM:	
Adjusted average 2005 count	3,868
Baseline-established 90% confidence interval (2001)	+/- 109
Baseline-established significant traffic increase (2001)	3,555
Baseline-established 1% increase trigger (2001)	3,591
Result (falls above the 90% confidence interval by 313 vehicles)	+313
Result (falls above the 1% trigger by 277 vehicles)	+277
Outbound PM (Initial Adjustment)	
Adjusted average 2005 count	3,822
Average (2001)	3,446
Baseline-established 90 % confidence interval (2001)	+/- 109
Baseline-established significant traffic increase (2001)	3,555
Baseline-established 1% increase trigger (2001)	3,591
Result (falls above the 90% confidence Interval by 267 vehicles)	+267
Result (falls above the 1% trigger by 231 vehicles)	+231
Outbound PM (Second Adjustment)	
Adjusted average 2005 count	3,735
Average (2001)	3,446
Baseline-established 90% confidence interval (2001)	+/- 109
Baseline-established significant traffic increase (2001)	3,555
Baseline-established 1% increase trigger (2001)	3,591
Result (falls above the 90% confidence Interval by 313 vehicles)	+180
Result (falls above the 1% trigger by 277 vehicles)	+144
2005 trip credit	-174
Result with trip credit (falls below the 1 percent trigger by 30 vehicles)	-30

SUMMARY AND COMPARISON OF PREVIOUS REPORTS

INTRODUCTION

The purpose of the Stanford University Traffic Monitoring Program is to compare traffic volumes entering and exiting the Stanford Campus during the inbound AM peak and the outbound PM commute peak to a traffic baseline. This comparison is completed on annual basis. The requirements for establishment of the traffic baseline and performing annual comparisons to the baseline are contained within the December 2000 Stanford Community Plan/General Use Permit (GUP)/Environmental Impact Report (EIR) and within the 2000 Stanford General Use Permit. Stanford is required to attain a "no net new commute trip" standard as defined in the GUP and EIR.

Condition of Approval G.7 outlines the process for establishing the baseline counts and for continuing monitoring in subsequent years. The process can be summarized as follows:

- Peak hour traffic is counted at least three times per year for a two-week period each time. The three counts shall be averaged to determine the annual traffic level.
- All counts are recorded at the 16 campus entry and exit points forming a cordon around the campus.
- License plate numbers are recorded for each entering and exiting vehicle to determine the amount of non-campus traffic.
- Cordon volumes are adjusted for parking lots within the cordon used by the hospital (these volumes are subtracted from the cordon line counts) and parking lots outside the cordon used by the university (these volumes are added to the cordon line counts).
- A peak hour is then established for the campus based on the counts, adjusted for cut through and parking lot location.

Condition of Approval G.6 defines the peak commute directions as entering the campus in the morning peak commute period and leaving the campus in the evening commute period. The peak commute period is defined as the one-hour period of time between 7 AM and 9 AM and again between 4 PM and 6 PM with the highest volume of traffic, as defined by the counts. Therefore, the two peak hours are considered to be independent events. An increase in traffic during the AM peak hour is independent from an increase in traffic during the PM peak hour. An increase in traffic for two out of three years in one peak hour would trigger the additional element of the monitoring program, even if there is no change or even a decrease in traffic in the other peak hour. Also, a significant increase during one year in the AM and a sufficient increase in the PM for the following year would not trigger additional mitigation.

The following is a summary of the Baseline report prepared in 2001 and the subsequent four years of monitoring from 2002 through 2005.

Traffic Baseline Report

The Traffic Baseline Report represents the first year of traffic monitoring. This report established the baseline conditions to which subsequent years are compared.

Data Collection:	Week of April 2, 2001 through week of May 14 2001 and week of October 22, 2001 through week of October 29, 2001.
Final Report Issued:	July 2002 and updated on October 2003.
Findings:	The following were the results of the 2001 Baseline Monitoring: <u>Inbound AM:</u> Average Count 3,319 90% Confidence Interval +/- 120 Significant Traffic Increase 3,439 1% Increase Trigger 3,474 <u>Outbound PM:</u> Average 3,446 90% Confidence Interval +/- 109 Significant Traffic Increase 3,555 1% Trigger 3,591
Conclusion	The Traffic Baseline Report established the baseline thresholds, no conclusions are drawn from this report.

Traffic Report #1

Traffic Report #1 was the first year of monitoring compared back to the Traffic Baseline Report.

Data Collection:	Week of April 15, 2002 through week of May 20 2002 and week of October 14, 2002 through week of October 21, 2002.
Final Report Issued:	July 2003
Final Report Revised:	October 2003
Findings:	The following were the results of the Report #1, 2002 Traffic Monitoring: <u>Inbound AM:</u> Adjusted Average 2002 Count 3,275 Baseline-established 90% Confidence Interval (2001) +/- 120 Baseline-established Significant Traffic Increase (2001) 3,439 Baseline-established 1% Increase Trigger (2001) 3,474 Result (Falls below the 1% Trigger by 199) -199 <u>Outbound PM:</u> Adjusted Average 2002 Count 3,586 Baseline-established 90% Confidence Interval (2001) +/- 109 Baseline-established Significant Traffic Increase (2001) 3,555 Baseline-established 1% Increase Trigger (2001) 3,591 Result (Falls below the 1% Trigger by 5 vehicles) -5
Conclusion	The AM inbound adjusted average shows a decrease of 44 vehicles from the baseline, this decrease falls within the 90% confidence interval of +/- 120. The established 1% increase trigger requirement is not met and no additional mitigation is required. The PM inbound adjusted average shows an increase of 140 vehicles from the baseline count, this increase falls above the +90% confidence interval by 31 vehicles. This increase falls below the 1% increase trigger by 5 vehicles. Since the established 1% increased trigger requirement is not met, no additional mitigation is required. The 2002 volumes compared to 2001 baseline volumes do not constitute a statistical significant increase in either the AM or the PM peak hours and no mitigation measure is required.

Traffic Report #2

Traffic Report #2 was the second year of monitoring compared back to the Traffic Baseline Report.

Data Collection:	Week of April 7, 2003 and week of April 21, 2003 through week of May 19, 2003, week of September 29, 2003 and week of October 20, 2003.
Final Report Issued:	January 2004
Final Report Revised:	October 2004
Findings:	The following were the results of the Report #2, 2003 Traffic Monitoring: Inbound AM: Adjusted Average 2003 Count 3,413 Baseline-established 90% Confidence Interval (2001) +/- 120 Baseline-established Significant Traffic Increase (2001) 3,439 Baseline-established 1% Increase Trigger (2001) 3,474 Result (Falls below the 90% Confidence Interval by 26) -26 Result (Falls below the 1% Trigger by 61 vehicles) -61 Outbound PM: Adjusted Average 2003 Count 3,476 Baseline-established 90% Confidence Interval (2001) +/- 109 Baseline-established Significant Traffic Increase (2001) 3,555 Baseline-established 1% Increase Trigger (2001) 3,591 Result (Falls below the 90% Confidence Interval by 79 vehicles) -79 Result (Falls below the 1% Trigger by 115 vehicles) -115
Conclusion	Although the AM inbound adjusted average shows an increase of 94 vehicles from the Baseline count, this increase falls within the 90% confidence interval of ±120. Therefore, this 94-vehicle increase does not represent a significant increase in traffic during the AM peak hour and no additional mitigation is required. The PM peak outbound adjusted average increased by 30 vehicles from the Baseline PM counts. This increase is also not significant because it falls within the 90% confidence boundary of ±109, no additional mitigation is required. The 2003 volumes compared to 2001 baseline volumes do not constitute a statistical significant increase in either the AM or the PM peak hours.

Traffic Report #3

Traffic Report #3 was the third year of monitoring compared back to the Traffic Baseline Report.

Data Collection:	Week of April 12, 2004 through week of May 17, 2004 and week of September 27, 2004 through week of October 4, 2004.
Final Report Issued:	March 2005
Findings:	The following were the results of the Report #3, 2004 Traffic Monitoring: <u>Inbound AM:</u> Adjusted Average 2004 Count 3,176 Baseline-established 90% Confidence Interval (2001) +/- 120 Baseline-established Significant Traffic Increase (2001) 3,439 Baseline-established 1% Increase Trigger (2001) 3,474 Result (Falls below the 90% Confidence Interval by 263) -263 Result (Falls below the 1% Trigger by 298 vehicles) -298 <u>Outbound PM:</u> Adjusted Average 2004 Count 3,642 Baseline-established 90% Confidence Interval (2001) +/- 109 Baseline-established Significant Traffic Increase (2001) 3,555 Baseline-established 1% Increase Trigger (2001) 3,591 Result (Falls above the 90% Confidence Interval by 87 vehicles) +87 Result (Falls above the 1% Trigger by 51 vehicles) +51 2004 Trip Credit -66 Result with Trip Credit (Falls below the 1% Trigger by 15 vehicles) -15
Conclusion:	The AM inbound adjusted average shows a decrease of 143 vehicles from the Baseline, this decrease falls below the +90% confidence interval by 263. The established 1% increase trigger requirement is not met, no additional mitigation is required. The PM peak outbound adjusted average increased by 196 vehicles from the Baseline counts. This increase is above the +90% confidence interval by 87 vehicles. This increase is significant because it falls above the 1% increase trigger by 51 vehicles. However, after applying 66 trip credits the PM peak outbound traffic was within the 1% trigger, therefore, no additional mitigation is required.

Traffic Report #4

Traffic Report #4 was the fourth year of monitoring compared back to the Traffic Baseline Report.

Data Collection:	Week of April 4, 2005 through week of May 9, 2005 and week of September 26 through week of October 3, 2005.
Final Report Issued:	May 2006
Findings:	The following were the results of the Report #4, 2005 Traffic Monitoring: <u>Inbound AM:</u> Adjusted Average 2005 Count 3,383 Baseline-established 90% Confidence Interval (2001) +/- 120 Baseline-established Significant Traffic Increase (2001) 3,439 Baseline-established 1% Increase Trigger (2001) 3,474 Result (Falls below the 90% Confidence Interval by 56) -56 Result (Falls below the 1% Trigger by 91 vehicles) -91 <u>Outbound PM:</u> Adjusted Average 2005 Count (Including 2 modifications) 3,735 Baseline-established 90% Confidence Interval (2001) +/- 109 Baseline-established Significant Traffic Increase (2001) 3,555 Baseline-established 1% Increase Trigger (2001) 3,591 Result (falls above the 90% confidence Interval by 180 vehicles) +180 Result (falls above the 1% trigger by 144 vehicles) +144 2005 trip credit -174 Result with trip credit (falls below the 1 %trigger by 30 vehicles) -30
Conclusion:	The AM inbound adjusted average shows an increase of 64 vehicles from the Baseline, this increase falls below the + 90% confidence interval by 56. The established 1% increase trigger requirement is not met, no additional mitigation is required. The PM peak outbound adjusted average increased by 289 vehicles from the Baseline counts. This increase is above the +90% confidence interval by 180 vehicles. This increase is significant because it falls above the 1% increase trigger by 144 vehicles. However, after applying 174 trip credits the PM peak hour outbound traffic was within the 1% trigger, therefore, no additional mitigation is required.