CIVIL ENGINEERING / SURVEYING / UTILITIES

February 9, 2022

Public Works
Lee's Summit City Public Works
220 SE Green St
Lee's Summit, MO 64063

Re: Traffic Memo for 2911 NE Independence Ave, Lee's Summit, MO 64064

BHC has been asked to review the traffic impact of a proposed redevelopment at 2911 NE Independence Ave in Lee's Summit, MO. The development involves developing the existing open lot into an office and indoor recreational indoor kart track.

EXISTING CONDITIONS

The existing site is a vacant un-developed lot. The land area of the site is 4.5 acres. The site is on the east side of NE Independence Ave directly south of the Kansas City Facial & Oral Surgery building. NE Independence Ave is a 2-lane commercial collector. The site also backs up to Interstate 470 to the east.

Approximately 300 ft south of the site, NE Independence Ave intersects NE Jones Industrial Dr. NE Jones Industrial Dr. is a local road. This intersection is a 2-way stop. Approximately 1000 ft north of the site, NE Independence Ave intersects NE Strother Rd. NE Strother Rd is a 2-lane minor arterial. This is a 4-way signalized intersection. See Figure 1 for the project location.

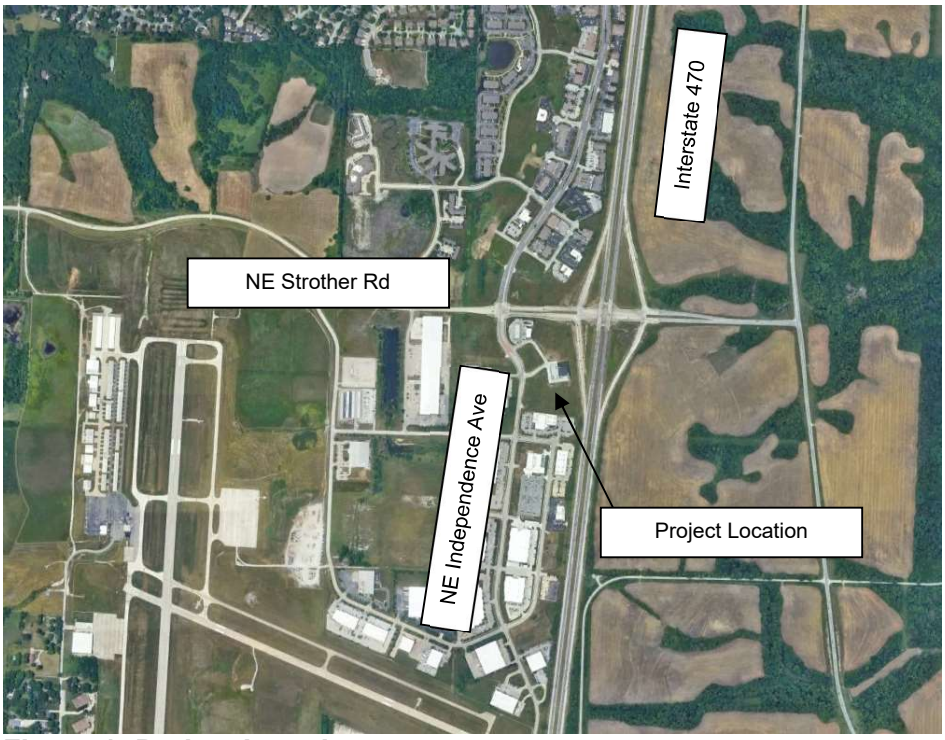


Figure 1: Project Location

PROPOSED CONDITIONS (2015)

The proposed site was broken into two different office/retail buildings. The west half is a 21,800-sf building. The east half is a 15,000-sf building. Total impervious area will be 3.5 acres. The site will be connected to NE Independence Ave on the southwest corner of the site. Access is also proposed on the north edge connecting to the local road. The site layout can be seen below in Figure 2.

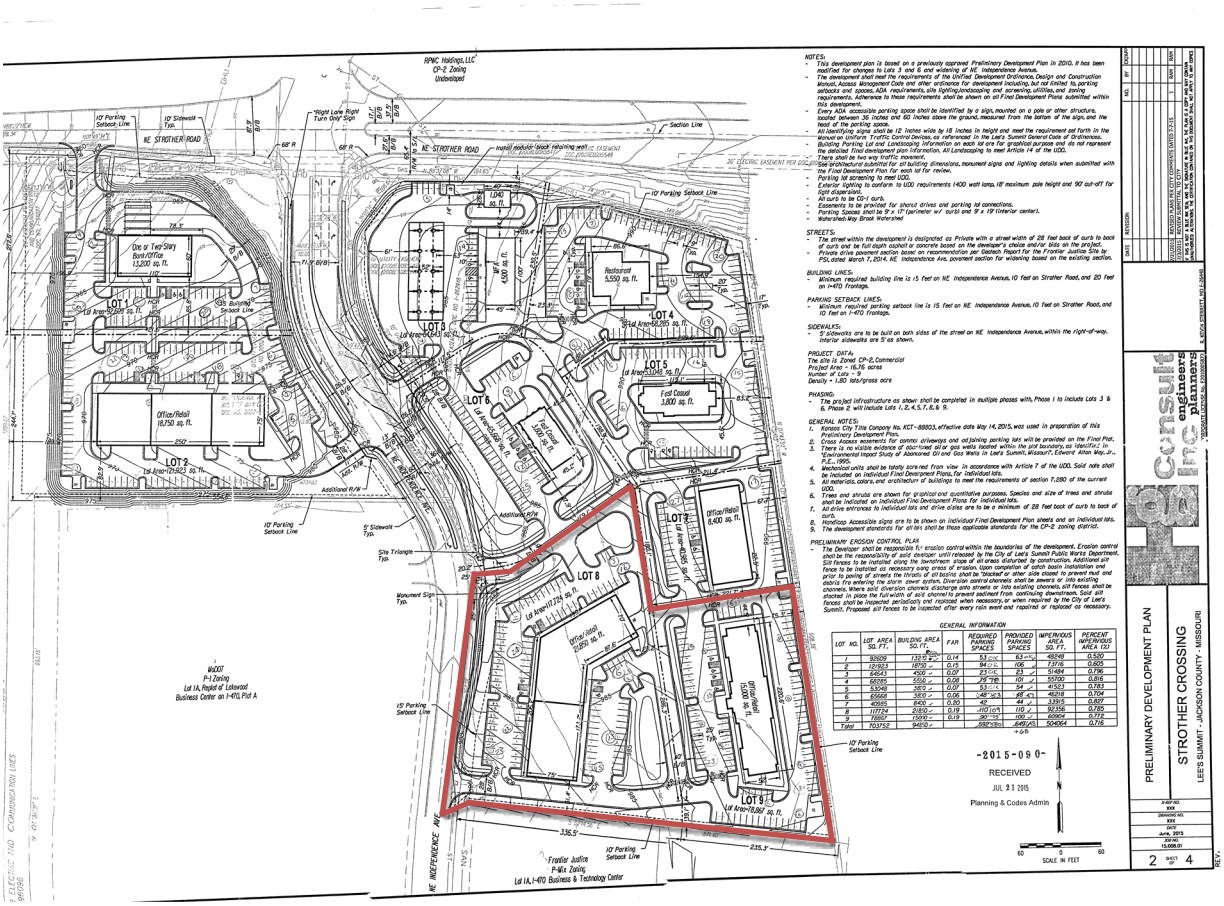


Figure 2: Proposed Site Layout (2015)

PROPOSED CONDITIONS (2022)

The proposed site is broken up into two buildings with connecting parking areas. The northwest corner will have a 11,250-sf office building (Pad 2). The east side of the site is a 46,670-sf building (Pad 1) which will house the racetrack, restaurant, and spectating area. Total combined impervious area will be 3.18 acres. The site will be connected to NE Independence Ave on the southwest corner of the site. Access is also proposed on the north edge near the existing Kansas City Facial & Oral Surgery building. The site layout can be seen below in Figure 3.

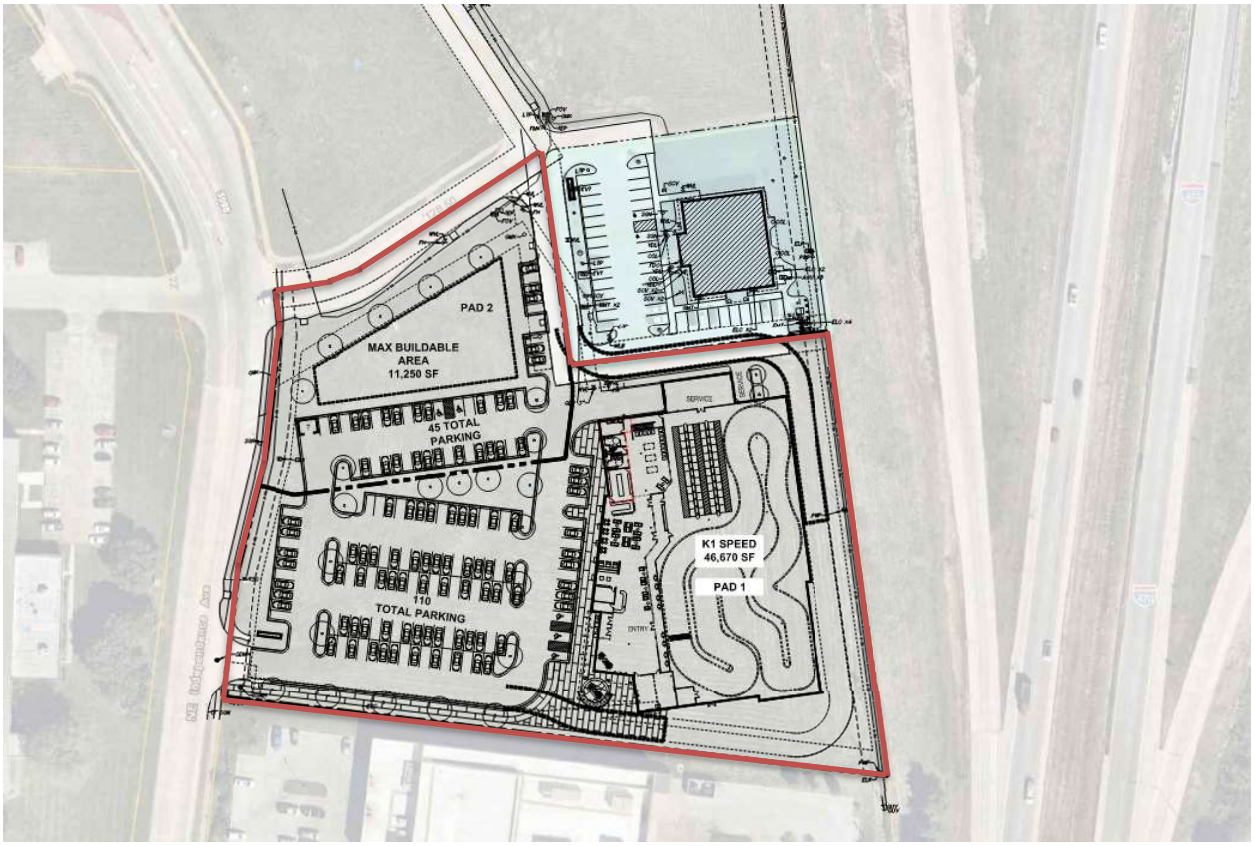


Figure 3: Proposed Site Layout (2022)

ITE TRIP GENERATION

Trip generation analyses for the 2015 and 2022 Proposed Conditions were performed using the ITE TripGen web-based app. The 10th edition of the ITE Trip Generation Manual was used.

Initially, ITE Land Use Codes selected were: 710 – General Office Building, and 435 – Multipurpose Recreational Facility to estimate AM Peak, PM Peak, and Weekday 24-hour trips.

For the 2015 Proposed Conditions, only ITE Code 710 was utilized. For 2022 Proposed Conditions ITE Code 710 and Code 435 were chosen.

Further review of the ITE Land Use Code 435 – Multipurpose Recreational Facility identified that it is not a good fit for a K-1 Speed Kart facility. The description for Code 435 reads – "A multipurpose recreational facility contains two or more of the following land uses combined at one site: miniature golf, batting cages, video arcade, bumper boats, go-carts, and golf driving range. Refreshment areas may also be provided."

The average square footage of the available studies done for Code 435 were only 21,000-sf and there was no AM Peak or Weekday data provided. We elected to search for a more appropriate trip generation fit as K-1 Speed is truly a single purpose facility.

Consideration was given toward reducing the PM Peak average rate provided for Code 435 by 50% to account for a single use recreational facility. To approximate a weekday 24-hour volume we could multiply the PM Peak volume by a factor of four. However, prior to making such broad assumptions, we made a request to K-1 Speed for any traffic study analyses provided for other similar facilities.

On request, K-1 Speed provided the June 20, 2005 Trip Generation and Parking Analysis provided in the Appendix of this letter. Page 2 of that study provides data collection information conducted at an existing 70,220-sf indoor kart racing facility at 6212 Corte Del Abeto in Carlsbad, California. We reviewed historical satellite imagery and Google Street View imagery of that site to confirm this location has been and remains an indoor kart facility. While we cannot confirm the dates and times of the imagery, the imagery remained remarkably consistent the past 15 years. Table 1, page 6, of the study provided an observed average Weekday 24-hour volume of 5.13 trips/1,000 sf, and 0.472 trips/1,000 sf for a PM Peak hour trip rate. In lieu of broad assumptions, these rates were selected to be used for the Trip Generation table found in Table 1.

Table 1 – Trip Generation						
				Trips Generated		
ITE Code	Land Use	Area (sf)	Avg. Rate	Total	Enter	Exit
AM Peak Hour (7-9 AM)						
2015 Proposed Conditions						
710	General Office Building	36,850	1.16	43	37	6
2022 Proposed Conditions						
710	General Office Building	11,250	1.16	13	11	2
Previous Study	K-1 Speed Indoor Kart Track (Facility does not open prior to 11AM)	46,670	N/A	0	0	0
	AM Peak Difference 2022 vs 2015			**-30**	**-26**	**-4**
PM Peak Hour (4-6 PM)						
2015 Proposed Conditions						
710	General Office Building	36,850	1.15	42	6	36
2022 Proposed Conditions						
710	General Office Building	11,250	1.15	13	2	11
Previous Study	K-1 Speed Indoor Kart Track	46,670	0.472	22	12	10
	PM Peak Difference 2022 vs 2015			**-7**	**+8**	**-15**
Weekday (24-Hour)						
2015 Proposed Conditions						
710	General Office Building	36,850	9.74	359	179	180
2022 Proposed Conditions						
710	General Office Building	11,250	9.74	110	55	55
Previous Study	K-1 Speed Indoor Kart Track	46,670	5.13	239	120	119
	Weekday 24-Hour Difference 2022 vs 2015			**-10**	**-4**	**-6**

Table 1 reveals an anticipated decrease of 30-trips in the AM Peak, a decrease of 7-trips in the PM Peak, and a decrease of 10-trips in the weekday 24-hour period between the 2015 and 2022 Proposed Conditions.

CONCLUSION

Based on field information provided by K-1 Speed at a Carlsbad California location, Table 2 indicates a net decrease in AM Peak, PM Peak, and Weekday 24-hour volumes associated with the 2022 Proposed Conditions versus the 2015 Proposed Conditions for 2911 NE Independence Ave.

Based on the findings of this analysis, the surrounding street network will sufficiently handle the trip generations associated with the newly proposed conditions. This conclusion would remain valid even if there was a doubling of the average PM Peak and Weekday rates observed by the previous study.

If there are any questions regarding this traffic memo, please contact me at your convenience at (913)-663-1900 or mark.sherfy@ibhc.com.

Sincerely,

Mark Sherfy, P.E., PTOE
Traffic Engineer
BHC

APPENDIX

TRAFFIC DATA PLOTS

2015 Proposed

- Land Use Code 710: General Office AM Peak
- Land Use Code 710: General Office PM Peak
- Land Use Code 710: General Office Weekday

2022 Proposed

- Land Use Code 710: General Office AM Peak
- Land Use Code 710: General Office PM Peak
- Land Use Code 710: General Office Weekday

K-1 Speed Trip Generation Analysis: June 20, 2005

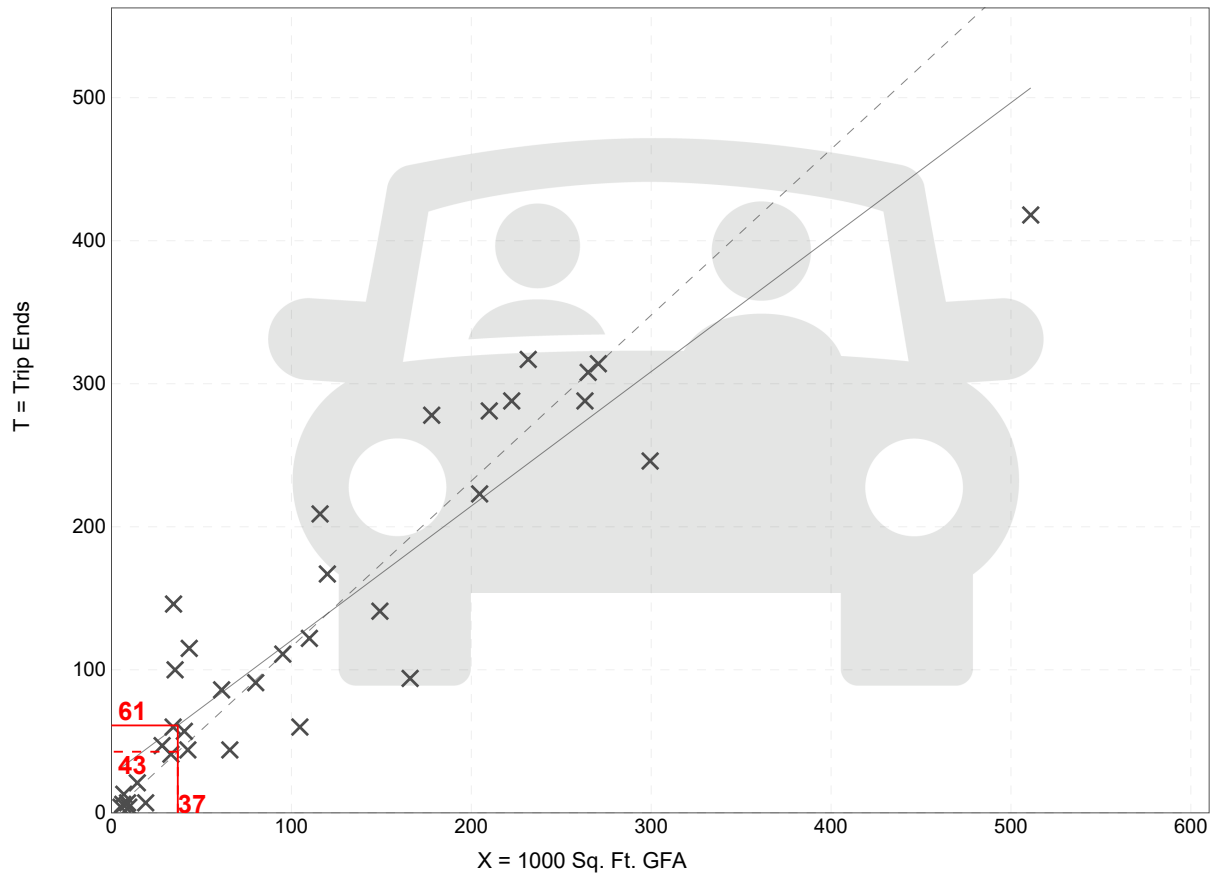
General Office Building
(710)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 35
Avg. 1000 Sq. Ft. GFA: 117
Directional Distribution: 86% entering, 14% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.16	0.37 - 4.23	0.47

Data Plot and Equation



Fitted Curve Equation: T = 0.94(X) + 26.49

R^2= 0.85

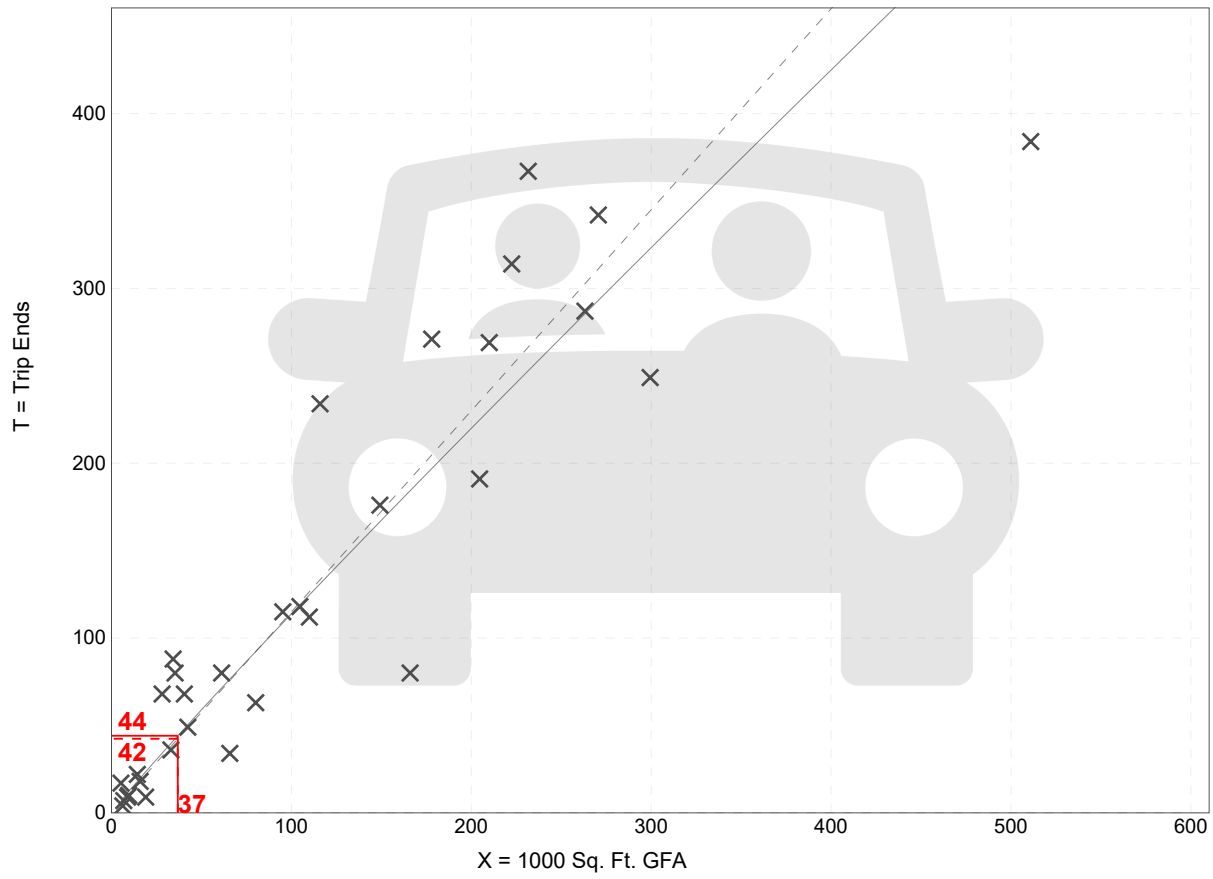
General Office Building
(710)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 32
Avg. 1000 Sq. Ft. GFA: 114
Directional Distribution: 16% entering, 84% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.15	0.47 - 3.23	0.42

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.95 Ln(X) + 0.36

R^2= 0.88

General Office Building
(710)

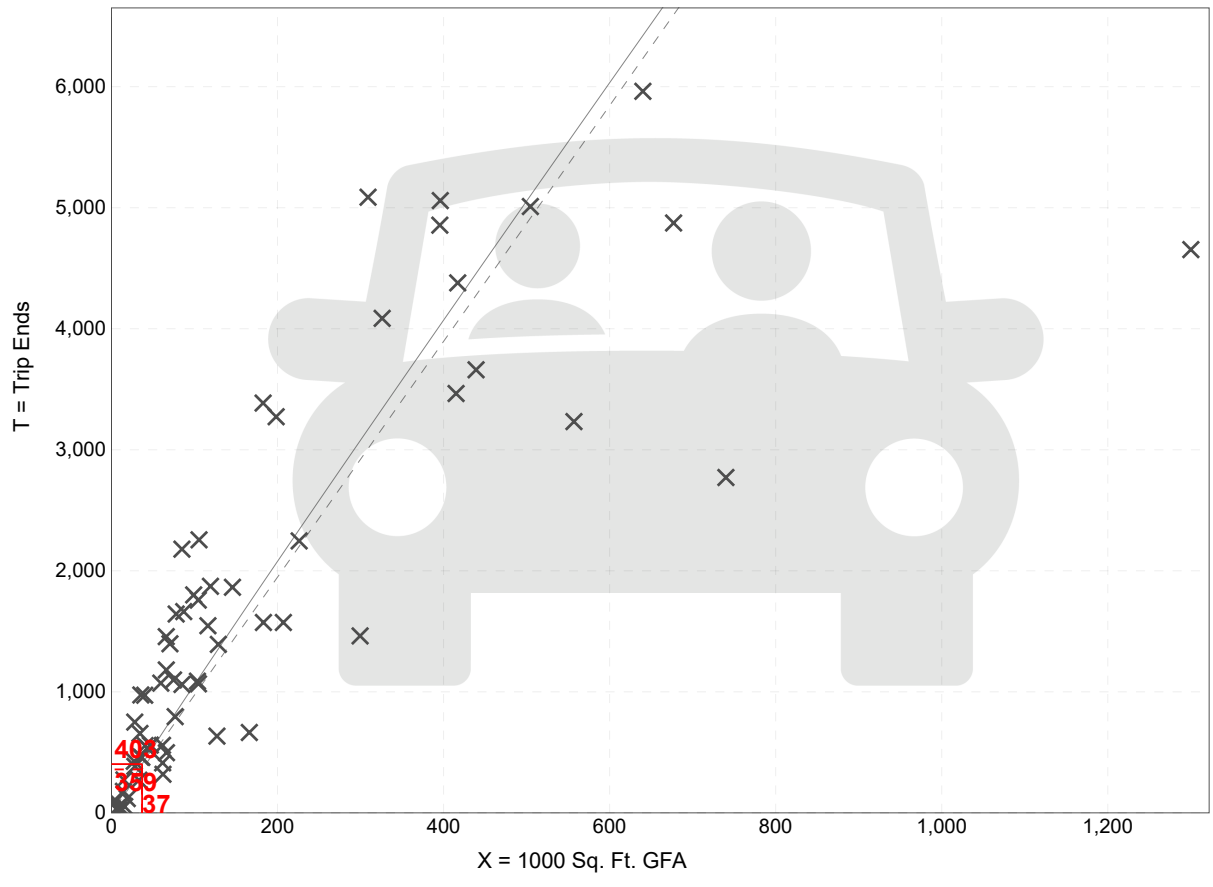
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 66
Avg. 1000 Sq. Ft. GFA: 171
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.74	2.71 - 27.56	5.15

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.97 Ln(X) + 2.50

R^2= 0.83

General Office Building
(710)

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On a: **Weekday,**
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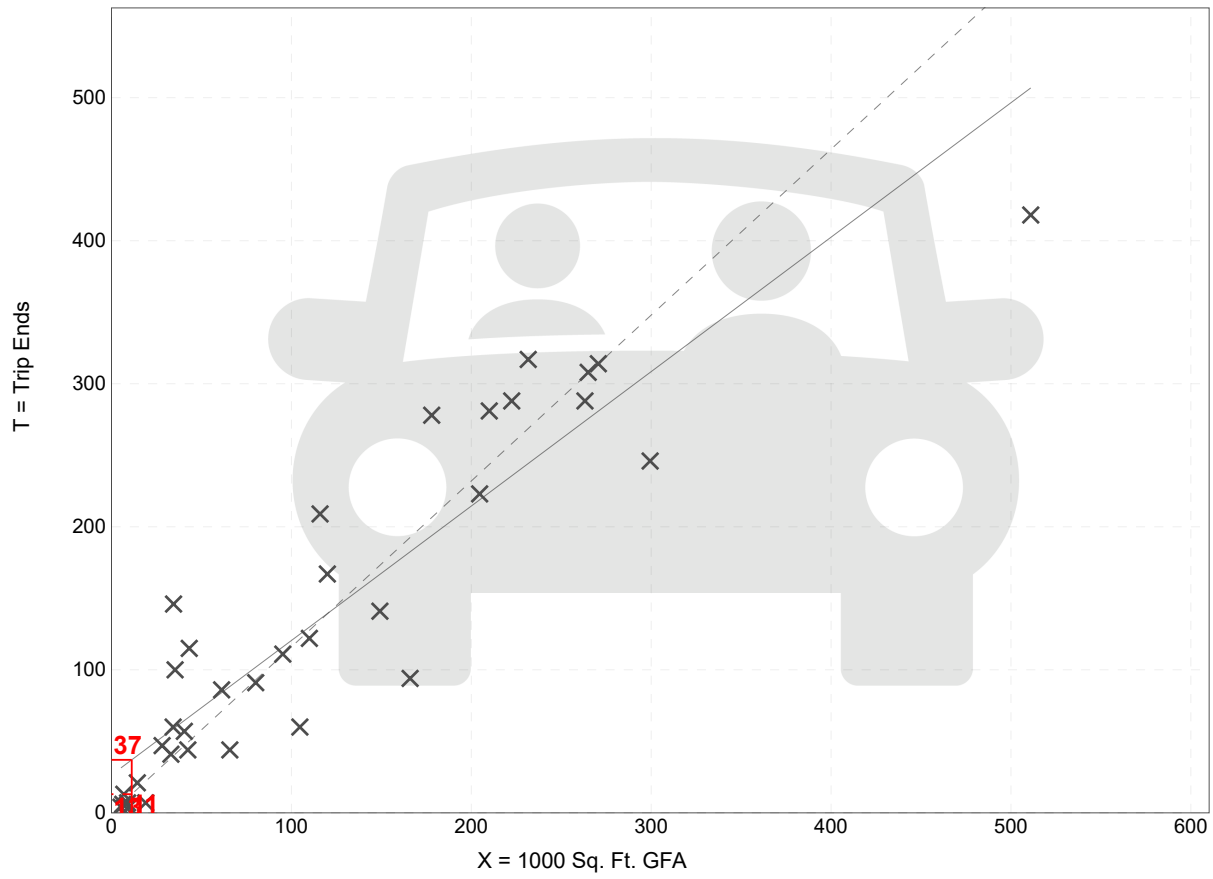


Fitted Curve Equation: T = 0.94(X) + 26.49

R^2= 0.85

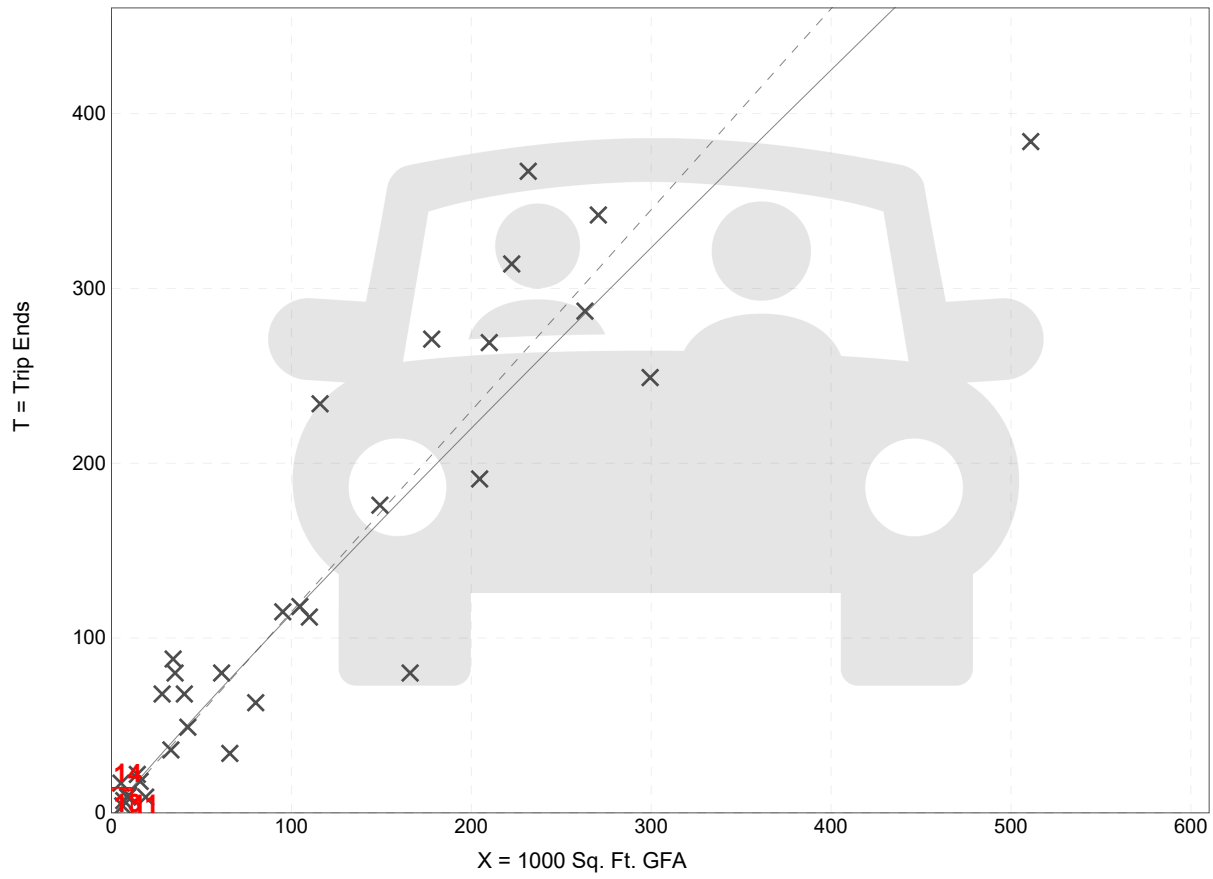
General Office Building
(710)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 32
Avg. 1000 Sq. Ft. GFA: 114
Directional Distribution: 16% entering, 84% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.15	0.47 - 3.23	0.42

Data Plot and Equation



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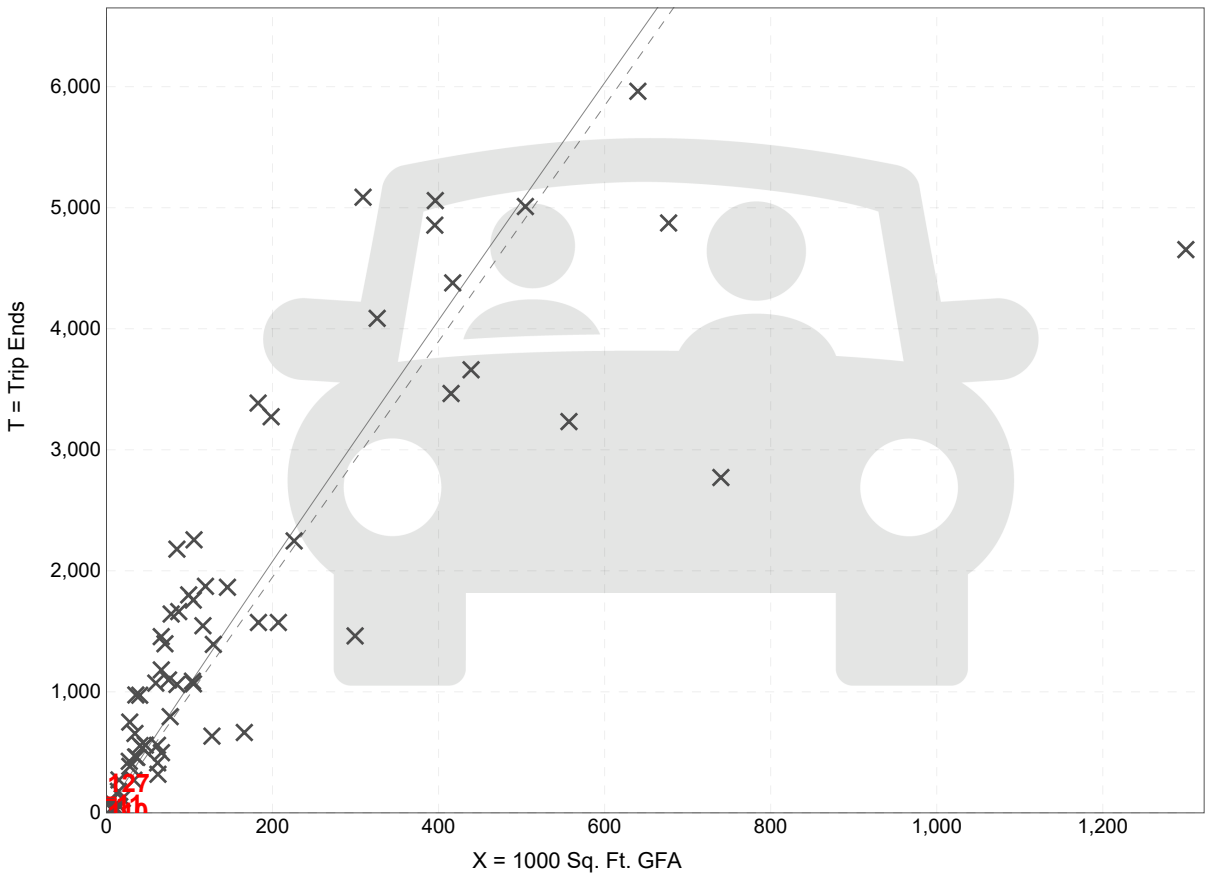

Fitted Curve Equation: Ln(T) = 0.97 Ln(X) + 2.50

R^2= 0.83

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Las Vegas

June 20, 2005

Mr. Paul Klukas
Planning Systems
1530 Faraday Avenue, Suite 100
Carlsbad, California 92008

LLG Reference No. 2.05.2629.1

Subject: **Trip Generation and Parking Rate Analysis for the Proposed K-1 Speed Indoor Kart Track**
Irvine, California

Dear Mr. Klukas:

As requested, Linscott, Law & Greenspan, Engineers (LLG) is pleased to submit this Trip Generation and Parking Rate Analysis Letter Report for the proposed K-1 Speed Indoor Kart Track project, located in Irvine, California.

This letter report summarizes the traffic generation rates and parking demand rate for the proposed K-1 Speed Indoor Kart Track project based on a trip generation study and parking survey study conducted at an existing indoor kart racing facility in the City of Carlsbad, which is similar in size to the proposed project.

Briefly, the results of our trip generation study at the existing facility in the City of Carlsbad revealed an average weekday daily trip generation rate of 5.13 trips/1,000 square feet (SF) and an average weekday PM peak hour trip generation rate of 0.472 trips/1,000 SF. In addition, the parking survey study at the existing facility revealed a parking rate of 1 space per 1,672 SF. The aforementioned trip generation and parking rates will be applied to the proposed K-1 Speed Indoor Kart Track project to satisfy City of Irvine requirements.

Our method of analysis, findings, and conclusions are described in detail in the following sections of this report.

PROJECT DESCRIPTION AND LOCATION

The project site is an existing 86,882 SF warehouse building located at 17221 Von Karman Avenue, in the City of Irvine, California. The project site is located within the Irvine Business Center (IBC) and is identified as Project No. 668 within the City of Irvine IBC Database. ***Figure 1***, located at the end of this letter report presents a Vicinity Map, which illustrates the general location of the project and depicts the surrounding street system.

Figure 2 presents the site plan for the proposed project prepared by Davy Architecture. As shown, the proposed project will re-occupy the existing 86,882 SF warehouse building with an indoor race track (approximately 1/3 of a mile in length), viewing/gathering areas, meeting/changing rooms, administration areas and a concession area serving fast food and non-alcoholic beverages. The proposed facility will operate seven days a week with the following hours of operation:

- Monday (11:00 AM to 9:00 PM)
- Tuesday through Thursday (11:00 AM to 10:00 PM)
- Friday (11:00 AM to 11:00 PM)
- Saturday (9:00 AM to 11:00 PM)
- Sunday (9:00 AM to 6:00 PM)

As shown, the proposed project will not be in operation during the typical AM peak hour (7:00 AM to 9:00 AM) and therefore the AM peak hour traffic generation will not need to be evaluated.

Vehicular access to the proposed project will be provided via two existing driveways along McGaw Avenue and one existing driveway along Von Karman Avenue. Parking will be provided via an on-site surface lot with a total of 120 spaces.

DATA COLLECTION AT EXISTING FACILITY

Traffic and parking counts were conducted at an existing indoor kart racing facility similar in size to the proposed project. The existing facility is located at 6212 Corte Del Abeto in the City of Carlsbad. The existing indoor kart racing facility is housed within a 70,220 SF industrial building and consists of an indoor race track (approximately 1/3 of a mile in length), viewing/gathering areas, meeting/changing rooms, administration areas and a concession area serving fast food and non-alcoholic beverages. The existing facility operates seven days a week with the following hours of operation:

- Monday (11:00 AM to 9:00 PM)
- Tuesday through Thursday (11:00 AM to 10:00 PM)
- Friday (11:00 AM to 11:00 PM)
- Saturday (9:00 AM to 11:00 PM)
- Sunday (9:00 AM to 6:00 PM)

Vehicular access to the existing facility is provided via one driveway located along Corte Del Abeto. Parking is provided via an on-site surface lot with a total of 147 spaces.

Vehicular counts (ins and outs) and parking counts were conducted at the existing facility by Transportation Studies on Wednesday June 8, 2005, Thursday June 9, 2005,

Friday June 10, 2005 and Saturday June 11, 2005 during the aforementioned hours of operation. The vehicular counts were conducted in fifteen-minute intervals and the parking counts were conducted in thirty-minute intervals. ***Appendix A*** summarizes the vehicular counts and parking counts conducted at the existing facility. ***Tables A-1, B-1, C-1*** and ***D-1*** present the vehicular counts and ***Tables A-2, B-2, C-2,*** and ***D-2*** present the parking counts for the four count days.

TRIP GENERATION STUDY AND PARKING STUDY RESULTS

Table 1, located at the rear of this letter report following the figures presents the results of the trip generation and parking study conducted at the existing indoor kart facility in the City of Carlsbad for a typical Wednesday, Thursday, Friday and Saturday. As shown in *Table 1*, a daily trip generation rate and a PM peak hour trip generation rate was calculated for each day of the trip generation study. The maximum observed peak parking demand for each day is also shown. An average of the three calculated weekday daily and PM peak hour trip generation rates was calculated, which identified an average weekday daily trip generation rate of 5.13 trips per 1,000 SF and an average weekday PM peak hour trip generation rate of 0.472 trips per 1,000 SF. Please note that the average weekday trip generation rates are used even though they are less than the Saturday trip generation rates because ambient traffic in the area is much greater on weekdays. Also note that an AM peak hour trip generation rate was not determined because the proposed project will not be in operation during the typical AM peak hour (7:00 AM to 9:00 AM).

Further review of *Table* 1 shows that a maximum peak parking demand of 42 spaces was observed on Saturday, which was the peak attendance day of the four count days. A parking rate of 1 space per 1,672 SF (70,220 SF divided by 42 spaces) was calculated based on an observed peak parking demand of 42 spaces at the existing indoor kart racing facility.

Appendix B presents the detailed calculations for the aforementioned trip generation rates and the parking rate.

CONCLUSION

The results of our trip generation study at the existing facility in the City of Carlsbad revealed an average weekday daily trip generation rate of 5.13 trips/1,000 SF and an average weekday PM peak hour trip generation rate of 0.472 trips/1,000 SF. In addition, the parking study at the existing facility revealed a parking rate of 1 space per 1,672 SF. The aforementioned trip generation and parking rates can be used to forecast the potential daily and PM peak hour trips of the proposed project as well as forecast the parking demand of the proposed project.

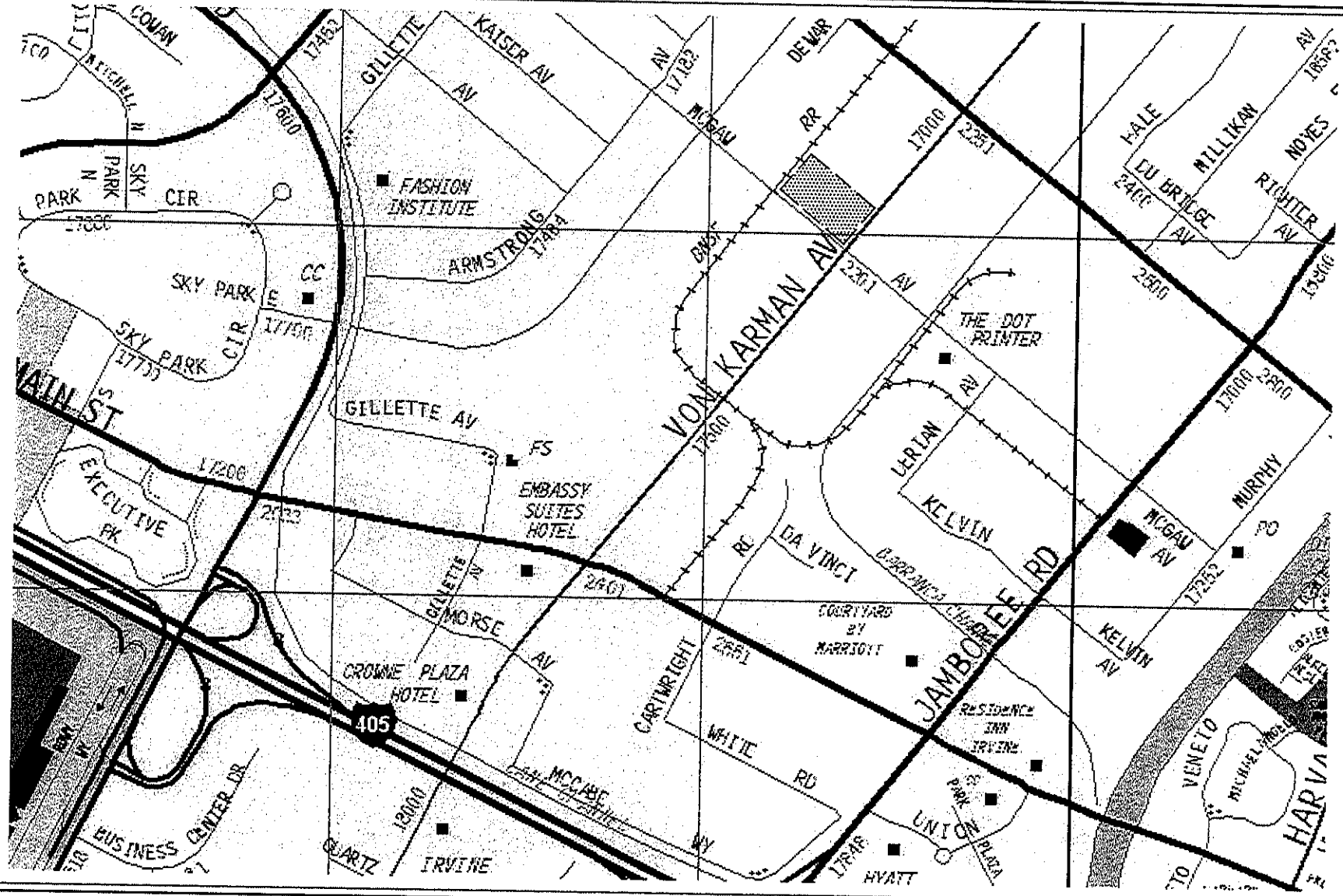
LINSCOTT LAW & GREENSPAN engineers

We appreciate the opportunity to provide this trip generation and parking assessment. Should you have any questions or comments, please call me at (714) 641-1587.

Very truly yours,
LINSCOTT, LAW & GREENSPAN, ENGINEERS

Keil D. Maberry, P.E.
Associate Principal

Daniel A. Kloos, P.E.
Transportation Engineer III



LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: THOMAS BROS.

KEY

PROJECT SITE

FIGURE 1

VICINITY MAP

K1 SPEED INDOOR KART TRACK, IRVINE

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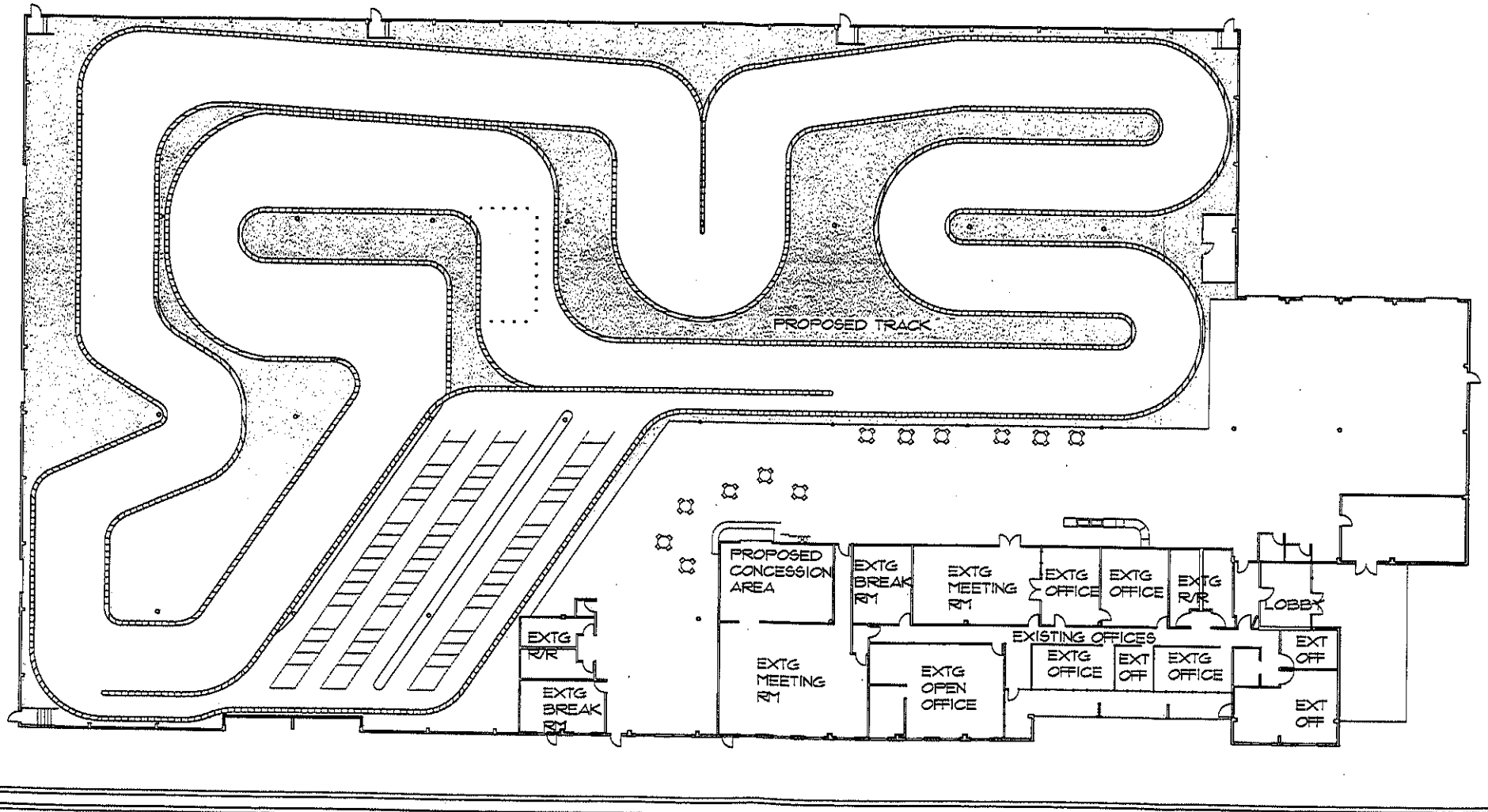
LINSCOTT LAW & GREENSPAN engineers

TABLE 1

EXISTING FACILITY DATA SUMMARY

Count Date	ADT Rate (Trips per 1,000 SF)	PM Peak Hour Rate (Trips per 1,000 SF)	Peak Parking Demand
Wednesday June 8, 2005	4.06 trips/1,000 SF	0.471 trips/1,000 SF	32 spaces
Thursday June 9, 2005	4.57 trips/1,000 SF	0.315 trips/1,000 SF	27 spaces
Friday June 10, 2005	6.76 trips/1,000 SF	0.629 trips/1,000 SF	38 spaces
Saturday June 11, 2005	7.73 trips/1,000 SF	0.495 trips/1,000 SF	42 spaces
Average Weekday Rate	**5.13 trips/1,000 SF**	**0.472 trips/1,000 SF**	---
Peak Parking Demand	---	---	**42 spaces**



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LINSCOTT LAW & GREENSPAN engineers

NO SCALE

FIGURE 2

PROPOSED SITE PLAN
K1 SPEED INDOOR KART TRACK, IRVINE

APPENDIX A

EXISTING VEHICULAR COUNTS AND PARKING COUNTS

Table A-1
Trip Generation Study Traffic Data
Wednesday June 8, 2005 (11:00 AM to 10:00 PM)

Time Began	Vehicles In	Vehicles Out	Total Vehicles	Peak Hour Total
10:00 AM	0	0	0	
10:15 AM	1	2	3	
10:30 AM	0	0	0	
10:45 AM	6	0	6	9
11:00 AM	0	4	4	13
11:15 AM	0	0	0	10
11:30 AM	2	0	2	12
11:45 AM	8	2	10	16
12:00 PM	4	0	4	16
12:15 PM	6	1	7	23
12:30 PM	4	2	6	27
12:45 PM	11	1	12	29
1:00 PM	4	0	4	29
1:15 PM	4	4	8	30
1:30 PM	4	6	10	34
1:45 PM	8	0	8	30
2:00 PM	4	6	10	36
2:15 PM	0	7	7	35
2:30 PM	0	0	0	25
2:45 PM	7	5	12	29
3:00 PM	2	4	6	25
3:15 PM	2	6	8	26
3:30 PM	2	2	4	30
3:45 PM	0	3	3	21
4:00 PM	1	2	3	18
4:15 PM	10	8	18	28
4:30 PM	6	2	8	32
4:45 PM	0	0	0	29
5:00 PM	2	5	7	33
5:15 PM	1	4	5	20
5:30 PM	2	3	5	17
5:45 PM	2	7	9	26
6:00 PM	3	2	5	24
6:15 PM	0	2	2	21
6:30 PM	1	5	6	22
6:45 PM	6	6	12	25
7:00 PM	0	0	0	20
7:15 PM	0	0	0	18
7:30 PM	9	2	11	23
7:45 PM	3	8	11	22
8:00 PM	2	2	4	26
8:15 PM	2	6	8	34
8:30 PM	0	3	3	26
8:45 PM	0	1	1	16
9:00 PM	0	2	2	14
9:15 PM	2	0	2	8
9:30 PM	0	4	4	9
9:45 PM	2	8	10	18
10:00 PM	0	0	0	16
10:15 PM	1	2	3	17
10:30 PM	3	9	12	25
10:45 PM	0	0	0	15
Total	137	148	285	

Table A-2
Parking Study Traffic Data
Wednesday June 8, 2005 (11:00 AM to 10:00 PM)

Time Began	Number of Parked Cars
11:00 AM	22
11:30 AM	22
12:00 PM	21
12:30 PM	21
1:00 PM	23
1:30 PM	19
2:00 PM	25
2:30 PM	24
3:00 PM	25
3:30 PM	22
4:00 PM	25
4:30 PM	29
5:00 PM	31
5:30 PM	29
6:00 PM	31
6:30 PM	32
7:00 PM	25
7:30 PM	19
8:00 PM	16
8:30 PM	12
9:00 PM	10
9:30 PM	14
10:00 PM	11

Table B-1
Trip Generation Study Traffic Data
Thursday June 9, 2005 (11:00 AM to 10:00 PM)

Time Began	Vehicles In	Vehicles Out	Total Vehicles	Peak Hour Total
10:00 AM	0	0	0	
10:15 AM	4	4	8	
10:30 AM	2	4	6	
10:45 AM	4	5	9	23
11:00 AM	13	4	17	40
11:15 AM	0	2	2	34
11:30 AM	0	0	0	28
11:45 AM	6	4	10	29
12:00 PM	4	4	8	20
12:15 PM	2	1	3	21
12:30 PM	4	4	8	29
12:45 PM	12	4	16	35
1:00 PM	6	4	10	37
1:15 PM	6	4	10	44
1:30 PM	3	2	5	41
1:45 PM	12	4	16	41
2:00 PM	8	8	16	47
2:15 PM	4	4	8	45
2:30 PM	10	6	16	56
2:45 PM	8	8	16	56
3:00 PM	2	4	6	46
3:15 PM	4	4	8	46
3:30 PM	0	4	4	34
3:45 PM	4	2	6	24
4:00 PM	6	0	6	24
4:15 PM	0	4	4	20
4:30 PM	2	2	4	20
4:45 PM	2	3	5	19
5:00 PM	2	4	6	19
5:15 PM	0	6	6	21
5:30 PM	2	3	5	22
5:45 PM	0	1	1	18
6:00 PM	0	4	4	16
6:15 PM	0	2	2	12
6:30 PM	0	3	3	10
6:45 PM	6	0	6	15
7:00 PM	0	6	6	17
7:15 PM	6	1	7	22
7:30 PM	4	5	9	28
7:45 PM	0	1	1	23
8:00 PM	6	1	7	24
8:15 PM	2	0	2	19
8:30 PM	2	2	4	14
8:45 PM	0	2	2	15
9:00 PM	0	6	6	14
9:15 PM	0	1	1	13
9:30 PM	0	0	0	9
9:45 PM	10	6	16	23
10:00 PM	0	0	0	17
10:15 PM	0	0	0	16
10:30 PM	0	0	0	16
10:45 PM	0	0	0	0
Total	168	153	321	

Table B-2
Parking Study Traffic Data
Thursday June 9, 2005 (11:00 AM to 10:00 PM)

Time Began	Number of Parked Cars
11:00 AM	21
11:30 AM	26
12:00 PM	27
12:30 PM	23
1:00 PM	23
1:30 PM	26
2:00 PM	27
2:30 PM	26
3:00 PM	25
3:30 PM	20
4:00 PM	19
4:30 PM	17
5:00 PM	15
5:30 PM	15
6:00 PM	14
6:30 PM	14
7:00 PM	14
7:30 PM	18
8:00 PM	16
8:30 PM	18
9:00 PM	15
9:30 PM	12
10:00 PM	9

Table C-1
Trip Generation Study Traffic Data
Friday June 10, 2005 (11:00 AM to 11:00 PM)

Time Began	Vehicles In	Vehicles Out	Total Vehicles	Peak Hour Total
10:00 AM	4	2	6	
10:15 AM	4	4	8	
10:30 AM	0	8	8	
10:45 AM	0	3	3	25
11:00 AM	2	4	6	25
11:15 AM	0	2	2	19
11:30 AM	2	3	5	16
11:45 AM	0	8	8	21
12:00 PM	0	1	1	16
12:15 PM	10	1	11	25
12:30 PM	6	1	7	27
12:45 PM	12	6	18	37
1:00 PM	0	7	7	43
1:15 PM	5	9	14	46
1:30 PM	4	1	5	44
1:45 PM	6	6	12	38
2:00 PM	0	2	2	33
2:15 PM	12	3	15	34
2:30 PM	0	7	7	36
2:45 PM	2	0	2	26
3:00 PM	16	1	17	41
3:15 PM	14	6	20	46
3:30 PM	7	4	11	50
3:45 PM	2	6	8	56
4:00 PM	8	2	10	49
4:15 PM	6	6	12	41
4:30 PM	4	2	6	36
4:45 PM	6	5	11	39
5:00 PM	9	6	15	44
5:15 PM	10	1	11	43
5:30 PM	0	0	0	37
5:45 PM	2	4	6	32
6:00 PM	17	6	23	40
6:15 PM	7	8	15	44
6:30 PM	2	0	2	46
6:45 PM	10	3	13	53
7:00 PM	2	8	10	40
7:15 PM	1	8	9	34
7:30 PM	4	6	10	42
7:45 PM	2	1	3	32
8:00 PM	9	1	10	32
8:15 PM	4	6	10	33
8:30 PM	4	3	7	30
8:45 PM	4	5	9	36
9:00 PM	2	8	10	36
9:15 PM	4	2	6	32
9:30 PM	2	6	8	33
9:45 PM	0	0	0	24
10:00 PM	8	2	10	24
10:15 PM	3	9	12	30
10:30 PM	2	1	3	25
10:45 PM	0	0	0	25
11:00 PM	4	10	14	29
11:15 PM	0	9	9	26
11:30 PM	0	8	8	31
11:45 PM	0	0	0	31
Total	244	231	475	

Table C-2
Parking Study Traffic Data
Friday June 10, 2005 (11:00 AM to 11:00 PM)

Time Began	Number of Parked Cars
11:00 AM	21
11:30 AM	19
12:00 PM	21
12:30 PM	25
1:00 PM	32
1:30 PM	38
2:00 PM	30
2:30 PM	27
3:00 PM	26
3:30 PM	32
4:00 PM	32
4:30 PM	25
5:00 PM	27
5:30 PM	28
6:00 PM	30
6:30 PM	25
7:00 PM	26
7:30 PM	25
8:00 PM	28
8:30 PM	27
9:00 PM	19
9:30 PM	19
10:00 PM	18
10:30 PM	14
11:00 PM	9

Table D-1
Trip Generation Study Traffic Data
Saturday June 11, 2005 (9:00 AM to 11:00 PM)

Time Began	Vehicles In	Vehicles Out	Total Vehicles	Peak Hour Total
8:00 AM	0	4	4	
8:15 AM	2	6	8	
8:30 AM	2	6	8	
8:45 AM	3	1	4	24
9:00 AM	2	1	3	23
9:15 AM	0	2	2	17
9:30 AM	4	4	8	17
9:45 AM	2	0	2	15
10:00 AM	4	1	5	17
10:15 AM	2	8	10	25
10:30 AM	4	2	6	23
10:45 AM	4	6	10	31
11:00 AM	2	2	4	30
11:15 AM	12	8	20	40
11:30 AM	0	9	9	43
11:45 AM	8	6	14	47
12:00 PM	4	8	12	55
12:15 PM	7	9	16	51
12:30 PM	6	6	12	54
12:45 PM	5	4	9	49
1:00 PM	4	8	12	49
1:15 PM	6	8	14	47
1:30 PM	6	3	9	44
1:45 PM	11	4	15	50
2:00 PM	9	1	10	48
2:15 PM	6	6	12	46
2:30 PM	4	6	10	47
2:45 PM	8	6	14	46
3:00 PM	7	2	9	45
3:15 PM	14	4	18	51
3:30 PM	10	4	14	55
3:45 PM	4	4	8	49
4:00 PM	6	0	6	46
4:15 PM	2	6	8	36
4:30 PM	4	5	9	31
4:45 PM	11	1	12	35
5:00 PM	2	4	6	35
5:15 PM	3	2	5	32
5:30 PM	4	6	10	33
5:45 PM	4	5	9	30
6:00 PM	7	8	15	39
6:15 PM	2	6	8	42
6:30 PM	0	6	6	38
6:45 PM	4	0	4	33
7:00 PM	6	4	10	28
7:15 PM	4	8	12	32
7:30 PM	4	6	10	36
7:45 PM	6	2	8	40
8:00 PM	3	1	4	34
8:15 PM	2	2	4	26
8:30 PM	6	6	12	28
8:45 PM	0	4	4	24
9:00 PM	5	5	10	30
9:15 PM	2	5	7	33
9:30 PM	1	8	9	30
9:45 PM	4	4	8	34
10:00 PM	1	8	9	33
10:15 PM	5	9	14	40
10:30 PM	0	1	1	32
10:45 PM	0	0	0	24
11:00 PM	3	0	3	18
11:15 PM	0	9	9	13
11:30 PM	0	0	0	12
11:45 PM	0	0	0	12
TOTAL	263	280	543	

Table D-2
Parking Study Traffic Data
June 11, 2005 (9:00 AM to 11:00 PM)

Time Began	Number of Parked Cars
9:00 AM	12
9:30 AM	9
10:00 AM	15
10:30 AM	22
11:00 AM	25
11:30 AM	31
12:00 PM	29
12:30 PM	28
1:00 PM	26
1:30 PM	29
2:00 PM	31
2:30 PM	32
3:00 PM	38
3:30 PM	42
4:00 PM	32
4:30 PM	27
5:00 PM	27
5:30 PM	21
6:00 PM	19
6:30 PM	25
7:00 PM	24
7:30 PM	19
8:00 PM	24
8:30 PM	21
9:00 PM	23
9:30 PM	26
10:00 PM	18
10:30 PM	8
11:00 PM	7

APPENDIX B

TRIP GENERATION AND PARKING STUDY CALCULATIONS

TRIP GENERATION STUDY (K-1 SPEED CARLSBAD)

LINSCOTT LAW & GREENSPAN engineers

* Carlsbad Facility = 70,220 SF

* Wednesday - June 8, 2005

- ADT = 285 cars (137 inbound and 148 outbound)
- ADT rate = $\frac{285}{70,220}(1000) = 4.06 \frac{\text{trips}}{1000\,SF}$
- PM Peak Hour Rate = $\frac{33}{285} = 11.6\% \Rightarrow 0.471 \frac{\text{trips}}{1000\,SF}$
- Peak Parking Demand = 32 occupied spaces

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* Thursday - June 9, 2005

- ADT = 321 cars (168 inbound and 153 outbound)
- ADT rate = $\frac{321}{70,220}(1000) = 4.57 \frac{\text{trips}}{1000\,SF}$
- PM Peak Hour Rate = $\frac{22}{321} = 6.9\% \Rightarrow 0.315 \frac{\text{trips}}{1000\,SF}$
- Peak Parking Demand = 29 occupied spaces

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* Friday - June 10, 2005

- ADT = 475 trips (244 inbound and 231 outbound)
- ADT rate = $\frac{475}{70,220}(1000) = 6.76 \frac{\text{trips}}{1000\,SF}$
- PM Peak Hour Rate = $\frac{44}{475} = 9.3\% \Rightarrow 0.629 \frac{\text{trips}}{1000\,SF}$
- Peak Parking Demand = 38 occupied spaces

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* Saturday - June 11, 2005

- ADT = 543 trips (243 inbound and 290 outbound)
- ADT rate = $\frac{543}{70,220}(1000) = 7.73 \frac{\text{trips}}{1000\,SF}$
- PM Peak Hour Rate = $\frac{35}{543} = 6.4\% \Rightarrow 0.495 \frac{\text{trips}}{1000\,SF}$
- Peak Parking Demand = 42 occupied spaces

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* Weekday Average Rate = $\frac{4.06 + 4.57 + 6.76}{3} = \boxed{5.13 \frac{\text{trips}}{1000\,SF}}$

* PM Peak Hour Average Rate = $\frac{0.471 + 0.315 + 0.629}{3} = \boxed{0.472 \frac{\text{trips}}{1000\,SF}}$

* Peak Parking Rate = $\frac{70,220}{42} \Rightarrow \boxed{1 \text{ space per } 1672\,SF}$