Central West Alternatives Analysis

8-29-13

DESIGN
CHAPEL HILL 2020
CONNECTIONS · CHOICES · COMMUNITY

Transportation Analysis Assumptions

Existing Conditions

- Recent traffic turning movement data were obtained from the Carolina Flat Traffic Impact Analysis report prepared by RS&H.

Background Conditions

- 2% annual ambient traffic growth until 2016, and 1% annual ambient traffic growth between 2017 and 2023
- First phase (800 KSF) of Carolina North
- Background transportation improvements include a northbound right-turn lane on MLK at Estes, which is to be constructed with Carolina North Phase 1

Trip Generation

- For the four land use scenarios (A1, A2, B1, and B2), trip generation was conducted by the Town of Chapel Hill staff based on the ITE standard

Traffic Assignment

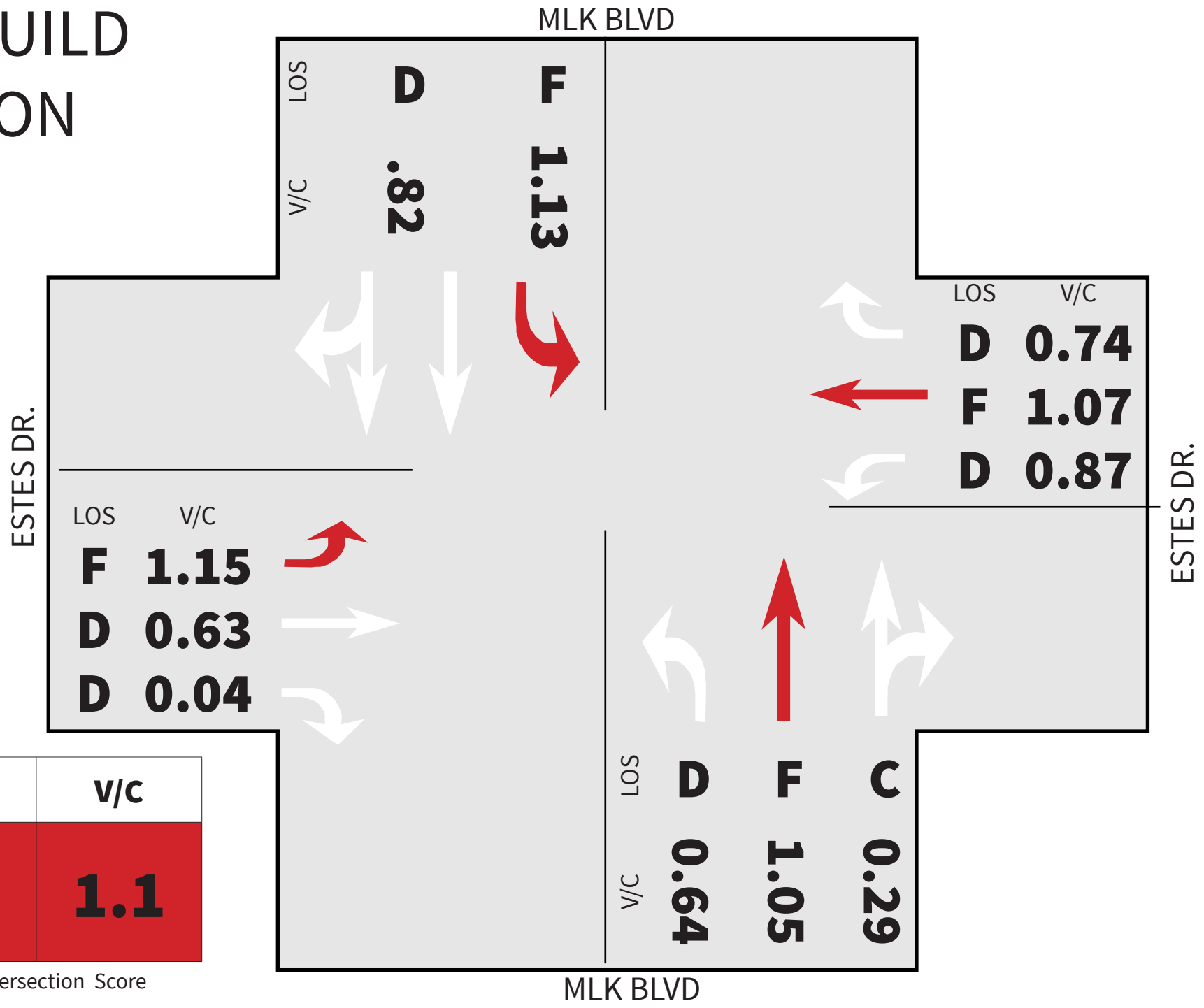
- Residential and Non-Residential were distributed differently to the four primary travel directions.

Direction	Residential	Non-Residential
MLK to the North	25%	35%
MLK to the South	50%	25%
Estes to the East	10%	25%
Estes to the West	15%	15%

Mode Split

- 40% of apartments and townhouses were assumed to be occupied by residents with a University affiliation. 50% of their trips were assigned to the UNC main campus and 50% to Carolina North.
- Passby capture was applied to retail and commercial/service trips during PM peak and for daily traffic.
- Internal capture was applied to retail and commercial/service trips for all analysis.
- Non-residential uses assumed a 75% auto mode split.

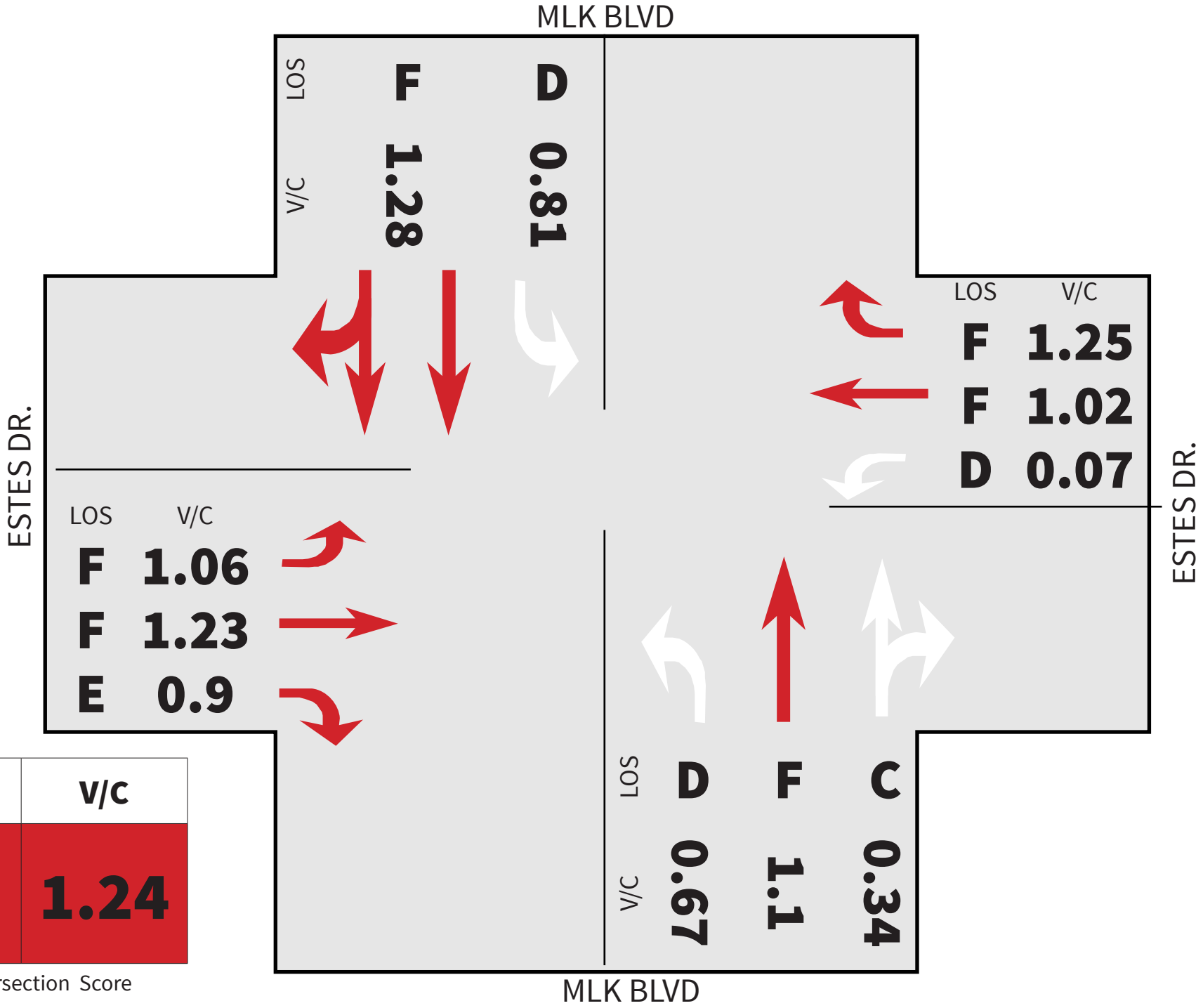
NO BUILD OPTION



LOS	V/C
E	1.1

Overall Intersection Score

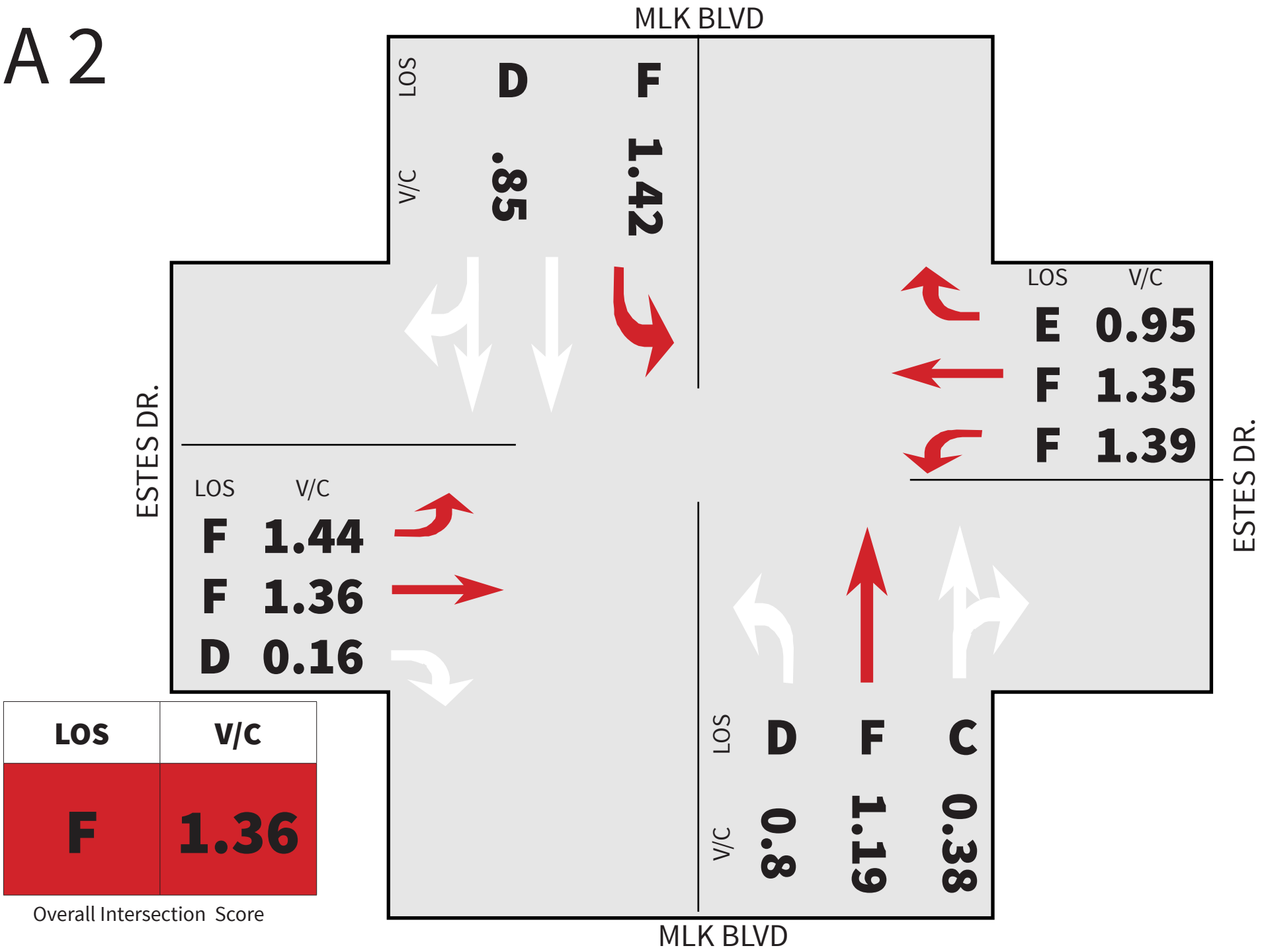
A 1



LOS	V/C
F	1.24

Overall Intersection Score

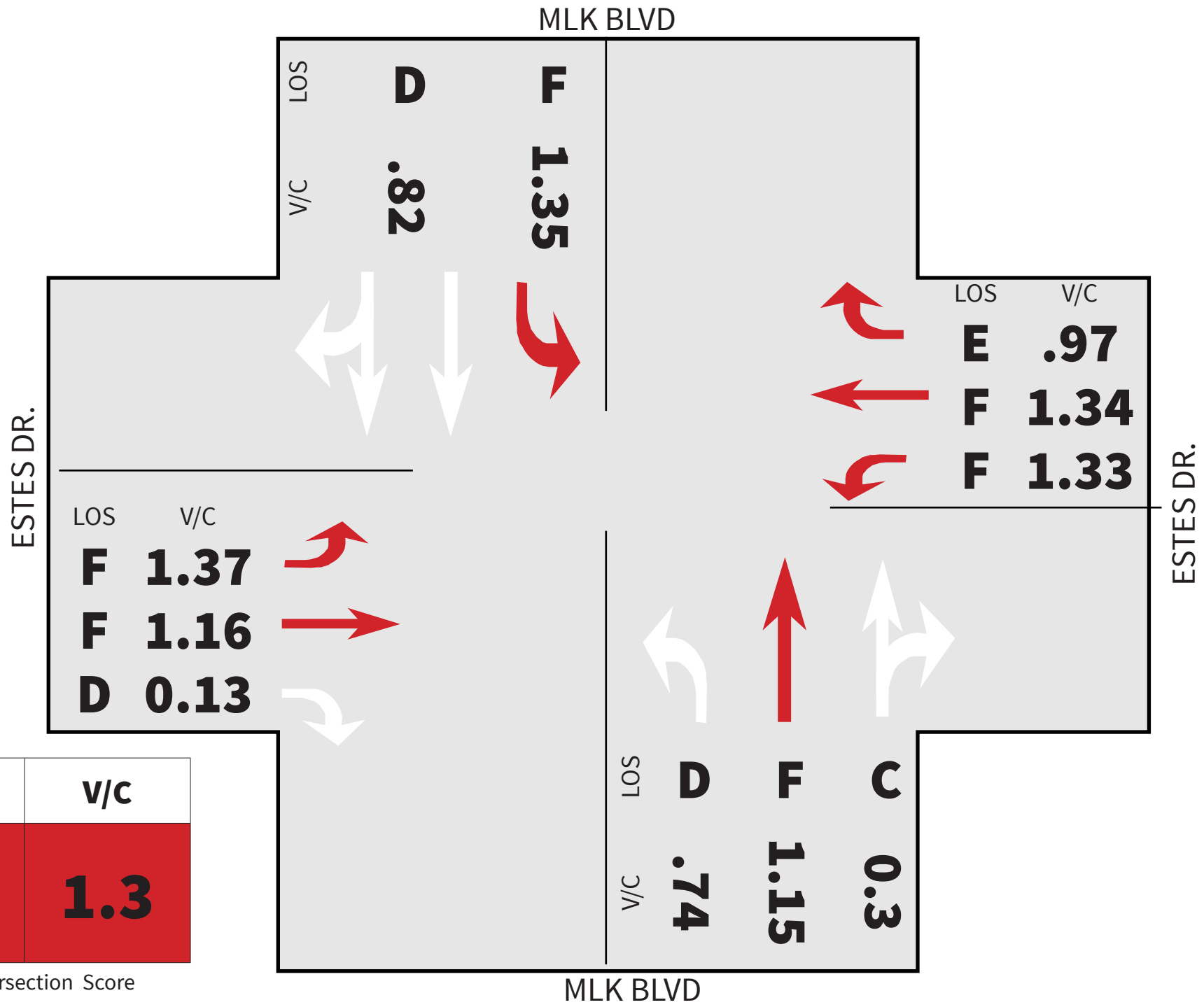
A 2



LOS	V/C
F	1.36

Overall Intersection Score

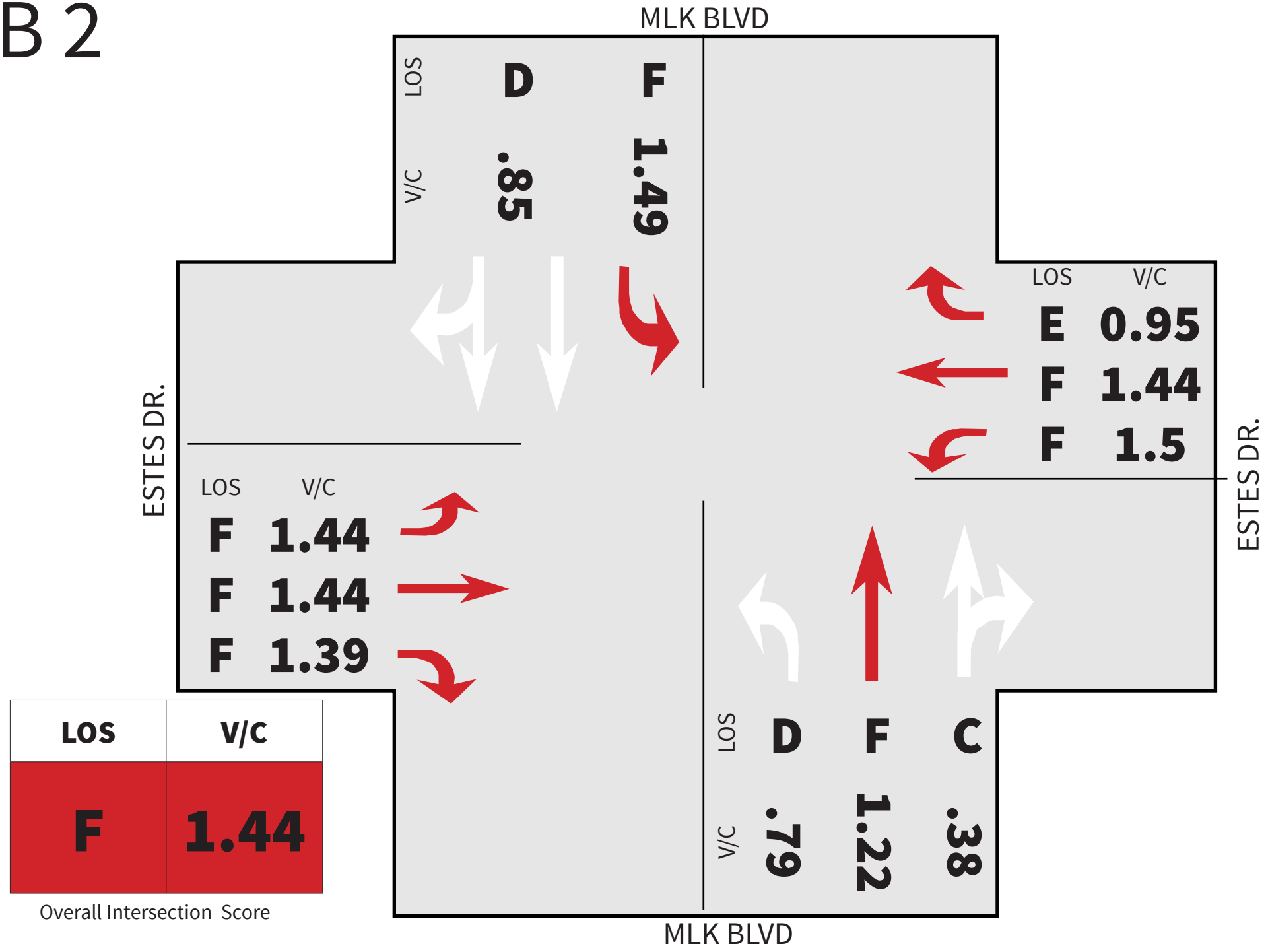
B 1



LOS	V/C
F	1.3

Overall Intersection Score

B 2



LOS	V/C
F	1.44

Overall Intersection Score

INTERSECTION		AM Peak Hour			PM Peak Hour		
Name	Lane Group	LOS	Delay	V/C	LOS	Delay	V/C
No-Build Estes Drive & M.L.K. Jr.	Total	E	56.7	0.89	E	75.4	1.10
	EBL	F	87.2	1.00	F	146.5	1.15
	EBT	F	83.1	0.92	D	52.7	0.63
	EBR	D	40.2	0.15	D	36.7	0.04
	WBL	F	94.0	0.94	D	50.4	0.74
	WBT	F	90.3	0.85	F	126.7	1.07
	WBR	D	46.7	0.66	D	54.7	0.87
	NBL	E	56.7	0.25	D	38.4	0.64
	NBT	D	40.2	0.46	F	89.7	1.05
	NBR	C	24.0	0.09	C	27.3	0.29
	SBL	D	37.5	0.80	F	135.9	1.13
	SBTR	D	48.2	0.93	D	40.2	0.82

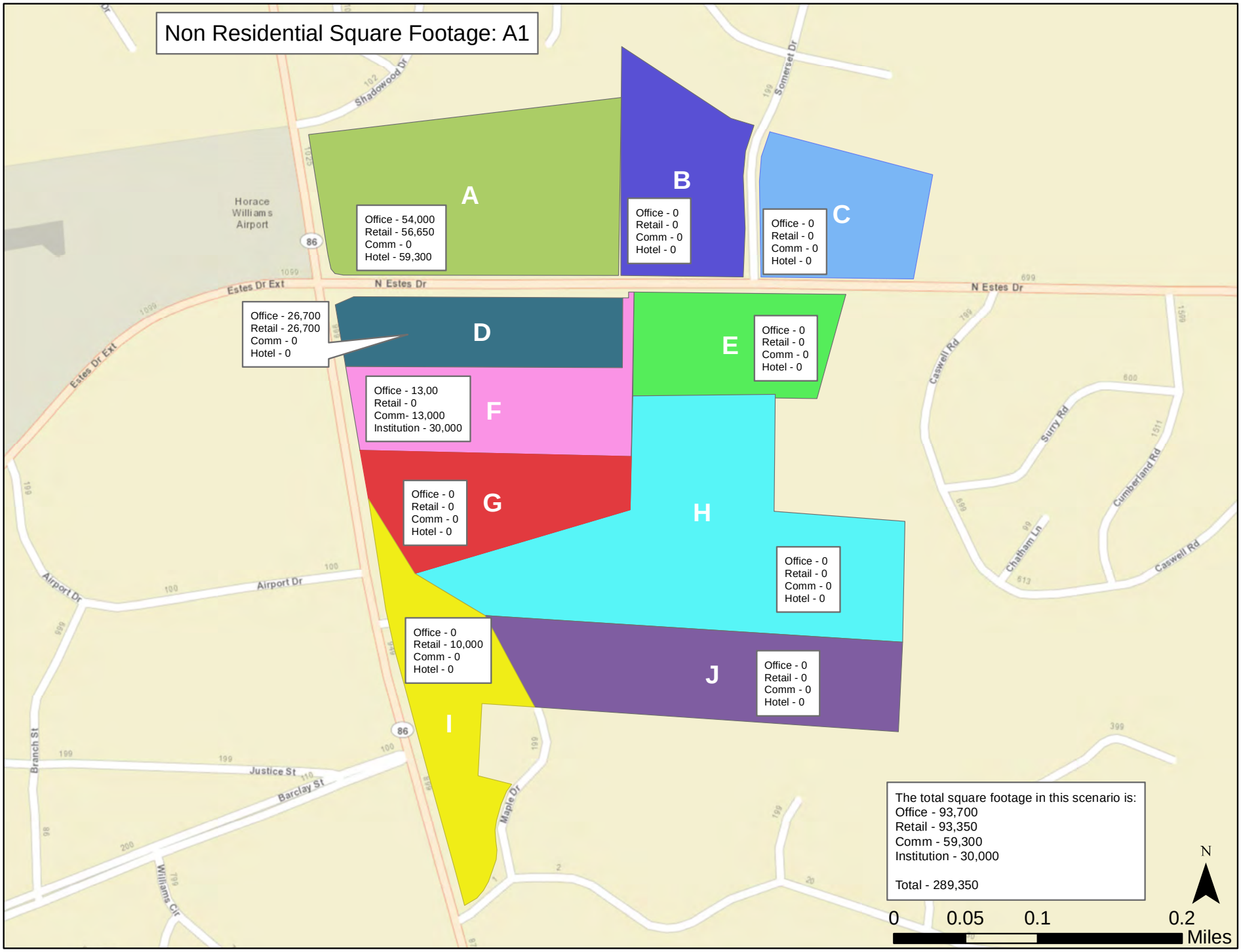
INTERSECTION		AM Peak Hour			PM Peak Hour		
Name	Lane Group	LOS	Delay	V/C	LOS	Delay	V/C
Build 1A Estes Drive & M.L.K. Jr.	Total	E	69.6	0.94	F	98.4	1.24
	EBL	E	75.7	0.98	F	185.0	1.25
	EBT	F	110.3	1.02	F	118.1	1.02
	EBR	D	41.2	0.20	D	44.8	0.07
	WBL	F	112.8	1.06	F	112.8	1.06
	WBT	E	67.1	0.73	F	184.8	1.23
	WBR	D	35.8	0.58	E	57.2	0.90
	NBL	E	63.2	0.31	D	39.7	0.67
	NBT	D	52.1	0.65	F	106.6	1.10
	NBR	C	27.5	0.13	C	23.0	0.34
	SBL	E	76.4	0.96	F	192.8	1.28
		E	68.1	1.01	D	37.5	0.81

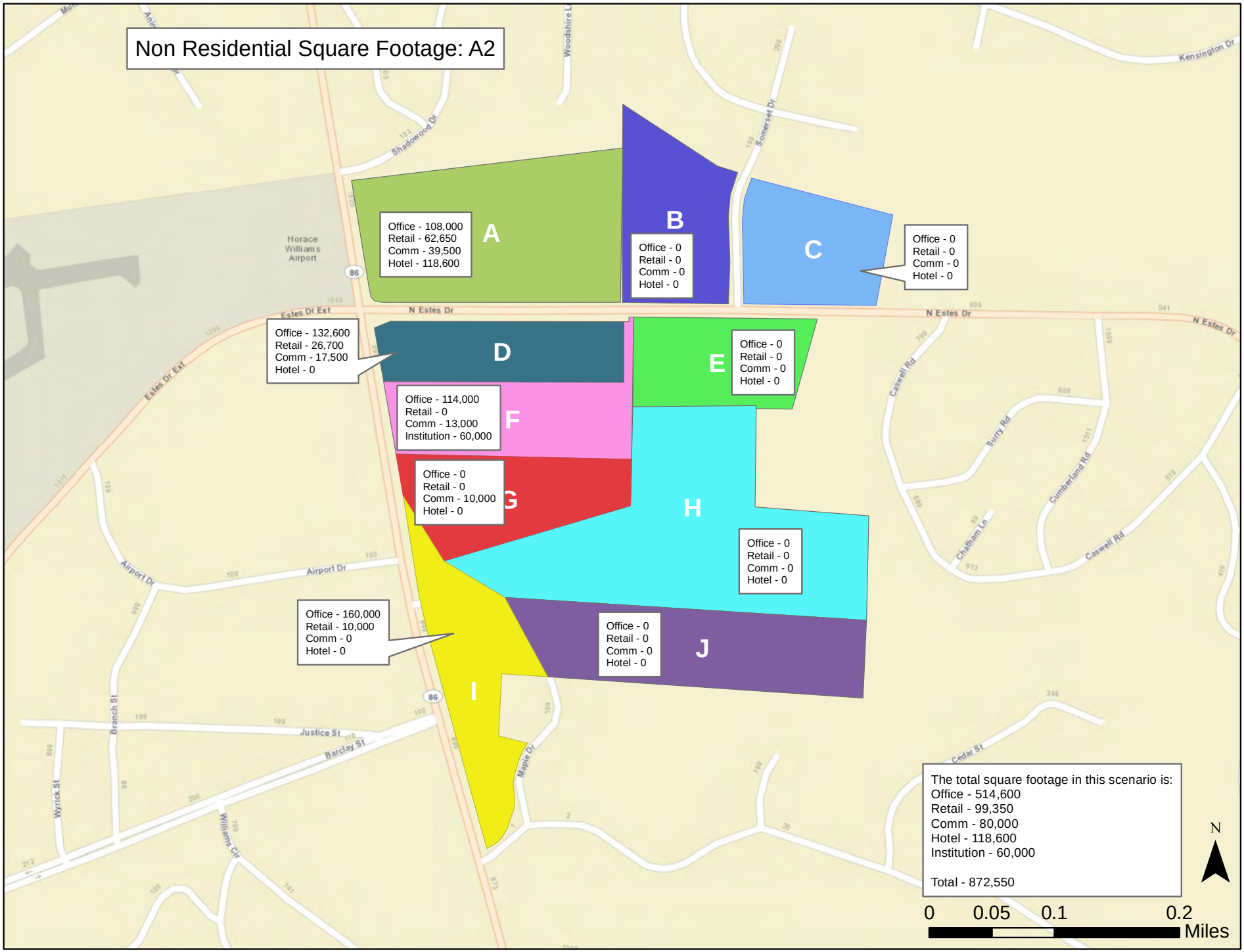
INTERSECTION		AM Peak Hour			PM Peak Hour		
Name	Lane Group	LOS	Delay	V/C	LOS	Delay	V/C
Build 1B Estes Drive & M.L.K. Jr.	Total	F	110.2	1.15	F	140.4	1.36
	EBL	F	82.4	1.01	F	269.9	1.44
	EBT	F	179.8	1.22	F	248.1	1.36
	EBR	D	42.7	0.31	D	48.0	0.16
	WBL	F	180.0	1.25	F	239.8	1.39
	WBT	E	65.7	0.75	F	231.6	1.35
	WBR	C	33.9	0.60	E	67.0	0.95
	NBL	E	63.6	0.37	D	54.1	0.80
	NBT	E	65.0	0.86	F	141.8	1.19
	NBR	C	28.7	0.21	C	21.5	0.38
	SBL	F	160.4	1.22	F	253.4	1.42
	SBTR	F	124.6	1.16	D	40.3	0.85

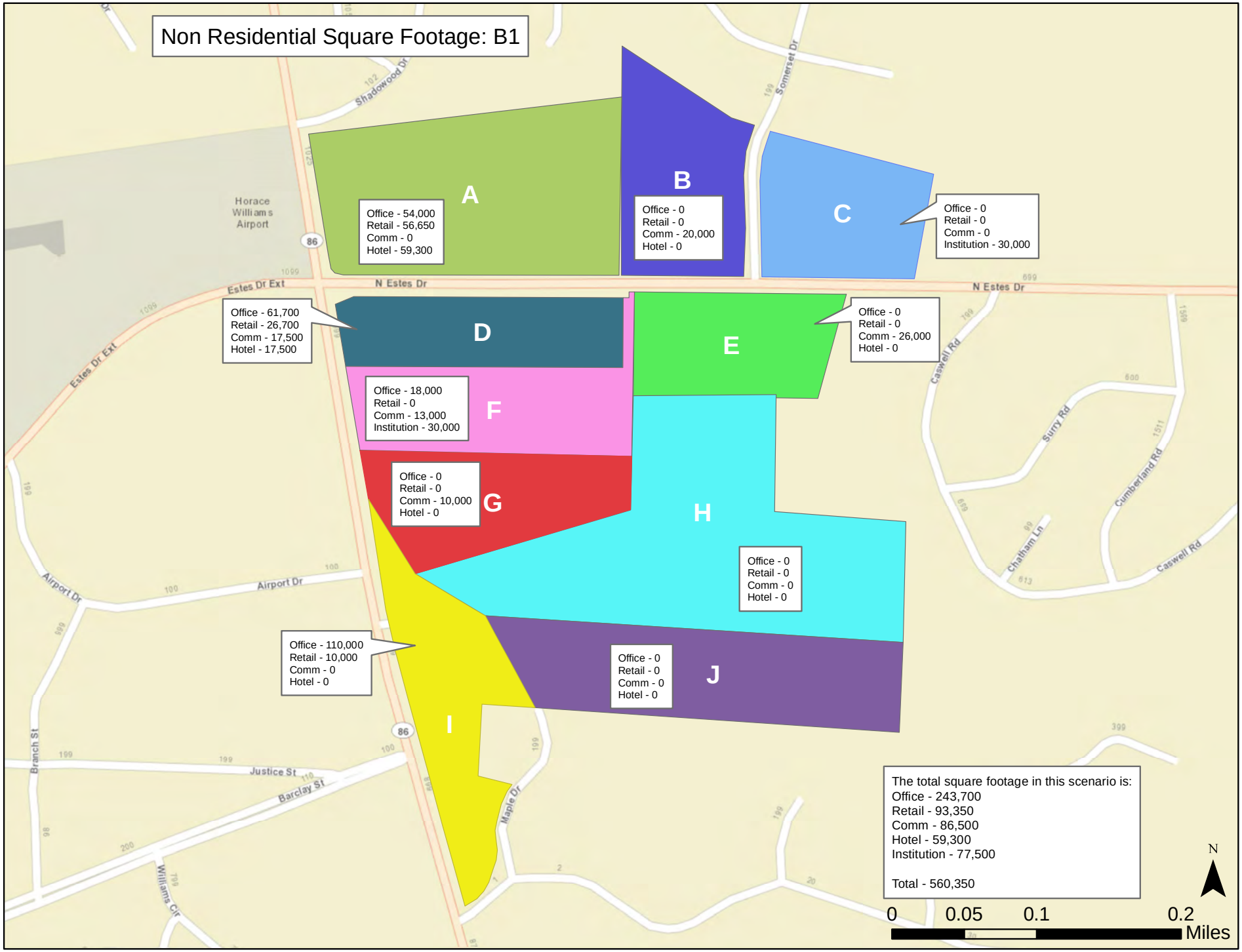
INTERSECTION		AM Peak Hour			PM Peak Hour		
Name	Lane Group	LOS	Delay	V/C	LOS	Delay	V/C
Build 2A Estes Drive & M.L.K. Jr.	Total	F	89.7	1.04	F	124.2	1.30
	EBL	F	83.0	1.01	F	237.3	1.37
	EBT	F	135.3	1.11	F	162.3	1.16
	EBR	D	41.4	0.26	D	46.0	0.13
	WBL	F	163.5	1.20	F	215.6	1.33
	WBT	E	66.0	0.75	F	231.0	1.34
	WBR	C	31.7	0.59	E	72.6	0.97
	NBL	E	63.5	0.35	D	46.1	0.74
	NBT	E	70.6	0.89	F	126.2	1.15
	NBR	C	31.2	0.16	C	23.2	0.35
	SBL	F	90.3	1.02	F	224.9	1.35
	SBTR	F	98.9	1.10	D	37.3	0.82

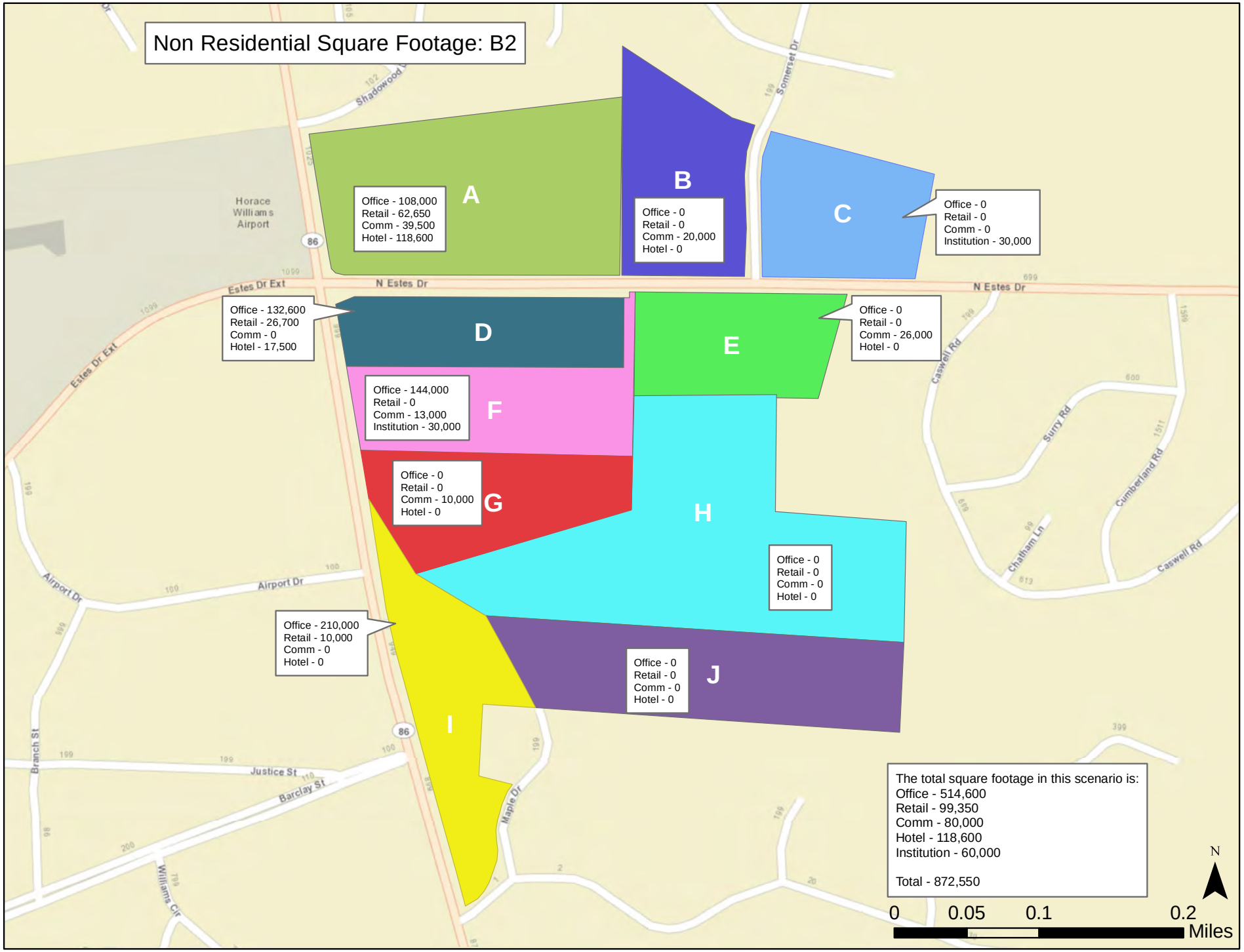
INTERSECTION		AM Peak Hour			PM Peak Hour		
Name	Lane Group	LOS	Delay	V/C	LOS	Delay	V/C
Build 2B Estes Drive & M.L.K. Jr.	Total	F	122.8	1.21	F	154.8	1.44
	EBL	F	82.1	0.99	F	269.9	1.44
	EBT	F	183.7	1.24	F	261.7	1.39
	EBR	D	42.2	0.33	D	47.7	0.17
	WBL	F	194.0	1.28	F	287.1	1.50
	WBT	E	72.3	0.81	F	270.3	1.44
	WBR	C	33.5	0.59	E	66.1	0.95
	NBL	E	63.6	0.38	D	51.8	0.79
	NBT	F	83.4	0.98	F	153.0	1.22
	NBR	C	30.0	0.21	C	21.5	0.38
	SBL	F	198.8	1.31	F	285.1	1.49
	SBTR	F	135.8	1.19	D	40.2	0.85

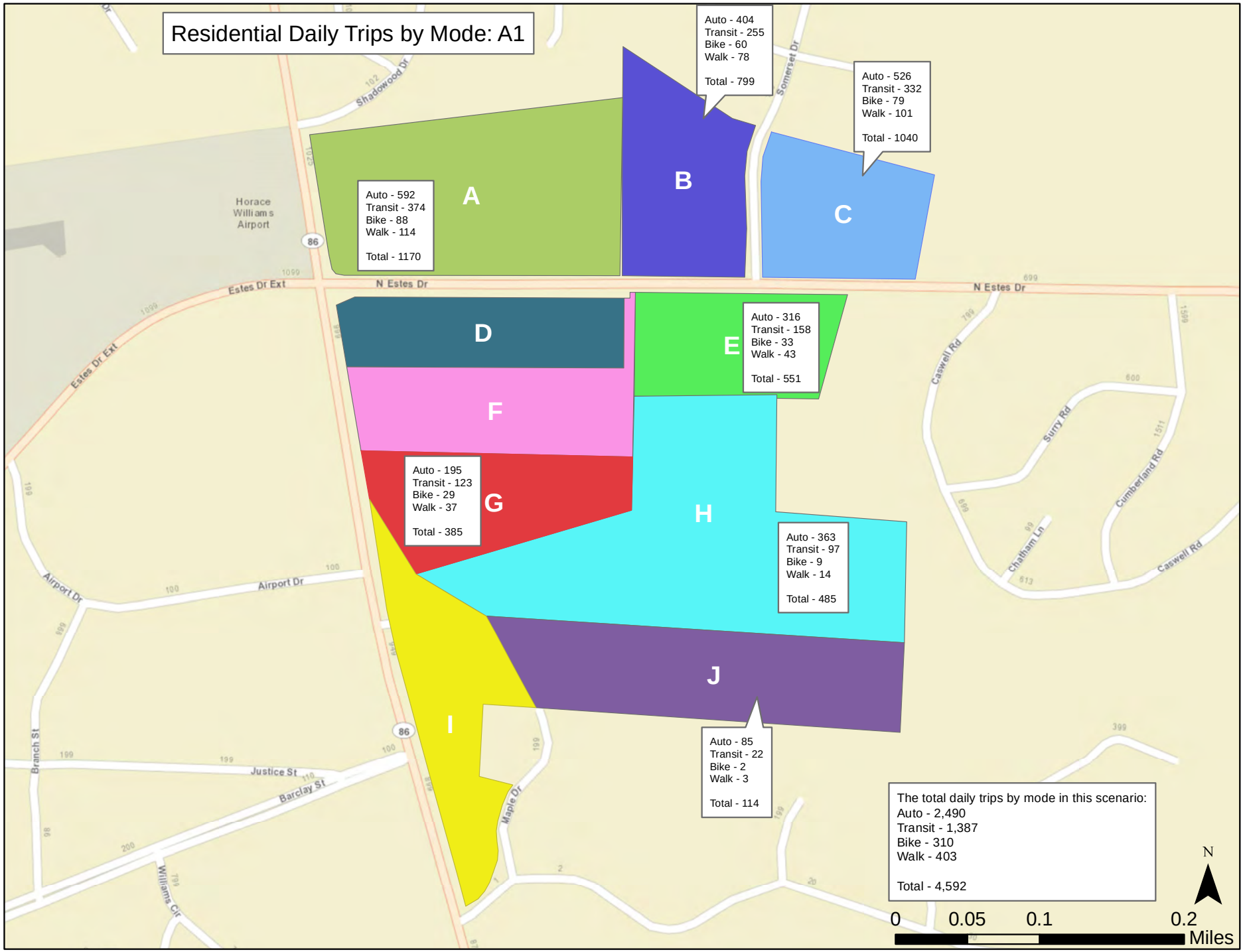
Non Residential Square Footage: A1

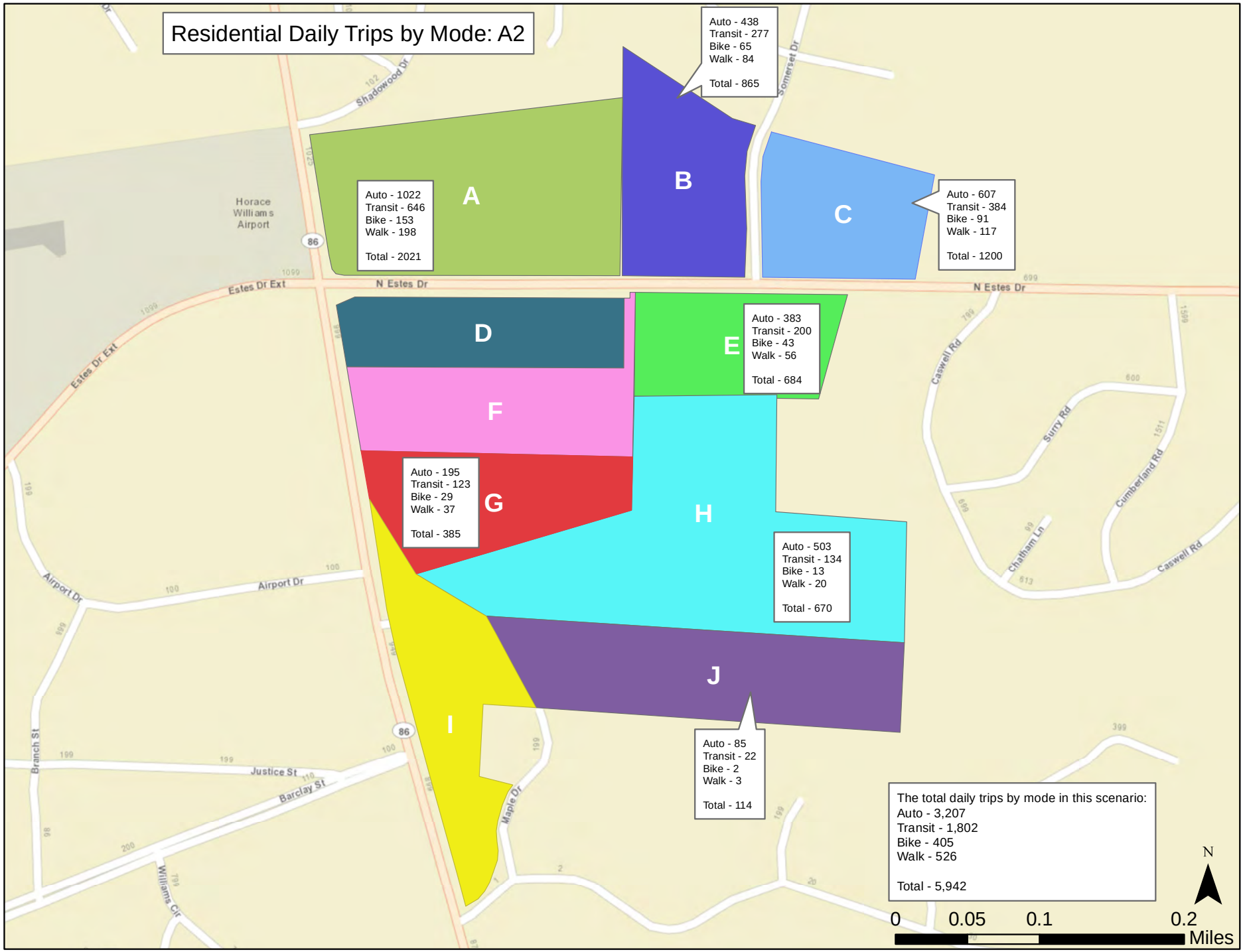


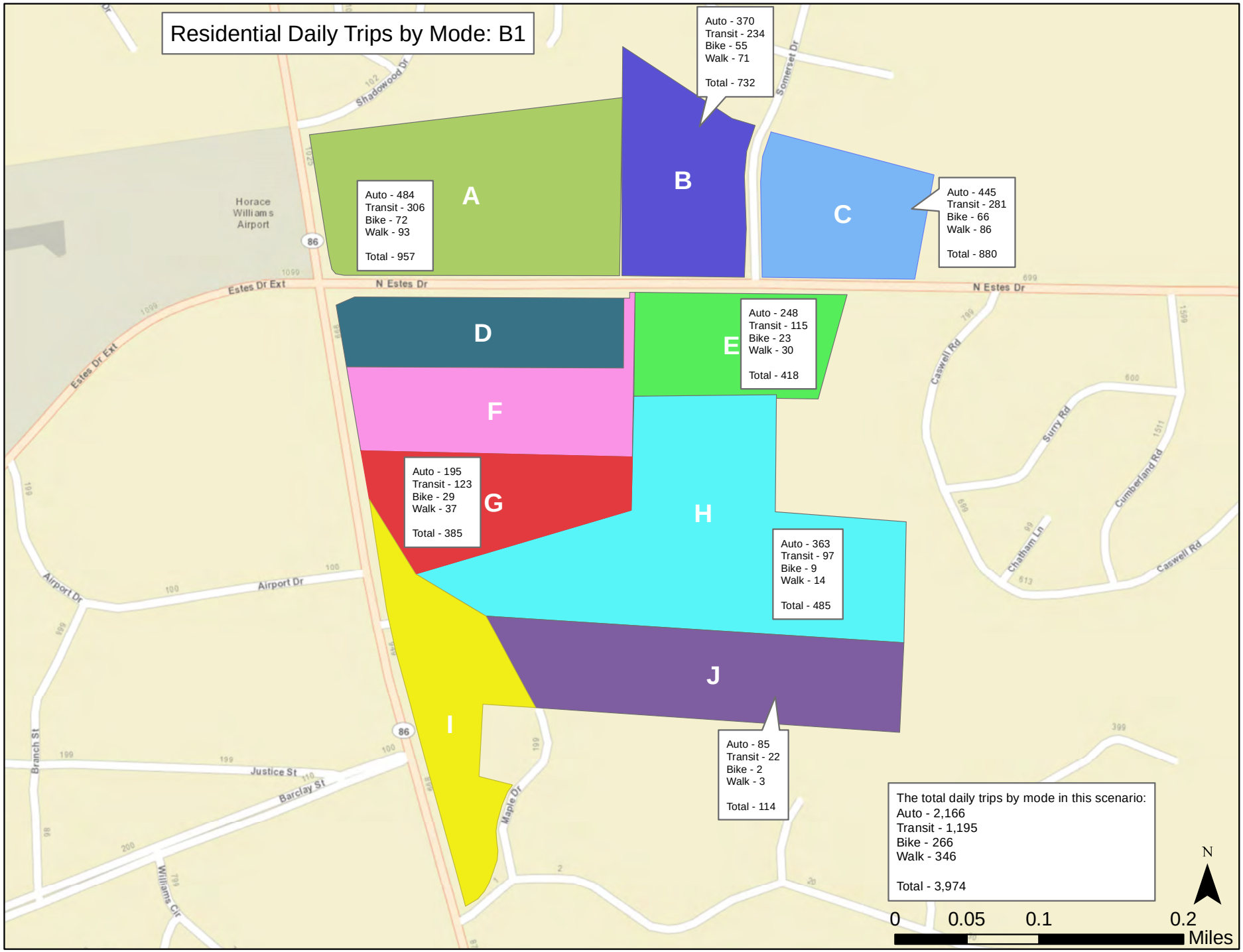

Non Residential Square Footage: A2
A
Office - 108,000
Retail - 62,650
Comm - 39,500
Hotel - 118,600
B
Office - 0
Retail - 0
Comm - 0
Hotel - 0
C
Office - 0
Retail - 0
Comm - 0
Hotel - 0
D
Office - 132,600
Retail - 26,700
Comm - 17,500
Hotel - 0
E
Office - 0
Retail - 0
Comm - 0
Hotel - 0
F
Office - 114,000
Retail - 0
Comm - 13,000
Institution - 60,000
G
Office - 0
Retail - 0
Comm - 10,000
Hotel - 0
H
Office - 0
Retail - 0
Comm - 0
Hotel - 0
I
Office - 160,000
Retail - 10,000
Comm - 0
Hotel - 0
J
Office - 0
Retail - 0
Comm - 0
Hotel - 0
The total square footage in this scenario is:
Office - 514,600
Retail - 99,350
Comm - 80,000
Hotel - 118,600
Institution - 60,000
Total - 872,550
N
0 0.05 0.1 0.2
Miles
Horace Williams Airport
Estes Dr Ext
N Estes Dr
Airport Dr
Justice St
Barclay St
Branch St
Wyrick St
Williams Cir
Maple Dr
Cedar St
Caswell Rd
Sunry Rd
Cumberland Rd
Chatham Ln
Shadowood Dr
Somerset Dr
Woodshire L
Kensington Dr
86

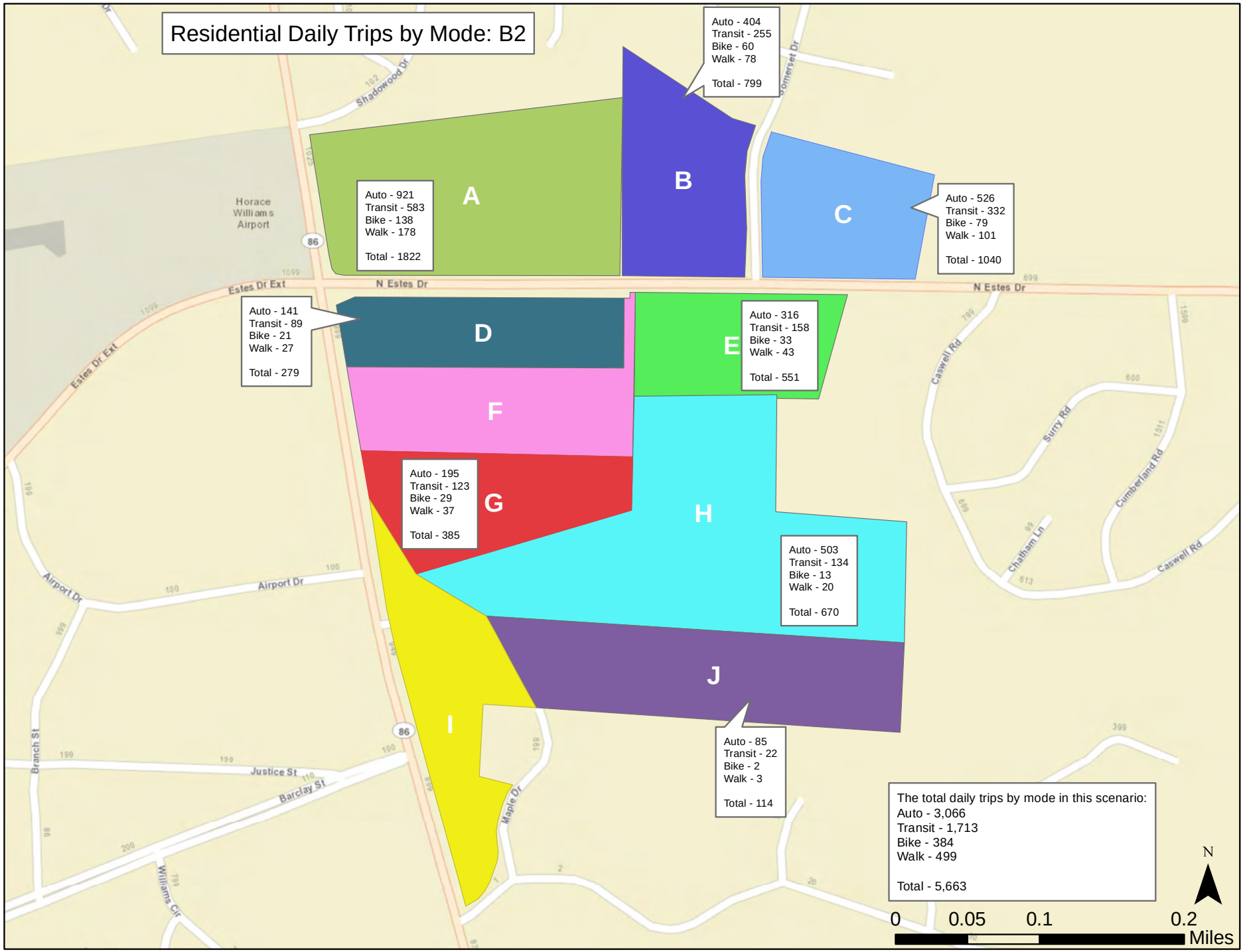

Non Residential Square Footage: B1
A
Office - 54,000
Retail - 56,650
Comm - 0
Hotel - 59,300
B
Office - 0
Retail - 0
Comm - 20,000
Hotel - 0
C
Office - 0
Retail - 0
Comm - 0
Institution - 30,000
D
Office - 61,700
Retail - 26,700
Comm - 17,500
Hotel - 17,500
E
Office - 0
Retail - 0
Comm - 26,000
Hotel - 0
F
Office - 18,000
Retail - 0
Comm - 13,000
Institution - 30,000
G
Office - 0
Retail - 0
Comm - 10,000
Hotel - 0
H
Office - 0
Retail - 0
Comm - 0
Hotel - 0
I
Office - 110,000
Retail - 10,000
Comm - 0
Hotel - 0
J
Office - 0
Retail - 0
Comm - 0
Hotel - 0
Horace Williams Airport
Estes Dr Ext
N Estes Dr
Airport Dr
Shadowood Dr
Somerset Dr
Caswell Rd
Surry Rd
Cumberland Rd
Chatham Ln
Branch St
Justice St
Barclay St
Maple Dr
Williams Cir
86
The total square footage in this scenario is:
Office - 243,700
Retail - 93,350
Comm - 86,500
Hotel - 59,300
Institution - 77,500
Total - 560,350
N
0
0.05
0.1
0.2
Miles


Non Residential Square Footage: B2
A
Office - 108,000
Retail - 62,650
Comm - 39,500
Hotel - 118,600
B
Office - 0
Retail - 0
Comm - 20,000
Hotel - 0
C
Office - 0
Retail - 0
Comm - 0
Institution - 30,000
D
Office - 132,600
Retail - 26,700
Comm - 0
Hotel - 17,500
E
Office - 0
Retail - 0
Comm - 26,000
Hotel - 0
F
Office - 144,000
Retail - 0
Comm - 13,000
Institution - 30,000
G
Office - 0
Retail - 0
Comm - 10,000
Hotel - 0
H
Office - 0
Retail - 0
Comm - 0
Hotel - 0
I
Office - 210,000
Retail - 10,000
Comm - 0
Hotel - 0
J
Office - 0
Retail - 0
Comm - 0
Hotel - 0
Horace Williams Airport
Estes Dr Ext
N Estes Dr
Airport Dr
Shadowood Ln
Somerset Dr
Caswell Rd
Surry Rd
Cumberland Rd
Chatham Ln
Branch St
Justice St
Barclay St
Maple Dr
Williams Cir
86
The total square footage in this scenario is:
Office - 514,600
Retail - 99,350
Comm - 80,000
Hotel - 118,600
Institution - 60,000
Total - 872,550
N
0
0.05
0.1
0.2
Miles


Residential Daily Trips by Mode: A1
Auto - 592
Transit - 374
Bike - 88
Walk - 114
Total - 1170
A
Auto - 404
Transit - 255
Bike - 60
Walk - 78
Total - 799
B
Auto - 526
Transit - 332
Bike - 79
Walk - 101
Total - 1040
C
D
Auto - 316
Transit - 158
Bike - 33
Walk - 43
Total - 551
E
F
Auto - 195
Transit - 123
Bike - 29
Walk - 37
Total - 385
G
H
Auto - 363
Transit - 97
Bike - 9
Walk - 14
Total - 485
J
Auto - 85
Transit - 22
Bike - 2
Walk - 3
Total - 114
I
The total daily trips by mode in this scenario:
Auto - 2,490
Transit - 1,387
Bike - 310
Walk - 403
Total - 4,592
N
0
0.05
0.1
0.2
Miles
Horace Williams Airport
Shadowood Dr
Somerset Dr
Estes Dr Ext
N Estes Dr
Caswell Rd
Surry Rd
Cumberland Rd
Chatham Ln
Airport Dr
Branch St
Justice St
Barclay St
Williams Cir
Maple Dr
86


Residential Daily Trips by Mode: A2
Auto - 438
Transit - 277
Bike - 65
Walk - 84
Total - 865
A
Auto - 1022
Transit - 646
Bike - 153
Walk - 198
Total - 2021
B
C
Auto - 607
Transit - 384
Bike - 91
Walk - 117
Total - 1200
D
E
Auto - 383
Transit - 200
Bike - 43
Walk - 56
Total - 684
F
G
Auto - 195
Transit - 123
Bike - 29
Walk - 37
Total - 385
H
Auto - 503
Transit - 134
Bike - 13
Walk - 20
Total - 670
J
I
Auto - 85
Transit - 22
Bike - 2
Walk - 3
Total - 114
The total daily trips by mode in this scenario:
Auto - 3,207
Transit - 1,802
Bike - 405
Walk - 526
Total - 5,942
N
0
0.05
0.1
0.2
Miles
Horace Williams Airport
Estes Dr Ext
N Estes Dr
Airport Dr
Shadowood Dr
Somerset Dr
Caswell Rd
Surry Rd
Cumberland Rd
Chatham Ln
Branch St
Justice St
Barclay St
Williams Cir
Maple Dr
86


Residential Daily Trips by Mode: B1
Auto - 370
Transit - 234
Bike - 55
Walk - 71
Total - 732
A
Auto - 484
Transit - 306
Bike - 72
Walk - 93
Total - 957
B
C
Auto - 445
Transit - 281
Bike - 66
Walk - 86
Total - 880
Horace Williams Airport
Shadowood Dr
Somerset Dr
Estes Dr Ext
N Estes Dr
N Estes Dr
D
E
Auto - 248
Transit - 115
Bike - 23
Walk - 30
Total - 418
F
G
Auto - 195
Transit - 123
Bike - 29
Walk - 37
Total - 385
H
Auto - 363
Transit - 97
Bike - 9
Walk - 14
Total - 485
J
I
Auto - 85
Transit - 22
Bike - 2
Walk - 3
Total - 114
Caswell Rd
Surry Rd
Cumberland Rd
Chatham Ln
Caswell Rd
Airport Dr
Airport Dr
Branch St
Justice St
Barclay St
Maple Dr
Williams Cir
The total daily trips by mode in this scenario:
Auto - 2,166
Transit - 1,195
Bike - 266
Walk - 346
Total - 3,974
N
0
0.05
0.1
0.2
Miles


Residential Daily Trips by Mode: B2
Auto - 404
Transit - 255
Bike - 60
Walk - 78
Total - 799
A
Auto - 921
Transit - 583
Bike - 138
Walk - 178
Total - 1822
B
C
Auto - 526
Transit - 332
Bike - 79
Walk - 101
Total - 1040
Horace Williams Airport
Shadowood Dr
Somerset Dr
Estes Dr Ext
N Estes Dr
N Estes Dr
Auto - 141
Transit - 89
Bike - 21
Walk - 27
Total - 279
D
E
Auto - 316
Transit - 158
Bike - 33
Walk - 43
Total - 551
F
Caswell Rd
Surry Rd
Cumberland Rd
Chatham Ln
Caswell Rd
Auto - 195
Transit - 123
Bike - 29
Walk - 37
Total - 385
G
H
Auto - 503
Transit - 134
Bike - 13
Walk - 20
Total - 670
Airport Dr
Airport Dr
J
I
Auto - 85
Transit - 22
Bike - 2
Walk - 3
Total - 114
Branch St
Justice St
Barclay St
Maple Dr
Williams Cir
The total daily trips by mode in this scenario:
Auto - 3,066
Transit - 1,713
Bike - 384
Walk - 499
Total - 5,663
N
0
0.05
0.1
0.2
Miles

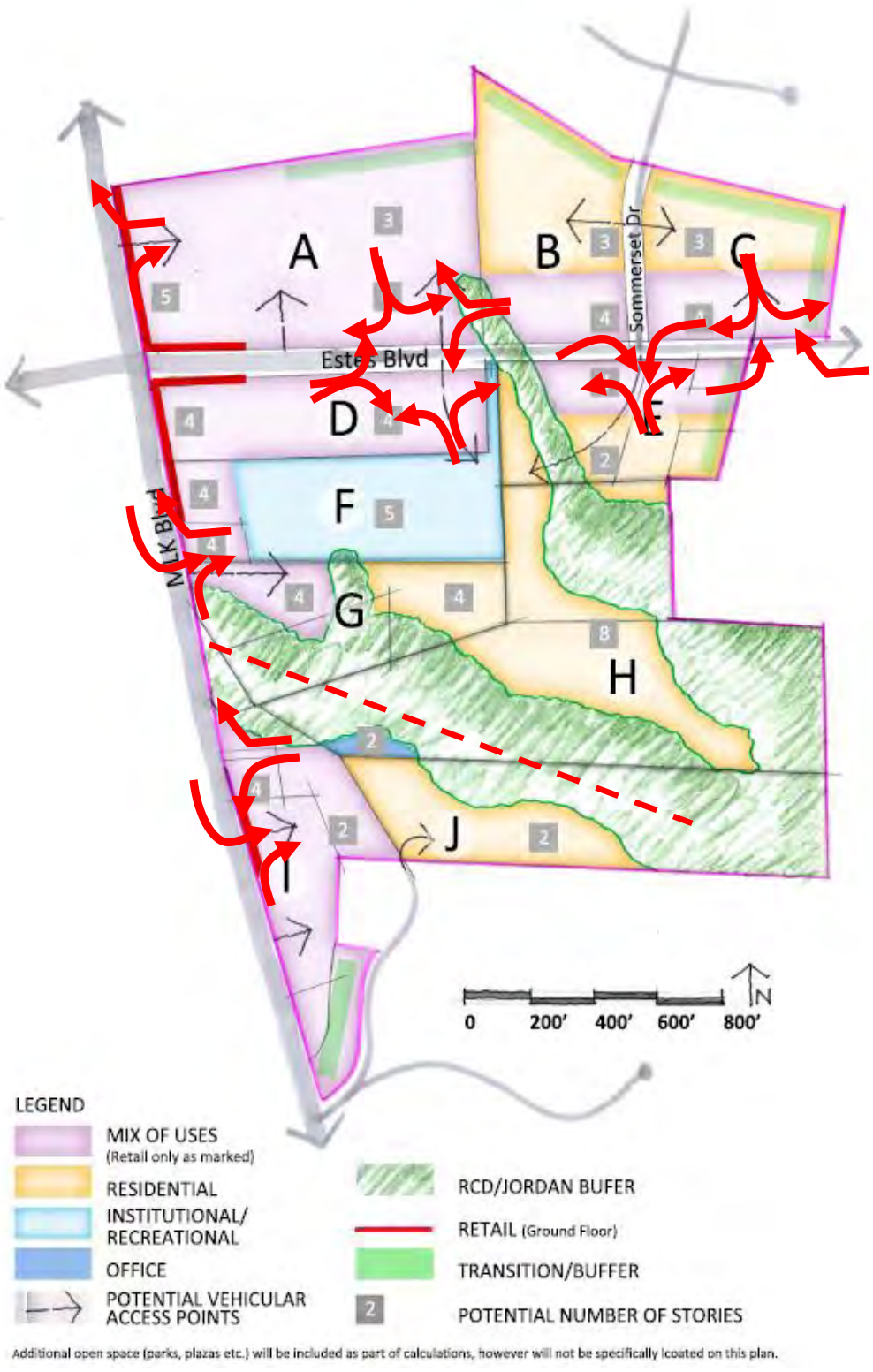
Trip Generation Summary by Use and Mode
Non Residential

Trips	A1			A2			B1			B2	
Office	1,034	17%		5,676	34%		2,797	20%		6,558	34%
Retail	2,844	46%		3,027	18%		2,964	21%		3,027	16%
Comm	836	14%		5,143	31%		5,797	41%		6,975	36%
Hotel	484	8%		969	6%		504	4%		969	5%
Institut	988	16%		1,976	12%		2,057	15%		1,976	10%
Total		6,186			16,791			14,119			19,505
Auto	4,639	75%		12,539	75%		10,597	75%		15,061	75%
Transit	1,237	20%		3,358	20%		2,825	20%		4,016	20%
Bike	123	2%		333	2%		282	2%		401	2%
Walk	185	3%		503	3%		423	3%		602	3%

Daily Trip Summary by Use and Mode										
Trips	A1			A2			B1			B2	
by Type											
Office	1,034	10%		5676	25%		2797	15%		6558	26%
Retail	2,844	27%		3027	13%		2964	16%		3027	12%
Comm	836	8%		5143	23%		5797	32%		6975	28%
Hotel	484	5%		969	4%		504	3%		969	4%
Institut	988	9%		1976	9%		2057	11%		1976	8%
Residen-tial	4,546	42%		5942	26%		3974	22%		5663	23%
	10,732			22733			18093			25168	
Trips											
by Mode											
Auto	7,122	66%		15774	70%		12763	71%		18127	70%
Transit	2,601	24%		5147	23%		4020	22%		5789	22%
Bike	426	4%		732	3%		548	3%		785	3%
Walk	579	5%		1021	5%		769	4%		1101	4%

Traffic Mitigation Strategies used in LOS Analysis

- A northbound right-turn lane was assumed in the background conditions.
- With the projected heavy traffic, the following improvements should be considered:
  - Adding a second through lane on Estes along both the eastbound and westbound directions
  - Adding a second westbound left-turn lane on Estes
  - Adding a southbound right-turn lane on MLK
  - Adding a second southbound left-turn lane on MLK
  - Adding a third though lane on MLK along both the northbound and southbound directions
- The Carolina North Phase 2 recommended a six-lane cross-section along MLK and four-lane cross-section along Estes with exclusive left-turn and right-turn lanes on all approaches; in addition, a second southbound left-turn lane was recommended. These could become long term planning geometrics at the MLK and Estes intersection.


A
B
C
D
E
F
G
H
I
J
Estes Blvd
Sommerset Dr
MLK Blvd
0
200'
400'
600'
800'
N
LEGEND
MIX OF USES
(Retail only as marked)
RESIDENTIAL
INSTITUTIONAL/
RECREATIONAL
OFFICE
POTENTIAL VEHICULAR
ACCESS POINTS
RCD/JORDAN BUFER
RETAIL (Ground Floor)
TRANSITION/BUFFER
POTENTIAL NUMBER OF STORIES
Additional open space (parks, plazas etc.) will be included as part of calculations, however will not be specifically loated on this plan.

Single-Family Detached Housing
(210)

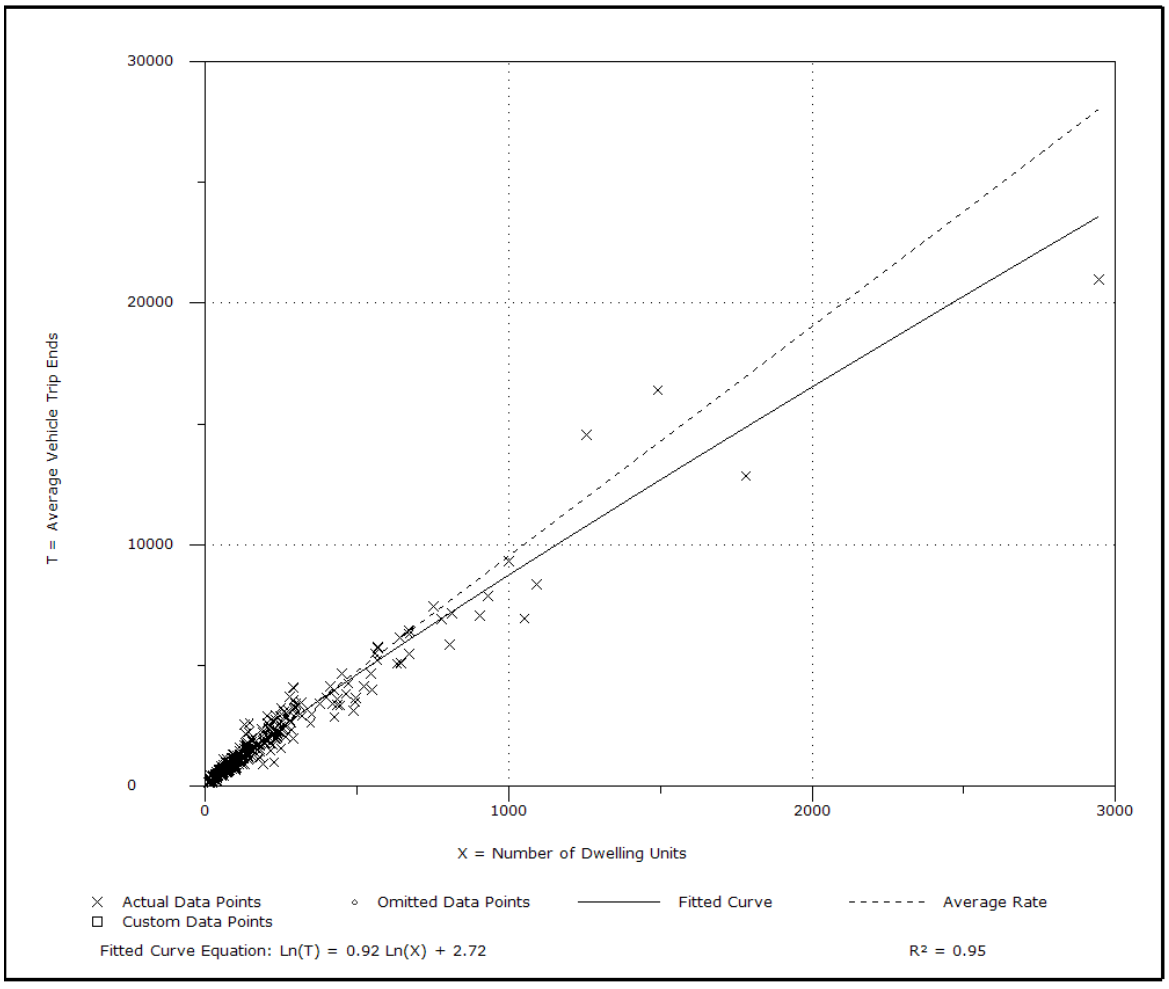
Average Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Number of Studies: 355
Avg. Number of Dwelling Units: 198
Directional Distribution: 50% entering, 50% exiting

Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.52	4.31 - 21.85	3.70

Data Plot and Equation



Trip Generation, 9th Edition

Elementary School
(520)

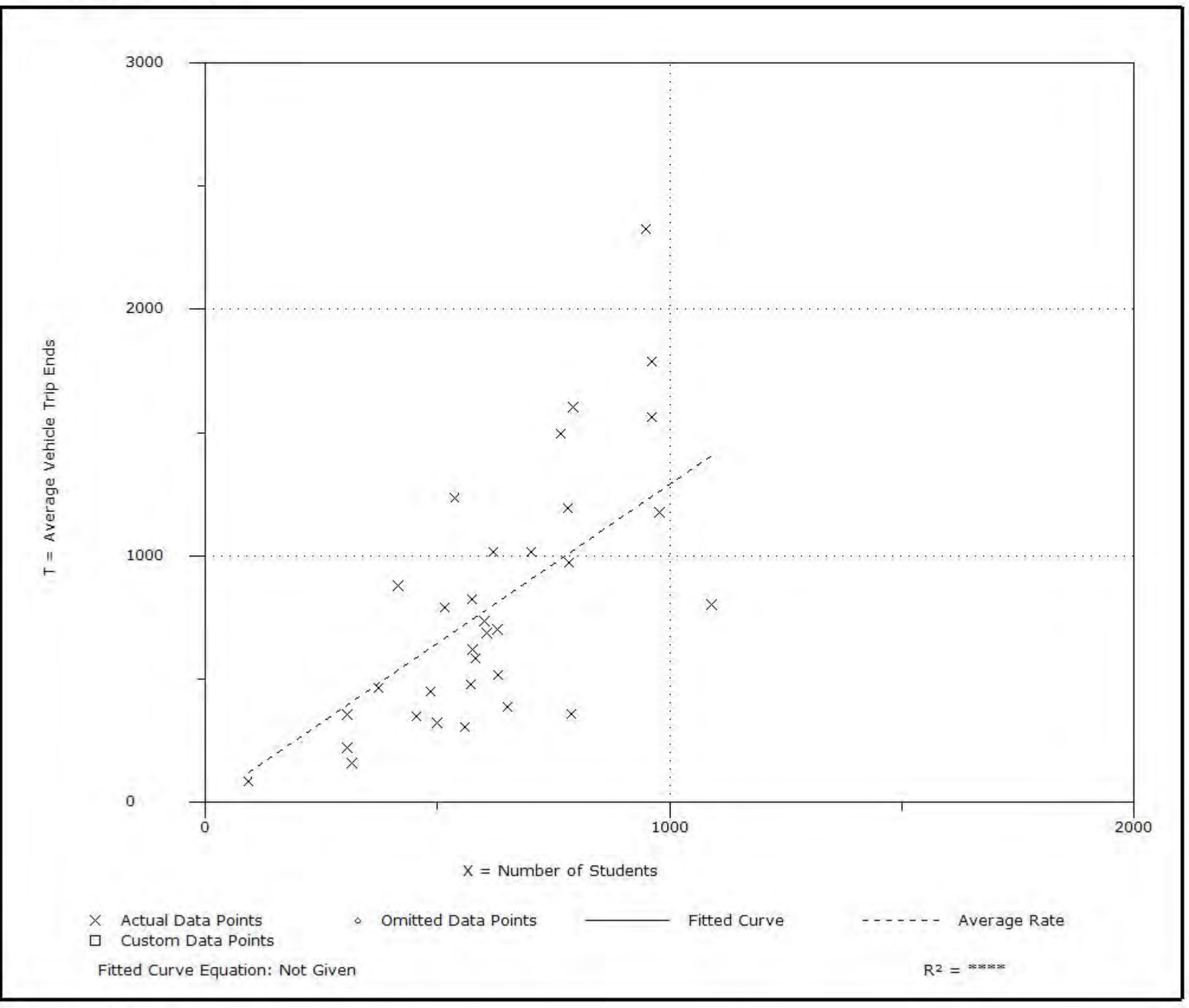
Average Vehicle Trip Ends vs: **Students**
On a: **Weekday**

Number of Studies: 33
Average Number of Students: 620
Directional Distribution: 50% entering, 50% exiting

Trip Generation per Student

Average Rate	Range of Rates	Standard Deviation
1.29	0.45 - 2.45	1.26

Data Plot and Equation



Shopping Center
(820)

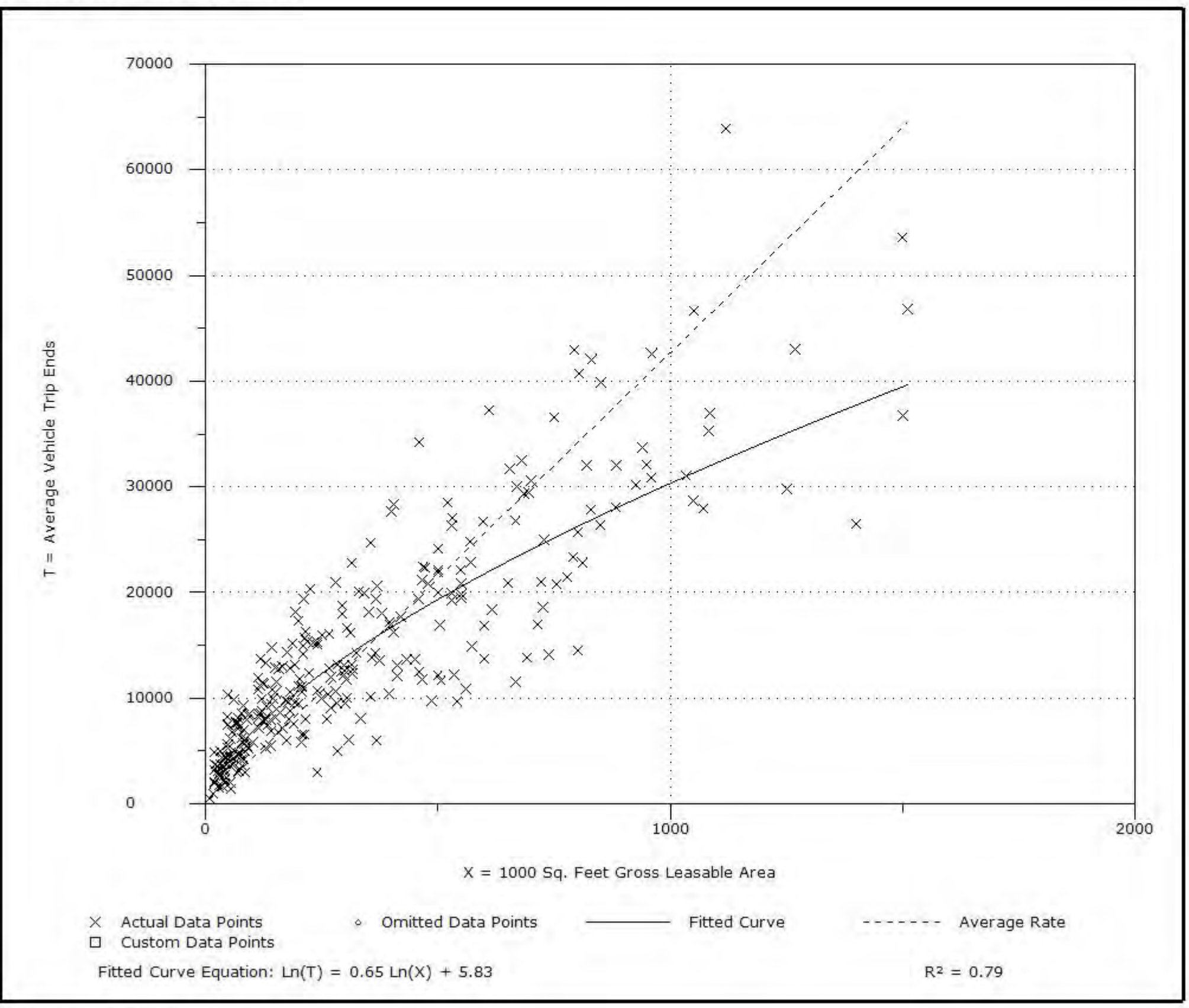
Average Vehicle Trip Ends vs: **1000 Sq. Feet Gross Leasable Area**
On a: **Weekday**

Number of Studies: 302
Average 1000 Sq. Feet GLA: 331
Directional Distribution: 50% entering, 50% exiting

Trip Generation per 1000 Sq. Feet Gross Leasable Area

Average Rate	Range of Rates	Standard Deviation
42.70	12.50 - 270.89	21.25

Data Plot and Equation



Quality Restaurant
(931)

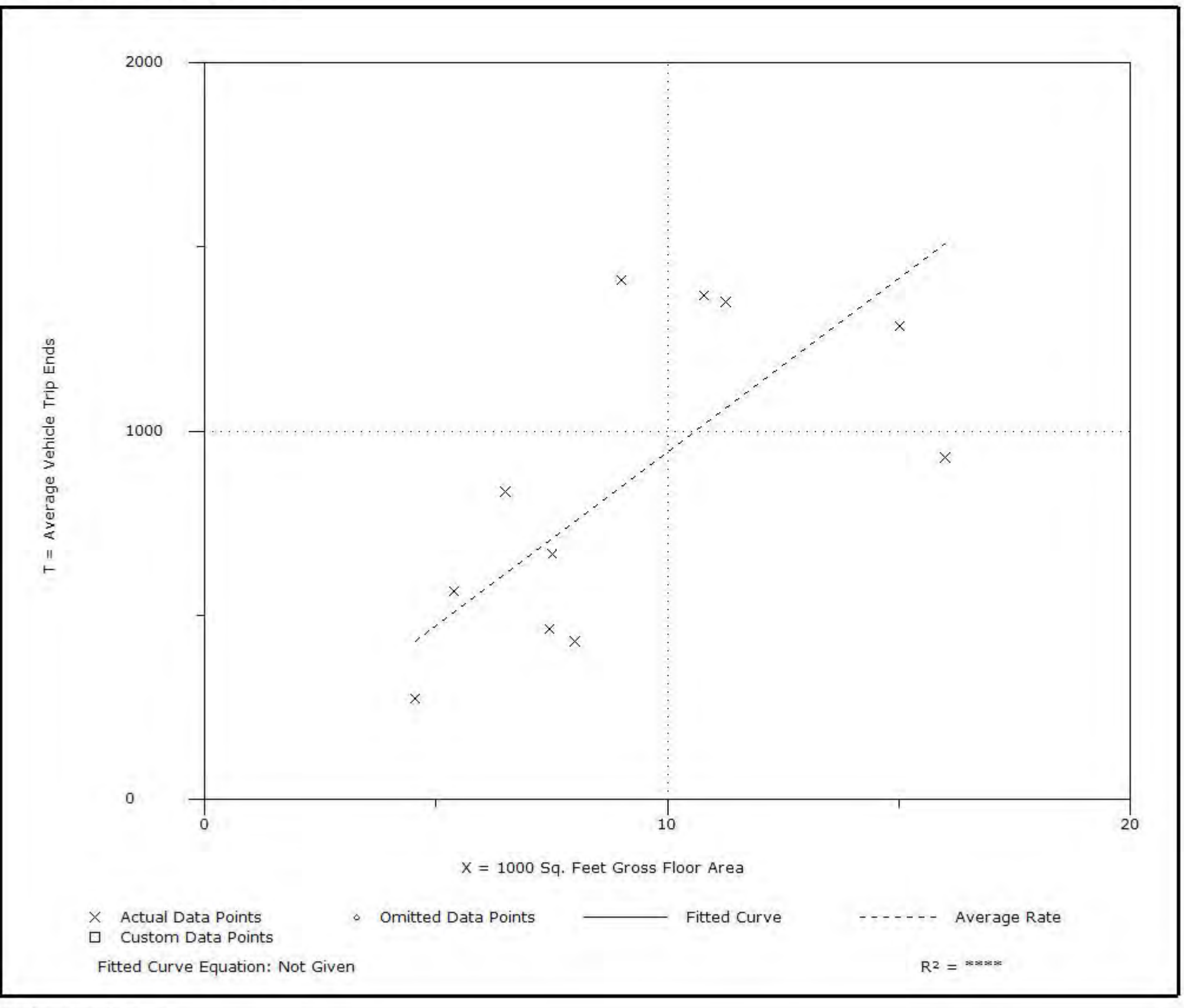
Average Vehicle Trip Ends vs: **1000 Sq. Feet Gross Floor Area**
On a: **Saturday**

Number of Studies: 11
Average 1000 Sq. Feet GFA: 9
Directional Distribution: 50% entering, 50% exiting

Trip Generation per 1000 Sq. Feet Gross Floor Area

Average Rate	Range of Rates	Standard Deviation
94.36	53.63 - 156.67	34.42

Data Plot and Equation



Apartment
(220)

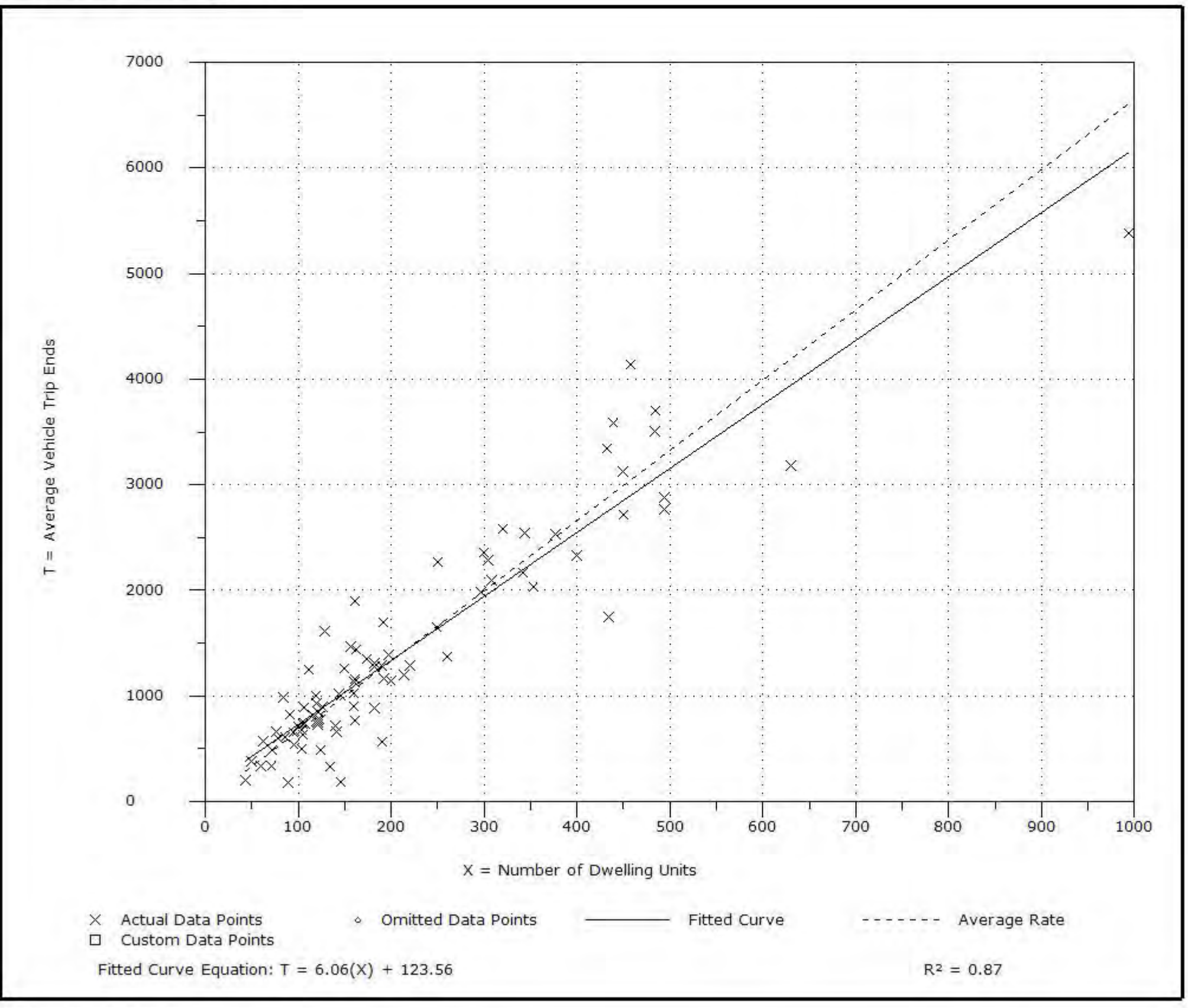
Average Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Number of Studies: 88
Avg. Number of Dwelling Units: 210
Directional Distribution: 50% entering, 50% exiting

Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
6.65	1.27 - 12.50	3.07

Data Plot and Equation



Hotel
(310)

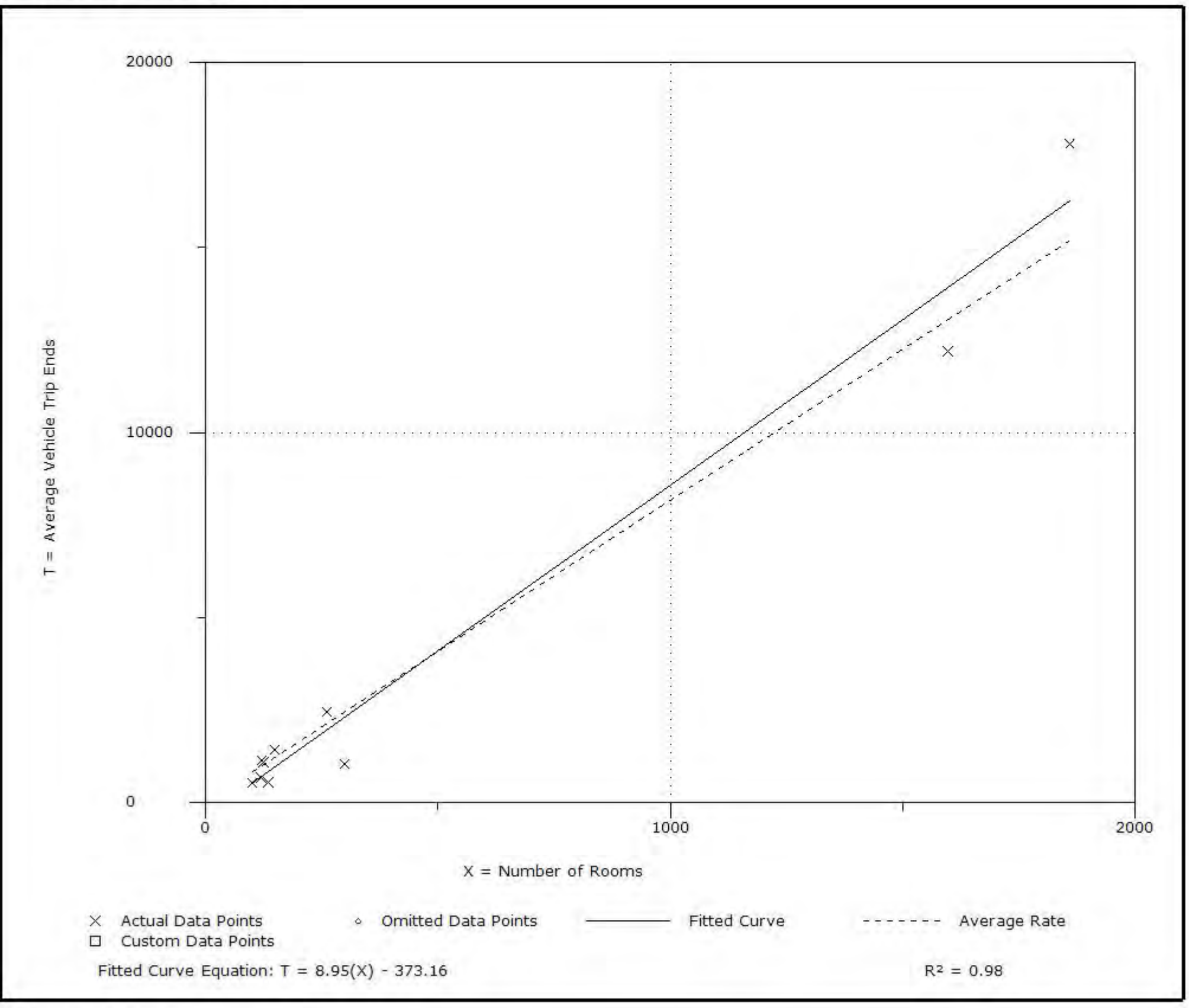
Average Vehicle Trip Ends vs: **Rooms**
On a: **Weekday**

Number of Studies: 10
Average Number of Rooms: 476
Directional Distribution: 50% entering, 50% exiting

Trip Generation per Room

Average Rate	Range of Rates	Standard Deviation
8.17	3.47 - 9.58	3.38

Data Plot and Equation



Fitted Curve Equation: T = 8.95(X) - 373.16

R^2 = 0.98

Specialty Retail Center
(826)

Average Vehicle Trip Ends vs: **1000 Sq. Feet Gross Leasable Area**
On a: **Weekday**

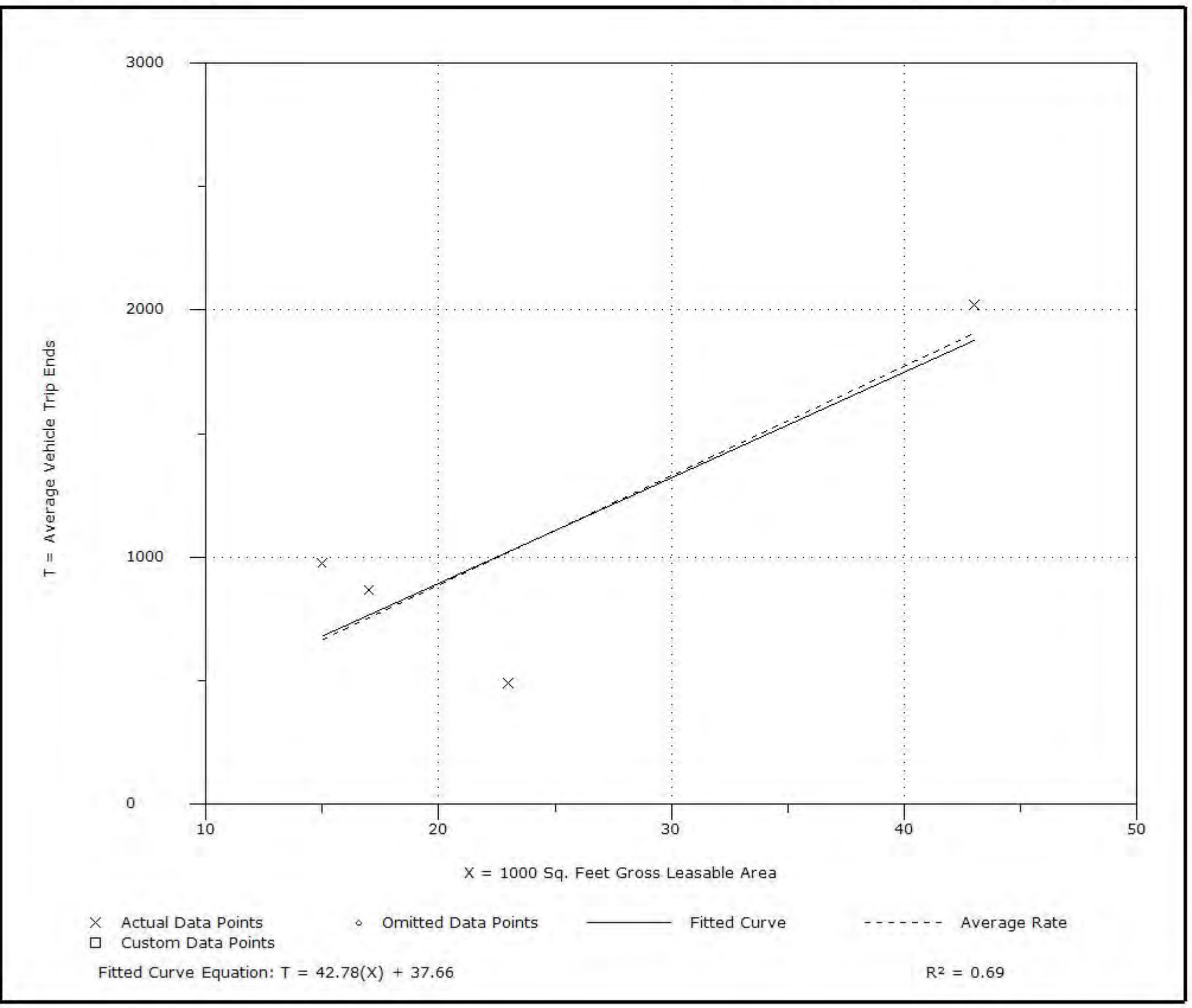
Number of Studies: 4
Average 1000 Sq. Feet GLA: 25
Directional Distribution: 50% entering, 50% exiting

Trip Generation per 1000 Sq. Feet Gross Leasable Area

Average Rate	Range of Rates	Standard Deviation
44.32	21.30 - 64.21	15.52

Data Plot and Equation

Caution - Use Carefully - Small Sample Size



Fitted Curve Equation: T = 42.78(X) + 37.66

R^2 = 0.69

Medical-Dental Office Building
(720)

Average Vehicle Trip Ends vs: **Employees**
On a: **Weekday**

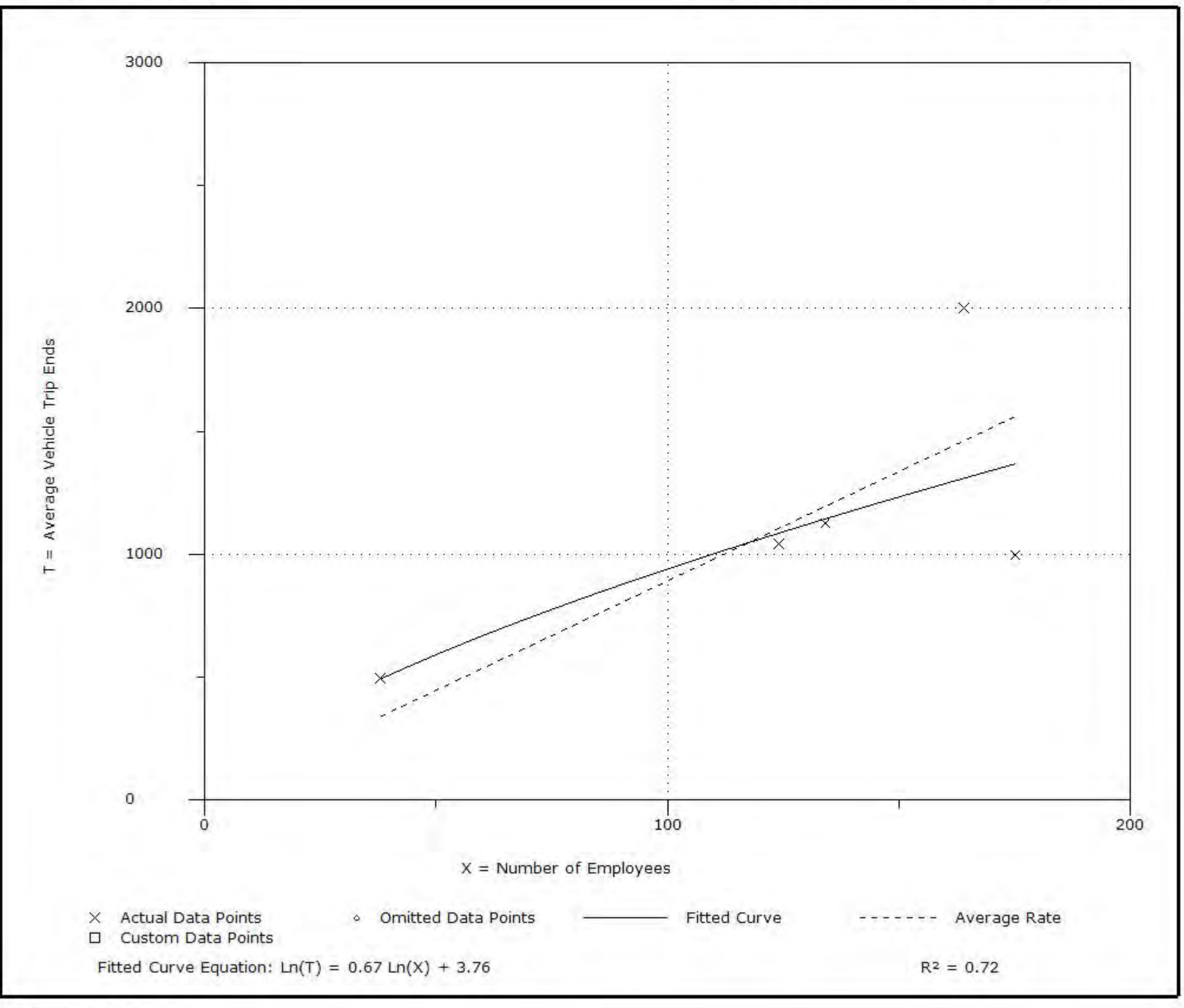
Number of Studies: 5
Avg. Number of Employees: 127
Directional Distribution: 50% entering, 50% exiting

Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
8.91	5.69 - 13.03	3.95

Data Plot and Equation

Caution - Use Carefully - Small Sample Size



General Office Building
(710)

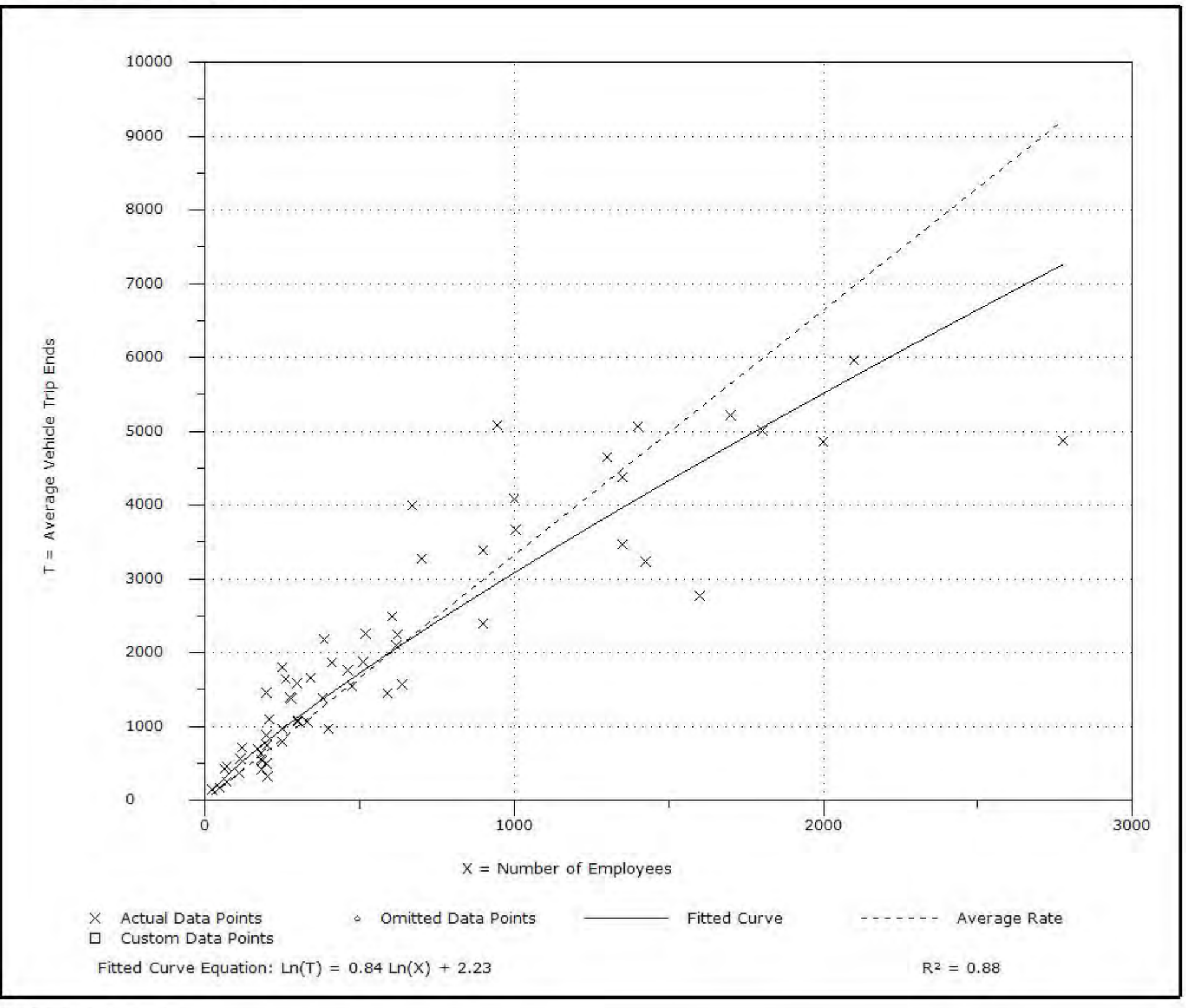
Average Vehicle Trip Ends vs: **Employees**
On a: **Weekday**

Number of Studies: 62
Avg. Number of Employees: 610
Directional Distribution: 50% entering, 50% exiting

Trip Generation per Employee

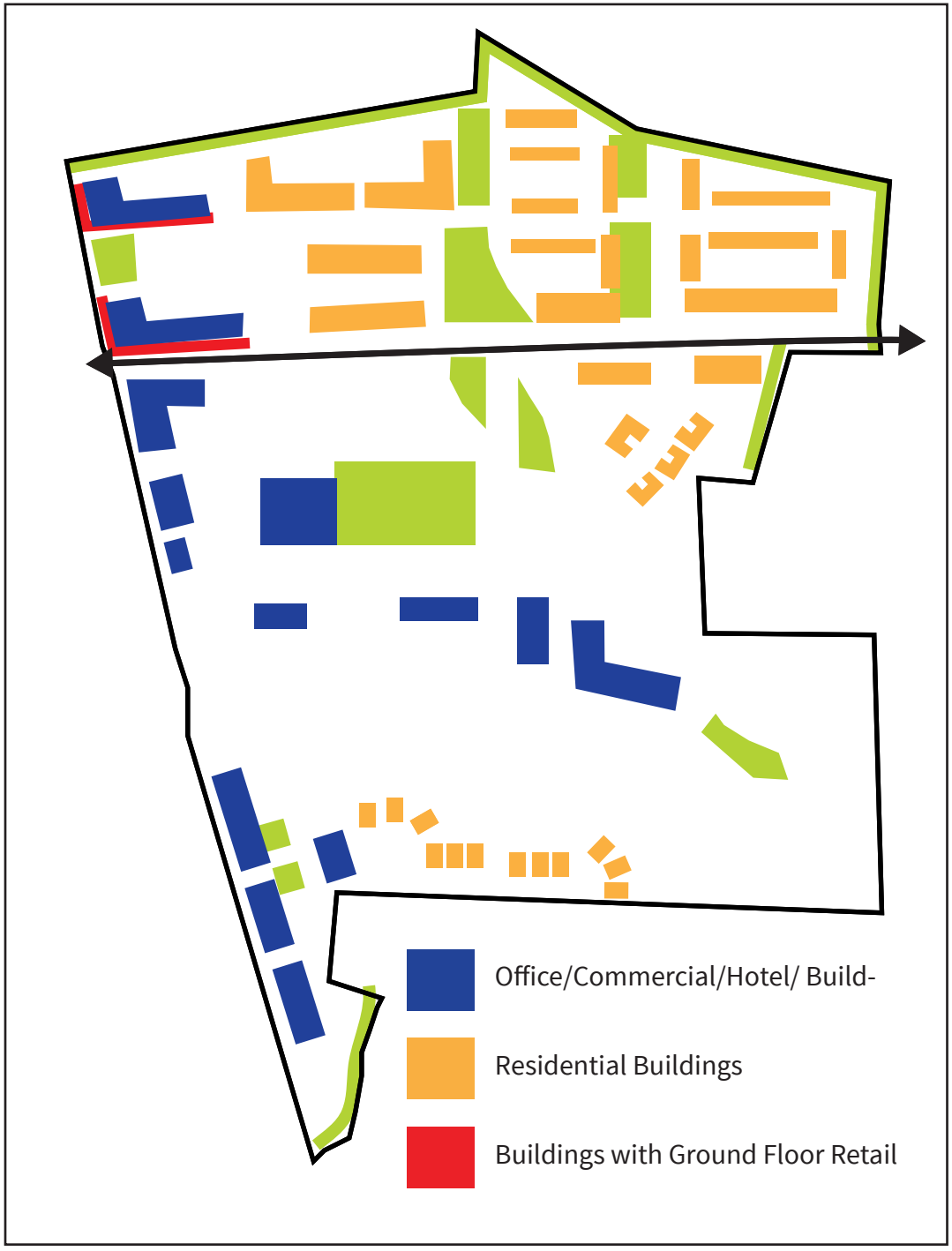
Average Rate	Range of Rates	Standard Deviation
3.32	1.59 - 7.28	2.16

Data Plot and Equation



OPTION	A-1	A-2	B-1	B-2
NEW POPULATION	1712	2267	1510	2168
EMPLOYEE POTENTIAL	1366	2502	1993	3337
NEW ASSESSED PROPERTY	$184,077,750	$262,918,250	$191,927,750	$291,403,250
REVENUE RESULT	$1,312,010	$1,811,569	$1,271,897	$1,887,626.77
EXPENDITURE RESULT	$1,078,181	$1,427,466	$950,899	$1,365,305
NEW DUs	687	923	601	881
NON RES SqFt	355050	644450	545050	897450

OPTION A - 1



Dwelling Units	Non-Residen-tial	Hotel Rooms	Retail SQ FT
687	355,050	60	93,350

Estimated New Residents	Estimated New Employees	Estimated New Students
1712	1366	78

Estimated New Real Property Value
$184,077,750

Revenue Source	Estimated Rev-enue	Total
New State Shared Funds	$491,510.56	$2,624,020
New Real Property Tax (Gen Fund)	$714,222	
New Personal Prop-erty Tax (Gen Fund)	$106,278	

Expenditure Source	Estimated Expenditure	Total
General Government (Variable)	$71,827	$1,078,181
Environment and De-velopment (Variable)	$332,985	
Public Safety (Vari-able)	$525,469	
Leisure (Variable)	$147,901	

OPTION A - 2

Dwelling Units	Non-Residen-tial	Hotel Rooms	Retail SQ FT
923	644,450	120	99,350

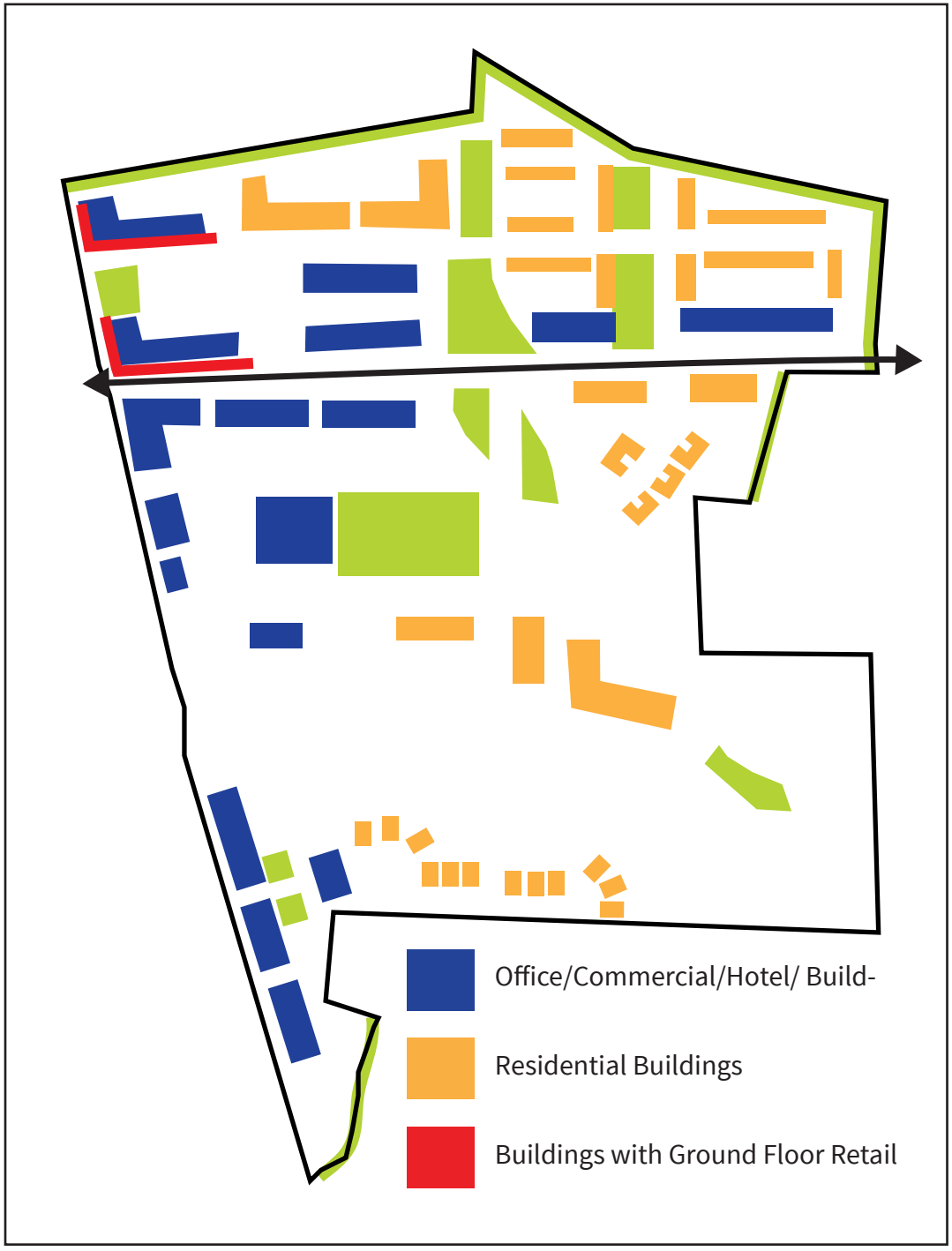
Estimated New Residents	Estimated New Employees	Estimated New Students
2,267	2,502	90

Estimated New Real Property Value
$262,918,250

Revenue Source	Estimated Rev-enue	Total
New State Shared Funds	$650,739.36	$1,811,569.
New Real Property Tax (Gen Fund)	$1,020,123	
New Personal Prop-erty Tax (Gen Fund)	$140,707	

Expenditure Source	Estimated Expenditure	Total
General Government (Variable)	$95,096	$1,427,466
Environment and De-velopment (Variable)	$440,858	
Public Safety (Vari-able)	$695,698	
Leisure (Variable)	$195,814	

OPTION B - 1



Dwelling Units	Non-Residen-tial	Hotel Rooms	Retail SQ FT
601	545,050	60	93,350

Estimated New Residents	Estimated New Employees	Estimated New Students
1510	1993	72

Estimated New Real Property Value
$191,927,750

Revenue Source	Estimated Rev-enue	Total
New State Shared Funds	$433,486.50	$1,271,897
New Real Property Tax (Gen Fund)	$744,680	
New Personal Prop-erty Tax (Gen Fund)	$93,731	

Expenditure Source	Estimated Expenditure	Total
General Government (Variable)	$63,348	$950,899
Environment and De-velopment (Variable)	$293,675	
Public Safety (Vari-able)	$463,436	
Leisure (Variable)	$130,441	

OPTION B - 2

Dwelling Units	Non-Residen-tial	Hotel Rooms	Retail SQ FT
881	897,450	120	99,350

Estimated New Residents	Estimated New Employees	Estimated New Students
2168	3337	87

Estimated New Real Property Value
$291,403,250

Revenue Source	Estimated Rev-enue	Total
New State Shared Funds	$622,402.03	$1,887,626
New Real Property Tax (Gen Fund)	$1,130,645	
New Personal Prop-erty Tax (Gen Fund)	$134,580	

Expenditure Source	Estimated Expenditure	Total
General Government (Variable)	$90,955	$1,365,305
Environment and De-velopment (Variable)	$421,660	
Public Safety (Vari-able)	$665,403	
Leisure (Variable)	$187,287	

Central West: Revenue and Expenditure Inquiry

Explanation and Assumptions

The preceding graphics and calculations are associated with 1 of the 4 “Options” being tested in the Central West Process. The intent of the analysis was to provide a glimpse into what the potential future impacts of different levels of development in the focus area could be given a number of assumptions.

Note: This model did not attempt to recreate community level fiscal dynamics, rather, its intent was to refelect fiscal issues related to development so it may serve an educational purpose for the committee. While this analysis draws from the standard methodolgies utlizied in the Fiscal Impact Analysies performed by specialized consutlts and academics, it is NOT a Fiscal Impact Analysis. It should be viewed as a Potential Revenue and Potential Expenditures Inquiry localized to Chapel Hill that borrows from the Fiscal Impact work of the past (2009 Tichler Bise Carolina North Study)

The aim was to highlight selected factors related to growth, development, and taxation which affect the bottom line of governmental operations. In this reveneue and expenditure model, the estimates are only for the general fund which accounts for roughly 60% of the Town’s annual budget and 75% of the total Chapel Hill Tax Rate.

The estimation of future governmental expenditures related to each development option are calculated for

- General Government (Mayor, Manager, IT, Human Resources, etc)
- Environment and Development (Planning, Public Works)
- Public Safety (Police, Fire)
- Leisure (Parks and Recreation)

Together, the expenditures associated with these governmental functions account for $54.6 Million of a $91.1 Million Dollar recommended budget for FY 13-14. Also important to this inquiry are percentage assumptions related to the split of “Fixed” versus “Variable” costs for the operating expenditures of these categories. Its is important that these proportional factors be accounted for because some apsects of governmental functions are in effect “fixed” at a certain size that wouldn’t change if the community were to growh or decline signifigantly. Chapel Hill wouldn’t get another Mayor or Town Manager for in 20 years even if the population increased 10%. The percentages assumed for fixed” and “variable” costs were drawn from the Tichler Bise Study of 2009. With regards to the General Government, the Tichler Bise Study of 2009 concluded that 80% of the costs required to perform this function are fixed. That means that 20% of the costs are assumed to vary based on the community’s population. See the following tables for all of the assumptions and research used.

Assumptions Used in Fiscal Inquiry				
Land Use	Tax Valuation Multiplier	Unit	Population Multiplier	Unit
1 bed Apt	$150,000	Per Unit	2.35	Per Unit
2 bed Apt	$160,000	Per Unit	2.35	Per Unit
Comm/Serv	$150	Per SQ Foot		
Hotel	$75,000	Per Room		
Inst	$0	per SQ Foot		
Office	$145	per SQ Foot		
Retail	$175	per SQ Foot		
SF Detached	$450,000	Per Unit	3	Per Unit
Townhouse	$300,000	Per Unit	3	Per Unit

Assumption	Value	Use?
Chapel Hill Tax Rate General Fund	0.00388	Used to estimate new property tax revenue in each option
Taxable Personal Property per Person (Source NC Dept of Revenue http://www.dornc.com/publications/municipal_valuations.html)	16,000	Multiplied by the number of new residents in each option then by the Chapel Hill tax rate to estimate new tax revenue from personal property
State Shared Revenue FY 13-14	$16,578,630	Used to account for revenues to the Town from the state. Sales Tax, Beer and Wine, Powell Bill funds ,etc.)
State Shared Revenue Per Capita	$287	Multiplier used in model
Existing Chapel Hill Population	57,744	Used to derive expenditure multipliers by government function

Expenditure Assumptions			
	Government Function	Total	Per Capita Multiplier
1	General Government Expenditures FY 12-13	$12,113,597	210
	%Fixed	80%	168
	% Variable	20%	42
2	Environment and Development Expenditures FY 12-13	$13,213,595	229
	% Fixed	15%	34
	% Variable	85%	195
3	Public Safetey Expenditures FY 12-13	$20,851,803	361
	% Fixed	0.15	54
	% Variable	0.85	307

Research Used to Support Assumptions

Residential Property Value Comparables					
Name	City	Apts. Or Condos?	Total Value	Sample Size Dwelling Units	Tax Assessed Value per Unit
Chapel Hill North	Chapel Hill	Apts	$10,934,700	128	$85,427
Chapel Watch Village	Chapel Hill	Apts	$13,769,600	130	$73,634
Chapel Ridge	Chapel Hill	Apts	$19,632,140	178	$110,293
Cosgrove Hill	Chapel Hill	Apts	$10,380,725	108	$96,118
New Cary Apts	Cary	Apts	$44,360,833	332	$138,628
Lofts at Lakeview	Durham	Apts	$57,360,710	352	$179,252
Oberlin Court	Raleigh	Apts	$53,325,642	370	$166,643
East 54	Chapel Hill	Condos	45,491,193	127	$358,198
Franklin Grove	Chapel Hill	Townhomes	22,848,392	38	$601,273
Vineyared Sq	Chapel Hill	Townhomes (own)	15,767,313	60	$262,789
Townside Terrace(Hillsbrough St)	Chapel Hill	Condos (own)	5,121,506	15	$341,434
Larkspur	Chapel Hill	SF Detached (own)	25,691,718	57	$450,732

Office Property Value Comparables		
Name	City	Tax Assesed Value per SQ FT
Boyd Hall	Chapel Hill	$151
Europa Center	Chapel Hill	$137
Office in North Hills	Raleigh	$146
Souther Village Office(Village Core Area)	Chapel Hill	$100
East 54 Offices	Chapel Hill	$202

Hotel Property Value Comps				
Name	City	Valuation	Number of Rooms	Value per Room
ALOFT Hotel	Chapel Hill	9700924	130	$74,622

Research Used to Support Assumptions

Retail Property Value Comparables		
Name	City	Tax Assesed Value per SQ FT
Rams Plaza	Chapel Hill	$101
University Mall	Chapel Hill	$92
Patteson Place (DSW and Pet Smart)	Durham	$171
Brier Creek Sample	Raleigh	$167
Cameron Village 1	Raleigh	$173
Cameron Village 2	Raleigh	$202
North Hills 1	Raleigh	$103
North Hills 2	Raleigh	$160

Use	Size (Sq Ft or Rooms)		# of Employees	Emp Ratio
Quiznos	1400		7	5.00
Free Standing ABC Store	4000		4	1.00
Open Eye Café	4500		15	3.33
Brixx Pizza Meadomont	6000		50	8.33
Chapel Hill Florist	1500		5	3.33
K & W Cafeteria	12000		76	6.33
Franklin Hotel	66		48	0.73
Harris Teeter	53000		149	2.81
UPS Store	1500		5	3.33
Kitchenworks	2600		10	3.85
Lime and Basil	3000		12	4.00
Marriott Residence Inn	108		40	0.37
UNC Wellness Center	52000		150	2.88
Radio Shack (Umall)	2600		5	1.92
411 West (45 Full-Time and 40 Part Time)	5600		85	15.18
Chapel Hill-Carrboro YMCA	28000		120	4.29
Christ United Methodist Church (Southern Village)	18000		12	0.67
Mtichells Hair Salon	1400		13	9.29
Southern Environental Law Center (Greenbridge)	10000		26	2.60
Typical Walgreens	14500		30	2.07
E Franklin Walgreens	8500		20	2.35
Ronald McDonald House(Before Expansion)	20500		79	3.85

MEADOWMONT

8-10 Units Per Acre

COSGROVE HILL

13 Units Per Acre

TOWNSIDE TERRACE CONDOS

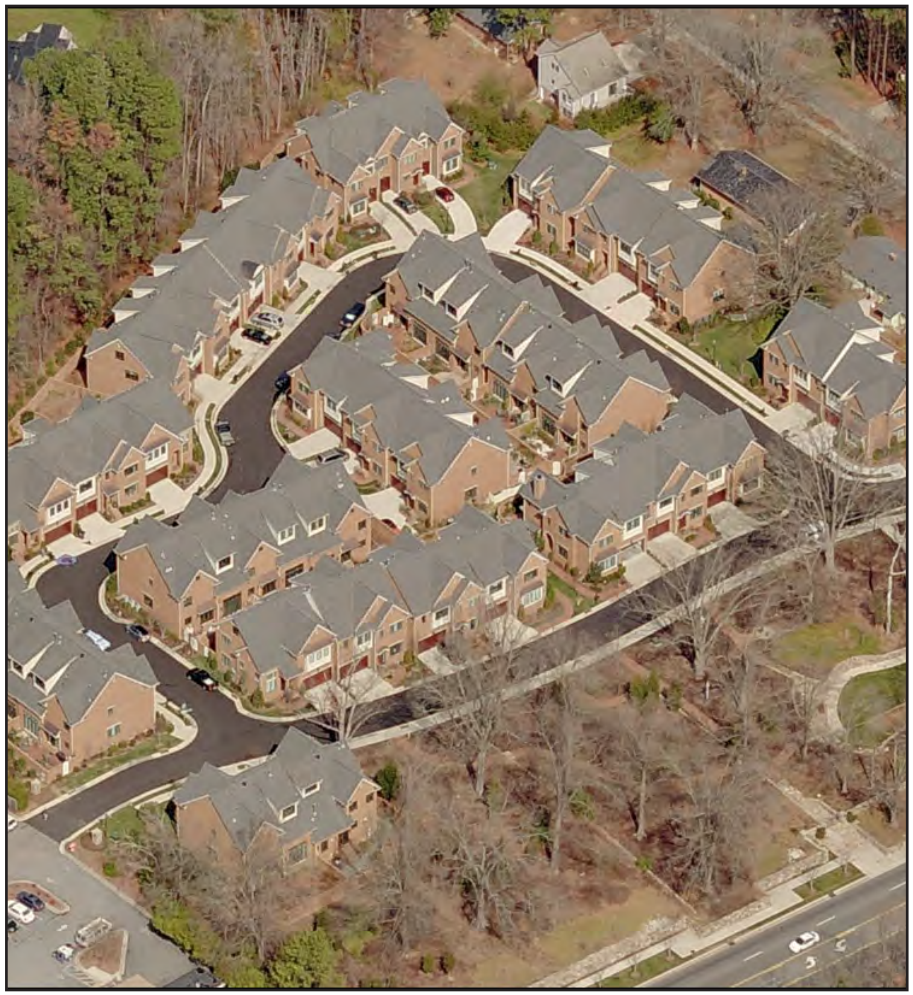
14 Unit Infil on 2.2 Acres

WAREHOUSE APTS

36 Units per Acre

FRANKLIN GROVE TOWNHOMES

Franklin Grove 13 Units per Acre not including streets and open space...7 Units per Acre after inclusion of streets and open space



EAST 54

Name	City	SQ FT	Tax Assesed Value	Tax Assesed Value per SQ FT
East 54 Retail	Chapel Hill	55,000	$10,771,700	$196
East 54 Offices	Chapel Hill	114,000	$23,008,100	$202

CHARACTERISTICS OF NEW BUILDINGS

Cosgrove Hill Offices
101 Cosgrove Ave
Chapel Hill NC 27514

Year Built	2010
Total SQ Feet	30,000
Total Lot Area	81,450
Number of Stories	2
Value Per Sq Foot	$ 140

CHARACTERISTICS OF NEW BUILDINGS

Building in Longmont CO (near Boulder)

2400 SQ Ft of Retail with Residential on Top

The Community park across
the street provides additional benefits: live music, food trucks, bike races,holiday events and other family / community park events.

CHARACTERISTICS OF NEW BUILDINGS

Rhode Island Row is a 274 unit, mixed use development in Washington D.C.

Number of Dwelling Units	274
Site Size	8.5 Acres
Residential Density	32 Units Per Acre
Retail	Bottom Floor
Former Use	Parking Lot

CHARACTERISTICS OF NEW BUILDINGS

95 Unit Apt Building in Brooklyn New York
6 Stories
1 Acre
Density 95 Units per Acre
Urban Land Institute Award Winner
1 Bed Unit 600 Sq Ft
2 Bed Unit 900 Sq Ft
3 Bed Unit 1300 Sq Ft

CHARACTERISTICS OF NEW BUILDINGS

Greenbridge Condos
Chapel Hill, NC
West Rosemary St

Number of Dwelling Units	99
Site Size	1.2
Residential Density	95
Retail	Bottom Floor

CHARACTERISTICS OF NEW BUILDINGS

The Lofts at Lakeview
Erwin Rd Durham, NC
352 Rental Apts
5-6 Stories
Interior Courtyard
Structured Parking
1-3 Bedrooom Units

Resid. Density	Rent Range
40	1050-2400

CHARACTERISTICS OF NEW BUILDINGS

The Townhomes at Chapel Watch Village

Number of Dwelling Units	120
Site Size	35 Acres
Residential Density	3-4
Garages	Yes
Unit Sizes	1300-1800
Rent	$1450-$2090

CHARACTERISTICS OF NEW BUILDINGS

Chapel Hill North Apts and Townhomes

Number of Dwelling Units	125
Site Size	6
Residential Density	20+
Garages	Yes
Unit Sizes	560 -1590

CHARACTERISTICS OF BUILDINGS

Shadowwood Apts.
Chapel Hill

Number of Dwelling Units	337
Site Size	17 Acres
Residential Density	20
Built	90's

CHARACTERISTICS OF NEW BUILDINGS

Weston Lakeside Cary NC
Near Lake Crabtree/Umstead Park

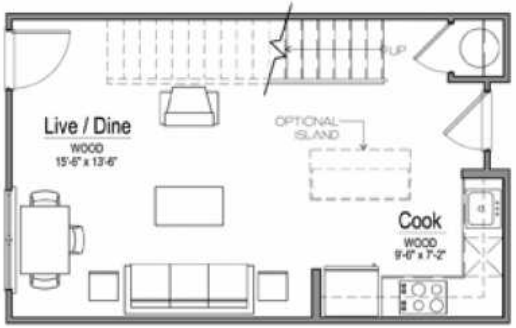
Number of Dwelling Units	332
Site Size	10.2
Residential Density	32.5
Stories	4-6 (Depending on Slope)

CHARACTERISTICS OF NEW BUILDINGS

Apartments at Quarterside
Charlotte NC

3 stories (residential above 1st flor retail/res-turant/healthclub)

Number of Dwelling Units	184
Site Size	2.8
Residential Density	66
Unit Sizes	1300-1800



UNIT C1
842 SQ. FT.

CHARACTERISTICS OF NEW BUILDINGS

ALOFT Hotel
Chapel Hill NC

# of Rooms	130
Stories	5
FAR	Apprx 1.5