

August 1, 2019

Andrea Cabral, CEO Ascend Mass, LLC 125 Cambridge Park Drive Cambridge, MA 02140

Re:

Traffic Review Letter

Marijuana Dispensary

58 Cross Street/1089 Washington Street, Newton, MA

Fuss & O'Neill Reference No. 20190241.A20

Dear Ms. Cabral:

Ascend Mass, LLC proposes to use an existing building to site a marijuana dispensary at 58 Cross Street/1089 Washington Street in Newton, Massachusetts. The proposed building will have approximately 5,000 square feet of gross floor area to be used for retail. The business is expected to open in 2020.

The existing property is situated on 0.57 acres of land on the northeast corner of the intersection of Washington Street and Cross Street in West Newton, approximately 2,200 feet east of the confluence of Waltham Street and Watertown Street at Washington Street, in the center of West Newton Square. Two existing driveways are proposed to continue to provide access to the parcel, one entrance only from Washington Street and one exit only onto Cross Street. On-street parking is permitted on both sides of Washington Street in the vicinity of the site, except for in one marked bus stops. The Massachusetts Bay Transportation Authority (MBTA) bus lines 553 and 554 run along Washington Street with headways ranging from 12 to 30 minutes for peak hour service during the week and 45 minute headway during the weekend.

108 Myrtle Street Suite 502 Quincy, MA 02171 1 617.282.4675 800.286.2469 f 617.481.5885

The parcel is bounded by Washington Street to the south, Cross Street to the west, residential properties to the north, and commercial property (Mattress Firm) to the east. This area is located in the Business 2 District (BU2).

www.fando.com

Fuss & O'Neill has been retained to study the impact of the proposed business on traffic conditions throughout the adjacent roadway network. This letter has been prepared to document the findings of the study and is being submitted to the City of Newton in support of the project's special permit application.

California
Connecticut
Maine
Massachusetts
New Hampshire
Rhode Island

Vermont

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Traffic Volumes and Speeds

The greatest potential for traffic impact on the roadway network by the proposed business will occur during the morning and afternoon peak hours, the periods when commuter related trips are at their highest levels. In order to determine the traffic impact of the proposed business on adjacent street traffic, representatives of Fuss & O'Neill conducted 24-hour traffic volume and speed counts with automatic traffic recorder (ATR) road tubes. The count was located on Washington Street east of Cross Street. Copies of the ATR data is included as an attachment to this letter.

The 85th percentile speed on Washington Street was recorded at 52 miles per hour westbound and 43 miles per hour eastbound. The 24-hour traffic volume on this roadway (total for both directions) was recorded to be 12,585 vehicles.

The raw count data has been included as an attachment to this letter.

Trip Distribution

The distribution of traffic entering and exiting the proposed site was applied to the road network based on the existing regional traffic distributions and the layout of the adjacent roadway network. During the peak hours, the following arrival distributions of traffic are anticipated:

- 55 percent from Washington Street west of the site
- 45 percent from Washington Street east of the site

Figure 1 attached provides a depiction of the expected trip distribution.

Trip Generation

The current and expected site generated traffic for the morning and afternoon peak hours was calculated using existing empirical data from the Institute of Transportation Engineers (ITE) publication Trip Generation, 10th edition, 2017. This publication is an industry-accepted resource for determining trip generation.

The prior land use, Beacon Hill Athletic Club, can be closely modeled by the Land Use Code (LUC) 493, "Athletic Club". Based on 8,500 square feet of recreational space, ITE Trip Generation indicates that the facility generated a total of 27 vehicle trips (16 entering, 11 exiting) in the morning peak hour, and 53 vehicle trips (33 entering, 20 exiting) in the afternoon peak hour. Based on data collected on Washington Street, the weekday morning peak hour was determined to be from 8:00 a.m. until 9:00 a.m., the weekday afternoon peak hour was determined to be 5:30 p.m. until 6:30 p.m., and the Saturday peak hour was determined to be 12:00 p.m. until 1:00 p.m.



The proposed land use can be modeled with LUC 882, "Marijuana Dispensary". This LUC is expected to provide a conservative estimate of the number of trips generated by this facility Based on 5,000 square feet of retail space, ITE Trip Generation indicates that the facility is expected to generate a total of 52 vehicle trips (29 entering, 23 exiting) in the morning peak hour, and 109 vehicle trips (54 entering, 55 exiting) in the afternoon peak hour. During the Saturday peak hour, the facility is expected to generate a total of 182 vehicle trips (91 entering, 91 exiting).

The change in trip generation resulting from the proposed use is projected to be a total of 25 trips during the morning peak hour (13 entering, 12 exiting) and 56 trips during the afternoon peak hour (21 entering and 35 exiting).

Figure 2 attached provides a depiction of the expected trip generation. ITE Trip Generation work sheets have also been attached.

Parking Analysis

According to the City of Newton Zoning Ordinance, one parking space must be provided for every 300 square feet of retail space, plus an additional parking space for every three employees of a retail use. For the proposed business, 17 spaces are required for the 5,000 square feet of retail space, plus seven spaces for 21 employees, for a total of 24 spaces. A total of 28 parking spaces, including two accessible spaces, are proposed for the site.

The parking lot will have two driveways; one entrance only from Washington Street and one exit only onto Cross Street. The exit on Cross Street will be restricted as a left turn only. All traffic must enter through Washington Street and exit through Cross Street. A depiction of the site circulation has been attached at the conclusion of this letter.

Intersection Sight Distance Analysis

Intersection sight distances were calculated at the proposed site driveway in accordance with criteria set forth in the 2006 Massachusetts Highway Department Project Development & Design Guide (PDDG). This sight distance is measured from a point 15 feet back from the edge of travel-way at a height of 3.5 feet, the standard height of a driver's eye.

The design speed on Cross Street is 30 miles per hours, five miles per hours greater than the posted speed limit. In accordance with criteria set forth in the 2006 PDDG, 365 feet of intersection sight distance is required for a passenger car looking to the right or left from the site driveway when approaching a four-lane roadway without a median.

At the Cross Street site driveway, sight distance extends 500 feet looking right (north) and only left turns are proposed to be permitted from the site. The sight distance triangle is not obstructed and



does not encroach upon abutting landowner property. The sight distance exceeds MassDOT criteria for safe egress from the site.

Crash Analysis

Crash data was gathered from the MassDOT Crash Portal along Washington Street and Cross Street in vicinity of the site driveways. The records were gathered for the most recent three years of available data, 2014 through 2016. A total of six crashes were reported over this time period, four in 2016, one in 2015 and one in 2014, for an average of two crashes per year. No injuries were reported in any of the six crashes.

A summary of the crash data has been attached to this report.

Conclusions

The purpose of preparing a traffic impact study is to identify the impact of the proposed business's site generated traffic. The study efforts have indicated that the proposed facility will generate a total of 52 vehicle trips (29 entering, 23 exiting) in the morning peak hour, and 109 vehicle trips (55 entering, 54 exiting) in the afternoon peak hour. This represents an increase of 41 vehicles trips in the morning peak hour and 80 vehicles trips in the afternoon peak hour when compared with current facility vehicle trips generation.

A review of crash data provided by the MassDOT Crash Portal indicated that there were no abnormal crash patterns or frequencies in the study area.

For the proposed business, 17 spaces are required for the 5,000 square feet of retail space, plus seven spaces for 21 employees, for a total of 24 spaces. A total of 28 parking spaces, including two accessible spaces, are proposed for the site.

For drivers exiting onto Cross Street and turning left (south), the sight distance triangle is not obstructed and does not encroach upon abutting landowner property. The sight distance exceeds MassDOT criteria for safe egress from the site.



Based on the results of the foregoing analysis, it is the professional opinion of Fuss & O'Neill, Inc. that the proposed business will not have a significant impact to traffic operations within the study area.

Sincerely,

Matthew W. Skelly, PTOE

Senior Transportation Engineer

Attachments:

ATR Count Data

Traffic Volume Figures Trip Generation Worksheets

Circulation Figure

Crash Data

Location: Washington Street Location: East of Cross Street City/State: Newton, MA

1089VOL1

Start	3/28/2019	-	VB		Totals		ΞB		Totals		ed Totals
Time	Thu	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoo
12:00		14	117			4	105				
12:15		6	118			1	78				
12:30		5	127			7	83				
12:45		6	124	31	486	2	89	14	355	45	84
01:00		7	105			4	90				
01:15		2	108			3	86				
01:30		4	112			4	72				
01:45		8	101	21	426	4	95	15	343	36	769
02:00		8	113			2	92				
02:15		8	105			0	101				
02:30		7	125			0	100				
02:45		5	136	28	479	2	96	4	389	32	868
03:00		8	100			1	107				
03:15		7	137			1	115				
03:30		10	147			1	86				
03:45		15	130	40	514	6	109	9	417	49	931
04:00		8	112			4	100				
04:15		13	106			3	109				
04:30		14	111			7	87				
04:45		25	119	60	448	13	106	27	402	87	850
05:00		26	109			11	108				
05:15		27	99			15	121				
05:30		28	98		SECTION SECTIONS IN THE COLUMN SECTION	27	128				
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07:15		99	86			83	64				
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07:45		111	61	390	337	138	73	397	260	787	597
08:00		122	53		00,	139	49	001	200	, 0,	001
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09:00		99	37	732	220	123	23	310	100	1010	400
09:15		95	39			106	31				
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09:45		82	32	374	145	106	16	419	98	793	243
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10:45		103	17	397	90	96	10	387	58	784	148
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Total		2639	4071			2424	3451			5063	7522
Percent		39.3%	60.7%			41.3%	58.7%			40.2%	59.8%
Grand Total		2639	4071			2424	3451			5063	7522
Percent		39.3%	60.7%			41.3%	58.7%			40.2%	59.8%

ADT

ADT 12,585

AADT 12,585

Accurate Counts 978-664-2565

Location: Washington Street Location: East of Cross Street City/State: Newton, MA

1089VOL1

Page 1

Start	3/28/2019									
Time	Thu	WB	EB							Total
12:00 AM		31	14							45
01:00		21	15							36
02:00		28	4							32
03:00		40	9							49
04:00		60	27							87
05:00		110	84							194
06:00		253	212							465
07:00		390	397							787
08:00		492	518							1010
09:00		374	419							793
10:00		397	387							784
11:00		443	338							78
12:00 PM		486	355							84
01:00		426	343							769
02:00		479	389							868
03:00		514	417							93
04:00		448	402							850
05:00		429	492							92
06:00		434	416							850
07:00		337	260							597
08:00		229	180							409
09:00		145	98							243
10:00		90	58							148
11:00		54	41							9!
Total		6710	5875							1258
Percent		53.3%	46.7%							12000
AM Peak		08:00	08:00					_	_	08:00
	-			-	-	-			-	1010
Vol.	-	492	518	-	-	-	-	-	-	15:00
PM Peak	-	15:00	17:00	-	-	-	-	-	_	93
Vol.	-	514	492	-	-	-	-	-	-	1258
Grand Total		6710	5875							1250
Percent		53.3%	46.7%							
AFT		ADT 40 FC5		OT 10 F0F						
ADT		ADT 12,585	AAI	DT 12,585						

Accurate Counts 978-664-2565

Page 1

Location: Washington Street Location: East of Cross Street City/State: Newton, MA WB

1089SPD1

₩B															
Start	1	16	21	26	31	36	41	46	51	56	61	66	71	76	
Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
03/28/19	0	0	2	2	3	5	2	5	4	5	2	1	0	0	31
01:00	0	0	0	0	3	1	2	1	3	6	5	0	0	0	21
02:00	0	0	0	1	1	2	0	3	4	13	4	0	0	0	28
03:00	0	0	0	2	1	1	0	5	11	16	4	0	0	0	40
04:00	0	0	0	0	1	4	5	8	13	23	6	0	0	0	60
05:00	0	0	0	10	10	9	8	10	22	33	5	2	1	0	110
06:00	0	2	2	12	43	39	24	19	53	46	9	4	0	0	253
07:00	0	2	3	18	46	109	62	36	67	35	12	0	0	0	390
08:00	0	4	4	23	93	117	103	67	61	15	4	1	0	0	492
09:00	4	4	7	39	78	75	39	28	54	32	9	2	0	3	374
10:00	0	8	10	35	91	85	40	26	51	42	7	2	0	0	397
11:00	3	3	12	46	85	85	34	29	81	51	13	1	0	0	443
12 PM	2	1	7	56	104	90	47	48	54	58	13	6	0	0	486
13:00	3	1	4	37	111	92	40	26	55	43	12	2	0	0	426
14:00	3	2	8	48	111	109	64	59	53	19	2	1	0	0	479
15:00	16	31	26	61	135	161	55	14	9	5	1	0	0	0	514
16:00	5	13	28	57	153	119	65	7	1	0	0	0	0	0	448
17:00	4	8	12	53	133	135	65	12	5	0	0	2	0	0	429
18:00	3	3	15	54	128	126	56	26	18	2	1	2	0	0	434
19:00	3	2	18	53	84	91	34	30	16	5	0	1	0	0	337
20:00	0	1	4	34	80	66	16	13	10	3	2	0	0	0	229
21:00	0	2	1	18	37	38	14	13	13	5	4	0	0	0	145
22:00	1	1	0	8	32	17	6	6	6	9	2	2	0	0	90
23:00	0	0	2	4	8	10	7	11	4	6	2	0	0	0	54
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Daily

15th Percentile : 50th Percentile : 85th Percentile : 95th Percentile :

30 MPH 37 MPH 52 MPH 58 MPH

Mean Speed(Average):
10 MPH Pace Speed:
Number in Pace:
Percent in Pace:
Number of Vehicles > 35 MPH:
Percent of Vehicles > 35 MPH:

88 165

40 MPH 31-40 MPH 3157 47.0% 4168 62.1%

671 1571

1586 788 502 668 472 119 29 1 3 6710

Grand Total Overall

15th Percentile : 50th Percentile : 85th Percentile : 95th Percentile :

30 MPH 37 MPH 52 MPH 58 MPH

Mean Speed(Average):
10 MPH Pace Speed:
Number in Pace:
Percent in Pace:
Number of Vehicles > 35 MPH:
Percent of Vehicles > 35 MPH:

40 MPH 31-40 MPH 3157 47.0% 4168 62.1%

Location : Washington Street Location : East of Cross Street

City/State: Newto	, t														
Start	1	16	21	26	31	36	41	46	51	56	61	66	71	76	
Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
03/28/19	0	0	1	4	3	4	0	0	1	1	0	0	0	0	14
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07:00	ő	,	9	12	49	173	107	35	10	Ó	0	0	0	0	397
08:00	0	3	1	11	75	229	152	35	10	1	1	0	0	0	518
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10:00	1	8	11	37	94	152	70	10	3	1	0	0	0	0	387
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12 PM	1	3	6	34	90	124	63	17	12	4	1	0	0	0	355
13:00		2	9	36	111	124	40	9	6	5	0	0	0	0	343
14:00	0	1	7	47	109	145	63	11	3	2	1	0	0	0	389
15:00	2	3	8	35	120	160	70	13	2	4	0	0	0	0	417
16:00	0	4	7	32	100	157	83	18	1	0	0	0	0	0	402
17:00	Ö	2	5	33	133	180	115	18	4	2	0	0	0	0	492
18:00	0	3	10	19	129	152	74	14	6	6	2	0	1	0	416
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21:00	0	ō	2	14	33	31	8	5	3	2	0	0	0	0	98
22:00	0	4	ō	15	14	14	6	2	1	0	1	1	0	0	58
23:00	0	ō	2	5	13	11	5	2	3	0	0	0	0	0	41
Total	9	45	110	480	1479	2163	1151	264	108	51	11	2	2	0	5875
Daily		15th 50th	Percentile :	30 M 36 M 43 M	PH PH										
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Grand Total	9	45	110	480	1479	2163	1151	264	108	51	11	2	2	0	5875

Overall

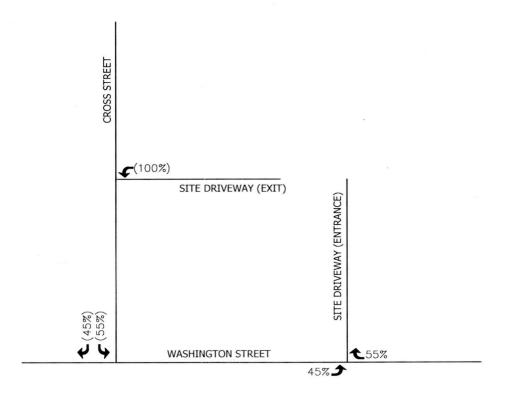
15th Percentile : 30 MPH 50th Percentile : 36 MPH 85th Percentile : 43 MPH 95th Percentile : 47 MPH

Mean Speed(Average): 37 MPH
10 MPH Pace Speed: 31-40 MPH
Number in Pace: 3642
Percent in Pace: 62.0%
Number of Vehicles > 35 MPH: 3752
Percent of Vehicles > 35 MPH: 63.9%

Location: Washington Street Location: East of Cross Street City/State: Newton MA

City/State: Newto VB, EB															1089SPI
Start	1	16	21	26	31	36	41	46	51	56	61	66	71	76	
Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Tota
03/28/19	0	0	3	6	6	9	2	5	5	6	2	1	0	0	4
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02:00	0	0	0	2	1	4	0	4	4	13	4	0	0	0	3
03:00	0	0	0	2	3	2	0	7	13	17	5	0	0	0	4
04:00	2	0	0	3	5	7	9	11	16	28	6	0	0	0	8
05:00	0	0	0	16	19	33	27	17	35	39	5	2	1	0	19
06:00	0	3	5	20	76	111	93	36	59	47	10	4	1	0	46
07:00	0	4	12	30	95	282	169	71	77	35	12	0	0	0	78
08:00	0	7	5	34	168	346	255	102	71	16	5	1	0	0	101
09:00	5	8	15	52	166	239	150	51	60	33	9	2	0	3	79
10:00	1	16	21	72	185	237	110	36	54	43	7	2	0	0	78
11:00	3	5	21	77	181	204	87	44	90	53	15	1	0	0	78
12 PM	3	. 4	13	90	194	214	110	65	66	62	14	6	0	0	84
13:00	4	3	13	73	222	216	80	35	61	48	12	2	0	0	76
14:00	3	3	15	95	220	254	127	70	56	21	3	1	0	0	86
15:00	18	34	34	96	255	321	125	27	11	9	1	0	0	0	93
16:00	5	17	35	89	253	276	148	25	2	0	0	0	0	0	85
17:00	4	10	17	86	266	315	180	30	9	2	0	2	0	0	92
18:00	3 4	6	25	73	257	278	130	40	24	8	3	2	1	0	85
19:00		3	25	105	171	163	64	33	18	8	1	2	0	0	59
20:00 21:00	0	3	9	65	159	113	25	16	11	6	2	0	0	0	409
22:00		2	3	32	70	69	22	18	16	7	4	0	0	0	24:
23:00	1	5 0	0	23	46	31	12	8	7	9	3	3	0	0	148
Total	56	133	275	9 1151	21 3050	21 3749	12 1939	13 766	7 776	6 523	130	0 31	0	0	1258
Daily		50th 85th 95th	Percentile : Percentile : Percentile : Percentile :	30 M 37 M 47 M 55 M	PH PH PH					,					
		10 MPH P Numb		54.	PH 799 0% 920										
Grand Total	56	133	275	1151	3050	3749	1939	766	776	523	130	31	3	3	12585
Overall		50th 85th 95th Mean Spee 10 MPH P	Percentile : Percentile : Percentile : Percentile : d(Average) : ace Speed : per in Pace :	30 M 37 M 47 M 55 M 39 M 31-40 M	РН РН РН РН										
			ent in Pace : > 35 MPH :	54.0	0% 020										



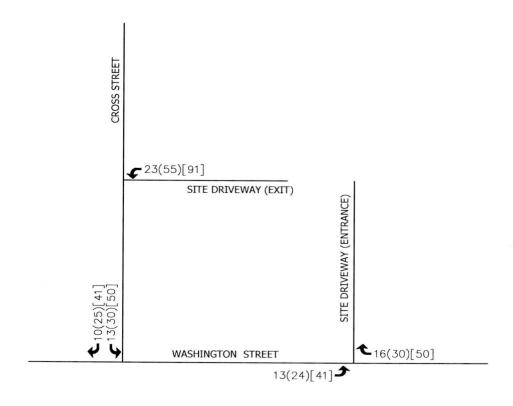


XXX(XXX) = ENTERING TRAFFIC (EXITING TRAFFIC)





SITE GENE	RATED T	RAFFIC V	OLUMES
	ENTER	EXIT	TOTAL
MORNING	29	23	52
AFTERNOON	54	55	109
SATURDAY	91	91	182



XXX(XXX)[XXX] = WEEKDAY MORNING PEAK HOUR (WEEKDAY PM PEAK HOUR) [SATURDAY PEAK HOUR] 8:00 AM - 9:00 AM (5:30 PM - 6:30 PM) [12:00 PM - 1:00 PM]



Health/Fitness Club

(492)

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: Avg. 1000 Sq. Ft. GFA:

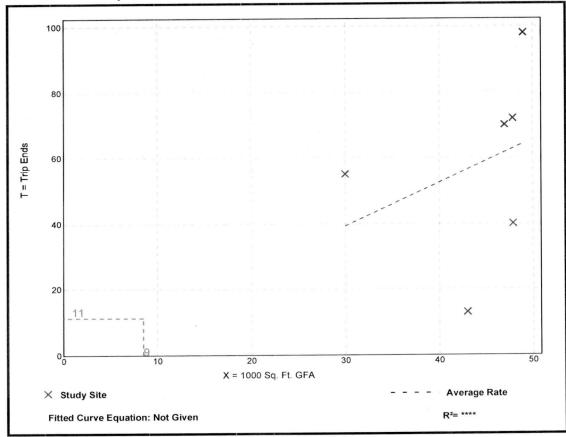
Directional Distribution:

51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.31	0.30 - 2.00	0.64

Data Plot and Equation



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Health/Fitness Club

(492)

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: Avg. 1000 Sq. Ft. GFA:

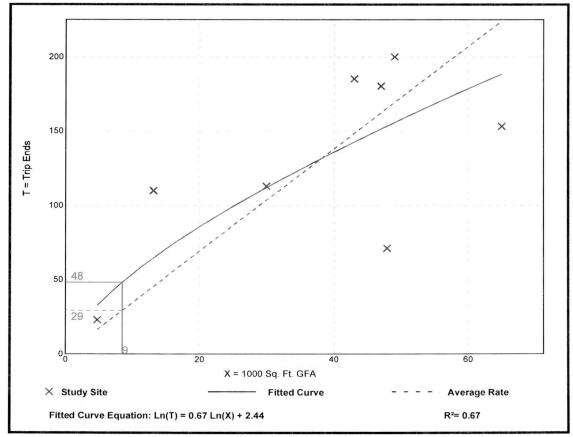
37

Directional Distribution: 57% entering, 43% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.45	1.48 - 8.37	1.57

Data Plot and Equation



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Marijuana Dispensary

(882)

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: 4 Avg. 1000 Sq. Ft. GFA: 2

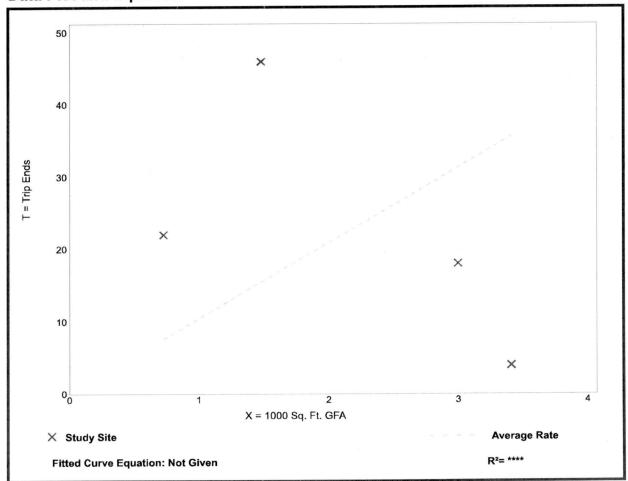
Directional Distribution: 56% entering, 44% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

old trip deliteration	· · · · · · · · · · · · · · · · · · ·	
Average Rate	Range of Rates	Standard Deviation
10.44	1.17 - 31.08	14.00

Data Plot and Equation

Caution - Small Sample Size



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Marijuana Dispensary

(882)

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:

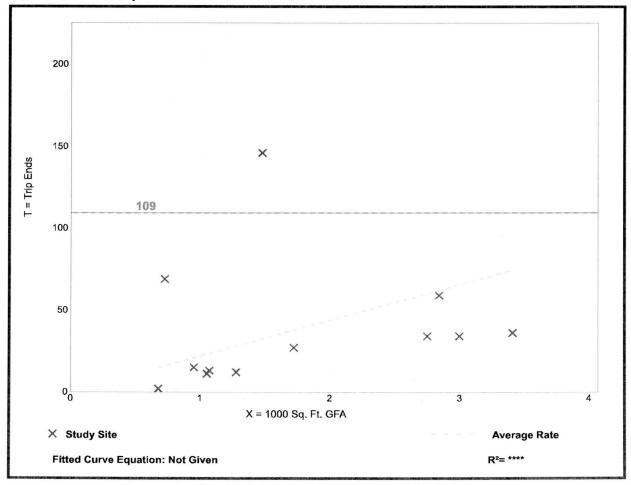
12 Avg. 1000 Sq. Ft. GFA:

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
21.83	2.94 - 98.65	27.36

Data Plot and Equation



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Marijuana Dispensary

(882)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

On a: Saturday, Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 4 Avg. 1000 Sq. Ft. GFA: 2

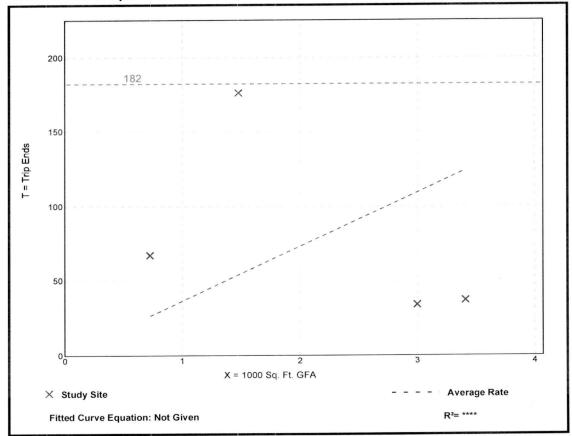
Directional Distribution: Not Available

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
36.43	10.85 - 118.92	50.44

Data Plot and Equation

Caution - Small Sample Size



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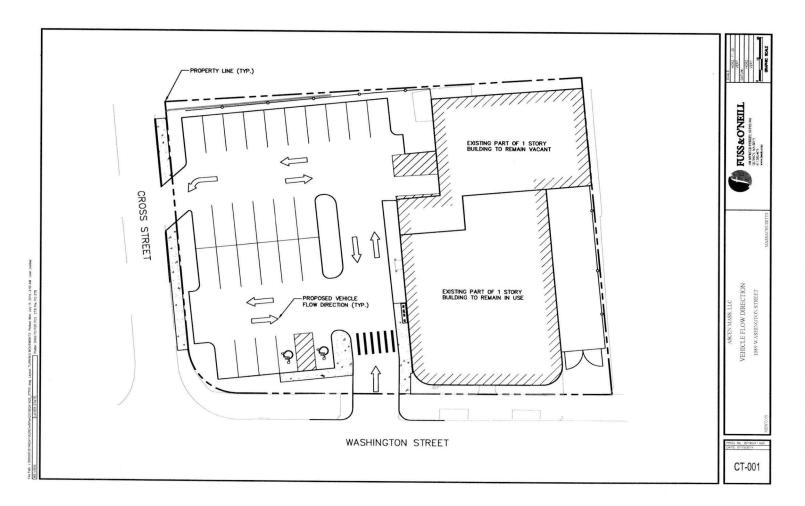


TABLE A-1 CRASH DATA SUMMARY - 2014 to 2016 STUDY AREA INTERSECTIONS

Washington Street

Criteria YEAR	
2014	1
2015	1
2016	4
Total	6
Average No. of Crashes	2.00
Crash Rate	0.44
TYPE	
Angle	2
Rear-End	2
Head-On	0
Sideswipe	2
Pedestrian/Bicycle	0
Collision w/ Fixed Object	0
Unknown/Other	<u>0</u>
Total	6
SEVERITY	
Property Damage Only	5
Non-fatal Injury	0
Fatality	0
Unknown/Other	1
Total	6
WEATHER	
Clear	5
Wet	0
Snow/Ice	0
Clouds	1
Fog	0
Unknown/Other	<u>0</u>
Total	6
TIME	
Weekday 7:30 AM - 9:30 AM	0
Weekday 3:30 PM - 5:30 PM	1
Other	<u>5</u>
Total	6

District #6 Average Crash Rates: 0.71 Signalized Intersections 0.52 Unsignalized Intersections