

MEMORANDUM

TO: Mr. Peter Crabtree
Northland Residential Corporation
20 Mall Road, Suite 220
Burlington, MA 01803

FROM: Mr. F. Giles Ham, P.E. and
Ms. Mary-Kate James, EIT
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DATE: June 23, 2017

RE: 7667

SUBJECT: Proposed Residential Development
Wellesley, Massachusetts

Vanasse & Associates, Inc. (VAI) has conducted a Transportation Impact Assessment (TIA) in order to determine the potential traffic impacts associated with a residential development located at 135 Great Plain Avenue, in Wellesley, Massachusetts. This assessment identifies and analyzes existing and future traffic conditions both with and without the project and reviews access requirements and safety considerations.

PROJECT DESCRIPTION

The project entails the development of a 44-unit townhouse community, located at 135 Great Plain Avenue, south of Skyline Drive. Access to the project site will be located approximately 350 feet south of Skyline Drive, on the opposing side of the road. Figure 1 depicts the site location in relation to the local roadway network.

This assessment was prepared in consultation with the Town of Wellesley and was performed in general accordance with the state guidelines for Traffic Impact Assessments (TIAs).

EXISTING CONDITIONS

A comprehensive field inventory of existing conditions on the study area roadways was conducted in June 2017. The field investigation consisted of an inventory of existing roadway geometrics, traffic volumes, and operating characteristics, as well as posted speed limits and land use information within the study area. The study area was selected to contain the major roadways providing access to the project site, Great Plain Avenue, along with the nearest intersection of Great Plain Avenue at Skyline Drive.

Roadways

Great Plain Avenue (Route 135)

Within the study area, Great Plain Avenue is a two-lane roadway under local jurisdiction that traverses the study area in a general northwest-southeast direction. Great Plain Avenue provides one 12-foot wide travel lane per direction separated by 4-foot wide yellow median striping within the study area. A

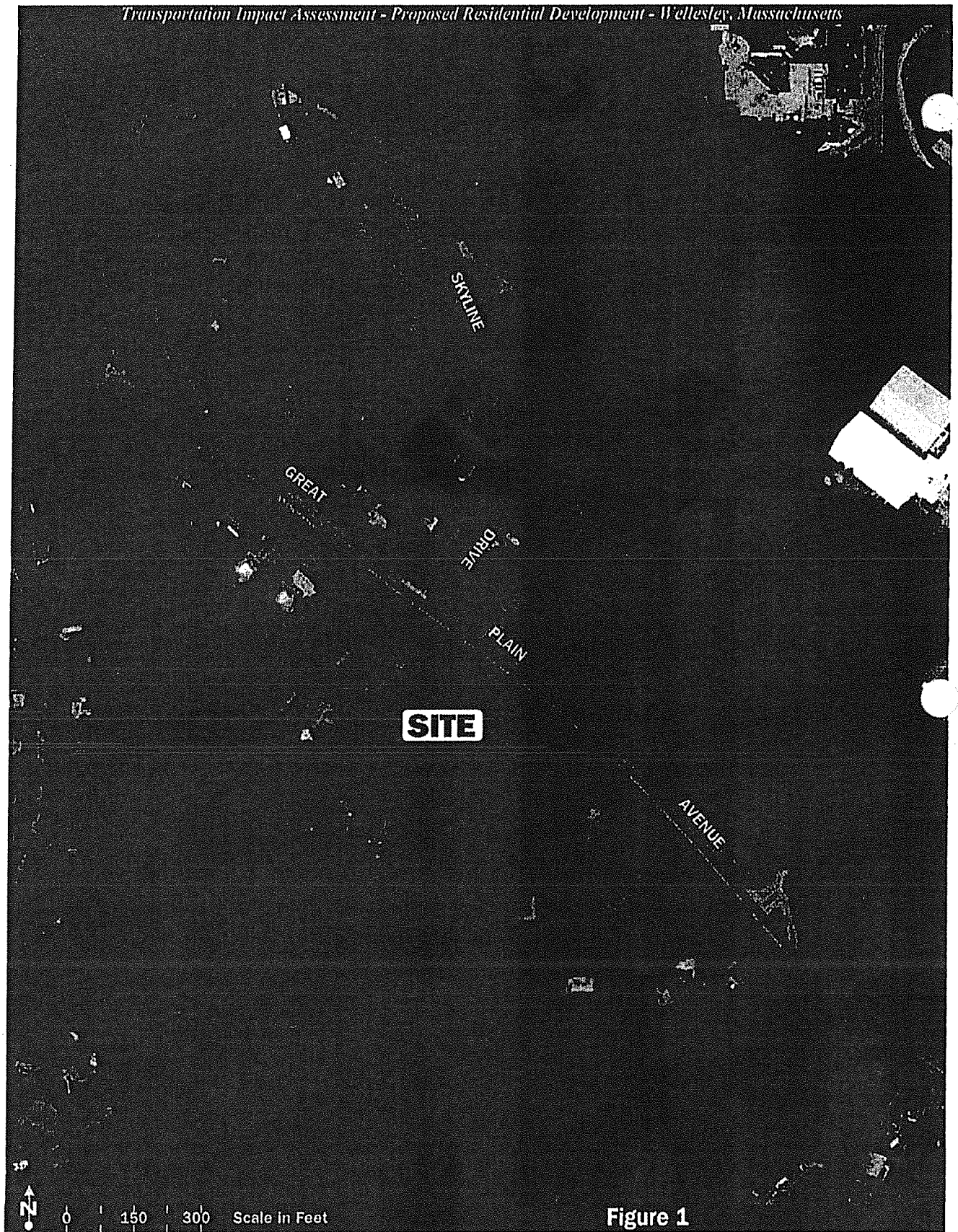


Figure 1

Site Location Map

sidewalk is provided along the both sides of Great Plain Avenue, with illumination provided by way of street lights mounted on steel poles. The posted speed limit along Great Plain Avenue within the study area is 35 miles per hour (mph), with land use consisting primarily of residential properties.

Intersections

Great Plain Avenue (Route 135) at Site Drive

Skyline Drive intersects Great Plain Avenue from the north to form this three-legged, unsignalized intersection. The Great Plain Avenue south-eastbound and northwest-bound approaches consists of one 12-foot wide general purpose travel lane with directions of travel separated by 4-foot wide yellow median striping. Skyline Drive is 24-feet wide and accommodates two-way travel with no marked centerline and vehicles approaching Great Plain Avenue are under STOP-control. A sidewalk is provided along both sides of Great Plain Avenue. Land use in the vicinity of the intersection consists of residential properties.

Existing Traffic Volumes

In order to establish baseline traffic-volume demands and flow patterns within the study area, manual turning movement counts (TMCs) and vehicle classification counts were completed at the study area intersections in June 2017 during the weekday morning (7:00 to 9:00 AM) and weekday evening (4:00 to 6:00 PM) peak periods. In addition, automatic traffic recorder (ATR) counts were completed in June 2017 on Great Plain Avenue in order to record weekday traffic conditions in the vicinity of the project site over an extended period.

Seasonal Adjustment

In order to evaluate the potential for seasonal fluctuation of traffic volumes within the study area, historical traffic data collected by MassDOT were examined. Based on a review of seasonal adjustment factors collected by MassDOT for urban arterials and collectors, June traffic volumes are typically 8 percent higher than average monthly conditions and, therefore, were not adjusted downward in order to provide a conservative (above-average) analysis condition. The 2017 Existing weekday morning and evening peak-hour traffic volumes are depicted on Figure 2, with the weekday traffic conditions presented in Table 1.

Table 1
2017 TRAFFIC VOLUMES

Location	AWT ^a	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
		VPH ^b	K Factor ^c	Directional Distribution ^d	VPH	K Factor	Directional Distribution
Great Plain Avenue at the Site Drive	14,220	1,171	8.2	51% SEB	1,128	7.9	60% SEB

^aAverage weekday traffic in vehicles per day.

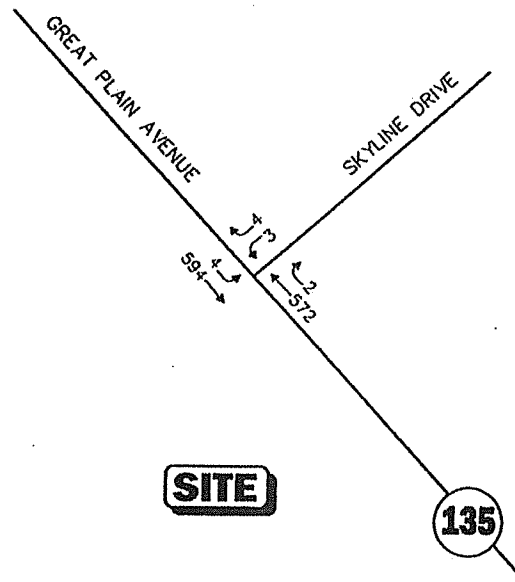
^bVehicles per hour.

^cPercent of daily traffic occurring during the peak hour.

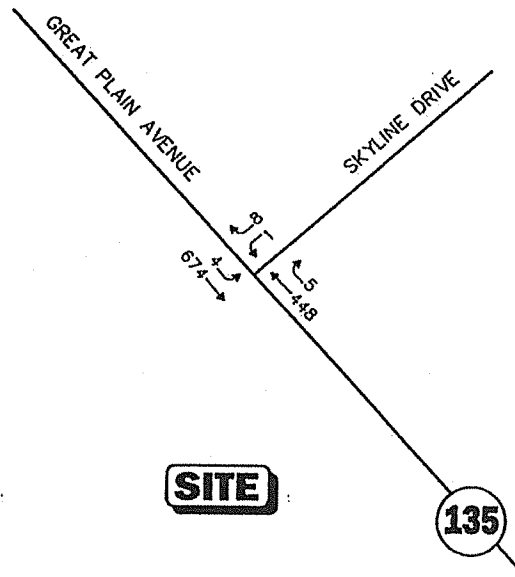
^dPercent traveling in peak direction.

NWB = northwest-bound; SEB = southeast-bound.

WEEKDAY MORNING PEAK HOUR



WEEKDAY EVENING PEAK HOUR



Not To Scale



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Figure 2

**2014 Existing
Peak Hour Traffic Volumes**

Great Plain Avenue in the vicinity of the project site was found to accommodate approximately 14,220 vehicles on an average weekday (two-way, 24-hour volume), with approximately 1,171 vehicles per hour (vph) during the weekday morning peak hour and approximately 1,128 vph during the weekday evening peak hour.

A review of the peak-period traffic counts indicates that the weekday morning peak hour occurs between 8:00 and 9:00 AM, with the weekday evening peak hour occurring between 4:45 and 5:45 PM.

Motor Vehicle Crash Data

Motor vehicle crash information for the study area intersections was provided by the Massachusetts Department of Transportation (MassDOT) Highway Division Safety Management/Traffic Operations Unit for the most recent five-year period available (2010 through 2014) in order to examine motor vehicle crash trends occurring within the study area. A summary of the data is provided in Table 2.

Table 2
MOTOR-VEHICLE CRASH DATA SUMMARY^a

	Great Plain Avenue at Skyline Drive
<i>Year:</i>	
2010	0
2011	1
2012	0
2013	0
<u>2014</u>	<u>1</u>
Total	2
Average ^b	0.40
Crash Rate ^c	0.09
Significant ^d	No
<i>Type:</i>	
Angle	1
Rear-End	1
Head-On	0
Single Vehicle	0
Sideswipe	0
Pedestrian	0
<u>Unknown</u>	<u>0</u>
Total	2
<i>Pavement Conditions</i>	
Dry	1
Wet	1
Snow	0
Icy	0
Other	0
<u>Unknown</u>	<u>0</u>
Total	2
<i>Severity:</i>	
Property Only	2
Injury Accident	0
Fatal Accident	0
<u>Other</u>	<u>0</u>
Total	2

^aSource: MassDOT. ^bAverage accident over five-year period.

^cCrash rate per million entering vehicles (mev).

^dUnsignalized intersections are significant if rate 0.58 crashes per mev for locations within District 6.

As can be seen in Table 2, the unsignalized intersection of Great Plain Avenue at Skyline Drive was found to have experienced 2 motor vehicle crashes over the five-year review period. The study intersection was found to have a motor vehicle crash rate below the MassDOT average for an unsignalized intersection, for the MassDOT Highway Division District in which the project is located (District 6). No fatal motor vehicle crashes were reported at the study area intersections over the five-year review period.

FUTURE CONDITIONS

Traffic volumes in the study area were projected to the year 2024, which reflects a seven-year planning horizon consistent with State traffic study guidelines. Independent of the project, traffic volumes on the roadway network in the year 2024 under No-Build conditions include all existing traffic and new traffic resulting from background traffic growth. Anticipated project-generated traffic volumes superimposed upon the 2024 No-Build traffic network reflect the 2024 Build conditions with the project.

Background Traffic Growth

Future traffic growth is a function of the expected land development in the immediate area and the surrounding region. Several methods can be used to estimate this growth. A procedure frequently employed estimates an annual percentage increase in traffic growth and applies that percentage to all traffic volumes under study. The drawback to such a procedure is that some turning volumes may actually grow at either a higher or lower rate at particular intersections.

An alternative procedure identifies the location and type of planned development, estimates the traffic to be generated, and assigns it to the area roadway network. This procedure produces a more realistic estimate of growth for local traffic. The drawback of this procedure is that potential growth in population and development external to the study area would not be accounted for in the traffic projections.

To provide a conservative analysis framework, both procedures were used.

Specific Development by Others

The Town of Wellesley Planning Department was contacted to identify any specific background developments that would have an impact on the traffic operating conditions within the study area by the 2024 design year. Based on these discussions, no projects were identified.

General Background Traffic Growth

In order to account for general background growth within the study area, existing traffic volumes were adjusted upwards by one percent over the seven-year planning horizon.

No-Build Traffic Volumes

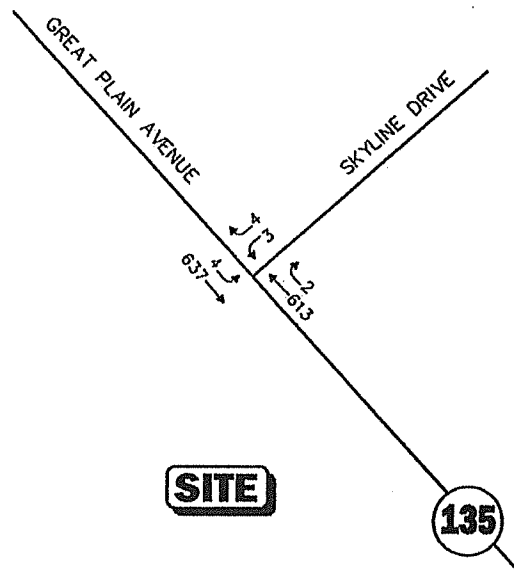
The 2024 No-Build peak-hour traffic-volumes were developed by applying the 1.0 percent per year compounded annual background traffic growth rate to the 2017 Existing peak-hour traffic volumes. The resulting 2024 No-Build weekday morning and evening peak-hour traffic volumes are shown on Figure 3.

Project-Generated Traffic

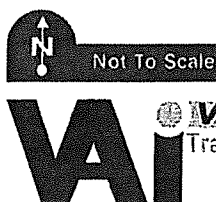
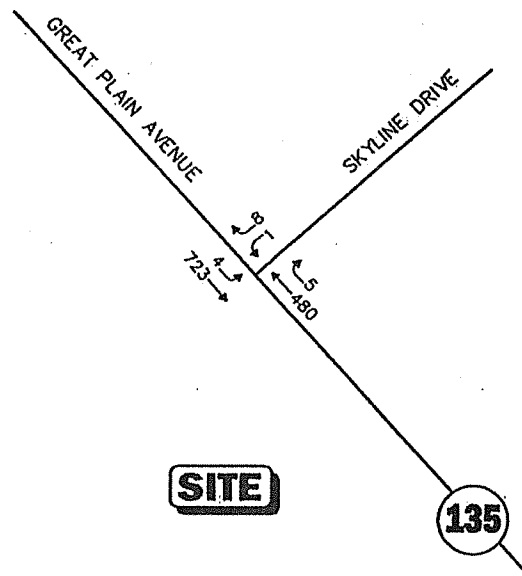
In order to develop the traffic characteristics of the proposed project, trip-generation statistics published by the Institute of Transportation Engineers (ITE)¹ for similar land uses as those proposed were used. ITE Land Use Code (LUC) 230, Townhouse/Condominium, with the independent variable of number of units equal to 44 was used to develop the anticipated traffic characteristics of the project. Table 2 summarizes the anticipated traffic characteristics of the project.

¹ITE - *Trip Generation Manual*, Ninth Edition; Institute of Transportation Engineers; Washington, DC; 2012.

WEEKDAY MORNING PEAK HOUR



WEEKDAY EVENING PEAK HOUR



Not To Scale

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Figure 3

**2021 No-Build
Peak Hour Traffic Volumes**

Table 2
TRIP-GENERATION SUMMARY

Time Period/Direction	Proposed Residential (44 units) ^a
Weekday Daily	314
<i>Weekday Morning Peak Hour:</i>	
Entering	5
<u>Exiting</u>	<u>22</u>
Total	27
<i>Weekday Evening Peak Hour:</i>	
Entering	21
<u>Exiting</u>	<u>10</u>
Total	31

^aBased on ITE LUC 230, Townhouse/Condominium

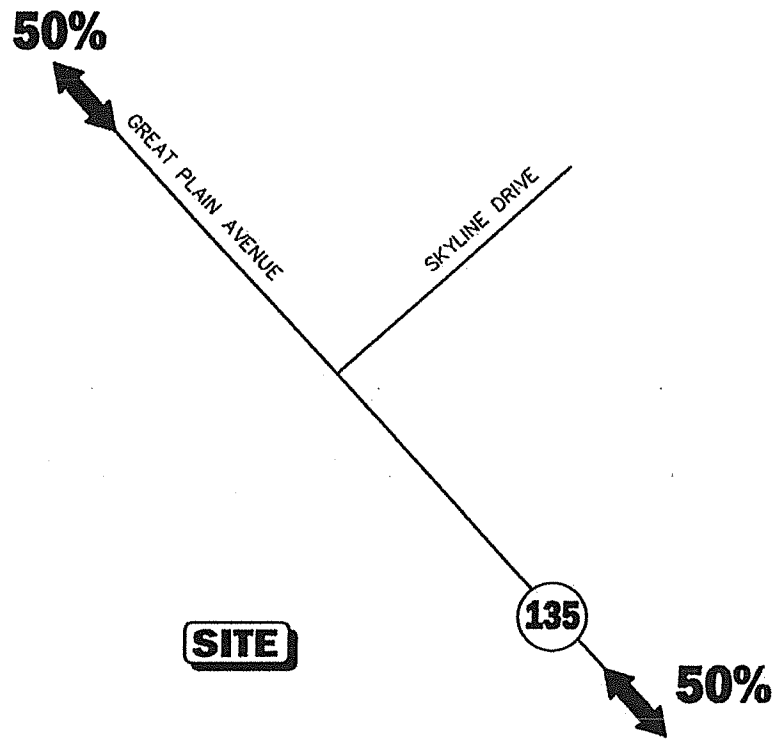
As can be seen in Table 2, the project is expected to generate approximately 314 vehicle trips on an average weekday (157 entering and 157 exiting), with approximately 27 vehicle trips (5 entering and 22 exiting) during the weekday morning peak hour and 31 vehicle trips (21 entering and 10 exiting) during the weekday evening peak hour.

Trip Distribution and Assignment

The directional distribution of trips to and from the project was determined based on a review of existing travel patterns. The trip distribution pattern for the project is summarized in Table 3 and graphically depicted on Figure 4. The additional traffic expected to be generated by the project was assigned onto the study area roadway network as shown on Figure 5 for the weekday morning and evening peak hours.

Table 3
TRIP-DISTRIBUTION SUMMARY

Roadway	Direction	To/From Site (Percent)
Great Plain Avenue	Northwest	50
Great Plain Avenue	Southeast	<u>50</u>
TOTAL		100



Not To Scale

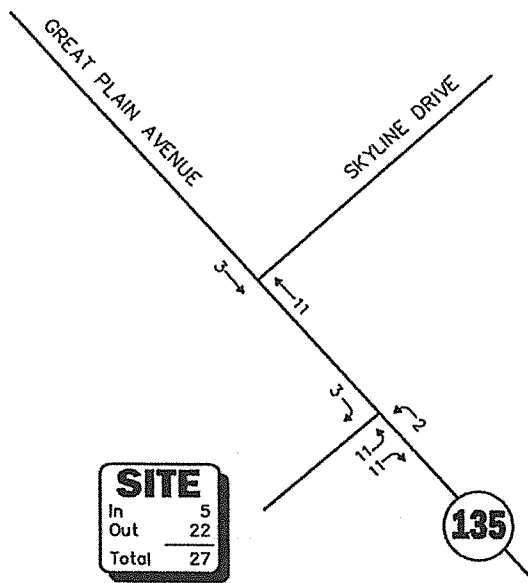


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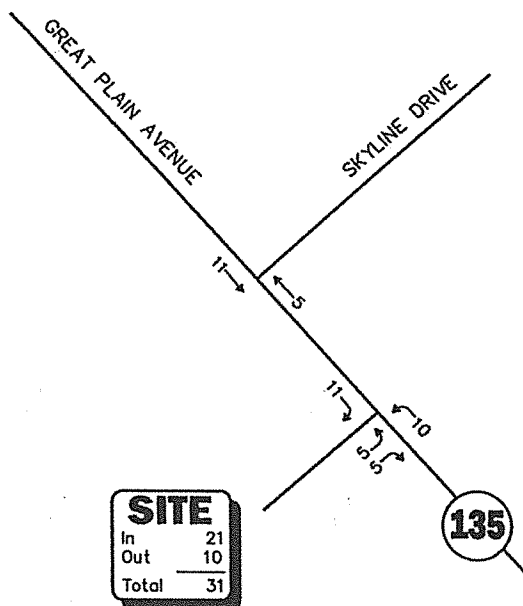
Figure 4

Trip Distribution Map

WEEKDAY MORNING PEAK HOUR



WEEKDAY EVENING PEAK HOUR



Not To Scale



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Figure 5

**Site Generated
Peak Hour Traffic Volumes**

Build Traffic Volumes

The 2024 Build condition traffic volumes consist of the 2024 No-Build traffic volumes with the traffic expected to be generated by the project. The 2024 Build condition weekday morning and evening peak-hour traffic-volumes are graphically depicted on Figure 6.

TRAFFIC OPERATIONS ANALYSIS

In order to assess the potential impact of the project on the roadway network, traffic operations analyses were performed at the study intersections under 2017 Existing, 2024 No-Build, and 2024 Build conditions. Capacity analyses provide an indication of how well the roadway facilities serve the traffic demands placed upon them.

In brief, six levels of service are defined for each type of facility. They are given letter designations ranging from A to F, with level-of-service (LOS) A representing the best operating conditions and LOS F representing congested or constrained operations. Since the level-of-service of a traffic facility is a function of the flows placed upon it, such a facility may operate at a wide range of levels of service depending on the time of day, day of week, or period of the year. The Synchro© intersection capacity analysis software, which is based on the analysis methodologies and procedures presented in the 2010 *Highway Capacity Manual* (HCM)² for unsignalized intersections, was used to complete the level-of-service analyses.

Analysis Results

Level-of-service analyses were conducted for 2017 Existing, 2024 No-Build, and 2024 Build conditions for the intersections within the study area. The results of the intersection capacity analyses are summarized in Table 4.

Great Plain Avenue at Skyline Drive

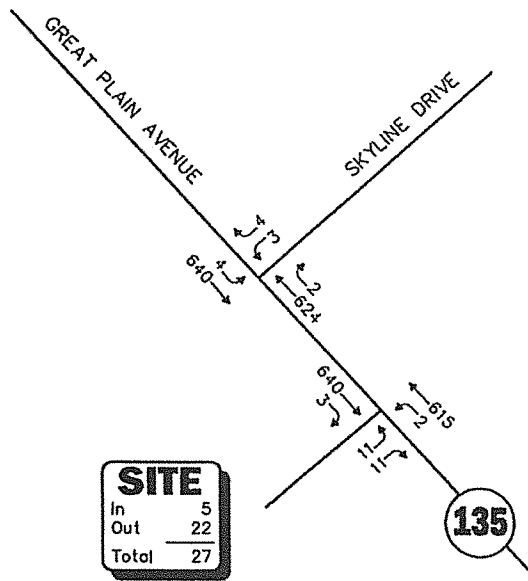
Under all conditions, the critical movements at this unsignalized intersection (left and right-turns from Skyline Drive) were shown to operate at LOS C during the weekday morning peak hour and at LOS B during the weekday evening peak hour under all conditions.

Great Plain Avenue at Site Drive

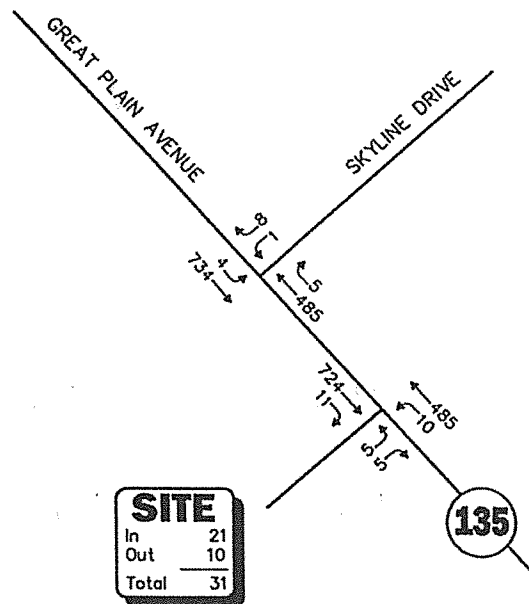
Under the 2021 Build condition, the critical movements at this unsignalized intersection (left and right-turns from Site Drive) were shown to operate at LOS C during both the weekday morning and evening peak hours.

² *Highway Capacity Manual*, Transportation Research Board; Washington, DC; 2010.

WEEKDAY MORNING PEAK HOUR



WEEKDAY EVENING PEAK HOUR



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Figure 6

**2021 Build
Peak Hour Traffic Volumes**

Table 4

UNSIGNALIZED INTERSECTION LEVEL-OF-SERVICE SUMMARY

Unsignalized Intersection/ Peak Hour/Movement	2017 Existing				2024 No-Build				2024 Build			
	Demand ^a	Delay ^b	LOS ^c	Queue ^d 50 th Percentile	Demand	Delay	LOS	Queue 50 th Percentile	Demand	Delay	LOS	Queue 50 th Percentile
Great Plain Avenue at Skyline Drive												
<i>Weekday Morning:</i>												
Great Plain Avenue EB LT	4	8.8	A	0	4	8.9	A	0	4	8.9	A	0
Skyline Drive SB LT/RT	7	19.2	C	0	7	19.9	C	0	7	20.2	C	0
<i>Weekday Evening:</i>												
Great Plain Avenue EB LT	4	8.3	A	0	4	8.4	A	0	4	8.4	A	0
Skyline Drive SB LT/RT	9	12.6	B	0	9	13.1	B	0	9	13.2	B	0
Great Plain Avenue at Site Drive												
<i>Weekday Morning:</i>												
Great Plain Avenue WB LT	--	--	--	--	--	--	--	--	2	9.0	A	0
Site Drive NB LT/RT	--	--	--	--	--	--	--	--	22	21.9	C	0
<i>Weekday Evening:</i>												
Great Plain Avenue WB LT	--	--	--	--	--	--	--	--	10	9.4	A	0
Site Drive NB LT/RT	--	--	--	--	--	--	--	--	10	20.8	C	0

^aDemand in vehicles per hour.^bAverage control delay per vehicle (in seconds).^cLevel-of-SERVICE.^dWB = westbound; NB = northbound; SB = southbound; LT = left-turning movements; TH = through movements; RT = right-turning movements.

SIGHT DISTANCE EVALUATION

Sight distance measurements were performed at the proposed site driveway intersection with Great Plain Avenue in accordance with MassDOT and American Association of State Highway and Transportation Officials (AASHTO)³ standards. In brief, SSD is the distance required by a vehicle traveling at the design speed of a roadway, on wet pavement, to stop prior to striking an object in its travel path. In accordance with AASHTO and MassDOT standards, at a minimum, sufficient stopping sight distances must be provided at an intersection. While the posted speed limit is 35 mph, the observed 85th percentile speeds were 39 mph in the southeasterly direction and 43 mph in the northwesterly direction. Table 5 presents the measured sight distances at the proposed site driveway intersecting with Great Plain Avenue.

Table 5
SIGHT DISTANCE MEASUREMENTS

Intersection/Sight Distance Measurement	Required Minimum (Feet) ^a			Measured (Feet)
	35 mph	40 mph	45 mph	
<i>Proposed Site Drive Exiting Sight Distance:</i>				
Looking to the northwest from the driveway	250	305	360	455
Looking to the southeast from the driveway	250	305	360	500

^aRecommended minimum values obtained from *A Policy on Geometric Design of Highways and Streets*, Fifth Edition; American Association of State Highway and Transportation Officials (AASHTO); 2011.

As shown in Table 5, the proposed driveway has acceptable sight distances for over 45 mph.

RECOMMENDATIONS

Access to the project site will be provided by way of the proposed driveway at 135 Great Plain Avenue. It is recommended that the site drive be placed under STOP-sign control with illumination provided. In addition, a median break of the painted island is recommended and vegetation adjacent to the driveway should be maintained as not to obstruct sight distances.

CONCLUSIONS

On a typical day, the project will result in 314 vehicle trips on an average weekday (157 entering and 157 exiting), with approximately 27 vehicle trips (5 entering and 22 exiting) during the weekday morning peak hour and 31 vehicle trips (21 entering and 10 exiting) during the weekday evening peak hour.

With the implementation of the above recommendations, safe and efficient access will be provided and the project can be constructed with minimal impact on the roadway system.

³ *A Policy on Geometric Design of Highway and Streets*, 6th Edition; American Association of State Highway and Transportation Officials (AASHTO); 2011.

APPENDIX

TRAFFIC COUNT DATA
SEASONAL ADJUSTMENT
CAPACITY ANALYSIS

TRAFFIC COUNT DATA

Accurate Counts

978-664-2565

N/S Street : Skyline Drive / Driveway
E/W Street: Great Plain Avenue
City/State : Wellesley, MA
Weather : Clear

File Name : 7667000
Site Code : 7667000
Start Date : 1/201
Page No

Groups Printed- Cars - Trucks

Start Time	Skyline Dr From North			Great Plain Ave From East			Drwy From South			Great Plain Ave From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00 AM	1	0	1	0	108	0	0	0	0	2	82	0	194
07:15 AM	2	0	1	0	92	0	1	0	0	2	108	0	206
07:30 AM	0	0	3	0	108	1	0	0	0	4	121	0	237
07:45 AM	0	0	1	0	146	0	0	0	0	4	143	0	294
Total	3	0	6	0	454	1	1	0	0	12	454	0	931
08:00 AM	0	0	1	0	138	0	0	0	0	0	139	0	278
08:15 AM	2	0	2	0	136	1	0	0	0	4	169	0	314
08:30 AM	1	0	1	0	140	0	0	0	0	0	137	0	279
08:45 AM	0	0	0	0	158	1	1	0	0	0	149	0	309
Total	3	0	4	0	572	2	1	0	0	4	594	0	1180
Grand Total	6	0	10	0	1026	3	2	0	0	16	1048	0	1
Apprch %	37.5	0	62.5	0	99.7	0.3	100	0	0	1.5	98.5	0	
Total %	0.3	0	0.5	0	48.6	0.1	0.1	0	0	0.8	49.6	0	
Cars	6	0	10	0	1008	2	2	0	0	16	1024	0	2068
% Cars	100	0	100	0	98.2	66.7	100	0	0	100	97.7	0	98
Trucks	0	0	0	0	18	1	0	0	0	0	24	0	43
% Trucks	0	0	0	0	1.8	33.3	0	0	0	0	2.3	0	2

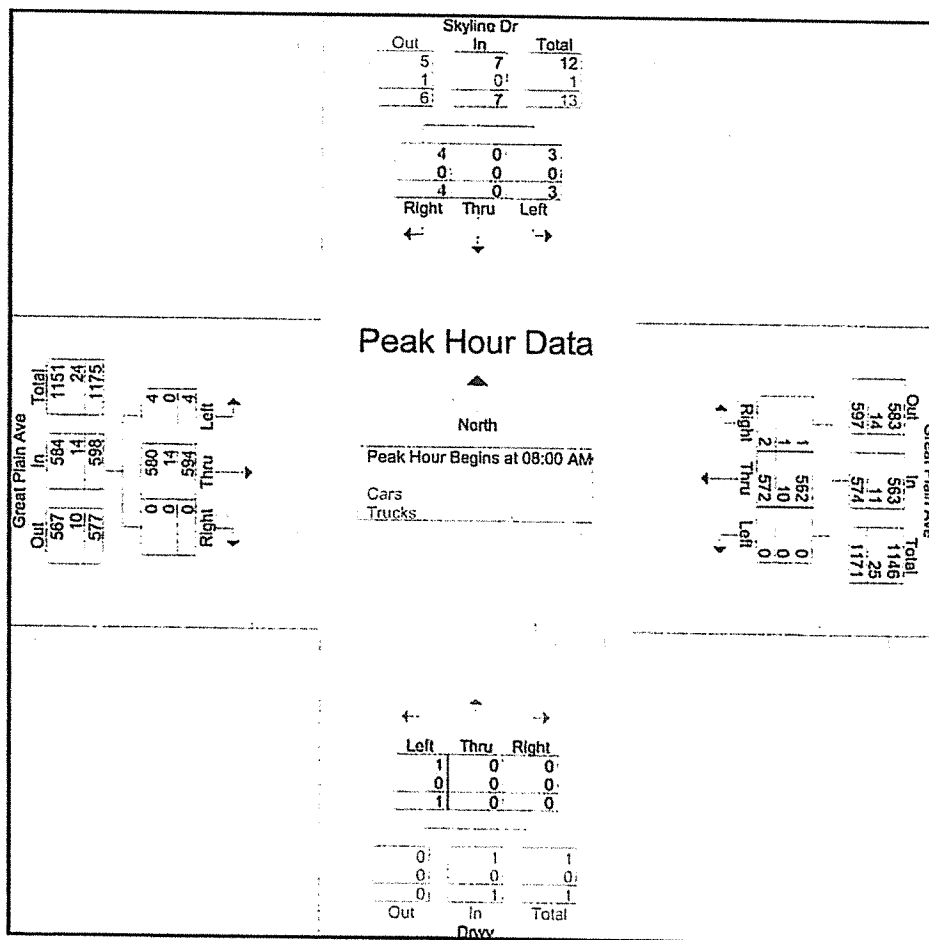
Accurate Counts

978-664-2565

N/S Street : Skyline Drive / Driveway
E/W Street: Great Plain Avenue
City/State : Wellesley, MA
Weather : Clear

File Name : 7667
Site Code : 7667
Start Date : 6/14/
Page No : 2

	Skyline Dr From North				Great Plain Ave From East				Drwy From South				Great Plain Ave From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. To
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	0	1	1	0	138	0	138	0	0	0	0	0	139	0	139	27
08:15 AM	2	0	2	4	0	136	1	137	0	0	0	0	4	169	0	173	31
08:30 AM	1	0	1	2	0	140	0	140	0	0	0	0	0	137	0	137	27
08:45 AM	0	0	0	0	0	158	1	159	1	0	0	1	0	149	0	149	30
Total Volume	3	0	4	7	0	572	2	574	1	0	0	1	4	594	0	598	118
% App. Total	42.9	0	57.1		0	99.7	0.3		100	0	0		0.7	99.3	0		
PHF	.375	.000	.500	.438	.000	.905	.500	.903	.250	.000	.000	.250	.250	.879	.000	.864	.93
Cars	3	0	4	7	0	562	1	563	1	0	0	1	4	580	0	584	115
% Cars	100	0	100	100	0	98.3	50.0	98.1	100	0	0	100	100	97.6	0	97.7	97
Trucks	0	0	0	0	0	10	1	11	0	0	0	0	0	14	0	14	2
% Trucks	0	0	0	0	0	1.7	50.0	1.9	0	0	0	0	0	2.4	0	2.3	2



Accurate Counts

978-664-2565

N/S Street : Skyline Drive / Driveway
E/W Street: Great Plain Avenue
City/State : Wellesley, MA
Weather : Clear

File Name : 7667000
Site Code : 7667000
Start Date : 10/201
Page No

Groups Printed- Cars - Trucks

Start Time	Skyline Dr From North			Great Plain Ave From East			Drwy From South			Great Plain Ave From West			Int.	Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right		
04:00 PM	3	0	0	0	92	2	0	0	0	1	143	0		241
04:15 PM	0	0	1	0	92	0	1	0	0	0	140	0		234
04:30 PM	3	0	0	0	108	2	0	0	0	2	162	0		277
04:45 PM	0	0	2	0	96	3	0	0	0	1	188	0		290
Total	6	0	3	0	388	7	1	0	0	4	633	0		1042
05:00 PM	0	0	2	0	116	1	0	0	1	1	149	0		270
05:15 PM	1	0	1	0	117	1	0	0	0	1	174	0		295
05:30 PM	0	0	3	0	119	0	0	0	0	1	163	0		286
05:45 PM	2	0	8	0	104	0	0	0	0	3	137	0		254
Total	3	0	14	0	456	2	0	0	1	6	623	0		1105
Grand Total	9	0	17	0	844	9	1	0	1	10	1256	0		7
Apprch %	34.6	0	65.4	0	98.9	1.1	50	0	50	0.8	99.2	0		
Total %	0.4	0	0.8	0	39.3	0.4	0	0	0	0.5	58.5	0		
Cars	9	0	16	0	841	9	1	0	1	10	1252	0		2139
% Cars	100	0	94.1	0	99.6	100	100	0	100	100	99.7	0		99.6
Trucks	0	0	1	0	3	0	0	0	0	0	4	0		8
% Trucks	0	0	5.9	0	0.4	0	0	0	0	0	0.3	0		0.4

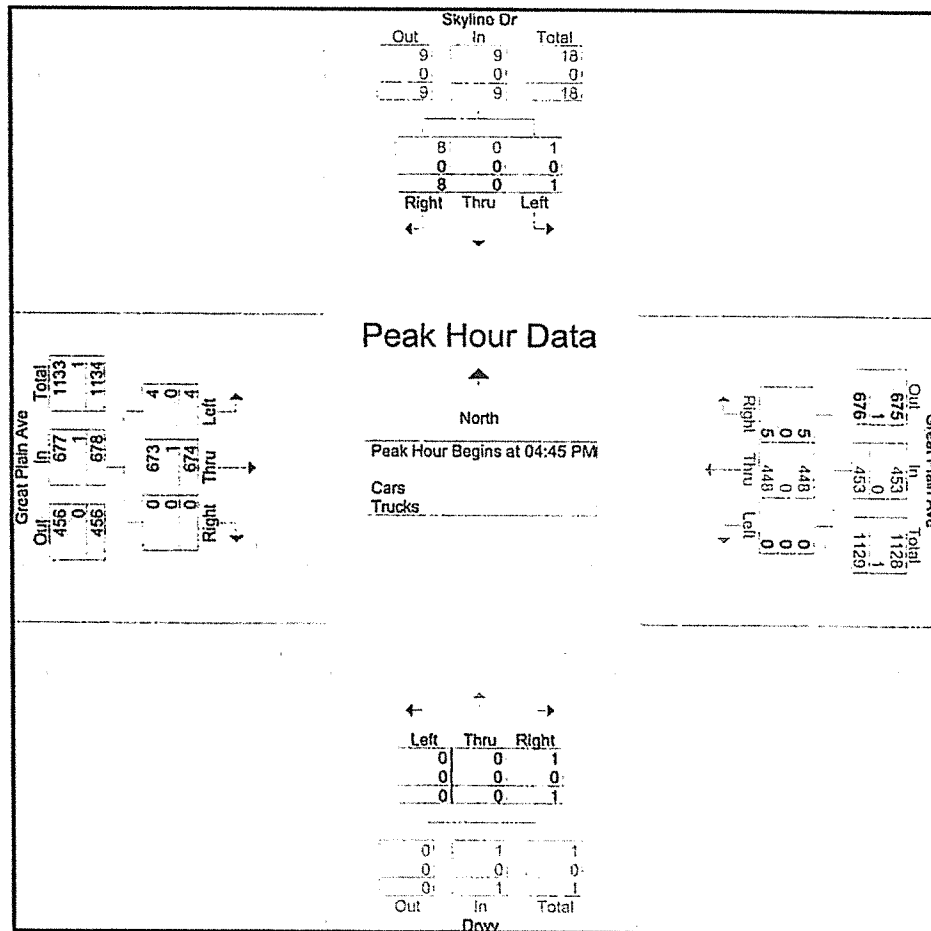
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	Skyline Dr From North				Great Plain Ave From East				Drwy From South				Great Plain Ave From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Tr
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	2	2	0	96	3	99	0	0	0	0	1	188	0	189	2
05:00 PM	0	0	2	2	0	116	1	117	0	0	1	1	1	149	0	150	2
05:15 PM	1	0	1	2	0	117	1	118	0	0	0	0	1	174	0	175	2
05:30 PM	0	0	3	3	0	119	0	119	0	0	0	0	1	163	0	164	2
Total Volume	1	0	8	9	0	448	5	453	0	0	1	1	4	674	0	678	11
% App. Total	11.1	0	88.9		0	98.9	1.1		0	0	100		0.6	99.4	0		
PHF	.250	.000	.667	.750	.000	.941	.417	.952	.000	.000	.250	.250	1.00	.896	.000	.897	.9
Cars	1	0	8	9	0	448	5	453	0	0	1	1	4	673	0	677	11
% Cars	100	0	100	100	0	100	100	100	0	0	100	100	100	99.9	0	99.9	99
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0.1	



Accurate Counts
978-664-2565

Page 1

Location : Great Plain Avenue
Location : East of Skyline Drive
City/State: Wellesley, MA

7667VOL1

Start Time	6/14/2017 Wed	EB		Hour Totals		WB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		6	108			8	122				
12:15		5	80			0	66				
12:30		8	100			3	92				
12:45		4	95	23	383	1	94	12	374	35	757
01:00		1	99			1	86				
01:15		1	87			0	100				
01:30		2	107			2	96				
01:45		0	106	4	399	0	94	3	376	7	775
02:00		0	107			0	97				
02:15		2	119			1	103				
02:30		1	132			3	95				
02:45		2	118	5	476	3	89	7	384	12	860
03:00		3	136			0	145				
03:15		1	115			4	109				
03:30		1	124			2	127				
03:45		1	150	6	525	1	105	7	486	13	1011
04:00		3	147			1	98				
04:15		0	134			1	89				
04:30		9	170			4	109				
04:45		14	187	26	638	3	107	9	403	35	1041
05:00		15	151			4	111				
05:15		15	176			20	114				
05:30		19	157			24	117				
05:45		29	142	78	626	19	108	67	450	145	1076
06:00		22	143			31	106				
06:15		45	158			27	87				
06:30		61	123			67	129				
06:45		104	111	232	535	76	94	201	416	433	951
07:00		87	106			103	76				
07:15		104	67			97	73				
07:30		118	64			116	60				
07:45		136	58	445	295	144	71	460	280	905	575
08:00		134	71			133	89				
08:15		174	80			136	56				
08:30		136	55			148	70				
08:45		149	61	593	267	153	49	570	264	1163	531
09:00		144	60			156	38				
09:15		140	55			128	39				
09:30		133	53			156	17				
09:45		141	28	558	196	161	46	601	140	1159	336
10:00		114	27			127	11				
10:15		110	29			135	33				
10:30		125	10			148	22				
10:45		126	10	475	76	149	20	559	86	1034	162
11:00		125	10			160	11				
11:15		138	8			136	12				
11:30		125	6			162	4				
11:45		134	5	522	29	158	10	616	37	1138	66
Total		2967	4445			3112	3696			6079	8141
Percent		40.0%	60.0%			45.7%	54.3%			42.7%	57.3%
Grand Total		2967	4445			3112	3696			6079	8141
Percent		40.0%	60.0%			45.7%	54.3%			42.7%	57.3%
ADT	ADT 14,220			AADT 14,220							

Accurate Counts 978-664-2565

Page 1

7667VOL1

Location : Great Plain Avenue
Location : East of Skyline Drive
City/State: Wellesley, MA

Start Time	6/14/2017 Wed	EB	WB	Total
12:00 AM		23	12	35
01:00		4	3	7
02:00		5	7	12
03:00		6	7	13
04:00		26	9	35
05:00		78	67	145
06:00		232	201	433
07:00		445	460	905
08:00		593	570	1163
09:00		558	601	1159
10:00		475	559	1034
11:00		522	616	1138
12:00 PM		383	374	757
01:00		399	376	775
02:00		476	384	860
03:00		525	486	1011
04:00		638	403	1041
05:00		626	450	1076
06:00		535	416	951
07:00		295	280	575
08:00		267	264	531
09:00		196	140	336
10:00		76	86	162
11:00		29	37	66
Total		7412	6808	14220
Percent		52.1%	47.9%	
AM Peak	-	08:00	11:00	08:00
Vol.	-	593	616	1163
PM Peak	-	16:00	15:00	17:00
Vol.	-	638	486	1076
Grand Total		7412	6808	14220
Percent		52.1%	47.9%	
ADT		ADT 14,220	ADT 14,220	

Accurate Counts
978-664-2565

Page 1

Location : Great Plain Avenue
Location : East of Skyline Drive
City/State: Wellesley, MA

7667SPD1

EB

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
06/14/17	0	1	0	4	5	6	5	1	1	0	0	0	0	0	23
01:00	0	0	1	0	1	1	1	0	0	0	0	0	0	0	4
02:00	0	0	0	2	3	0	0	0	0	0	0	0	0	0	5
03:00	0	0	0	0	1	4	1	0	0	0	0	0	0	0	6
04:00	0	0	0	1	10	10	3	2	0	0	0	0	0	0	28
05:00	1	2	0	1	22	38	12	2	0	0	0	0	0	0	78
06:00	1	0	1	4	75	115	33	3	0	0	0	0	0	0	232
07:00	0	2	6	18	162	217	38	2	0	0	0	0	0	0	445
08:00	1	0	4	57	214	288	48	3	0	0	0	0	0	0	593
09:00	2	1	0	30	204	255	61	5	0	0	0	0	0	0	558
10:00	0	0	0	20	210	190	49	6	0	0	0	0	0	0	475
11:00	0	2	4	30	232	211	41	1	0	1	0	0	0	0	522
12 PM	0	0	5	41	127	158	46	5	1	0	0	0	0	0	383
13:00	0	0	3	22	144	179	45	6	0	0	0	0	0	0	399
14:00	0	3	7	27	149	213	71	6	0	0	0	0	0	0	476
15:00	6	0	1	15	177	255	58	12	1	0	0	0	0	0	525
16:00	0	0	2	25	215	310	71	15	0	0	0	0	0	0	638
17:00	0	0	2	30	231	286	71	6	0	0	0	0	0	0	628
18:00	0	3	2	20	203	252	51	4	0	0	0	0	0	0	535
19:00	2	1	2	10	88	150	41	1	0	0	0	0	0	0	295
20:00	0	0	6	12	102	115	29	3	0	0	0	0	0	0	267
21:00	0	1	0	20	115	47	10	2	0	1	0	0	0	0	188
22:00	0	0	0	5	39	27	5	0	0	0	0	0	0	0	76
23:00	0	0	1	3	7	8	7	3	0	0	0	0	0	0	29
Total	13	16	47	397	2736	3313	797	88	3	2	0	0	0	0	7412
Grand Total	13	16	47	397	2736	3313	797	88	3	2	0	0	0	0	7412

15th Percentile : 31 MPH
50th Percentile : 35 MPH
85th Percentile : 39 MPH
95th Percentile : 43 MPH

Stats Mean Speed(Average) : 36 MPH
 10 MPH Pace Speed : 31-40 MPH
 Number in Pace : 6049
 Percent in Pace : 81.8%
 Number of Vehicles > 35 MPH : 4203
 Percent of Vehicles > 35 MPH : 56.7%

Accurate Counts

Page 2

Location : Great Plain Avenue
Location : East of Skyline Drive
City/State: Wellesley, MA

7667SPD1

WB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
06/14/17	0	0	0	0	2	7	1	1	1	0	0	0	0	0	12
01:00	0	0	1	0	0	0	1	1	0	0	0	0	0	0	3
02:00	0	0	0	1	1	2	2	1	0	0	0	0	0	0	7
03:00	0	0	0	0	2	3	2	0	0	0	0	0	0	0	7
04:00	0	1	0	0	0	4	3	1	0	0	0	0	0	0	9
05:00	0	4	0	0	8	30	18	6	1	0	0	0	0	0	67
06:00	1	2	4	2	25	91	65	10	1	0	0	0	0	0	201
07:00	0	2	1	3	72	238	128	14	2	0	0	0	0	0	460
08:00	0	1	2	28	106	284	130	16	3	0	0	0	0	0	570
09:00	0	0	0	4	90	320	167	20	0	0	0	0	0	0	601
10:00	1	1	0	2	78	317	143	15	2	0	0	0	0	0	559
11:00	0	2	1	4	90	331	175	13	0	0	0	0	0	0	616
12 PM	0	0	5	9	44	171	134	11	0	0	0	0	0	0	374
13:00	1	1	2	7	34	187	128	15	1	0	0	0	0	0	376
14:00	1	2	8	5	31	193	124	16	3	0	0	1	0	0	384
15:00	0	1	2	2	46	224	178	30	3	0	0	0	0	0	486
16:00	1	4	1	11	42	184	136	20	3	0	0	0	0	1	403
17:00	0	3	8	4	48	217	146	23	1	0	0	0	0	0	450
18:00	0	3	2	13	48	197	135	16	2	0	0	0	0	0	416
19:00	2	4	0	2	26	137	96	13	0	0	0	0	0	0	280
20:00	0	0	0	3	26	138	89	8	0	0	0	0	0	0	264
21:00	0	0	0	4	27	70	35	4	0	0	0	0	0	0	140
22:00	0	0	0	0	10	50	23	2	1	0	0	0	0	0	86
23:00	0	0	1	1	2	12	16	4	1	0	0	0	0	0	37
Total	7	31	38	105	858	3407	2075	260	25	0	0	1	0	1	6808
Grand Total	7	31	38	105	858	3407	2075	260	25	0	0	1	0	1	6808

15th Percentile : 34 MPH
50th Percentile : 38 MPH
85th Percentile : 43 MPH
95th Percentile : 44 MPH

Stats
Mean Speed(Average) : 39 MPH
10 MPH Pace Speed : 36-45 MPH
Number In Pace : 5482
Percent In Pace : 80.5%
Number of Vehicles > 35 MPH : 5769
Percent of Vehicles > 35 MPH : 84.7%

Accurate Counts

978-664-2565

Page 3

Location : Great Plain Avenue
Location : East of Skyline Drive
City/State: Wellesley, MA

7667SPD1

EB, WB

Start Time	1	16	21	26	31	36	41	46	51	56	61	66	71	76	999	Total
06/14/17	0	1	0	4	7	13	6	2	2	0	0	0	0	0	0	35
01:00	0	0	2	0	1	1	2	1	0	0	0	0	0	0	0	7
02:00	0	0	0	3	4	2	2	1	0	0	0	0	0	0	0	12
03:00	0	0	0	0	3	7	3	0	0	0	0	0	0	0	0	13
04:00	0	1	0	1	10	14	6	3	0	0	0	0	0	0	0	35
05:00	1	6	0	1	30	68	30	8	1	0	0	0	0	0	0	145
06:00	2	2	5	6	100	206	98	13	1	0	0	0	0	0	0	433
07:00	0	4	7	21	234	455	166	16	2	0	0	0	0	0	0	905
08:00	1	1	6	85	320	550	178	19	3	0	0	0	0	0	0	1163
09:00	2	1	0	34	294	575	228	25	0	0	0	0	0	0	0	1159
10:00	1	1	0	22	288	507	192	21	2	0	0	0	0	0	0	1034
11:00	0	4	5	34	322	542	216	14	0	1	0	0	0	0	0	1138
12 PM	0	0	10	50	171	329	180	16	1	0	0	0	0	0	0	757
13:00	1	1	5	29	178	366	173	21	1	0	0	0	0	0	0	775
14:00	1	5	15	32	180	406	195	22	3	0	0	1	0	0	0	860
15:00	6	1	3	17	223	479	236	42	4	0	0	0	0	0	0	1011
16:00	1	4	3	36	257	494	207	35	3	0	0	0	0	0	1	1041
17:00	0	3	10	34	279	503	217	29	1	0	0	0	0	0	0	1078
18:00	0	6	4	33	251	449	186	20	2	0	0	0	0	0	0	951
19:00	4	5	2	12	114	287	137	14	0	0	0	0	0	0	0	575
20:00	0	0	6	15	128	253	118	11	0	0	0	0	0	0	0	531
21:00	0	1	0	24	142	117	45	6	0	1	0	0	0	0	0	338
22:00	0	0	0	5	49	77	28	2	1	0	0	0	0	0	0	162
23:00	0	0	2	4	9	20	23	7	1	0	0	0	0	0	0	66
Total	20	47	85	502	3594	6720	2872	348	28	2	0	1	0	1	1	14220
Grand Total	20	47	85	502	3594	6720	2872	348	28	2	0	1	0	1	1	14220

15th Percentile : 32 MPH
50th Percentile : 37 MPH
85th Percentile : 41 MPH
95th Percentile : 44 MPH

Stats
Mean Speed(Average) : 37 MPH
10 MPH Pace Speed : 31-40 MPH
Number In Pace : 10314
Percent in Pace : 72.5%
Number of Vehicles > 35 MPH : 9972
Percent of Vehicles > 35 MPH : 70.1%

SEASONAL ADJUSTMENT

Location ID:	H8501
County:	NORFOLK
Functionl Class	1
Location:	I-95

Seasonal Factor Group:	U1-Boston
Daily Factor Group:	U1-Boston
Axle Factor Group:	
Growth Factor Group:	

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00	TOTAL
1	665	331	255	408	982	4854	9135	9894	9511	9093	8185	7530	7516	7702	9204	9649	9671	10124	8968	6145	4216	3307	2175	1363	140883	
2	692	498	368	404	1051	4316	9993	10973	10134	9887	9466	8260	8340	8738	9533	10993	9486	11770	9971	6373	4346	3548	2642	1607	153389	
3	759	527	412	506	1258	5275	10591	12285	11340	10707	8830	8924	9103	9220	10216	11552	11300	11895	10311	7167	4986	4215	3145	1854	166379	
4	868	651	465	531	1199	5335	10830	12058	11262	10652	9096	9005	8974	9217	10341	11697	11259	11110	9390	7725	5398	4233	3167	2028	166492	
5	1006	687	553	541	1187	5169	10477	12261	10644	9713	9037	9369	9651	9784	10593	11500	10883	9950	9024	7155	5071	4389	3718	2614	164876	
6	1340	812	634	432	628	1724	3501	5238	6573	7846	8493	9703	10195	10199	9967	10019	9758	9237	7928	6534	5470	5002	4590	3422	139245	
7																										
8	789	472	347	459	1251	5461	10888	11846	10861	10343	8974	8568	8851	8877	10192	11009	11162	11367	10551	6796	4735	3863	2667	2072	162401	
9	1186	910	421	538	1205	5508	10918	11534	10584	10150	4119	2275	8925	9218	10400	11542	9916	11448	9872	7345	5052	4248	3141	2095	152450	
10	1234	786	453	549	1328	5611	10668	11696	10870	10790	9653	8696	8855	9071	10425	10983	11169	10771	10315	7187	5160	4317	3215	1869	165671	
11	820	578	431	557	1199	5478	10640	11877	11107	10494	9459	9794	9363	9765	10267	11093	10569	11546	9014	7316	5651	4626	3996	2100	167140	
12	931	673	496	513	1157	5096	10197	12123	10991	9880	9238	9914	10196	10354	10332	11397	10205	10370	9513	7347	5389	4269	3858	2874	167283	
13	1534	1065	694	478	690	1986	4047	5403	6993	8180	9430	9806	10461	10134	9986	9329	9448	8947	8133	6134	5268	5169	4793	3332	141440	
14	1913	1197	570	399	379	890	1995	3266	4363	6329	7925	9371	10147	10452	10153	10232	10034	9571	8464	7449	5997	4546	2954	1806	130402	
15	1187	511	415	466	1144	5047	9666	10761	9643	9421	8450	7256	7276	7572	8872	9307	8600	8714	9063	6557	4312	3406	2394	1370	141410	
16	811	570	425	485	1192	5297	10723	11711	10943	10674	9175	8492	8554	8865	8922	11214	11341	11886	10104	6875	5143	4115	3119	1665	162301	
17	1074	636	168	441	1247	5480	10340	11688	11048	10348	9173	8152	8172	8486	10011	11292	11211	11612	10282	7331	4859	4027	3114	1607	151799	
18	1004	605	454	540	1243	5196	10368	11398	11143	10501	9453	9065	9298	9287	10158	11351	11102	11126	10026	7313	5596	4610	3526	1673	166036	
19	1138	686	475	528	1111	4962	10111	12080	10891	9375	8889	8780	9487	9026	10089	10533	9873	10322	9106	7217	5259	4269	3448	2272	159927	
20	1426	860	552	472	654	1706	3435	5127	6716	6970	9564	9471	9861	9867	9684	9536	9471	8995	8270	6402	5192	5119	4600	3520	137470	
21	2056	1001	579	376	331	574	1355	2168	3060	4603	6317	8344	9327	9601	9703	9432	9174	8481	7417	6756	5789	4173	2882	1438	114737	
22	808	441	351	451	1153	5322	10314	11445	10744	10713	8423	7848	6548	6807	7498	9129	11971	11637	9636	6560	5049	3791	2502	1645	150786	
23	918	529	453	508	1208	5494	10330	12040	10937	10723	8360	7786	7862	7889	9878	10036	8598	10709	8982	6409	4446	3631	2774	1451	151951	
24	1005	588	436	514	1225	5436	10005	12019	10888	10714	8002	8278	7768	7853	9690	10965	10903	9680	10368	7667	5667	4469	3799	1745	159684	
25	1268	682	412	615	1031	5457	10288	11655	11049	10417	9592	9712	9854	9841	10203	10747	11143	10290	10624	8006	5266	3374	3215	2000	166741	
26	1409	800	551	548	1261	4923	9976	11123	10570	9282	9725	10176	9858	9828	10029	10797	8716	8990	8530	7131	5093	4218	3503	2114	159151	
27	1566	868	607	502	622	1741	3717	5017	6382	7654	8854	9587	9828	9722	9079	8323	9596	8882	7882	6241	5183	4757	4429	2753	133792	
28																										
29	763	313	168	231	757	4326	7959	8739	10162	9482	7230	7089	7022	6618	9652	9757	10324	9436	10002	6643	5241	6373	2844	1745	142876	
30	826	538	385	522	1253	5475	10223	11641	10682	10558	9212	8728	8689	8759	10063	11080	10890	11369	10210	6080	4967	5848	3844	1873	163715	
																									4290527	
																									15323311	

CAPACITY ANALYSIS

Great Plain Avenue at Skyline Drive
Great Plain Avenue at Site Drive

Great Plain Avenue at Skyline Drive

HCM 2010 TWSC
3: Great Plain Ave & Skyline Drive

6/19/2017

Intersection

Int Delay, s/veh 0.3

Movement	SEL	SET	NWT	NWR	SWL	SWR
Vol, veh/h	4	594	572	2	3	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	86	86	90	90	44	44
Heavy Vehicles, %	0	2	2	50	0	0
Mvmt Flow	5	691	636	2	7	9

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	638	0	1337
Stage 1	-	-	637
Stage 2	-	-	700
Critical Hdwy	4.1	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.2	-	3.5
Pot Cap-1 Maneuver	956	-	171
Stage 1	-	-	531
Stage 2	-	-	496
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	956	-	170
Mov Cap-2 Maneuver	-	-	170
Stage 1	-	-	531
Stage 2	-	-	492

Approach	SE	NW	SW
HCM Control Delay, s	0.1		19.2
HCM LOS			C

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	956	-	270
HCM Lane V/C Ratio	-	-	0.005	-	0.059
HCM Control Delay (s)	-	-	8.8	0	19.2
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0	-	0

Intersection

Int Delay, s/veh 0.1

Movement	SEL	SET	NWT	NWR	SWL	SWR
Vol, veh/h	4	674	448	5	1	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	95	95	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	4	749	472	5	1	11

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	477	0	1232
Stage 1	-	-	474
Stage 2	-	-	758
Critical Hdwy	4.1	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.2	-	3.5
Pot Cap-1 Maneuver	1096	-	197
Stage 1	-	-	630
Stage 2	-	-	466
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1096	-	196
Mov Cap-2 Maneuver	-	-	196
Stage 1	-	-	630
Stage 2	-	-	463

Approach	SE	NW	SW
HCM Control Delay, s	0		12.6
HCM LOS			B

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	1096	-	485
HCM Lane V/C Ratio	-	-	0.004	-	0.025
HCM Control Delay (s)	-	-	8.3	0	12.6
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0	-	0

HCM 2010 TWSC
3: Great Plain Ave & Skyline Drive

6/19/2017

Intersection

Int Delay, s/veh 0.3

Movement	SEL	SET	NWT	NWR	SWL	SWR
Vol, veh/h	4	637	613	2	3	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	44	44
Heavy Vehicles, %	0	2	2	50	0	0
Mvmt Flow	4	692	666	2	7	9

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	668	0	1368
Stage 1	-	-	667
Stage 2	-	-	701
Critical Hdwy	4.1	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.2	-	3.5
Pot Cap-1 Maneuver	931	-	163
Stage 1	-	-	514
Stage 2	-	-	496
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	931	-	162
Mov Cap-2 Maneuver	-	-	162
Stage 1	-	-	514
Stage 2	-	-	493

Approach	SE	NW	SW
HCM Control Delay, s	0.1		19.9
HCM LOS			C

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	931	-	258
HCM Lane V/C Ratio	-	-	0.005	-	0.062
HCM Control Delay (s)	-	-	8.9	0	19.9
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0	-	0

Intersection

Int Delay, s/veh 0.1

Movement	SEL	SET	NWT	NWR	SWL	SWR
Vol, veh/h	4	723	480	5	1	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	95	95	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	4	786	505	5	1	11

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	511	0	1303
Stage 1	-	-	508
Stage 2	-	-	795
Critical Hdwy	4.1	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.2	-	3.5
Pot Cap-1 Maneuver	1065	-	179
Stage 1	-	-	608
Stage 2	-	-	448
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1065	-	178
Mov Cap-2 Maneuver	-	-	178
Stage 1	-	-	608
Stage 2	-	-	445

Approach	SE	NW	SW
HCM Control Delay, s	0		13.1
HCM LOS			B

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	1065	-	457
HCM Lane V/C Ratio	-	-	0.004	-	0.026
HCM Control Delay (s)	-	-	8.4	0	13.1
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0	-	0

HCM 2010 TWSC
3: Great Plain Ave & Skyline Drive

6/19/2017

Intersection

Int Delay, s/veh 0.3

Movement	SEL	SET	NWT	NWR	SWL	SWR
Vol, veh/h	4	640	624	2	3	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	44	44
Heavy Vehicles, %	0	2	2	50	0	0
Mvmt Flow	4	696	678	2	7	9

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	680	0	1383
Stage 1	-	-	679
Stage 2	-	-	704
Critical Hdwy	4.1	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.2	-	3.5
Pot Cap-1 Maneuver	922	-	160
Stage 1	-	-	507
Stage 2	-	-	494
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	922	-	159
Mov Cap-2 Maneuver	-	-	159
Stage 1	-	-	507
Stage 2	-	-	491

Approach	SE	NW	SW
HCM Control Delay, s	0.1		20.2
HCM LOS			C

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	922	-	253
HCM Lane V/C Ratio	-	-	0.005	-	0.063
HCM Control Delay (s)	-	-	8.9	0	20.2
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0	-	0

Intersection

Int Delay, s/veh 0.1

Movement	SEL	SET	NWT	NWR	SWL	SWR
Vol, veh/h	4	734	485	5	1	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	95	95	75	75
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	4	798	511	5	1	11

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	516	0	1320
Stage 1	-	-	513
Stage 2	-	-	807
Critical Hdwy	4.1	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.2	-	3.5
Pot Cap-1 Maneuver	1060	-	175
Stage 1	-	-	605
Stage 2	-	-	442
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1060	-	174
Mov Cap-2 Maneuver	-	-	174
Stage 1	-	-	605
Stage 2	-	-	439

Approach	SE	NW	SW
HCM Control Delay, s	0		13.2
HCM LOS			B

Minor Lane/Major Mvmt	NWT	NWR	SEL	SET	SWLn1
Capacity (veh/h)	-	-	1060	-	452
HCM Lane V/C Ratio	-	-	0.004	-	0.027
HCM Control Delay (s)	-	-	8.4	0	13.2
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0	-	0

Great Plain Avenue at Site Drive

Intersection

Int Delay, s/veh 0.4

Movement	SET	SER	NWL	NWT	NEL	NER
Vol, veh/h	640	3	2	615	11	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	696	3	2	668	12	12

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	699	1370
Stage 1	-	-	697
Stage 2	-	-	673
Critical Hdwy	-	4.1	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	-	2.2	3.5
Pot Cap-1 Maneuver	-	907	163
Stage 1	-	-	498
Stage 2	-	-	511
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	907	162
Mov Cap-2 Maneuver	-	-	162
Stage 1	-	-	498
Stage 2	-	-	509

Approach	SE	NW	NE
HCM Control Delay, s		0	21.9
HCM LOS			C

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	237	907	-	-	-
HCM Lane V/C Ratio	0.101	0.002	-	-	-
HCM Control Delay (s)	21.9	9	0	-	-
HCM Lane LOS	C	A	A	-	-
HCM 95th %tile Q(veh)	0	0	-	-	-

HCM 2010 TWSC
5: Site Drive & Great Plain Ave

6/19/2017

Intersection		
Int Delay, s/veh	0.2	

Movement	SET	SER	NWL	NWT	NEL	NER
Vol, veh/h	724	11	10	485	5	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	95	95	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	787	12	11	511	5	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	799	0	1325	793
Stage 1	-	-	-	-	793	-
Stage 2	-	-	-	-	532	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	833	-	174	392
Stage 1	-	-	-	-	449	-
Stage 2	-	-	-	-	593	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	833	-	171	392
Mov Cap-2 Maneuver	-	-	-	-	171	-
Stage 1	-	-	-	-	449	-
Stage 2	-	-	-	-	582	-

Approach	SE	NW	NE
HCM Control Delay, s		0.2	20.8
HCM LOS			C

Minor Lane/Major Mvmt	NELn1	NWL	NWT	SET	SER
Capacity (veh/h)	238	833	-	-	-
HCM Lane V/C Ratio	0.046	0.013	-	-	-
HCM Control Delay (s)	20.8	9.4	0	-	-
HCM Lane LOS	C	A	A	-	-
HCM 95th %tile Q(veh)	0	0	-	-	-