



**508-510 Somerville Avenue
Somerville, Massachusetts**

Traffic Impact & Access Study



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INTRODUCTION

This traffic impact and access study was prepared for the proposed 508-510 Somerville Avenue development in Somerville, Massachusetts. This development will consist of twelve (12) apartment units and 1,201 square feet of ground floor supporting retail. This project is to be accessed (ingress/egress) by a right-in/right-out driveway on the south side of Somerville Avenue between Park Street and Laurel Street.

This traffic impact and access study contains the following sections:

- A. Existing Conditions
- B. Traffic Volumes
- C. Capacity Analysis
- D. Conclusions

A. EXISTING CONDITIONS

A1. STUDY AREA

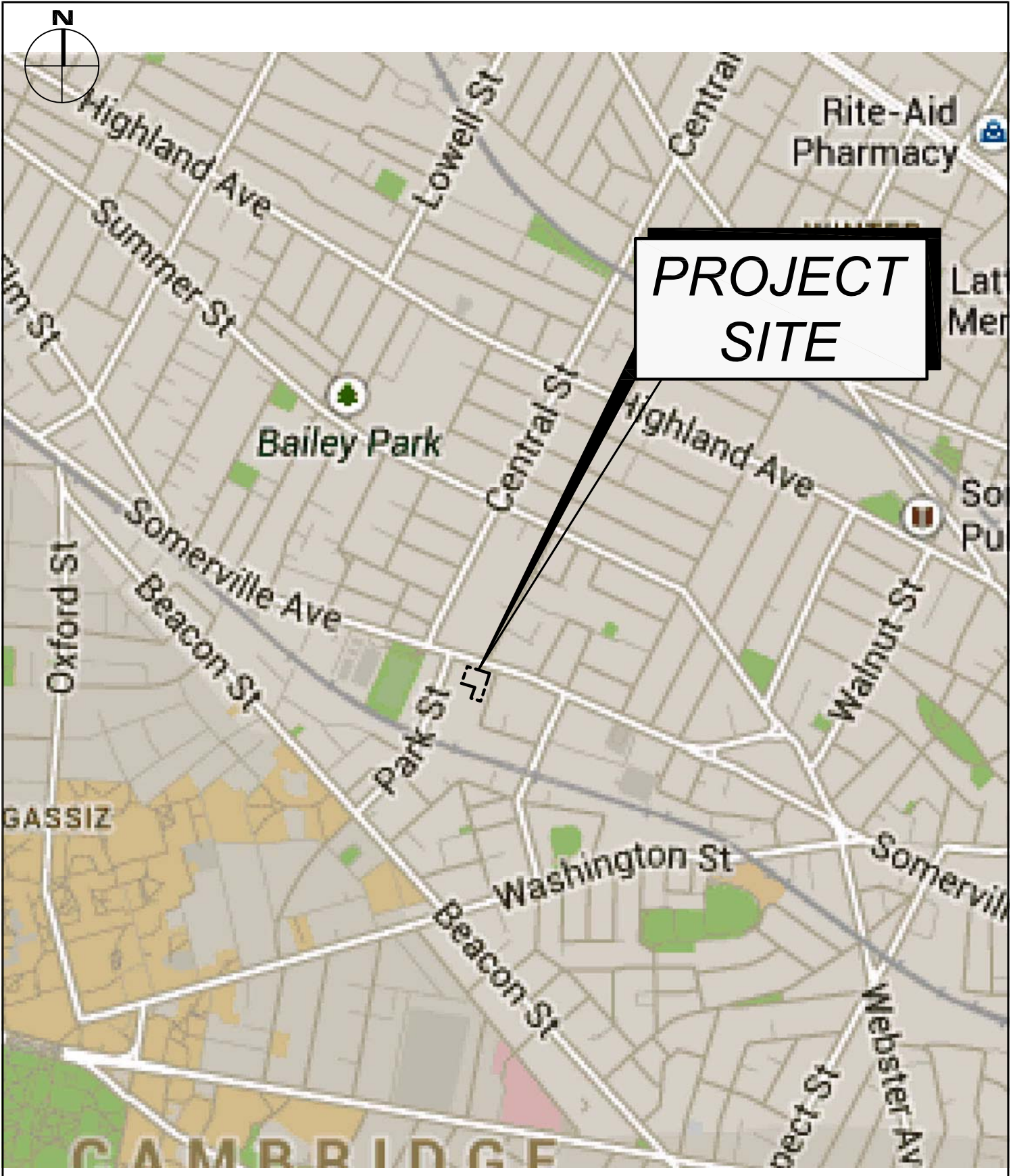
The Site is located on the south side of Somerville Avenue between Park Street and Laurel Street. The following local intersection was examined in this traffic study:

- Somerville Avenue at Park Street / Dunkin Donuts

Somerville Avenue is an Urban Principal Arterial roadway orientated in the east-west direction between Porter Square and McGrath Highway. Somerville Avenue provides one travel lane and one painted bicycle lane in each direction with on-street parking in the vicinity of the project. The posted speed limit is 30 mph. MBTA bus routes #83 and #87 operate along Somerville Avenue. Somerville Avenue at its signalized intersection with Park Street provides for one through lane and one right turn lane for eastbound traffic. Westbound, Somerville Avenue provides one through lane and one left turn lane. The intersection of Somerville Avenue/Park Street has new traffic signal equipment and signal timing - less than 10 years old. In the vicinity, Somerville Avenue is surrounded by low-density commercial and low- to medium-density residential homes. Conway Park and Veteran's Memorial Rink are located 400 feet west.

Park Street is two-lane an Urban Collector roadway orientated in the north-south direction between Beacon Street and Somerville Avenue. On the south side of Beacon Street, Park Street becomes Scott Street. Park Street at its intersection with Somerville Avenue is 32 feet wide and provides for a one lane approach to the intersection. An active rail crossing (Fitchburg/South Acton Commuter Rail Line) is located approximately 550 feet south from Somerville Avenue along Park Street, and approximately 650 feet from Beacon Street and north. Park Street is surrounded by low-density commercial and low- to medium-density residential homes. Painted bike sharrows are found on Park Street.

A project locus map of the Site is shown on Figure A1. The existing study intersections are shown in Figure A2.



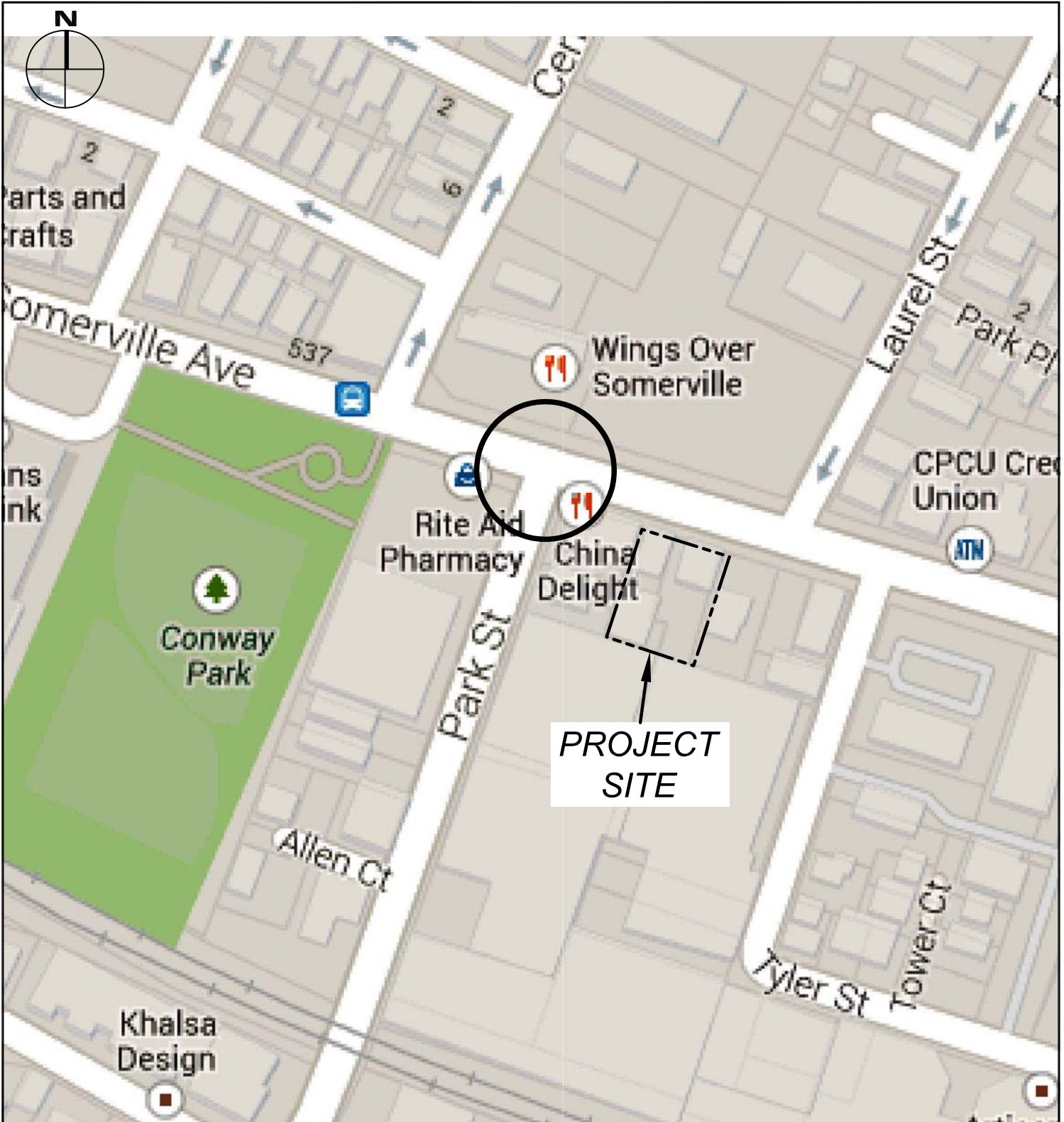
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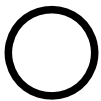
508-510 Somerville Ave
 Somerville, MA

Locus Map

Figure A1



Legend

 Study Intersection

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508-510 Somerville Ave
 Somerville, MA

Study
 Intersections

Figure A2

A2. TRANSIT SUPPLY

The Site is conveniently situated close to public transportation. The Site is approximately 1-mile away from the Porter Square Transit Station and approximately 1-mile from the Harvard Square Transit Station. Moreover, the Site is served by the following MBTA bus routes #83 and #87 on Somerville Avenue.

The Green Line Extension (GLX) project will have a proposed transit stations at Gilman Square and Union Square Station – both less than 1-mile away. The anticipated completion date for the Union Square Station is 2016. Gilman Square Station is expected to be complete by 2019. This project will extend the existing MBTA Green Line service from a relocated Lechmere Station in East Cambridge to Union Square in Somerville and College Avenue in Medford. This project is a major transportation priority of the Commonwealth and will offer a “one-seat” ride along the project corridor to downtown Boston, (eliminating the need for transfers at Lechmere Station and at Orange and Red Line stations) improving travel times within the project corridor. The new transit station will meet or exceed the Americans with Disabilities Act (ADA) standards. Once completed, trains will operate every five to six minutes in the peak periods, providing fast and efficient service to downtown Boston.

A3. MODE SPLIT

This development is located in an area where non-vehicular modes of transportation dominate. Non-vehicular modes of transportation includes bicycling, walking, transit, and telecommuting. US Census Tract Data (Tract 3512.04) from 2008 to 2012 indicates that 33.5% of Somerville residents do not own a vehicle. According to the same US Census Tract Data, 57.8% of Somerville workers in the area travel to work without the use of an automobile.

B. TRAFFIC VOLUMES

B1. EXISTING TRAFFIC COUNTS

In September 2013, intersection counts were collected for the weekday AM peak period, weekday PM peak period, and Saturday midday period. The following location was collected:

- Somerville Avenue at Park Street / Dunkin Donuts

Also conducted in September 2013 was a 48-hour ATR count on Somerville Avenue, between Park Street and Laurel Street. All traffic counts collected are included in **Appendix A**.

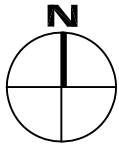
B2. SEASONAL ADJUSTMENT

Seasonal variations in traffic volumes were examined for the study area. Based on MassDOT count station 8098 located within Somerville city limits, traffic volumes in the area for the month of September historically have been higher than average for year. Therefore, the existing traffic counts collected in September 2013 were unadjusted for seasonality.

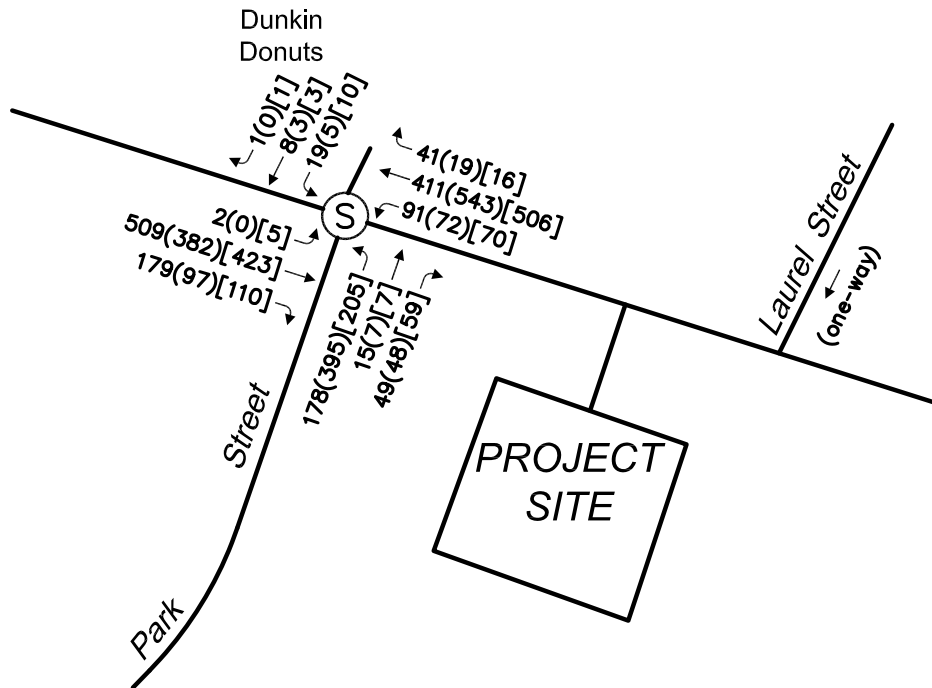
The existing AM, PM, and Saturday midday peak hour turning movement volumes at these intersections are shown in Figure B1. It should be noted that some of the traffic volumes between intersections do not balance due to driveway traffic generation.

B3. 2018 NO-BUILD TRAFFIC VOLUMES

To estimate traffic levels in Year 2018, MassDOT historical traffic counts in the area were examined. Based on historic traffic data from a nearby count station on Somerville Avenue (Station 8443), a 0.7% annual traffic growth rate was identified by projecting the historical volumes to Year 2018. To be conservative, a 1.0% annual traffic growth rate was assumed and applied to the existing volumes to help generate 2018 No-Build traffic volumes. *Also included in the No-Build volumes is traffic expected from 515 Somerville Avenue across the street. This project proposes thirty (30) residential homes.* The 2018 No-Build volumes were created by summing the 1% annual growth traffic and the 515 Somerville Avenue project traffic volumes. The 508-510 Somerville Avenue Project volumes are included in **Appendix A**. The total No-Build volumes for this subject site are shown in Figure B2.



Not To Scale



Legend



Existing Traffic Signal

xx(YY)[ZZ] AM(PM)[Saturday] Peak Hour Volumes

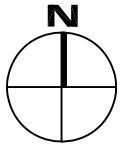
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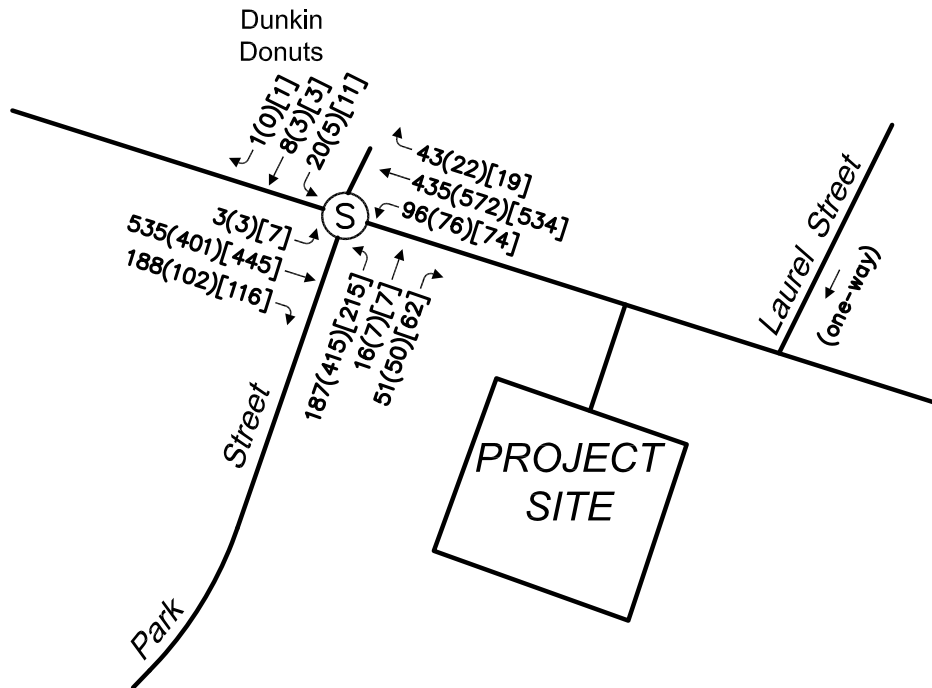
508-510 Somerville Ave
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2013 Existing
Traffic Volumes

Figure B1



Not To Scale




Legend



Existing Traffic Signal

xx(yy)[zz] AM(PM)[Saturday] Peak Hour Volumes

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2018 No-Build
 Traffic Volumes

Figure B2

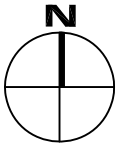
B4. SITE TRAFFIC

This development will consist of twelve (12) apartment units and 1,201 square feet of ground floor supporting retail. This project is to be accessed (ingress/egress) by a right-in/right-out driveway on the south side of Somerville Avenue between Park Street and Laurel Street. The *Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition*, was used to estimate trips associated with the Site. The results of the analysis is shown in Table B1.

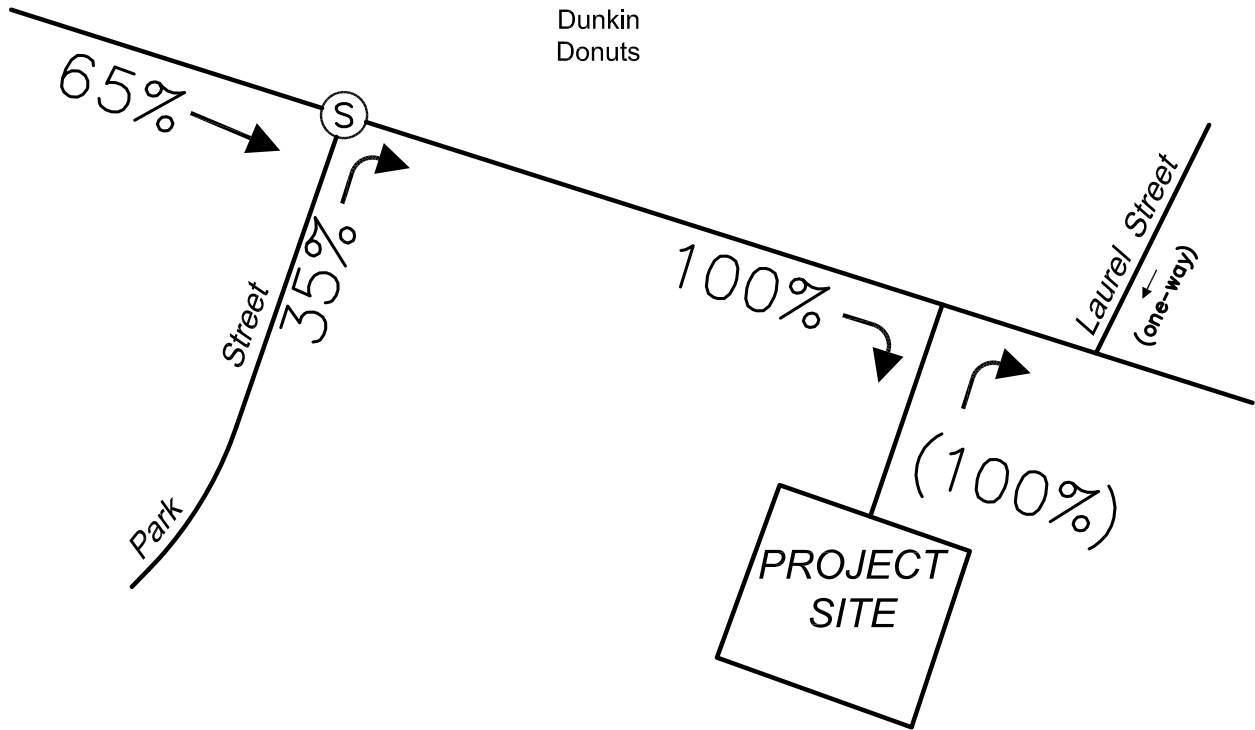
Table B1: Trip Generation

| 508-510 Somerville Ave Project | AM Peak | PM Peak | Weekday Daily | Sat. Midday Peak | Sat. Daily |
|--|-----------|----------|---------------|------------------|------------|
| Residential Apartments | | | | | |
| Gross Entering Trips | 1 | 5 | 40 | 3 | 39 |
| Gross Exiting Trips | 5 | 2 | 40 | 3 | 38 |
| Gross Total Trips | 6 | 7 | 80 | 6 | 77 |
| Transit / Bike / Walk / Telecommute (57.8%) --US Census Tract 3512.04-- | | | | | |
| Entering Trips | 1 | 3 | 23 | 2 | 23 |
| Exiting Trips | 3 | 1 | 23 | 2 | 22 |
| Auto Enter Trips | 0 | 2 | 17 | 1 | 16 |
| Auto Exit Trips | 2 | 1 | 17 | 1 | 16 |
| Auto Trips | 2 | 3 | 34 | 2 | 32 |
| Ground floor supporting Retail | | | | | |
| Entering Trips | 4 | 1 | 27 | 1 | 25 |
| Exiting Trips | 4 | 2 | 26 | 2 | 25 |
| Total Auto Enter Trips | 4 | 3 | 44 | 2 | 41 |
| Total Auto Exit Trips | 6 | 3 | 43 | 3 | 41 |
| Total Auto Trips (retail+residential) | 10 | 6 | 87 | 5 | 82 |

The Site is expected to generate 87 daily weekday and 82 daily weekend trips. During the weekday AM and PM peak hour, the development is expected to generate 10 trips and 6 trips, respectively. During the Saturday midday peak hour, the Site is expected to generate 5 trips. Detailed trip generation calculations are provided in **Appendix B**. The existing travel patterns in the area were used to estimate the trip distribution of the Site trips onto the local transportation network. The trip distribution percentages are shown in Figure B3. The resulting Site trips on the network are shown in Figure B4.



Not To Scale



Legend



Existing Traffic Signal

XX% Trip Distribution Inbound

(XX%) Trip Distribution Outbound

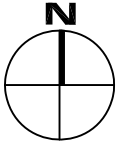
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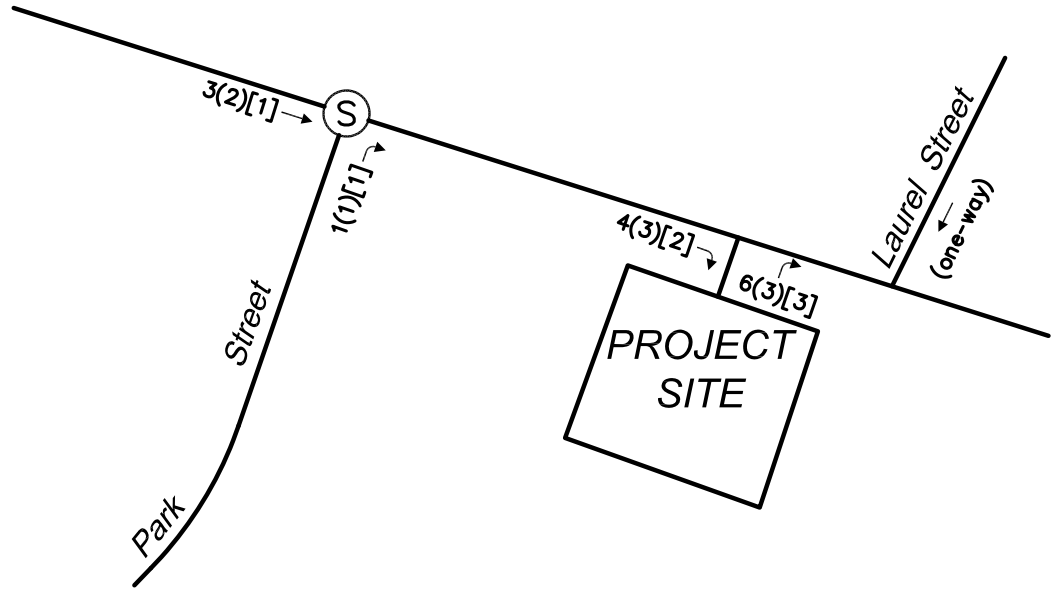
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Somerville, MA

Trip Distribution

Figure B3



Not To Scale




Legend



Existing Traffic Signal

xx(yy)[zz] AM(PM)[Saturday] Peak Hour Volumes

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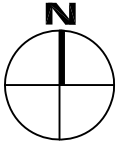
508-510 Somerville Ave
 Somerville, MA

Site Trips

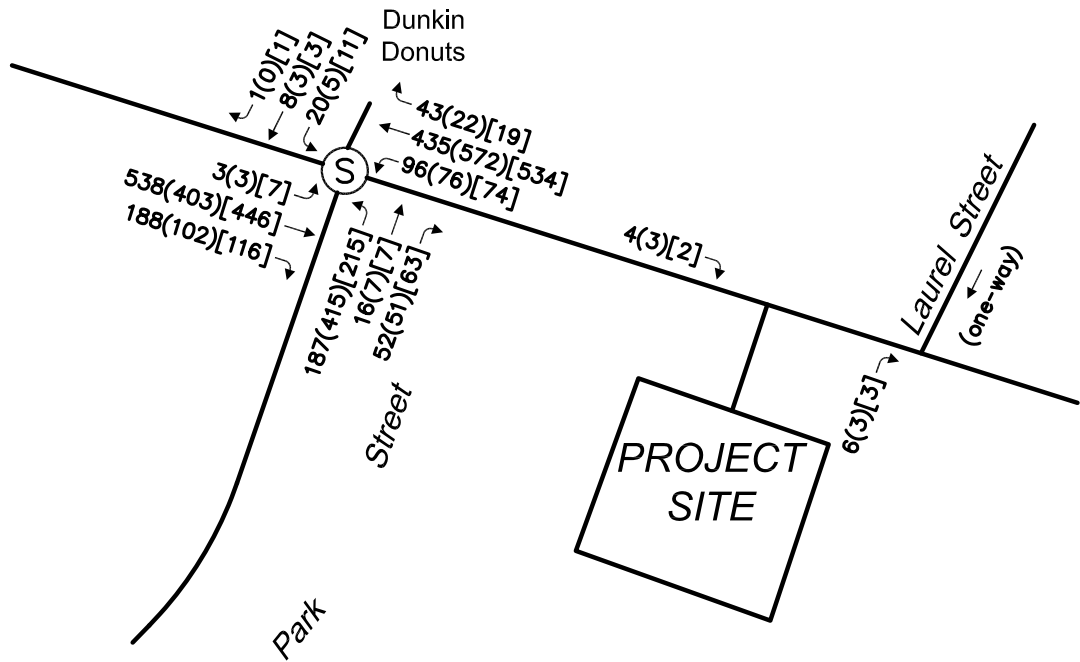
Figure B4

B5. 2018 BUILD TRAFFIC VOLUMES

Under Build conditions, this development will consist of twelve (12) apartment units and 1,201 square feet of ground floor supporting retail. This project is to be accessed (ingress/egress) by a right-in/right-out driveway on the south side of Somerville Avenue between Park Street and Laurel Street. To develop 2018 Build traffic volumes, the 2018 No-Build traffic volumes were summed with the Site trips to arrive at 2018 Build traffic volumes. The resulting Build volumes are shown in Figure B5.



Not To Scale



Legend



Existing Traffic Signal

xx(YY)[ZZ] AM(PM)[Saturday] Peak Hour Volumes

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2018 Build
Traffic Volumes

Figure B5

C. CAPACITY ANALYSIS

C1. Traffic Analysis Criteria

The Highway Capacity Manual (HCM) from the Federal Highway Administration (FHWA) provides guidance and analysis methodologies that are used to calculate measure performance levels for freeway sections, ramp junctions, weave sections and intersections (signalized and unsignalized).

Level of Service (LOS) is a term used to denote different operating conditions that occur under various traffic volume loads. It is a qualitative measure of the effect of a number of factors including geometrics, speed, travel delay, freedom to maneuver, and safety. The LOS is divided into a range of six letter grades, ranging from A to F, with A being the best and F the worst. LOS E or F is generally considered inadequate traffic operations in suburban and urban areas.

The MassDOT Highway Design Manual indicates a minimum overall LOS D. MassDOT strives for the best LOS possible wherever possible, and indicates overall LOS D can be acceptable for urban areas, in accordance with AASHTO guidelines. The minimum LOS for the area is supported by the guidance found in the National Highway Institute (NHI) Fundamentals of Planning, Design and Approval of Interchange Improvements to the Interstate System, Publication No. FHWA-NHI-10-038.

Intersection performance measures can be calculated in the form of volume to capacity (v/c) ratio, average vehicular delay, average and 95th percentile queue lengths, and level-of-service (LOS). *Synchro 8.0 was the software used to execute the intersection analysis. Synchro 8.0, a software program from Trafficware, uses the methodologies and thresholds contained within the HCM. This is the preferred/recommended software of MassDOT. Traffic volume represents the travel demand observed and capacity represents the amount of traffic the intersection can accommodate under prevailing conditions. Volume to capacity ratio that approaches or exceeds 1.0 indicates traffic congestion or poor operating conditions.*

LOS designation is reported differently for signalized and unsignalized intersections. For signalized intersections, it is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. Specifically, LOS criteria are quantified in terms of average control delay per vehicle for the peak hour, which is reported for the entire intersection and by lane or lane group approach.

For unsignalized intersections, the analysis assumes that the traffic on the mainline is not affected by traffic on the side street. The LOS for each movement is calculated by determining the length of gaps that are available in the conflicting traffic stream. Based upon the length of the gaps between vehicles, the capacity of the movement can be calculated.

The demand of the movement is then compared to the capacity and utilized to determine the average control delay for the movement. For unsignalized intersections, an overall intersection LOS is not determined. It is generally reported in terms of delay for left-turns on the mainline and all side street movements.

The delay ranges differ slightly between unsignalized and signalized intersections due to driver expectations and behavior for each LOS. Table C1 summarizes the LOS criteria.

Table C1: Intersection LOS Thresholds

| LOS | Signalized | Unsignalized |
|-----|-------------------------|-------------------------|
| | Control Delay (sec/veh) | Control Delay (sec/veh) |
| A | 0-10 | 0-10 |
| B | >10-20 | > 10-15 |
| C | >20-35 | >15-25 |
| D | >35-55 | >25-35 |
| E | >55-80 | >35-50 |
| F | >80 | >50 |

Source: 2000 Highway Capacity Manual

C2. Existing Conditions Intersection Analysis

The study intersection was analyzed for existing peak hour traffic conditions during the weekday AM and PM peak hour, and Saturday midday peak hour. Existing intersection lane configurations and traffic control were assumed in the analysis. The results of the existing conditions analysis is shown in Table C2. The detailed analysis worksheets are included in **Appendix C**.

Table C2: Existing Conditions LOS

| North-South Road | East-West Road | Lane | AM Peak Hour | | | | PM Peak Hour | | | | Sat Midday | | | | Lane Storage (ft) |
|---------------------------|----------------|---------|--------------|-------|-----|--------|--------------|-------|-----|--------|------------|-------|-----|--------|-------------------|
| | | | v/c | s/veh | LOS | Q (ft) | v/c | s/veh | LOS | Q (ft) | v/c | s/veh | LOS | Q (ft) | |
| Park St/Dunkin Donuts Dwy | Somerville Ave | NB LTR | 0.68 | 25.8 | C | #166 | 0.80 | 25.6 | C | #302 | 0.47 | 14.7 | B | 127 | 400 |
| | | SB LTR | 0.09 | 14.5 | B | 22 | 0.02 | 9.8 | A | 7 | 0.03 | 9.9 | A | 11 | 50 |
| | | EB T | 0.86 | 27.1 | C | #326 | 0.81 | 29.1 | C | #284 | 0.92 | 43.0 | D | #337 | 400 |
| | | EB R | 0.13 | 11.7 | B | 30 | 0.07 | 15.7 | B | 25 | 0.08 | 15.7 | B | 31 | 80 |
| | | WB L | 0.46 | 11.5 | B | 34 | 0.36 | 13.6 | B | 37 | 0.37 | 14.2 | B | 37 | 150 |
| | | WB TR | 0.54 | 9.8 | A | 167 | 0.77 | 19.9 | B | #286 | 0.73 | 18.6 | B | 262 | 180 |
| | | Overall | 0.79 | 18.9 | B | | 0.87 | 23.3 | C | | 0.69 | 24.9 | C | | |

Volume-to-capacity (v/c), delay (seconds/veh), and Level of Service (LOS) obtained from HCM 2000 outputs in Synchro 8.
 All Queues (Q) are 95th percentile queue measured in feet per Synchro 8 methodology
 # = vol for the 95th perc. cycle exceeds capacity. If the v/c for this movement is less than 1.0, the 95th perc. queue will rarely be exceeded.
 No queue lengths provided for all-way stop controlled intersections

This signalized intersection operates with adequate LOS and under capacity for all studied peak hours. It should be noted that the estimated 95th percentile queue for Park Street and the eastbound and westbound through movements on Somerville Avenue is approximately 300 feet during the weekday PM peak hour. During the weekday AM peak hour, the 95th percentile queue for the eastbound through movement and northbound approach is approximately 330 feet and 170 feet, respectively. During the Saturday midday peak hour, the 95th percentile queue for the eastbound Somerville through movement is approximately 340 feet.

C3. 2018 No-Build Conditions Intersection Analysis

The study intersection was analyzed for 2018 No-Build peak hour traffic conditions during the weekday AM and PM peak hour, and Saturday midday peak hour. Existing intersection lane configurations and traffic control were assumed in the analysis. The results of the analysis is shown in Table C3. The detailed analysis worksheets are included in **Appendix C**.

Table C3: 2018 No-Build Conditions LOS

| North-South Road | East-West Road | Lane | AM Peak Hour | | | | PM Peak Hour | | | | Sat Midday | | | | Lane Storage (ft) |
|---------------------------|----------------|---------|--------------|-------|-----|--------|--------------|-------|-----|--------|------------|-------|-----|--------|-------------------|
| | | | v/c | s/veh | LOS | Q (ft) | v/c | s/veh | LOS | Q (ft) | v/c | s/veh | LOS | Q (ft) | |
| Park St/Dunkin Donuts Dwy | Somerville Ave | NB LTR | 0.75 | 31.0 | C | #190 | 0.82 | 27.4 | C | #335 | 0.60 | 20.3 | C | #187 | 400 |
| | | SB LTR | 0.10 | 15.3 | B | 24 | 0.02 | 10.1 | B | 8 | 0.04 | 12.1 | B | 14 | 50 |
| | | EB T | 0.87 | 26.7 | C | #340 | 0.88 | 38.4 | D | #324 | 0.80 | 23.4 | C | #288 | 400 |
| | | EB R | 0.14 | 11.1 | B | 30 | 0.07 | 17.1 | B | 31 | 0.08 | 12.4 | B | 28 | 80 |
| | | WB L | 0.49 | 11.6 | B | 34 | 0.39 | 15.1 | B | 41 | 0.35 | 11.1 | B | 31 | 150 |
| | | WB TR | 0.55 | 9.4 | A | 171 | 0.81 | 23.3 | C | #363 | 0.67 | 13.3 | B | 225 | 180 |
| | | Overall | 0.83 | 19.5 | B | | 0.89 | 27.5 | C | | 0.73 | 17.5 | B | | |

Volume-to-capacity (v/c), delay (seconds/veh), and Level of Service (LOS) obtained from HCM 2000 outputs in Synchro 8.

All Queues (Q) are 95th percentile queue measured in feet per Synchro 8 methodology

= vol for the 95th perc. cycle exceeds capacity. If the v/c for this movement is less than 1.0, the 95th perc. queue will rarely be exceeded.

This signalized intersection operates with adequate LOS and under capacity for all studied peak hours. It should be noted that the estimated 95th percentile queue for Park Street and the eastbound and westbound through movements on Somerville Avenue is over 300 feet during the weekday PM peak hour. During the weekday AM peak hour, the 95th percentile queue for the eastbound through movement and northbound approach is approximately 340 feet and 190 feet, respectively. During the Saturday midday peak hour, the 95th percentile queue for the eastbound Somerville through movement is approximately 290 feet.

C4. 2018 Build Conditions Intersection Analysis

The study intersections were analyzed for 2018 Build peak hour traffic conditions during the weekday AM and PM peak hour, and Saturday midday peak hour. Existing intersection lane configurations and traffic control were assumed in the analysis. The results of the Build analysis is shown in Table C4. Somerville Avenue at Park Street and at the Site Driveway operates with adequate LOS and under capacity for all studied peak hours.

Table C4: 2018 Build Conditions LOS

| North-South Road | East-West Road | Lane | AM Peak Hour | | | | PM Peak Hour | | | | Sat Midday | | | | Lane Storage (ft) |
|---------------------------|----------------|---------|--------------|-------|-----|--------|--------------|-------|-----|--------|------------|-------|-----|--------|-------------------|
| | | | v/c | s/veh | LOS | Q (ft) | v/c | s/veh | LOS | Q (ft) | v/c | s/veh | LOS | Q (ft) | |
| Park St/Dunkin Donuts Dwy | Somerville Ave | NB LTR | 0.76 | 31.1 | C | #191 | 0.82 | 27.5 | C | #336 | 0.60 | 20.3 | C | #188 | 400 |
| | | SB LTR | 0.10 | 15.3 | B | 24 | 0.02 | 10.1 | B | 8 | 0.04 | 12.1 | B | 14 | 50 |
| | | EB T | 0.87 | 27.3 | C | #343 | 0.87 | 36.5 | D | #321 | 0.80 | 23.6 | C | #291 | 400 |
| | | EB R | 0.14 | 11.1 | B | 30 | 0.07 | 17.1 | B | 31 | 0.08 | 12.4 | B | 28 | 80 |
| | | WB L | 0.49 | 11.7 | B | 34 | 0.39 | 15.1 | B | 41 | 0.35 | 11.1 | B | 31 | 150 |
| | | WB TR | 0.55 | 9.4 | A | 171 | 0.81 | 23.3 | C | #363 | 0.67 | 13.3 | B | 225 | 180 |
| | | Overall | 0.84 | 19.7 | B | | 0.90 | 27.0 | C | | 0.74 | 17.6 | B | | |
| Site | Somerville Ave | NB R | 0.01 | 11.9 | B | 1 | 0.01 | 10.6 | B | 1 | 0.01 | 11.1 | B | 0 | 50 |
| | | EB TR | 0.39 | 0.0 | A | 0 | 0.29 | 0.0 | A | 0 | 0.33 | 0.0 | A | 0 | 150 |

Volume-to-capacity (v/c), delay (seconds/veh), and Level of Service (LOS) obtained from HCM 2000 outputs in Synchro 8.

All Queues (Q) are 95th percentile queue measured in feet per Synchro 8 methodology

= vol for the 95th perc. cycle exceeds capacity. If the v/c for this movement is less than 1.0, the 95th perc. queue will rarely be exceeded.

D. CONCLUSIONS

This traffic impact and access study has examined the impacts of the proposed 508-510 Somerville Avenue development in Somerville, Massachusetts. This development will consist of twelve (12) apartment units and 1,201 square feet of ground floor supporting retail. This project is to be accessed (ingress/egress) by a right-in/right-out driveway on the south side of Somerville Avenue between Park Street and Laurel Street.

This traffic study has determined that the proposed Site will not have negative Level-of-Service or intersection capacity impacts to the surrounding transportation system.

Trip Generation

The Site is expected to generate 87 daily weekday and 82 daily weekend trips. During the weekday AM and PM peak hour, the development is expected to generate 10 trips and 6 trips, respectively. During the Saturday midday peak hour, the Site is expected to generate 5 trips.

Multi-modal Impacts

The Site is located in an area where non-vehicular forms of traffic dominate the weekday peak hours of commuting. Non-vehicular modes of transportation includes bicycling, walking, transit, and telecommuting. US Census Tract Data (Tract 3512.04) from 2008 to 2012 indicates that *33.5% of Somerville residents in the area do not own a vehicle*. According to the same Census Tract Data (Tract 3512.04), *57.8% of existing Somerville workers in the area travel to work without use of an automobile*. The Site is conveniently situated close to public transportation and bicycle and pedestrian facilities. The Site is approximately 1-mile away from the Porter Square Transit Station and approximately 1-mile from the Harvard Square Transit Station. Moreover, the Site is served by the following MBTA bus routes #83 and #87 on Somerville Avenue. The transit share is expected to increase with the future stations as part of the Green Line Extension. Once completed, trains will operate every five to six minutes in the peak periods, providing fast and efficient service to downtown Boston.

Summary

The findings from this study indicate that the proposed development at 508-510 Somerville Avenue will not have any negative Level-of-Service or intersection capacity impacts to the surrounding transportation system and is expected to encourage the use of multi-modal transportation options in Somerville and the region beyond.

APPENDIX A – TRAFFIC COUNTS



PRECISION
D A T A
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

File Name : 133530 B
Site Code : 2013-099
Start Date : 9/12/2013
Page No : 1

N/S: Dunkin Donuts Driveway/ Park Street
E/W: Somerville Avenue
City, State: Somerville, MA
Client: Design Consultants/ J. Sobel

Groups Printed- Cars - Heavy Vehicles

| Start Time | Dunkin Donuts Driveway From North | | | | Somerville Avenue From East | | | | Park Street From South | | | | Somerville Avenue From West | | | | Int. Total |
|------------------|-----------------------------------|------|------|--------|-----------------------------|------|------|--------|------------------------|------|------|--------|-----------------------------|------|------|--------|------------|
| | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | |
| 07:00 AM | 0 | 1 | 2 | 0 | 8 | 86 | 9 | 0 | 7 | 3 | 22 | 0 | 44 | 86 | 1 | 0 | 269 |
| 07:15 AM | 0 | 3 | 3 | 0 | 11 | 84 | 6 | 0 | 6 | 3 | 36 | 0 | 38 | 102 | 1 | 0 | 293 |
| 07:30 AM | 0 | 2 | 3 | 0 | 11 | 94 | 16 | 0 | 8 | 6 | 48 | 0 | 44 | 102 | 1 | 0 | 335 |
| 07:45 AM | 0 | 3 | 6 | 0 | 10 | 108 | 22 | 0 | 9 | 3 | 39 | 0 | 44 | 128 | 1 | 0 | 373 |
| Total | 0 | 9 | 14 | 0 | 40 | 372 | 53 | 0 | 30 | 15 | 145 | 0 | 170 | 418 | 4 | 0 | 1270 |
| 08:00 AM | 1 | 1 | 8 | 0 | 17 | 106 | 24 | 0 | 16 | 3 | 55 | 0 | 54 | 145 | 0 | 0 | 430 |
| 08:15 AM | 0 | 3 | 2 | 0 | 4 | 104 | 19 | 0 | 13 | 4 | 38 | 0 | 43 | 110 | 1 | 0 | 341 |
| 08:30 AM | 0 | 1 | 3 | 0 | 10 | 93 | 26 | 0 | 11 | 5 | 46 | 0 | 38 | 126 | 0 | 0 | 359 |
| 08:45 AM | 0 | 0 | 2 | 0 | 3 | 90 | 22 | 0 | 17 | 3 | 51 | 0 | 17 | 102 | 0 | 0 | 307 |
| Total | 1 | 5 | 15 | 0 | 34 | 393 | 91 | 0 | 57 | 15 | 190 | 0 | 152 | 483 | 1 | 0 | 1437 |
| Grand Total | 1 | 14 | 29 | 0 | 74 | 765 | 144 | 0 | 87 | 30 | 335 | 0 | 322 | 901 | 5 | 0 | 2707 |
| Apprch % | 2.3 | 31.8 | 65.9 | 0 | 7.5 | 77.8 | 14.6 | 0 | 19.2 | 6.6 | 74.1 | 0 | 26.2 | 73.4 | 0.4 | 0 | |
| Total % | 0 | 0.5 | 1.1 | 0 | 2.7 | 28.3 | 5.3 | 0 | 3.2 | 1.1 | 12.4 | 0 | 11.9 | 33.3 | 0.2 | 0 | |
| Cars | 1 | 13 | 29 | 0 | 72 | 706 | 138 | 0 | 83 | 29 | 322 | 0 | 309 | 860 | 5 | 0 | 2567 |
| % Cars | 100 | 92.9 | 100 | 0 | 97.3 | 92.3 | 95.8 | 0 | 95.4 | 96.7 | 96.1 | 0 | 96 | 95.4 | 100 | 0 | 94.8 |
| Heavy Vehicles | 0 | 1 | 0 | 0 | 2 | 59 | 6 | 0 | 4 | 1 | 13 | 0 | 13 | 41 | 0 | 0 | 140 |
| % Heavy Vehicles | 0 | 7.1 | 0 | 0 | 2.7 | 7.7 | 4.2 | 0 | 4.6 | 3.3 | 3.9 | 0 | 4 | 4.6 | 0 | 0 | 5.2 |

| Start Time | Dunkin Donuts Driveway From North | | | | | Somerville Avenue From East | | | | | Park Street From South | | | | | Somerville Avenue From West | | | | | Int. Total |
|--|-----------------------------------|------|------|--------|------------|-----------------------------|------|------|--------|------------|------------------------|------|------|--------|------------|-----------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:45 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:45 AM | 0 | 3 | 6 | 0 | 9 | 10 | 108 | 22 | 0 | 140 | 9 | 3 | 39 | 0 | 51 | 44 | 128 | 1 | 0 | 173 | 373 |
| 08:00 AM | 1 | 1 | 8 | 0 | 10 | 17 | 106 | 24 | 0 | 147 | 16 | 3 | 55 | 0 | 74 | 54 | 145 | 0 | 0 | 199 | 430 |
| 08:15 AM | 0 | 3 | 2 | 0 | 5 | 4 | 104 | 19 | 0 | 127 | 13 | 4 | 38 | 0 | 55 | 43 | 110 | 1 | 0 | 154 | 341 |
| 08:30 AM | 0 | 1 | 3 | 0 | 4 | 10 | 93 | 26 | 0 | 129 | 11 | 5 | 46 | 0 | 62 | 38 | 126 | 0 | 0 | 164 | 359 |
| Total Volume | 1 | 8 | 19 | 0 | 28 | 41 | 411 | 91 | 0 | 543 | 49 | 15 | 178 | 0 | 242 | 179 | 509 | 2 | 0 | 690 | 1503 |
| % App. Total | 3.6 | 28.6 | 67.9 | 0 | | 7.6 | 75.7 | 16.8 | 0 | | 20.2 | 6.2 | 73.6 | 0 | | 25.9 | 73.8 | 0.3 | 0 | | |
| PHF | .250 | .667 | .594 | .000 | .700 | .603 | .951 | .875 | .000 | .923 | .766 | .750 | .809 | .000 | .818 | .829 | .878 | .500 | .000 | .867 | .874 |
| Cars | 1 | 7 | 19 | 0 | 27 | 40 | 376 | 86 | 0 | 502 | 46 | 15 | 173 | 0 | 234 | 171 | 480 | 2 | 0 | 653 | 1416 |
| % Cars | 100 | 87.5 | 100 | 0 | 96.4 | 97.6 | 91.5 | 94.5 | 0 | 92.4 | 93.9 | 100 | 97.2 | 0 | 96.7 | 95.5 | 94.3 | 100 | 0 | 94.6 | 94.2 |
| Heavy Vehicles | 0 | 1 | 0 | 0 | 1 | 1 | 35 | 5 | 0 | 41 | 3 | 0 | 5 | 0 | 8 | 8 | 29 | 0 | 0 | 37 | 87 |
| % Heavy Vehicles | 0 | 12.5 | 0 | 0 | 3.6 | 2.4 | 8.5 | 5.5 | 0 | 7.6 | 6.1 | 0 | 2.8 | 0 | 3.3 | 4.5 | 5.7 | 0 | 0 | 5.4 | 5.8 |



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N/S: Dunkin Donuts Driveway/ Park Street
E/W: Somerville Avenue
City, State: Somerville, MA
Client: Design Consultants/ J. Sobel

File Name : 133530 B
Site Code : 2013-099
Start Date : 9/12/2013
Page No : 1

Groups Printed- Cars

| Start Time | Dunkin Donuts Driveway From North | | | | Somerville Avenue From East | | | | Park Street From South | | | | Somerville Avenue From West | | | | Int. Total |
|-------------|--------------------------------------|------|------|--------|--------------------------------|------|------|--------|---------------------------|------|------|--------|--------------------------------|------|------|--------|------------|
| | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | |
| 07:00 AM | 0 | 1 | 2 | 0 | 8 | 77 | 9 | 0 | 7 | 3 | 18 | 0 | 43 | 86 | 1 | 0 | 255 |
| 07:15 AM | 0 | 3 | 3 | 0 | 11 | 81 | 6 | 0 | 6 | 3 | 35 | 0 | 37 | 98 | 1 | 0 | 284 |
| 07:30 AM | 0 | 2 | 3 | 0 | 10 | 87 | 15 | 0 | 8 | 6 | 45 | 0 | 43 | 100 | 1 | 0 | 320 |
| 07:45 AM | 0 | 3 | 6 | 0 | 10 | 98 | 21 | 0 | 9 | 3 | 39 | 0 | 43 | 119 | 1 | 0 | 352 |
| Total | 0 | 9 | 14 | 0 | 39 | 343 | 51 | 0 | 30 | 15 | 137 | 0 | 166 | 403 | 4 | 0 | 1211 |
| 08:00 AM | 1 | 1 | 8 | 0 | 17 | 97 | 23 | 0 | 16 | 3 | 53 | 0 | 51 | 129 | 0 | 0 | 399 |
| 08:15 AM | 0 | 2 | 2 | 0 | 4 | 96 | 18 | 0 | 12 | 4 | 38 | 0 | 41 | 108 | 1 | 0 | 326 |
| 08:30 AM | 0 | 1 | 3 | 0 | 9 | 85 | 24 | 0 | 9 | 5 | 43 | 0 | 36 | 124 | 0 | 0 | 339 |
| 08:45 AM | 0 | 0 | 2 | 0 | 3 | 85 | 22 | 0 | 16 | 2 | 51 | 0 | 15 | 96 | 0 | 0 | 292 |
| Total | 1 | 4 | 15 | 0 | 33 | 363 | 87 | 0 | 53 | 14 | 185 | 0 | 143 | 457 | 1 | 0 | 1356 |
| Grand Total | 1 | 13 | 29 | 0 | 72 | 706 | 138 | 0 | 83 | 29 | 322 | 0 | 309 | 860 | 5 | 0 | 2567 |
| Apprch % | 2.3 | 30.2 | 67.4 | 0 | 7.9 | 77.1 | 15.1 | 0 | 19.1 | 6.7 | 74.2 | 0 | 26.3 | 73.3 | 0.4 | 0 | |
| Total % | 0 | 0.5 | 1.1 | 0 | 2.8 | 27.5 | 5.4 | 0 | 3.2 | 1.1 | 12.5 | 0 | 12 | 33.5 | 0.2 | 0 | |

| Start Time | Dunkin Donuts Driveway From North | | | | | Somerville Avenue From East | | | | | Park Street From South | | | | | Somerville Avenue From West | | | | | Int. Total |
|--|--------------------------------------|------|------|--------|------------|--------------------------------|------|------|--------|------------|---------------------------|------|------|--------|------------|--------------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:45 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:45 AM | 0 | 3 | 6 | 0 | 9 | 10 | 98 | 21 | 0 | 129 | 9 | 3 | 39 | 0 | 51 | 43 | 119 | 1 | 0 | 163 | 352 |
| 08:00 AM | 1 | 1 | 8 | 0 | 10 | 17 | 97 | 23 | 0 | 137 | 16 | 3 | 53 | 0 | 72 | 51 | 129 | 0 | 0 | 180 | 399 |
| 08:15 AM | 0 | 2 | 2 | 0 | 4 | 4 | 96 | 18 | 0 | 118 | 12 | 4 | 38 | 0 | 54 | 41 | 108 | 1 | 0 | 150 | 326 |
| 08:30 AM | 0 | 1 | 3 | 0 | 4 | 9 | 85 | 24 | 0 | 118 | 9 | 5 | 43 | 0 | 57 | 36 | 124 | 0 | 0 | 160 | 339 |
| Total Volume | 1 | 7 | 19 | 0 | 27 | 40 | 376 | 86 | 0 | 502 | 46 | 15 | 173 | 0 | 234 | 171 | 480 | 2 | 0 | 653 | 1416 |
| % App. Total | 3.7 | 25.9 | 70.4 | 0 | | 8 | 74.9 | 17.1 | 0 | | 19.7 | 6.4 | 73.9 | 0 | | 26.2 | 73.5 | 0.3 | 0 | | |
| PHF | .250 | .583 | .594 | .000 | .675 | .588 | .959 | .896 | .000 | .916 | .719 | .750 | .816 | .000 | .813 | .838 | .930 | .500 | .000 | .907 | .887 |



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N/S: Dunkin Donuts Driveway/ Park Street
E/W: Somerville Avenue
City, State: Somerville, MA
Client: Design Consultants/ J. Sobel

File Name : 133530 B
Site Code : 2013-099
Start Date : 9/12/2013
Page No : 1

Groups Printed- Heavy Vehicles

| Start Time | Dunkin Donuts Driveway From North | | | | Somerville Avenue From East | | | | Park Street From South | | | | Somerville Avenue From West | | | | Int. Total |
|-------------|--------------------------------------|------|------|--------|--------------------------------|------|------|--------|---------------------------|------|------|--------|--------------------------------|------|------|--------|------------|
| | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 14 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 4 | 0 | 0 | 9 |
| 07:30 AM | 0 | 0 | 0 | 0 | 1 | 7 | 1 | 0 | 0 | 0 | 3 | 0 | 1 | 2 | 0 | 0 | 15 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 10 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 9 | 0 | 0 | 21 |
| Total | 0 | 0 | 0 | 0 | 1 | 29 | 2 | 0 | 0 | 0 | 8 | 0 | 4 | 15 | 0 | 0 | 59 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 9 | 1 | 0 | 0 | 0 | 2 | 0 | 3 | 16 | 0 | 0 | 31 |
| 08:15 AM | 0 | 1 | 0 | 0 | 0 | 8 | 1 | 0 | 1 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 15 |
| 08:30 AM | 0 | 0 | 0 | 0 | 1 | 8 | 2 | 0 | 2 | 0 | 3 | 0 | 2 | 2 | 0 | 0 | 20 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 6 | 0 | 0 | 15 |
| Total | 0 | 1 | 0 | 0 | 1 | 30 | 4 | 0 | 4 | 1 | 5 | 0 | 9 | 26 | 0 | 0 | 81 |
| Grand Total | 0 | 1 | 0 | 0 | 2 | 59 | 6 | 0 | 4 | 1 | 13 | 0 | 13 | 41 | 0 | 0 | 140 |
| Apprch % | 0 | 100 | 0 | 0 | 3 | 88.1 | 9 | 0 | 22.2 | 5.6 | 72.2 | 0 | 24.1 | 75.9 | 0 | 0 | |
| Total % | 0 | 0.7 | 0 | 0 | 1.4 | 42.1 | 4.3 | 0 | 2.9 | 0.7 | 9.3 | 0 | 9.3 | 29.3 | 0 | 0 | |

| Start Time | Dunkin Donuts Driveway From North | | | | | Somerville Avenue From East | | | | | Park Street From South | | | | | Somerville Avenue From West | | | | | Int. Total |
|--|--------------------------------------|------|------|--------|------------|--------------------------------|------|------|--------|------------|---------------------------|------|------|--------|------------|--------------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:45 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 1 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 1 | 9 | 0 | 0 | 10 | 21 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 1 | 0 | 10 | 0 | 0 | 2 | 0 | 2 | 3 | 16 | 0 | 0 | 19 | 31 |
| 08:15 AM | 0 | 1 | 0 | 0 | 1 | 0 | 8 | 1 | 0 | 9 | 1 | 0 | 0 | 0 | 1 | 2 | 2 | 0 | 0 | 4 | 15 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 8 | 2 | 0 | 11 | 2 | 0 | 3 | 0 | 5 | 2 | 2 | 0 | 0 | 4 | 20 |
| Total Volume | 0 | 1 | 0 | 0 | 1 | 1 | 35 | 5 | 0 | 41 | 3 | 0 | 5 | 0 | 8 | 8 | 29 | 0 | 0 | 37 | 87 |
| % App. Total | 0 | 100 | 0 | 0 | | 2.4 | 85.4 | 12.2 | 0 | | 37.5 | 0 | 62.5 | 0 | | 21.6 | 78.4 | 0 | 0 | | |
| PHF | .000 | .250 | .000 | .000 | .250 | .250 | .875 | .625 | .000 | .932 | .375 | .000 | .417 | .000 | .400 | .667 | .453 | .000 | .000 | .487 | .702 |



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N/S: Dunkin Donuts Driveway/ Park Street
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Client: Design Consultants/ J. Sobel

File Name : 133530 B
Site Code : 2013-099
Start Date : 9/12/2013
Page No : 1

Groups Printed- Peds and Bikes

| Start Time | Dunkin Donuts Driveway From North | | | | Somerville Avenue From East | | | | Park Street From South | | | | Somerville Avenue From West | | | | Int. Total |
|-------------|--------------------------------------|------|------|------|--------------------------------|------|------|------|---------------------------|------|------|------|--------------------------------|------|------|------|------------|
| | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | |
| 07:00 AM | 0 | 0 | 0 | 11 | 0 | 4 | 1 | 4 | 0 | 0 | 2 | 3 | 3 | 5 | 0 | 0 | 33 |
| 07:15 AM | 0 | 0 | 0 | 11 | 0 | 5 | 2 | 4 | 0 | 0 | 2 | 2 | 8 | 14 | 0 | 2 | 50 |
| 07:30 AM | 0 | 0 | 0 | 15 | 0 | 4 | 7 | 8 | 0 | 0 | 2 | 8 | 8 | 14 | 0 | 2 | 68 |
| 07:45 AM | 0 | 0 | 0 | 26 | 0 | 11 | 7 | 10 | 0 | 0 | 0 | 3 | 11 | 11 | 0 | 0 | 79 |
| Total | 0 | 0 | 0 | 63 | 0 | 24 | 17 | 26 | 0 | 0 | 6 | 16 | 30 | 44 | 0 | 4 | 230 |
| 08:00 AM | 0 | 1 | 1 | 16 | 0 | 4 | 10 | 7 | 0 | 0 | 1 | 7 | 15 | 10 | 0 | 2 | 74 |
| 08:15 AM | 0 | 0 | 0 | 24 | 0 | 6 | 6 | 11 | 0 | 0 | 1 | 3 | 17 | 9 | 0 | 5 | 82 |
| 08:30 AM | 0 | 0 | 0 | 19 | 0 | 2 | 6 | 17 | 0 | 0 | 1 | 6 | 24 | 17 | 0 | 2 | 94 |
| 08:45 AM | 0 | 0 | 0 | 24 | 0 | 8 | 10 | 10 | 0 | 0 | 7 | 9 | 22 | 12 | 0 | 0 | 102 |
| Total | 0 | 1 | 1 | 83 | 0 | 20 | 32 | 45 | 0 | 0 | 10 | 25 | 78 | 48 | 0 | 9 | 352 |
| Grand Total | 0 | 1 | 1 | 146 | 0 | 44 | 49 | 71 | 0 | 0 | 16 | 41 | 108 | 92 | 0 | 13 | 582 |
| Apprch % | 0 | 0.7 | 0.7 | 98.6 | 0 | 26.8 | 29.9 | 43.3 | 0 | 0 | 28.1 | 71.9 | 50.7 | 43.2 | 0 | 6.1 | |
| Total % | 0 | 0.2 | 0.2 | 25.1 | 0 | 7.6 | 8.4 | 12.2 | 0 | 0 | 2.7 | 7 | 18.6 | 15.8 | 0 | 2.2 | |

| Start Time | Dunkin Donuts Driveway From North | | | | | Somerville Avenue From East | | | | | Park Street From South | | | | | Somerville Avenue From West | | | | | Int. Total |
|--|--------------------------------------|------|------|------|------------|--------------------------------|------|------|------|------------|---------------------------|------|------|------|------------|--------------------------------|------|------|------|------------|------------|
| | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | |
| 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 | 1 | 1 | 16 | 18 | 0 | 4 | 10 | 7 | 21 | 0 | 0 | 1 | 7 | 8 | 15 | 10 | 0 | 2 | 27 | 74 |
| 08:15 AM | 0 | 0 | 0 | 24 | 24 | 0 | 6 | 6 | 11 | 23 | 0 | 0 | 1 | 3 | 4 | 17 | 9 | 0 | 5 | 31 | 82 |
| 08:30 AM | 0 | 0 | 0 | 19 | 19 | 0 | 2 | 6 | 17 | 25 | 0 | 0 | 1 | 6 | 7 | 24 | 17 | 0 | 2 | 43 | 94 |
| 08:45 AM | 0 | 0 | 0 | 24 | 24 | 0 | 8 | 10 | 10 | 28 | 0 | 0 | 7 | 9 | 16 | 22 | 12 | 0 | 0 | 34 | 102 |
| Total Volume | 0 | 1 | 1 | 83 | 85 | 0 | 20 | 32 | 45 | 97 | 0 | 0 | 10 | 25 | 35 | 78 | 48 | 0 | 9 | 135 | 352 |
| % App. Total | 0 | 1.2 | 1.2 | 97.6 | | 0 | 20.6 | 33 | 46.4 | | 0 | 0 | 28.6 | 71.4 | | 57.8 | 35.6 | 0 | 6.7 | | |
| PHF | .000 | .250 | .250 | .865 | .885 | .000 | .625 | .800 | .662 | .866 | .000 | .000 | .357 | .694 | .547 | .813 | .706 | .000 | .450 | .785 | .863 |



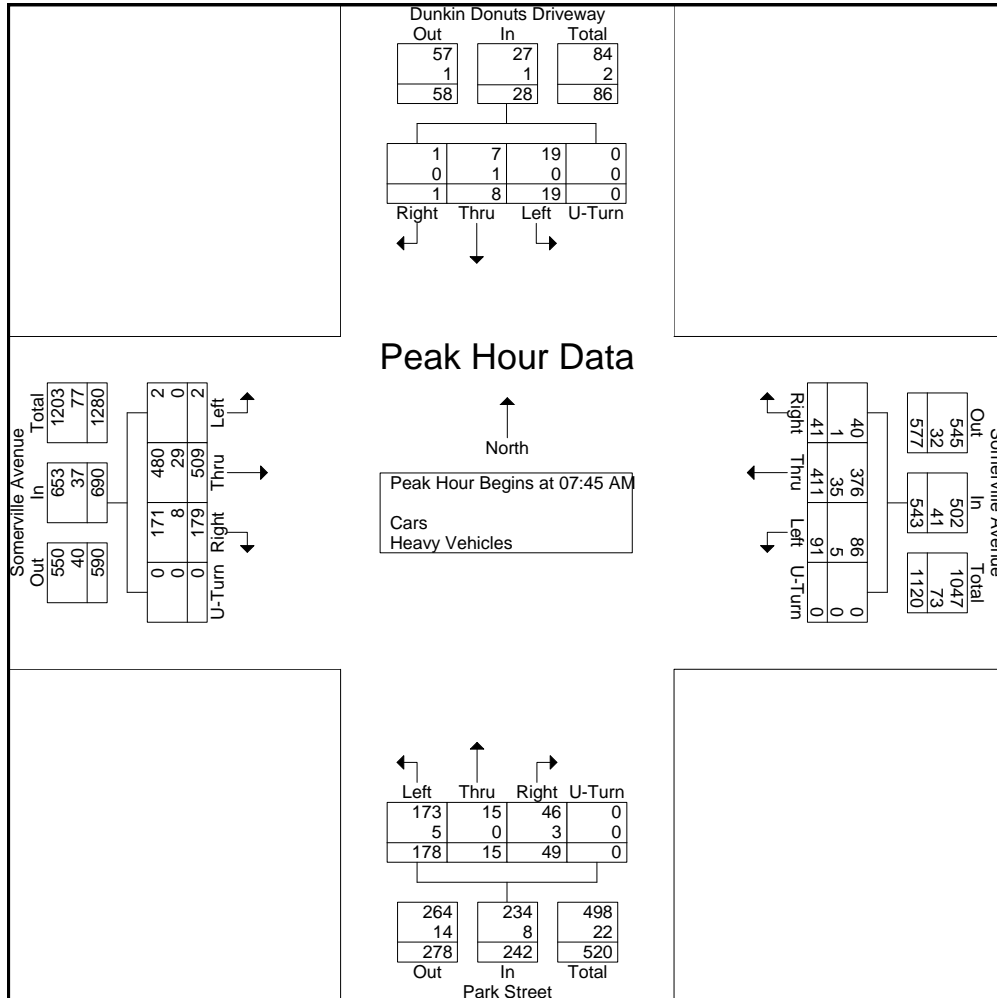
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|--|-----------------------------------|------|------|--------|------------|-----------------------------|------|------|--------|------------|------------------------|------|------|--------|------------|-----------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:45 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:45 AM | 0 | 3 | 6 | 0 | 9 | 10 | 108 | 22 | 0 | 140 | 9 | 3 | 39 | 0 | 51 | 44 | 128 | 1 | 0 | 173 | 373 |
| 08:00 AM | 1 | 1 | 8 | 0 | 10 | 17 | 106 | 24 | 0 | 147 | 16 | 3 | 55 | 0 | 74 | 54 | 145 | 0 | 0 | 199 | 430 |
| 08:15 AM | 0 | 3 | 2 | 0 | 5 | 4 | 104 | 19 | 0 | 127 | 13 | 4 | 38 | 0 | 55 | 43 | 110 | 1 | 0 | 154 | 341 |
| 08:30 AM | 0 | 1 | 3 | 0 | 4 | 10 | 93 | 26 | 0 | 129 | 11 | 5 | 46 | 0 | 62 | 38 | 126 | 0 | 0 | 164 | 359 |
| Total Volume | 1 | 8 | 19 | 0 | 28 | 41 | 411 | 91 | 0 | 543 | 49 | 15 | 178 | 0 | 242 | 179 | 509 | 2 | 0 | 690 | 1503 |
| % App. Total | 3.6 | 28.6 | 67.9 | 0 | | 7.6 | 75.7 | 16.8 | 0 | | 20.2 | 6.2 | 73.6 | 0 | | 25.9 | 73.8 | 0.3 | 0 | | |
| PHF | .250 | .667 | .594 | .000 | .700 | .603 | .951 | .875 | .000 | .923 | .766 | .750 | .809 | .000 | .818 | .829 | .878 | .500 | .000 | .867 | .874 |
| Cars | 1 | 7 | 19 | 0 | 27 | 40 | 376 | 86 | 0 | 502 | 46 | 15 | 173 | 0 | 234 | 171 | 480 | 2 | 0 | 653 | 1416 |
| % Cars | 100 | 87.5 | 100 | 0 | 96.4 | 97.6 | 91.5 | 94.5 | 0 | 92.4 | 93.9 | 100 | 97.2 | 0 | 96.7 | 95.5 | 94.3 | 100 | 0 | 94.6 | 94.2 |
| Heavy Vehicles | 0 | 1 | 0 | 0 | 1 | 1 | 35 | 5 | 0 | 41 | 3 | 0 | 5 | 0 | 8 | 8 | 29 | 0 | 0 | 37 | 87 |
| % Heavy Vehicles | 0 | 12.5 | 0 | 0 | 3.6 | 2.4 | 8.5 | 5.5 | 0 | 7.6 | 6.1 | 0 | 2.8 | 0 | 3.3 | 4.5 | 5.7 | 0 | 0 | 5.4 | 5.8 |





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Groups Printed- Cars - Heavy Vehicles

| Start Time | Dunkin Donuts Driveway From North | | | | Somerville Avenue From East | | | | Park Street From South | | | | Somerville Avenue From West | | | | Int. Total |
|------------------|-----------------------------------|------|------|--------|-----------------------------|------|------|--------|------------------------|------|------|--------|-----------------------------|------|------|--------|------------|
| | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | |
| 04:00 PM | 0 | 1 | 4 | 0 | 6 | 112 | 21 | 0 | 13 | 0 | 106 | 0 | 15 | 98 | 0 | 0 | 376 |
| 04:15 PM | 0 | 0 | 4 | 0 | 8 | 129 | 17 | 0 | 16 | 2 | 79 | 0 | 19 | 69 | 1 | 0 | 344 |
| 04:30 PM | 0 | 1 | 2 | 0 | 4 | 126 | 18 | 0 | 18 | 3 | 93 | 0 | 18 | 97 | 0 | 0 | 380 |
| 04:45 PM | 0 | 1 | 1 | 0 | 6 | 129 | 25 | 0 | 9 | 3 | 101 | 0 | 28 | 87 | 0 | 0 | 390 |
| Total | 0 | 3 | 11 | 0 | 24 | 496 | 81 | 0 | 56 | 8 | 379 | 0 | 80 | 351 | 1 | 0 | 1490 |
| 05:00 PM | 0 | 0 | 3 | 0 | 3 | 142 | 11 | 0 | 18 | 4 | 97 | 0 | 15 | 96 | 0 | 0 | 389 |
| 05:15 PM | 0 | 2 | 0 | 0 | 6 | 136 | 18 | 0 | 11 | 0 | 103 | 0 | 24 | 97 | 0 | 0 | 397 |
| 05:30 PM | 0 | 0 | 1 | 0 | 4 | 136 | 18 | 0 | 10 | 0 | 94 | 0 | 30 | 102 | 0 | 0 | 395 |
| 05:45 PM | 0 | 1 | 4 | 0 | 7 | 121 | 15 | 0 | 15 | 1 | 81 | 0 | 15 | 90 | 0 | 0 | 350 |
| Total | 0 | 3 | 8 | 0 | 20 | 535 | 62 | 0 | 54 | 5 | 375 | 0 | 84 | 385 | 0 | 0 | 1531 |
| Grand Total | 0 | 6 | 19 | 0 | 44 | 1031 | 143 | 0 | 110 | 13 | 754 | 0 | 164 | 736 | 1 | 0 | 3021 |
| Apprch % | 0 | 24 | 76 | 0 | 3.6 | 84.6 | 11.7 | 0 | 12.5 | 1.5 | 86 | 0 | 18.2 | 81.7 | 0.1 | 0 | |
| Total % | 0 | 0.2 | 0.6 | 0 | 1.5 | 34.1 | 4.7 | 0 | 3.6 | 0.4 | 25 | 0 | 5.4 | 24.4 | 0 | 0 | |
| Cars | 0 | 6 | 19 | 0 | 44 | 1001 | 139 | 0 | 108 | 12 | 739 | 0 | 157 | 717 | 1 | 0 | 2943 |
| % Cars | 0 | 100 | 100 | 0 | 100 | 97.1 | 97.2 | 0 | 98.2 | 92.3 | 98 | 0 | 95.7 | 97.4 | 100 | 0 | 97.4 |
| Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 30 | 4 | 0 | 2 | 1 | 15 | 0 | 7 | 19 | 0 | 0 | 78 |
| % Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 2.9 | 2.8 | 0 | 1.8 | 7.7 | 2 | 0 | 4.3 | 2.6 | 0 | 0 | 2.6 |

| Start Time | Dunkin Donuts Driveway From North | | | | | Somerville Avenue From East | | | | | Park Street From South | | | | | Somerville Avenue From West | | | | | Int. Total |
|--|-----------------------------------|------|------|--------|------------|-----------------------------|------|------|--------|------------|------------------------|------|------|--------|------------|-----------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| 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 | 1 | 1 | 0 | 2 | 6 | 129 | 25 | 0 | 160 | 9 | 3 | 101 | 0 | 113 | 28 | 87 | 0 | 0 | 115 | 390 |
| 05:00 PM | 0 | 0 | 3 | 0 | 3 | 3 | 142 | 11 | 0 | 156 | 18 | 4 | 97 | 0 | 119 | 15 | 96 | 0 | 0 | 111 | 389 |
| 05:15 PM | 0 | 2 | 0 | 0 | 2 | 6 | 136 | 18 | 0 | 160 | 11 | 0 | 103 | 0 | 114 | 24 | 97 | 0 | 0 | 121 | 397 |
| 05:30 PM | 0 | 0 | 1 | 0 | 1 | 4 | 136 | 18 | 0 | 158 | 10 | 0 | 94 | 0 | 104 | 30 | 102 | 0 | 0 | 132 | 395 |
| Total Volume | 0 | 3 | 5 | 0 | 8 | 19 | 543 | 72 | 0 | 634 | 48 | 7 | 395 | 0 | 450 | 97 | 382 | 0 | 0 | 479 | 1571 |
| % App. Total | 0 | 37.5 | 62.5 | 0 | | 3 | 85.6 | 11.4 | 0 | | 10.7 | 1.6 | 87.8 | 0 | | 20.3 | 79.7 | 0 | 0 | | |
| PHF | .000 | .375 | .417 | .000 | .667 | .792 | .956 | .720 | .000 | .991 | .667 | .438 | .959 | .000 | .945 | .808 | .936 | .000 | .000 | .907 | .989 |
| Cars | 0 | 3 | 5 | 0 | 8 | 19 | 525 | 71 | 0 | 615 | 47 | 7 | 388 | 0 | 442 | 94 | 374 | 0 | 0 | 468 | 1533 |
| % Cars | 0 | 100 | 100 | 0 | 100 | 100 | 96.7 | 98.6 | 0 | 97.0 | 97.9 | 100 | 98.2 | 0 | 98.2 | 96.9 | 97.9 | 0 | 0 | 97.7 | 97.6 |
| Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 1 | 0 | 19 | 1 | 0 | 7 | 0 | 8 | 3 | 8 | 0 | 0 | 11 | 38 |
| % Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 3.3 | 1.4 | 0 | 3.0 | 2.1 | 0 | 1.8 | 0 | 1.8 | 3.1 | 2.1 | 0 | 0 | 2.3 | 2.4 |



PRECISION
D A T A
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N/S: Dunkin Donuts Driveway/ Park Street
E/W: Somerville Avenue
City, State: Somerville, MA
Client: Design Consultants/ J. Sobel

File Name : 133530 BB
Site Code : 2013-099
Start Date : 9/12/2013
Page No : 1

Groups Printed- Cars

| Start Time | Dunkin Donuts Driveway From North | | | | Somerville Avenue From East | | | | Park Street From South | | | | Somerville Avenue From West | | | | Int. Total |
|-------------|--------------------------------------|------|------|--------|--------------------------------|------|------|--------|---------------------------|------|------|--------|--------------------------------|------|------|--------|------------|
| | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | |
| 04:00 PM | 0 | 1 | 4 | 0 | 6 | 111 | 20 | 0 | 13 | 0 | 103 | 0 | 14 | 93 | 0 | 0 | 365 |
| 04:15 PM | 0 | 0 | 4 | 0 | 8 | 125 | 15 | 0 | 16 | 1 | 77 | 0 | 17 | 67 | 1 | 0 | 331 |
| 04:30 PM | 0 | 1 | 2 | 0 | 4 | 119 | 18 | 0 | 17 | 3 | 91 | 0 | 17 | 96 | 0 | 0 | 368 |
| 04:45 PM | 0 | 1 | 1 | 0 | 6 | 122 | 24 | 0 | 9 | 3 | 101 | 0 | 27 | 85 | 0 | 0 | 379 |
| Total | 0 | 3 | 11 | 0 | 24 | 477 | 77 | 0 | 55 | 7 | 372 | 0 | 75 | 341 | 1 | 0 | 1443 |
| 05:00 PM | 0 | 0 | 3 | 0 | 3 | 135 | 11 | 0 | 18 | 4 | 94 | 0 | 14 | 94 | 0 | 0 | 376 |
| 05:15 PM | 0 | 2 | 0 | 0 | 6 | 133 | 18 | 0 | 11 | 0 | 102 | 0 | 24 | 95 | 0 | 0 | 391 |
| 05:30 PM | 0 | 0 | 1 | 0 | 4 | 135 | 18 | 0 | 9 | 0 | 91 | 0 | 29 | 100 | 0 | 0 | 387 |
| 05:45 PM | 0 | 1 | 4 | 0 | 7 | 121 | 15 | 0 | 15 | 1 | 80 | 0 | 15 | 87 | 0 | 0 | 346 |
| Total | 0 | 3 | 8 | 0 | 20 | 524 | 62 | 0 | 53 | 5 | 367 | 0 | 82 | 376 | 0 | 0 | 1500 |
| Grand Total | 0 | 6 | 19 | 0 | 44 | 1001 | 139 | 0 | 108 | 12 | 739 | 0 | 157 | 717 | 1 | 0 | 2943 |
| Apprch % | 0 | 24 | 76 | 0 | 3.7 | 84.5 | 11.7 | 0 | 12.6 | 1.4 | 86 | 0 | 17.9 | 81.9 | 0.1 | 0 | |
| Total % | 0 | 0.2 | 0.6 | 0 | 1.5 | 34 | 4.7 | 0 | 3.7 | 0.4 | 25.1 | 0 | 5.3 | 24.4 | 0 | 0 | |

| Start Time | Dunkin Donuts Driveway From North | | | | | Somerville Avenue From East | | | | | Park Street From South | | | | | Somerville Avenue From West | | | | | Int. Total |
|--|--------------------------------------|------|------|--------|------------|--------------------------------|------|------|--------|------------|---------------------------|------|------|--------|------------|--------------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| 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 | 1 | 1 | 0 | 2 | 6 | 122 | 24 | 0 | 152 | 9 | 3 | 101 | 0 | 113 | 27 | 85 | 0 | 0 | 112 | 379 |
| 05:00 PM | 0 | 0 | 3 | 0 | 3 | 3 | 135 | 11 | 0 | 149 | 18 | 4 | 94 | 0 | 116 | 14 | 94 | 0 | 0 | 108 | 376 |
| 05:15 PM | 0 | 2 | 0 | 0 | 2 | 6 | 133 | 18 | 0 | 157 | 11 | 0 | 102 | 0 | 113 | 24 | 95 | 0 | 0 | 119 | 391 |
| 05:30 PM | 0 | 0 | 1 | 0 | 1 | 4 | 135 | 18 | 0 | 157 | 9 | 0 | 91 | 0 | 100 | 29 | 100 | 0 | 0 | 129 | 387 |
| Total Volume | 0 | 3 | 5 | 0 | 8 | 19 | 525 | 71 | 0 | 615 | 47 | 7 | 388 | 0 | 442 | 94 | 374 | 0 | 0 | 468 | 1533 |
| % App. Total | 0 | 37.5 | 62.5 | 0 | | 3.1 | 85.4 | 11.5 | 0 | | 10.6 | 1.6 | 87.8 | 0 | | 20.1 | 79.9 | 0 | 0 | | |
| PHF | .000 | .375 | .417 | .000 | .667 | .792 | .972 | .740 | .000 | .979 | .653 | .438 | .951 | .000 | .953 | .810 | .935 | .000 | .000 | .907 | .980 |



PRECISION
D A T A
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Email: datarequests@pdillc.com

N/S: Dunkin Donuts Driveway/ Park Street
E/W: Somerville Avenue
City, State: Somerville, MA
Client: Design Consultants/ J. Sobel

File Name : 133530 BB
Site Code : 2013-099
Start Date : 9/12/2013
Page No : 1

Groups Printed- Heavy Vehicles

| Start Time | Dunkin Donuts Driveway From North | | | | Somerville Avenue From East | | | | Park Street From South | | | | Somerville Avenue From West | | | | Int. Total |
|-------------|--------------------------------------|------|------|--------|--------------------------------|------|------|--------|---------------------------|------|------|--------|--------------------------------|------|------|--------|------------|
| | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 3 | 0 | 1 | 5 | 0 | 0 | 11 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 4 | 2 | 0 | 0 | 1 | 2 | 0 | 2 | 2 | 0 | 0 | 13 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 1 | 0 | 2 | 0 | 1 | 1 | 0 | 0 | 12 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 11 |
| Total | 0 | 0 | 0 | 0 | 0 | 19 | 4 | 0 | 1 | 1 | 7 | 0 | 5 | 10 | 0 | 0 | 47 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 2 | 0 | 0 | 13 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 0 | 0 | 6 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 3 | 0 | 1 | 2 | 0 | 0 | 8 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 0 | 0 | 4 |
| Total | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 1 | 0 | 8 | 0 | 2 | 9 | 0 | 0 | 31 |
| Grand Total | 0 | 0 | 0 | 0 | 0 | 30 | 4 | 0 | 2 | 1 | 15 | 0 | 7 | 19 | 0 | 0 | 78 |
| Apprch % | 0 | 0 | 0 | 0 | 0 | 88.2 | 11.8 | 0 | 11.1 | 5.6 | 83.3 | 0 | 26.9 | 73.1 | 0 | 0 | |
| Total % | 0 | 0 | 0 | 0 | 0 | 38.5 | 5.1 | 0 | 2.6 | 1.3 | 19.2 | 0 | 9 | 24.4 | 0 | 0 | |

| Start Time | Dunkin Donuts Driveway From North | | | | | Somerville Avenue From East | | | | | Park Street From South | | | | | Somerville Avenue From West | | | | | Int. Total |
|--|--------------------------------------|------|------|--------|------------|--------------------------------|------|------|--------|------------|---------------------------|------|------|--------|------------|--------------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:15 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 2 | 0 | 6 | 0 | 1 | 2 | 0 | 3 | 2 | 2 | 0 | 0 | 4 | 13 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 1 | 0 | 2 | 0 | 3 | 1 | 1 | 0 | 0 | 2 | 12 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 1 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 3 | 11 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 7 | 0 | 0 | 3 | 0 | 3 | 1 | 2 | 0 | 0 | 3 | 13 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 3 | 0 | 28 | 1 | 1 | 7 | 0 | 9 | 5 | 7 | 0 | 0 | 12 | 49 |
| % App. Total | 0 | 0 | 0 | 0 | 0 | 0 | 89.3 | 10.7 | 0 | | 11.1 | 11.1 | 77.8 | 0 | | 41.7 | 58.3 | 0 | 0 | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .000 | .893 | .375 | .000 | .875 | .250 | .250 | .583 | .000 | .750 | .625 | .875 | .000 | .000 | .750 | .942 |



PRECISION
D A T A
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N/S: Dunkin Donuts Driveway/ Park Street
E/W: Somerville Avenue
City, State: Somerville, MA
Client: Design Consultants/ J. Sobel

File Name : 133530 BB
Site Code : 2013-099
Start Date : 9/12/2013
Page No : 1

Groups Printed- Peds and Bikes

| Start Time | Dunkin Donuts Driveway From North | | | | Somerville Avenue From East | | | | Park Street From South | | | | Somerville Avenue From West | | | | Int. Total |
|-------------|--------------------------------------|------|------|------|--------------------------------|------|------|------|---------------------------|------|------|------|--------------------------------|------|------|------|------------|
| | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | |
| 04:00 PM | 0 | 0 | 0 | 8 | 0 | 8 | 2 | 4 | 2 | 0 | 0 | 8 | 0 | 4 | 0 | 2 | 38 |
| 04:15 PM | 0 | 0 | 0 | 14 | 0 | 5 | 0 | 7 | 2 | 0 | 10 | 9 | 0 | 8 | 0 | 1 | 56 |
| 04:30 PM | 0 | 0 | 0 | 18 | 0 | 3 | 0 | 13 | 0 | 0 | 7 | 7 | 1 | 7 | 0 | 1 | 57 |
| 04:45 PM | 0 | 0 | 0 | 19 | 1 | 4 | 0 | 8 | 0 | 1 | 10 | 2 | 3 | 8 | 0 | 1 | 57 |
| Total | 0 | 0 | 0 | 59 | 1 | 20 | 2 | 32 | 4 | 1 | 27 | 26 | 4 | 27 | 0 | 5 | 208 |
| 05:00 PM | 0 | 0 | 0 | 11 | 0 | 12 | 2 | 6 | 4 | 0 | 16 | 15 | 0 | 8 | 0 | 1 | 75 |
| 05:15 PM | 0 | 0 | 0 | 24 | 0 | 11 | 0 | 14 | 4 | 0 | 21 | 26 | 5 | 11 | 0 | 5 | 121 |
| 05:30 PM | 0 | 1 | 0 | 16 | 1 | 11 | 0 | 11 | 1 | 0 | 26 | 24 | 4 | 8 | 0 | 1 | 104 |
| 05:45 PM | 0 | 0 | 0 | 24 | 0 | 18 | 1 | 11 | 6 | 0 | 27 | 38 | 10 | 10 | 0 | 1 | 146 |
| Total | 0 | 1 | 0 | 75 | 1 | 52 | 3 | 42 | 15 | 0 | 90 | 103 | 19 | 37 | 0 | 8 | 446 |
| Grand Total | 0 | 1 | 0 | 134 | 2 | 72 | 5 | 74 | 19 | 1 | 117 | 129 | 23 | 64 | 0 | 13 | 654 |
| Apprch % | 0 | 0.7 | 0 | 99.3 | 1.3 | 47.1 | 3.3 | 48.4 | 7.1 | 0.4 | 44 | 48.5 | 23 | 64 | 0 | 13 | |
| Total % | 0 | 0.2 | 0 | 20.5 | 0.3 | 11 | 0.8 | 11.3 | 2.9 | 0.2 | 17.9 | 19.7 | 3.5 | 9.8 | 0 | 2 | |

| Start Time | Dunkin Donuts Driveway From North | | | | | Somerville Avenue From East | | | | | Park Street From South | | | | | Somerville Avenue From West | | | | | Int. Total |
|--|--------------------------------------|------|------|------|------------|--------------------------------|------|------|------|------------|---------------------------|------|------|------|------------|--------------------------------|------|------|------|------------|------------|
| | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 05:00 PM | | | | | | | | | | | | | | | | | | | | | |
| 05:00 PM | 0 | 0 | 0 | 11 | 11 | 0 | 12 | 2 | 6 | 20 | 4 | 0 | 16 | 15 | 35 | 0 | 8 | 0 | 1 | 9 | 75 |
| 05:15 PM | 0 | 0 | 0 | 24 | 24 | 0 | 11 | 0 | 14 | 25 | 4 | 0 | 21 | 26 | 51 | 5 | 11 | 0 | 5 | 21 | 121 |
| 05:30 PM | 0 | 1 | 0 | 16 | 17 | 1 | 11 | 0 | 11 | 23 | 1 | 0 | 26 | 24 | 51 | 4 | 8 | 0 | 1 | 13 | 104 |
| 05:45 PM | 0 | 0 | 0 | 24 | 24 | 0 | 18 | 1 | 11 | 30 | 6 | 0 | 27 | 38 | 71 | 10 | 10 | 0 | 1 | 21 | 146 |
| Total Volume | 0 | 1 | 0 | 75 | 76 | 1 | 52 | 3 | 42 | 98 | 15 | 0 | 90 | 103 | 208 | 19 | 37 | 0 | 8 | 64 | 446 |
| % App. Total | 0 | 1.3 | 0 | 98.7 | | 1 | 53.1 | 3.1 | 42.9 | | 7.2 | 0 | 43.3 | 49.5 | | 29.7 | 57.8 | 0 | 12.5 | | |
| PHF | .000 | .250 | .000 | .781 | .792 | .250 | .722 | .375 | .750 | .817 | .625 | .000 | .833 | .678 | .732 | .475 | .841 | .000 | .400 | .762 | .764 |



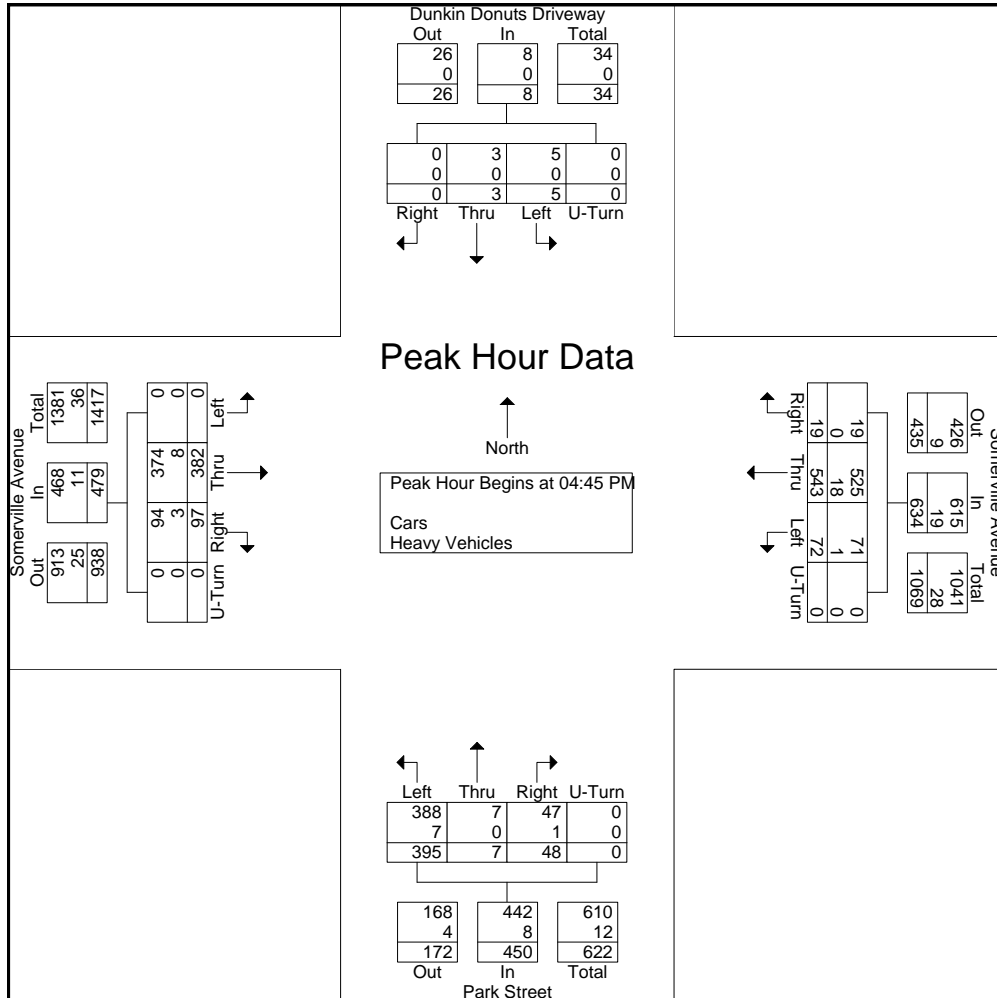
PRECISION
D A T A
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
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Email: datarequests@pdillc.com

N/S: Dunkin Donuts Driveway/ Park Street
E/W: Somerville Avenue
City, State: Somerville, MA
Client: Design Consultants/ J. Sobel

File Name : 133530 BB
Site Code : 2013-099
Start Date : 9/12/2013
Page No : 1

| Start Time | Dunkin Donuts Driveway From North | | | | | Somerville Avenue From East | | | | | Park Street From South | | | | | Somerville Avenue From West | | | | | Int. Total |
|--|-----------------------------------|------|------|--------|------------|-----------------------------|------|------|--------|------------|------------------------|------|------|--------|------------|-----------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| 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 | 1 | 1 | 0 | 2 | 6 | 129 | 25 | 0 | 160 | 9 | 3 | 101 | 0 | 113 | 28 | 87 | 0 | 0 | 115 | 390 |
| 05:00 PM | 0 | 0 | 3 | 0 | 3 | 3 | 142 | 11 | 0 | 156 | 18 | 4 | 97 | 0 | 119 | 15 | 96 | 0 | 0 | 111 | 389 |
| 05:15 PM | 0 | 2 | 0 | 0 | 2 | 6 | 136 | 18 | 0 | 160 | 11 | 0 | 103 | 0 | 114 | 24 | 97 | 0 | 0 | 121 | 397 |
| 05:30 PM | 0 | 0 | 1 | 0 | 1 | 4 | 136 | 18 | 0 | 158 | 10 | 0 | 94 | 0 | 104 | 30 | 102 | 0 | 0 | 132 | 395 |
| Total Volume | 0 | 3 | 5 | 0 | 8 | 19 | 543 | 72 | 0 | 634 | 48 | 7 | 395 | 0 | 450 | 97 | 382 | 0 | 0 | 479 | 1571 |
| % App. Total | 0 | 37.5 | 62.5 | 0 | | 3 | 85.6 | 11.4 | 0 | | 10.7 | 1.6 | 87.8 | 0 | | 20.3 | 79.7 | 0 | 0 | | |
| PHF | .000 | .375 | .417 | .000 | .667 | .792 | .956 | .720 | .000 | .991 | .667 | .438 | .959 | .000 | .945 | .808 | .936 | .000 | .000 | .907 | .989 |
| Cars | 0 | 3 | 5 | 0 | 8 | 19 | 525 | 71 | 0 | 615 | 47 | 7 | 388 | 0 | 442 | 94 | 374 | 0 | 0 | 468 | 1533 |
| % Cars | 0 | 100 | 100 | 0 | 100 | 100 | 96.7 | 98.6 | 0 | 97.0 | 97.9 | 100 | 98.2 | 0 | 98.2 | 96.9 | 97.9 | 0 | 0 | 97.7 | 97.6 |
| Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 1 | 0 | 19 | 1 | 0 | 7 | 0 | 8 | 3 | 8 | 0 | 0 | 11 | 38 |
| % Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 3.3 | 1.4 | 0 | 3.0 | 2.1 | 0 | 1.8 | 0 | 1.8 | 3.1 | 2.1 | 0 | 0 | 2.3 | 2.4 |





PRECISION
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N/S: Dunkin Donuts Driveway/ Park Street
E/W: Somerville Avenue
City, State: Somerville, MA
Client: Design Consultants/ J. Sobel

File Name : 133530 BBB
Site Code : 2013-099
Start Date : 9/14/2013
Page No : 1

Groups Printed- Cars - Heavy Vehicles

| Start Time | Dunkin Donuts Driveway From North | | | | Somerville Avenue From East | | | | Park Street From South | | | | Somerville Avenue From West | | | | Int. Total |
|------------------|--------------------------------------|------|------|--------|--------------------------------|------|------|--------|---------------------------|------|------|--------|--------------------------------|------|------|--------|------------|
| | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | |
| 11:00 AM | 1 | 0 | 0 | 0 | 10 | 109 | 21 | 0 | 14 | 4 | 45 | 0 | 25 | 103 | 1 | 0 | 333 |
| 11:15 AM | 0 | 0 | 0 | 0 | 9 | 122 | 15 | 0 | 14 | 0 | 56 | 0 | 18 | 98 | 0 | 0 | 332 |
| 11:30 AM | 3 | 0 | 0 | 0 | 12 | 120 | 17 | 0 | 14 | 3 | 53 | 0 | 30 | 114 | 0 | 0 | 366 |
| 11:45 AM | 0 | 1 | 3 | 0 | 4 | 121 | 18 | 0 | 12 | 2 | 48 | 0 | 17 | 101 | 2 | 0 | 329 |
| Total | 4 | 1 | 3 | 0 | 35 | 472 | 71 | 0 | 54 | 9 | 202 | 0 | 90 | 416 | 3 | 0 | 1360 |
| 12:00 PM | 0 | 0 | 2 | 0 | 3 | 124 | 16 | 0 | 15 | 1 | 49 | 0 | 38 | 107 | 1 | 0 | 356 |
| 12:15 PM | 0 | 2 | 3 | 0 | 4 | 134 | 20 | 0 | 12 | 4 | 57 | 0 | 26 | 91 | 1 | 0 | 354 |
| 12:30 PM | 0 | 1 | 3 | 0 | 7 | 115 | 16 | 0 | 16 | 2 | 50 | 0 | 25 | 122 | 2 | 0 | 359 |
| 12:45 PM | 1 | 0 | 2 | 0 | 2 | 133 | 18 | 0 | 16 | 0 | 49 | 0 | 21 | 103 | 1 | 0 | 346 |
| Total | 1 | 3 | 10 | 0 | 16 | 506 | 70 | 0 | 59 | 7 | 205 | 0 | 110 | 423 | 5 | 0 | 1415 |
| Grand Total | 5 | 4 | 13 | 0 | 51 | 978 | 141 | 0 | 113 | 16 | 407 | 0 | 200 | 839 | 8 | 0 | 2775 |
| Apprch % | 22.7 | 18.2 | 59.1 | 0 | 4.4 | 83.6 | 12.1 | 0 | 21.1 | 3 | 75.9 | 0 | 19.1 | 80.1 | 0.8 | 0 | |
| Total % | 0.2 | 0.1 | 0.5 | 0 | 1.8 | 35.2 | 5.1 | 0 | 4.1 | 0.6 | 14.7 | 0 | 7.2 | 30.2 | 0.3 | 0 | |
| Cars | 5 | 4 | 13 | 0 | 49 | 960 | 138 | 0 | 112 | 16 | 398 | 0 | 195 | 819 | 8 | 0 | 2717 |
| % Cars | 100 | 100 | 100 | 0 | 96.1 | 98.2 | 97.9 | 0 | 99.1 | 100 | 97.8 | 0 | 97.5 | 97.6 | 100 | 0 | 97.9 |
| Heavy Vehicles | 0 | 0 | 0 | 0 | 2 | 18 | 3 | 0 | 1 | 0 | 9 | 0 | 5 | 20 | 0 | 0 | 58 |
| % Heavy Vehicles | 0 | 0 | 0 | 0 | 3.9 | 1.8 | 2.1 | 0 | 0.9 | 0 | 2.2 | 0 | 2.5 | 2.4 | 0 | 0 | 2.1 |

| Start Time | Dunkin Donuts Driveway From North | | | | | Somerville Avenue From East | | | | | Park Street From South | | | | | Somerville Avenue From West | | | | | Int. Total |
|--|--------------------------------------|------|------|--------|------------|--------------------------------|------|------|--------|------------|---------------------------|------|------|--------|------------|--------------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 12:00 PM | | | | | | | | | | | | | | | | | | | | | |
| 12:00 PM | 0 | 0 | 2 | 0 | 2 | 3 | 124 | 16 | 0 | 143 | 15 | 1 | 49 | 0 | 65 | 38 | 107 | 1 | 0 | 146 | 356 |
| 12:15 PM | 0 | 2 | 3 | 0 | 5 | 4 | 134 | 20 | 0 | 158 | 12 | 4 | 57 | 0 | 73 | 26 | 91 | 1 | 0 | 118 | 354 |
| 12:30 PM | 0 | 1 | 3 | 0 | 4 | 7 | 115 | 16 | 0 | 138 | 16 | 2 | 50 | 0 | 68 | 25 | 122 | 2 | 0 | 149 | 359 |
| 12:45 PM | 1 | 0 | 2 | 0 | 3 | 2 | 133 | 18 | 0 | 153 | 16 | 0 | 49 | 0 | 65 | 21 | 103 | 1 | 0 | 125 | 346 |
| Total Volume | 1 | 3 | 10 | 0 | 14 | 16 | 506 | 70 | 0 | 592 | 59 | 7 | 205 | 0 | 271 | 110 | 423 | 5 | 0 | 538 | 1415 |
| % App. Total | 7.1 | 21.4 | 71.4 | 0 | | 2.7 | 85.5 | 11.8 | 0 | | 21.8 | 2.6 | 75.6 | 0 | | 20.4 | 78.6 | 0.9 | 0 | | |
| PHF | .250 | .375 | .833 | .000 | .700 | .571 | .944 | .875 | .000 | .937 | .922 | .438 | .899 | .000 | .928 | .724 | .867 | .625 | .000 | .903 | .985 |
| Cars | 1 | 3 | 10 | 0 | 14 | 16 | 501 | 68 | 0 | 585 | 59 | 7 | 201 | 0 | 267 | 108 | 413 | 5 | 0 | 526 | 1392 |
| % Cars | 100 | 100 | 100 | 0 | 100 | 100 | 99.0 | 97.1 | 0 | 98.8 | 100 | 100 | 98.0 | 0 | 98.5 | 98.2 | 97.6 | 100 | 0 | 97.8 | 98.4 |
| Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 2 | 0 | 7 | 0 | 0 | 4 | 0 | 4 | 2 | 10 | 0 | 0 | 12 | 23 |
| % Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 1.0 | 2.9 | 0 | 1.2 | 0 | 0 | 2.0 | 0 | 1.5 | 1.8 | 2.4 | 0 | 0 | 2.2 | 1.6 |



PRECISION
D A T A
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

N/S: Dunkin Donuts Driveway/ Park Street
E/W: Somerville Avenue
City, State: Somerville, MA
Client: Design Consultants/ J. Sobel

File Name : 133530 BBB
Site Code : 2013-099
Start Date : 9/14/2013
Page No : 1

Groups Printed- Cars

| Start Time | Dunkin Donuts Driveway From North | | | | Somerville Avenue From East | | | | Park Street From South | | | | Somerville Avenue From West | | | | Int. Total |
|-------------|--------------------------------------|------|------|--------|--------------------------------|------|------|--------|---------------------------|------|------|--------|--------------------------------|------|------|--------|------------|
| | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | |
| 11:00 AM | 1 | 0 | 0 | 0 | 10 | 107 | 21 | 0 | 14 | 4 | 44 | 0 | 24 | 101 | 1 | 0 | 327 |
| 11:15 AM | 0 | 0 | 0 | 0 | 8 | 119 | 14 | 0 | 13 | 0 | 56 | 0 | 17 | 96 | 0 | 0 | 323 |
| 11:30 AM | 3 | 0 | 0 | 0 | 11 | 115 | 17 | 0 | 14 | 3 | 51 | 0 | 29 | 112 | 0 | 0 | 355 |
| 11:45 AM | 0 | 1 | 3 | 0 | 4 | 118 | 18 | 0 | 12 | 2 | 46 | 0 | 17 | 97 | 2 | 0 | 320 |
| Total | 4 | 1 | 3 | 0 | 33 | 459 | 70 | 0 | 53 | 9 | 197 | 0 | 87 | 406 | 3 | 0 | 1325 |
| 12:00 PM | 0 | 0 | 2 | 0 | 3 | 123 | 15 | 0 | 15 | 1 | 49 | 0 | 38 | 105 | 1 | 0 | 352 |
| 12:15 PM | 0 | 2 | 3 | 0 | 4 | 133 | 20 | 0 | 12 | 4 | 55 | 0 | 25 | 88 | 1 | 0 | 347 |
| 12:30 PM | 0 | 1 | 3 | 0 | 7 | 113 | 16 | 0 | 16 | 2 | 49 | 0 | 25 | 118 | 2 | 0 | 352 |
| 12:45 PM | 1 | 0 | 2 | 0 | 2 | 132 | 17 | 0 | 16 | 0 | 48 | 0 | 20 | 102 | 1 | 0 | 341 |
| Total | 1 | 3 | 10 | 0 | 16 | 501 | 68 | 0 | 59 | 7 | 201 | 0 | 108 | 413 | 5 | 0 | 1392 |
| Grand Total | 5 | 4 | 13 | 0 | 49 | 960 | 138 | 0 | 112 | 16 | 398 | 0 | 195 | 819 | 8 | 0 | 2717 |
| Apprch % | 22.7 | 18.2 | 59.1 | 0 | 4.3 | 83.7 | 12 | 0 | 21.3 | 3 | 75.7 | 0 | 19.1 | 80.1 | 0.8 | 0 | |
| Total % | 0.2 | 0.1 | 0.5 | 0 | 1.8 | 35.3 | 5.1 | 0 | 4.1 | 0.6 | 14.6 | 0 | 7.2 | 30.1 | 0.3 | 0 | |

| Start Time | Dunkin Donuts Driveway From North | | | | | Somerville Avenue From East | | | | | Park Street From South | | | | | Somerville Avenue From West | | | | | Int. Total |
|--|--------------------------------------|------|------|--------|------------|--------------------------------|------|------|--------|------------|---------------------------|------|------|--------|------------|--------------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 12:00 PM | | | | | | | | | | | | | | | | | | | | | |
| 12:00 PM | 0 | 0 | 2 | 0 | 2 | 3 | 123 | 15 | 0 | 141 | 15 | 1 | 49 | 0 | 65 | 38 | 105 | 1 | 0 | 144 | 352 |
| 12:15 PM | 0 | 2 | 3 | 0 | 5 | 4 | 133 | 20 | 0 | 157 | 12 | 4 | 55 | 0 | 71 | 25 | 88 | 1 | 0 | 114 | 347 |
| 12:30 PM | 0 | 1 | 3 | 0 | 4 | 7 | 113 | 16 | 0 | 136 | 16 | 2 | 49 | 0 | 67 | 25 | 118 | 2 | 0 | 145 | 352 |
| 12:45 PM | 1 | 0 | 2 | 0 | 3 | 2 | 132 | 17 | 0 | 151 | 16 | 0 | 48 | 0 | 64 | 20 | 102 | 1 | 0 | 123 | 341 |
| Total Volume | 1 | 3 | 10 | 0 | 14 | 16 | 501 | 68 | 0 | 585 | 59 | 7 | 201 | 0 | 267 | 108 | 413 | 5 | 0 | 526 | 1392 |
| % App. Total | 7.1 | 21.4 | 71.4 | 0 | | 2.7 | 85.6 | 11.6 | 0 | | 22.1 | 2.6 | 75.3 | 0 | | 20.5 | 78.5 | 1 | 0 | | |
| PHF | .250 | .375 | .833 | .000 | .700 | .571 | .942 | .850 | .000 | .932 | .922 | .438 | .914 | .000 | .940 | .711 | .875 | .625 | .000 | .907 | .989 |



PRECISION
D A T A
INDUSTRIES, LLC

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Email: datarequests@pdillc.com

N/S: Dunkin Donuts Driveway/ Park Street
E/W: Somerville Avenue
City, State: Somerville, MA
Client: Design Consultants/ J. Sobel

File Name : 133530 BBB
Site Code : 2013-099
Start Date : 9/14/2013
Page No : 1

Groups Printed- Heavy Vehicles

| Start Time | Dunkin Donuts Driveway From North | | | | Somerville Avenue From East | | | | Park Street From South | | | | Somerville Avenue From West | | | | Int. Total |
|-------------|--------------------------------------|------|------|--------|--------------------------------|------|------|--------|---------------------------|------|------|--------|--------------------------------|------|------|--------|------------|
| | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | Right | Thru | Left | U-Turn | |
| 11:00 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 0 | 6 |
| 11:15 AM | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 9 |
| 11:30 AM | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 2 | 0 | 0 | 11 |
| 11:45 AM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 4 | 0 | 0 | 9 |
| Total | 0 | 0 | 0 | 0 | 2 | 13 | 1 | 0 | 1 | 0 | 5 | 0 | 3 | 10 | 0 | 0 | 35 |
| 12:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 4 |
| 12:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 3 | 0 | 0 | 7 |
| 12:30 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 7 |
| 12:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 5 |
| Total | 0 | 0 | 0 | 0 | 0 | 5 | 2 | 0 | 0 | 0 | 4 | 0 | 2 | 10 | 0 | 0 | 23 |
| Grand Total | 0 | 0 | 0 | 0 | 2 | 18 | 3 | 0 | 1 | 0 | 9 | 0 | 5 | 20 | 0 | 0 | 58 |
| Apprch % | 0 | 0 | 0 | 0 | 8.7 | 78.3 | 13 | 0 | 10 | 0 | 90 | 0 | 20 | 80 | 0 | 0 | |
| Total % | 0 | 0 | 0 | 0 | 3.4 | 31 | 5.2 | 0 | 1.7 | 0 | 15.5 | 0 | 8.6 | 34.5 | 0 | 0 | |

| Start Time | Dunkin Donuts Driveway From North | | | | | Somerville Avenue From East | | | | | Park Street From South | | | | | Somerville Avenue From West | | | | | Int. Total |
|--|--------------------------------------|------|------|--------|------------|--------------------------------|------|------|--------|------------|---------------------------|------|------|--------|------------|--------------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 11:00 AM | | | | | | | | | | | | | | | | | | | | | |
| 11:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 1 | 0 | 1 | 1 | 2 | 0 | 0 | 3 | 6 |
| 11:15 AM | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 1 | 0 | 5 | 1 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 3 | 9 |
| 11:30 AM | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 6 | 0 | 0 | 2 | 0 | 2 | 1 | 2 | 0 | 0 | 3 | 11 |
| 11:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 3 | 0 | 0 | 2 | 0 | 2 | 0 | 4 | 0 | 0 | 4 | 9 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 2 | 13 | 1 | 0 | 16 | 1 | 0 | 5 | 0 | 6 | 3 | 10 | 0 | 0 | 13 | 35 |
| % App. Total | 0 | 0 | 0 | 0 | 0 | 12.5 | 81.2 | 6.2 | 0 | 100 | 16.7 | 0 | 83.3 | 0 | 100 | 23.1 | 76.9 | 0 | 0 | 100 | |
| PHF | .000 | .000 | .000 | .000 | .000 | .500 | .650 | .250 | .000 | .667 | .250 | .000 | .625 | .000 | .750 | .750 | .625 | .000 | .000 | .813 | .795 |



PRECISION
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N/S: Dunkin Donuts Driveway/ Park Street
E/W: Somerville Avenue
City, State: Somerville, MA
Client: Design Consultants/ J. Sobel

File Name : 133530 BBB
Site Code : 2013-099
Start Date : 9/14/2013
Page No : 1

Groups Printed- Peds and Bikes

| Start Time | Dunkin Donuts Driveway From North | | | | Somerville Avenue From East | | | | Park Street From South | | | | Somerville Avenue From West | | | | Int. Total |
|-------------|--------------------------------------|------|------|------|--------------------------------|------|------|------|---------------------------|------|------|------|--------------------------------|------|------|------|------------|
| | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | |
| 11:00 AM | 0 | 0 | 0 | 22 | 0 | 11 | 5 | 8 | 3 | 0 | 2 | 14 | 4 | 10 | 0 | 5 | 84 |
| 11:15 AM | 0 | 0 | 0 | 24 | 0 | 8 | 1 | 10 | 0 | 0 | 0 | 19 | 5 | 16 | 0 | 1 | 84 |
| 11:30 AM | 0 | 0 | 0 | 33 | 0 | 13 | 1 | 12 | 1 | 0 | 1 | 21 | 5 | 14 | 0 | 3 | 104 |
| 11:45 AM | 0 | 0 | 0 | 38 | 0 | 12 | 5 | 13 | 1 | 0 | 6 | 17 | 2 | 11 | 0 | 0 | 105 |
| Total | 0 | 0 | 0 | 117 | 0 | 44 | 12 | 43 | 5 | 0 | 9 | 71 | 16 | 51 | 0 | 9 | 377 |
| 12:00 PM | 0 | 0 | 0 | 29 | 0 | 9 | 1 | 14 | 1 | 0 | 3 | 13 | 7 | 11 | 0 | 0 | 88 |
| 12:15 PM | 0 | 3 | 0 | 29 | 0 | 7 | 1 | 15 | 0 | 0 | 0 | 14 | 4 | 19 | 0 | 0 | 92 |
| 12:30 PM | 0 | 0 | 0 | 18 | 0 | 11 | 2 | 13 | 1 | 0 | 4 | 11 | 1 | 8 | 0 | 1 | 70 |
| 12:45 PM | 0 | 0 | 0 | 25 | 1 | 12 | 0 | 10 | 0 | 0 | 2 | 17 | 0 | 3 | 0 | 0 | 70 |
| Total | 0 | 3 | 0 | 101 | 1 | 39 | 4 | 52 | 2 | 0 | 9 | 55 | 12 | 41 | 0 | 1 | 320 |
| Grand Total | 0 | 3 | 0 | 218 | 1 | 83 | 16 | 95 | 7 | 0 | 18 | 126 | 28 | 92 | 0 | 10 | 697 |
| Apprch % | 0 | 1.4 | 0 | 98.6 | 0.5 | 42.6 | 8.2 | 48.7 | 4.6 | 0 | 11.9 | 83.4 | 21.5 | 70.8 | 0 | 7.7 | |
| Total % | 0 | 0.4 | 0 | 31.3 | 0.1 | 11.9 | 2.3 | 13.6 | 1 | 0 | 2.6 | 18.1 | 4 | 13.2 | 0 | 1.4 | |

| Start Time | Dunkin Donuts Driveway From North | | | | | Somerville Avenue From East | | | | | Park Street From South | | | | | Somerville Avenue From West | | | | | Int. Total |
|--|--------------------------------------|------|------|------|------------|--------------------------------|------|------|------|------------|---------------------------|------|------|------|------------|--------------------------------|------|------|------|------------|------------|
| | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | |
| Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 11:30 AM | | | | | | | | | | | | | | | | | | | | | |
| 11:30 AM | 0 | 0 | 0 | 33 | 33 | 0 | 13 | 1 | 12 | 26 | 1 | 0 | 1 | 21 | 23 | 5 | 14 | 0 | 3 | 22 | 104 |
| 11:45 AM | 0 | 0 | 0 | 38 | 38 | 0 | 12 | 5 | 13 | 30 | 1 | 0 | 6 | 17 | 24 | 2 | 11 | 0 | 0 | 13 | 105 |
| 12:00 PM | 0 | 0 | 0 | 29 | 29 | 0 | 9 | 1 | 14 | 24 | 1 | 0 | 3 | 13 | 17 | 7 | 11 | 0 | 0 | 18 | 88 |
| 12:15 PM | 0 | 3 | 0 | 29 | 32 | 0 | 7 | 1 | 15 | 23 | 0 | 0 | 0 | 14 | 14 | 4 | 19 | 0 | 0 | 23 | 92 |
| Total Volume | 0 | 3 | 0 | 129 | 132 | 0 | 41 | 8 | 54 | 103 | 3 | 0 | 10 | 65 | 78 | 18 | 55 | 0 | 3 | 76 | 389 |
| % App. Total | 0 | 2.3 | 0 | 97.7 | | 0 | 39.8 | 7.8 | 52.4 | | 3.8 | 0 | 12.8 | 83.3 | | 23.7 | 72.4 | 0 | 3.9 | | |
| PHF | .000 | .250 | .000 | .849 | .868 | .000 | .788 | .400 | .900 | .858 | .750 | .000 | .417 | .774 | .813 | .643 | .724 | .000 | .250 | .826 | .926 |



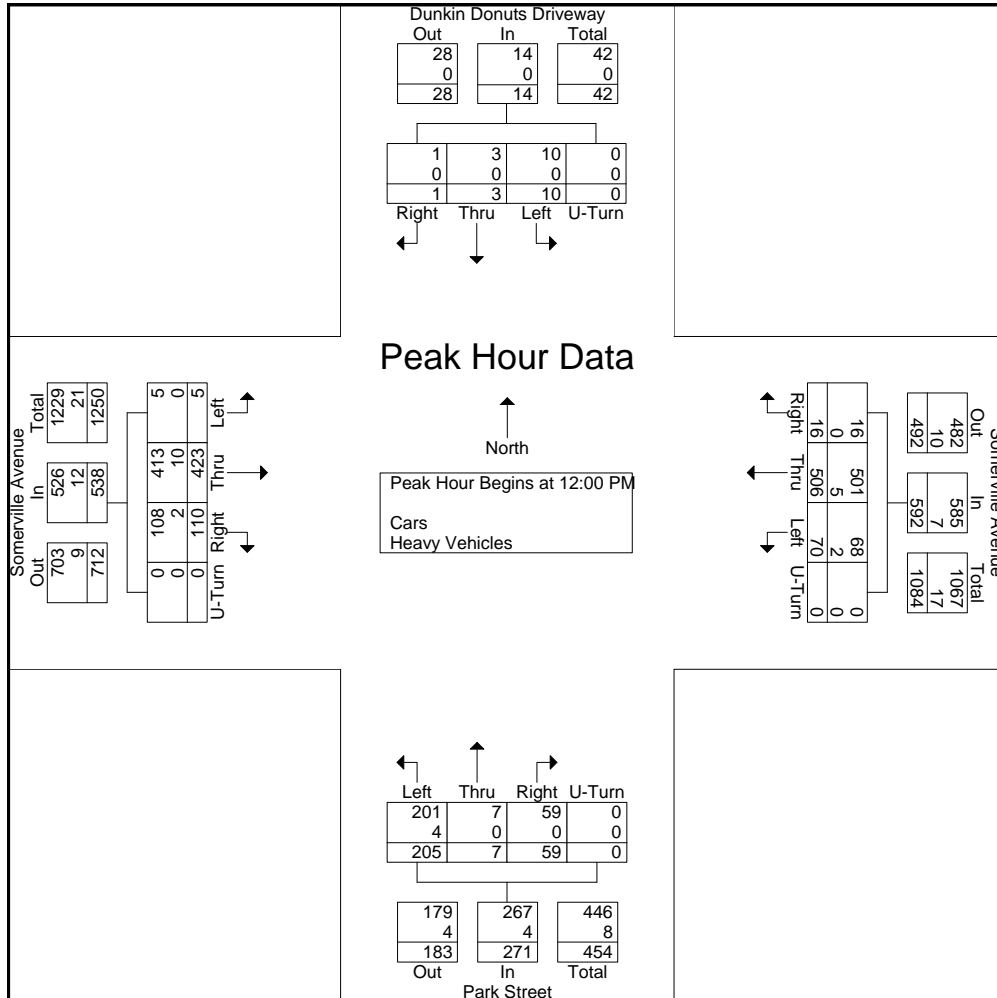
PRECISION
D A T A
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
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Email: datarequests@pdillc.com

N/S: Dunkin Donuts Driveway/ Park Street
E/W: Somerville Avenue
City, State: Somerville, MA
Client: Design Consultants/ J. Sobel

File Name : 133530 BBB
Site Code : 2013-099
Start Date : 9/14/2013
Page No : 1

| Start Time | Dunkin Donuts Driveway From North | | | | | Somerville Avenue From East | | | | | Park Street From South | | | | | Somerville Avenue From West | | | | | Int. Total |
|--|-----------------------------------|------|------|--------|------------|-----------------------------|------|------|--------|------------|------------------------|------|------|--------|------------|-----------------------------|------|------|--------|------------|------------|
| | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | Right | Thru | Left | U-Turn | App. Total | |
| Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 12:00 PM | | | | | | | | | | | | | | | | | | | | | |
| 12:00 PM | 0 | 0 | 2 | 0 | 2 | 3 | 124 | 16 | 0 | 143 | 15 | 1 | 49 | 0 | 65 | 38 | 107 | 1 | 0 | 146 | 356 |
| 12:15 PM | 0 | 2 | 3 | 0 | 5 | 4 | 134 | 20 | 0 | 158 | 12 | 4 | 57 | 0 | 73 | 26 | 91 | 1 | 0 | 118 | 354 |
| 12:30 PM | 0 | 1 | 3 | 0 | 4 | 7 | 115 | 16 | 0 | 138 | 16 | 2 | 50 | 0 | 68 | 25 | 122 | 2 | 0 | 149 | 359 |
| 12:45 PM | 1 | 0 | 2 | 0 | 3 | 2 | 133 | 18 | 0 | 153 | 16 | 0 | 49 | 0 | 65 | 21 | 103 | 1 | 0 | 125 | 346 |
| Total Volume | 1 | 3 | 10 | 0 | 14 | 16 | 506 | 70 | 0 | 592 | 59 | 7 | 205 | 0 | 271 | 110 | 423 | 5 | 0 | 538 | 1415 |
| % App. Total | 7.1 | 21.4 | 71.4 | 0 | | 2.7 | 85.5 | 11.8 | 0 | | 21.8 | 2.6 | 75.6 | 0 | | 20.4 | 78.6 | 0.9 | 0 | | |
| PHF | .250 | .375 | .833 | .000 | .700 | .571 | .944 | .875 | .000 | .937 | .922 | .438 | .899 | .000 | .928 | .724 | .867 | .625 | .000 | .903 | .985 |
| Cars | 1 | 3 | 10 | 0 | 14 | 16 | 501 | 68 | 0 | 585 | 59 | 7 | 201 | 0 | 267 | 108 | 413 | 5 | 0 | 526 | 1392 |
| % Cars | 100 | 100 | 100 | 0 | 100 | 100 | 99.0 | 97.1 | 0 | 98.8 | 100 | 100 | 98.0 | 0 | 98.5 | 98.2 | 97.6 | 100 | 0 | 97.8 | 98.4 |
| Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 2 | 0 | 7 | 0 | 0 | 4 | 0 | 4 | 2 | 10 | 0 | 0 | 12 | 23 |
| % Heavy Vehicles | 0 | 0 | 0 | 0 | 0 | 0 | 1.0 | 2.9 | 0 | 1.2 | 0 | 0 | 2.0 | 0 | 1.5 | 1.8 | 2.4 | 0 | 0 | 2.2 | 1.6 |



Somerville Avenue
 between Park Street and Laurel Street
 City, State: Somerville, MA
 Client: Design Consultants / J. Sobel



PRECISION
 D A T A
 INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
 Office: 508.481.3999 Fax: 508.545.1234
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133530 A CLASS
 Site Code: 2013-099
 Date Start: 10-Sep-13

WB

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|--------------|-------|-----------------|-------------|-------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|-------|
| 09/10/1 | | | | | | | | | | | | | | |
| 3 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 01:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 02:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 03:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 04:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 05:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 06:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 07:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 08:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 09:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 10:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 11:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 12 PM | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 13:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 14:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 15:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 16:00 | 15 | 432 | 33 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 485 |
| 17:00 | 20 | 469 | 25 | 3 | 3 | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 524 |
| 18:00 | 25 | 431 | 27 | 3 | 1 | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 491 |
| 19:00 | 11 | 412 | 14 | 1 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 443 |
| 20:00 | 14 | 359 | 10 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 387 |
| 21:00 | 15 | 266 | 10 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 294 |
| 22:00 | 4 | 193 | 6 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 208 |
| 23:00 | 2 | 106 | 2 | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 115 |
| Total | 106 | 2668 | 127 | 17 | 10 | 14 | 0 | 2 | 3 | 0 | 0 | 0 | 0 | 2947 |
| Percent | 3.6% | 90.5% | 4.3% | 0.6% | 0.3% | 0.5% | 0.0% | 0.1% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | |
| AM Peak Vol. | | | | | | | | | | | | | | |
| PM Peak Vol. | 18:00 | 17:00 | 16:00 | 17:00 | 17:00 | 19:00 | | 17:00 | 17:00 | | | | | 17:00 |
| | 25 | 469 | 33 | 3 | 3 | 5 | | 1 | 1 | | | | | 524 |

Somerville Avenue
between Park Street and Laurel Street
City, State: Somerville, MA
Client: Design Consultants / J. Sobel



PRECISION
D A T A
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
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Email: datarequests@pdillc.com

133530 A CLASS
Site Code: 2013-099
Date Start: 10-Sep-13

WB

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|------------|-------|-----------------|-------------|-------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|-------|
| 09/11/1 | | | | | | | | | | | | | | |
| 3 | 4 | 60 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 67 |
| 01:00 | 1 | 43 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 48 |
| 02:00 | 3 | 17 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 |
| 03:00 | 0 | 30 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| 04:00 | 0 | 32 | 3 | 2 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 39 |
| 05:00 | 4 | 74 | 12 | 9 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 104 |
| 06:00 | 3 | 220 | 41 | 11 | 3 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 281 |
| 07:00 | 7 | 375 | 40 | 7 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 433 |
| 08:00 | 16 | 368 | 36 | 2 | 7 | 4 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 435 |
| 09:00 | 19 | 367 | 36 | 4 | 3 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 434 |
| 10:00 | 11 | 360 | 53 | 1 | 13 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 440 |
| 11:00 | 14 | 364 | 42 | 4 | 6 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 435 |
| 12 PM | 15 | 390 | 54 | 2 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 465 |
| 13:00 | 11 | 384 | 45 | 4 | 5 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 451 |
| 14:00 | 20 | 355 | 41 | 2 | 3 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 425 |
| 15:00 | 13 | 402 | 26 | 4 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 450 |
| 16:00 | 13 | 459 | 23 | 6 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 509 |
| 17:00 | 28 | 452 | 16 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 499 |
| 18:00 | 27 | 406 | 16 | 1 | 0 | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 456 |
| 19:00 | 23 | 416 | 12 | 0 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 456 |
| 20:00 | 17 | 375 | 15 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 411 |
| 21:00 | 10 | 262 | 6 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 281 |
| 22:00 | 16 | 169 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 194 |
| 23:00 | 4 | 116 | 7 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 |
| Total | 279 | 6496 | 539 | 70 | 60 | 43 | 1 | 5 | 5 | 0 | 1 | 0 | 0 | 7499 |
| Percent | 3.7% | 86.6% | 7.2% | 0.9% | 0.8% | 0.6% | 0.0% | 0.1% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | |
| AM Peak | 09:00 | 07:00 | 10:00 | 06:00 | 10:00 | 08:00 | 08:00 | | 04:00 | | | | | 10:00 |
| Vol. | 19 | 375 | 53 | 11 | 13 | 4 | 1 | | 1 | | | | | 440 |
| PM Peak | 17:00 | 16:00 | 12:00 | 16:00 | 13:00 | 16:00 | | 18:00 | | | 17:00 | | | 16:00 |
| Vol. | 28 | 459 | 54 | 6 | 5 | 4 | | 2 | | | 1 | | | 509 |
| Total | | 9164 | 666 | 87 | 70 | 57 | 1 | 7 | 8 | 0 | 1 | 0 | 0 | 10446 |

Somerville Avenue
between Park Street and Laurel Street
City, State: Somerville, MA
Client: Design Consultants / J. Sobel



PRECISION
D A T A
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

133530 A CLASS
Site Code: 2013-099
Date Start: 10-Sep-13

EB

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|--------------|-------|-----------------|-------------|-------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|-------|
| 09/10/1 | | | | | | | | | | | | | | |
| 3 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 01:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 02:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 03:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 04:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 05:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 06:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 07:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 08:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 09:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 10:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 11:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 12 PM | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 13:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 14:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 15:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 16:00 | 4 | 288 | 26 | 4 | 2 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 328 |
| 17:00 | 6 | 262 | 19 | 3 | 2 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 297 |
| 18:00 | 6 | 287 | 15 | 0 | 3 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 315 |
| 19:00 | 2 | 343 | 19 | 6 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 372 |
| 20:00 | 2 | 258 | 15 | 1 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 280 |
| 21:00 | 1 | 227 | 11 | 3 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 245 |
| 22:00 | 0 | 194 | 15 | 3 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 216 |
| 23:00 | 0 | 107 | 7 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 117 |
| Total | 21 | 1966 | 127 | 23 | 14 | 14 | 0 | 4 | 0 | 1 | 0 | 0 | 0 | 2170 |
| Percent | 1.0% | 90.6% | 5.9% | 1.1% | 0.6% | 0.6% | 0.0% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | |
| AM Peak Vol. | | | | | | | | | | | | | | |
| PM Peak Vol. | 17:00 | 19:00 | 16:00 | 19:00 | 18:00 | 17:00 | | 16:00 | | 20:00 | | | | 19:00 |
| | 6 | 343 | 26 | 6 | 3 | 4 | | 1 | | 1 | | | | 372 |

Somerville Avenue
 between Park Street and Laurel Street
 City, State: Somerville, MA
 Client: Design Consultants / J. Sobel



PRECISION
 D A T A
 INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequests@pdillc.com

133530 A CLASS
 Site Code: 2013-099
 Date Start: 10-Sep-13

EB

| Start Time | Bikes | Cars & Trailers | 2 Axle Long | Buses | 2 Axle 6 Tire | 3 Axle Single | 4 Axle Single | <5 Axl Double | 5 Axle Double | >6 Axl Double | <6 Axl Multi | 6 Axle Multi | >6 Axl Multi | Total |
|------------|-------|-----------------|-------------|-------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|--------------|--------------|-------|
| 09/11/1 | | | | | | | | | | | | | | |
| 3 | 0 | 54 | 4 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 61 |
| 01:00 | 0 | 50 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53 |
| 02:00 | 0 | 33 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 37 |
| 03:00 | 0 | 30 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 36 |
| 04:00 | 0 | 40 | 1 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 |
| 05:00 | 2 | 69 | 19 | 2 | 2 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 98 |
| 06:00 | 3 | 184 | 37 | 3 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 233 |
| 07:00 | 1 | 347 | 37 | 4 | 6 | 3 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 401 |
| 08:00 | 7 | 359 | 21 | 4 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 397 |
| 09:00 | 2 | 344 | 39 | 6 | 8 | 3 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 404 |
| 10:00 | 3 | 301 | 51 | 4 | 10 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 372 |
| 11:00 | 5 | 312 | 54 | 1 | 10 | 2 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 389 |
| 12 PM | 4 | 295 | 35 | 4 | 3 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 344 |
| 13:00 | 3 | 322 | 33 | 2 | 11 | 3 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 377 |
| 14:00 | 2 | 306 | 44 | 2 | 9 | 2 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 369 |
| 15:00 | 4 | 343 | 39 | 3 | 4 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 399 |
| 16:00 | 5 | 307 | 37 | 6 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 362 |
| 17:00 | 8 | 329 | 25 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 365 |
| 18:00 | 6 | 282 | 22 | 1 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 314 |
| 19:00 | 2 | 374 | 22 | 3 | 1 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 405 |
| 20:00 | 3 | 241 | 21 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 269 |
| 21:00 | 1 | 284 | 14 | 2 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 305 |
| 22:00 | 3 | 188 | 16 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 211 |
| 23:00 | 3 | 104 | 11 | 3 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 122 |
| Total | 67 | 5498 | 590 | 63 | 85 | 33 | 2 | 18 | 10 | 2 | 0 | 0 | 0 | 6368 |
| Percent | 1.1% | 86.3% | 9.3% | 1.0% | 1.3% | 0.5% | 0.0% | 0.3% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | |
| AM Peak | 08:00 | 08:00 | 11:00 | 09:00 | 10:00 | 07:00 | 08:00 | 11:00 | 05:00 | 07:00 | | | | 09:00 |
| Vol. | 7 | 359 | 54 | 6 | 10 | 3 | 1 | 4 | 3 | 1 | | | | 404 |
| PM Peak | 17:00 | 19:00 | 14:00 | 16:00 | 13:00 | 15:00 | 13:00 | 14:00 | 12:00 | 18:00 | | | | 19:00 |
| Vol. | 8 | 374 | 44 | 6 | 11 | 5 | 1 | 4 | 1 | 1 | | | | 405 |
| Total | | 7464 | 717 | 86 | 99 | 47 | 2 | 22 | 10 | 3 | 0 | 0 | 0 | 8538 |

Somerville Avenue
 between Park Street and Laurel Street
 City, State: Somerville, MA
 Client: Design Consultants / J. Sobel



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 INDUSTRIES, LLC

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 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequests@pdillc.com

133530 A SPEED
 Site Code: 2013-099
 Date Start: 10-Sep-13

WB

| Start Time | 1 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | Total | 85th % ile | Ave Speed |
|------------|-----|-----|-----|----|----|----|----|----|----|----|----|----|----|-------|------------|-----------|
| 09/10/13 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 01:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 02:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 03:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 04:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 05:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 06:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 07:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 08:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 09:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 10:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 11:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 12 PM | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 13:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 14:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 15:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 16:00 | 82 | 118 | 235 | 46 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 485 | 23 | 17 |
| 17:00 | 131 | 124 | 244 | 23 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 524 | 22 | 16 |
| 18:00 | 143 | 105 | 231 | 10 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 491 | 22 | 15 |
| 19:00 | 91 | 117 | 206 | 27 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 443 | 22 | 16 |
| 20:00 | 60 | 82 | 186 | 48 | 10 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 387 | 24 | 18 |
| 21:00 | 47 | 74 | 116 | 47 | 9 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 294 | 24 | 18 |
| 22:00 | 10 | 36 | 89 | 61 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 208 | 27 | 21 |
| 23:00 | 3 | 15 | 32 | 44 | 18 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 115 | 29 | 24 |

| % | 19.2% | 22.8% | 45.4% | 10.4% | 2.0% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | |
|--------------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|-------|-----|
| AM Peak Vol. | | | | | | | | | | | | | | | | |
| PM Peak Vol. | 18:00 | 17:00 | 17:00 | 22:00 | 23:00 | 23:00 | | | | | | | | | 17:00 | |
| Total | 567 | 671 | 1339 | 306 | 59 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2947 | 193 |

Percent
 15th Percentile : 7 MPH
 50th Percentile : 17 MPH
 85th Percentile : 23 MPH
 95th Percentile : 27 MPH

Stats
 10 MPH Pace Speed : 16-25 MPH
 Number in Pace : 1517
 Percent in Pace : 51.5%
 Number of Vehicles > 25 MPH : 269
 Percent of Vehicles > 25 MPH : 9.1%
 Mean Speed(Average) : 17 MPH

Somerville Avenue
 between Park Street and Laurel Street
 City, State: Somerville, MA
 Client: Design Consultants / J. Sobel



PRECISION
 D A T A
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133530 A SPEED
 Site Code: 2013-099
 Date Start: 10-Sep-13

WB

| Start Time | 1 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | Total | 85th % ile | Ave Speed |
|------------|------------|------------|------------|-----------|-----------|----------|----------|----------|----|----|----|----|----|------------|------------|-----------|
| 09/11/ | | | | | | | | | | | | | | | | |
| 13 | 3 | 3 | 7 | 27 | 19 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 67 | 33 | 27 |
| 01:00 | 0 | 3 | 11 | 11 | 19 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 48 | 33 | 28 |
| 02:00 | 1 | 0 | 1 | 11 | 7 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 34 | 29 |
| 03:00 | 0 | 1 | 7 | 11 | 10 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 33 | 33 | 28 |
| 04:00 | 0 | 1 | 3 | 13 | 14 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39 | 35 | 30 |
| 05:00 | 0 | 9 | 21 | 33 | 36 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 104 | 32 | 27 |
| 06:00 | 13 | 58 | 87 | 82 | 34 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 281 | 28 | 22 |
| 07:00 | 57 | 84 | 183 | 92 | 15 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 433 | 25 | 19 |
| 08:00 | 71 | 112 | 216 | 33 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 435 | 23 | 17 |
| 09:00 | 80 | 97 | 209 | 40 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 434 | 23 | 17 |
| 10:00 | 71 | 105 | 200 | 62 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 440 | 23 | 18 |
| 11:00 | 80 | 96 | 208 | 47 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 435 | 23 | 17 |
| 12 PM | 79 | 91 | 229 | 58 | 4 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 465 | 24 | 18 |
| 13:00 | 80 | 119 | 199 | 48 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 451 | 23 | 17 |
| 14:00 | 68 | 112 | 189 | 47 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 425 | 23 | 17 |
| 15:00 | 74 | 87 | 211 | 63 | 13 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 450 | 24 | 18 |
| 16:00 | 80 | 120 | 226 | 70 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 509 | 24 | 18 |
| 17:00 | 101 | 108 | 228 | 57 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 499 | 23 | 17 |
| 18:00 | 135 | 94 | 207 | 19 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 456 | 22 | 15 |
| 19:00 | 94 | 115 | 210 | 36 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 456 | 22 | 16 |
| 20:00 | 73 | 113 | 187 | 36 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 411 | 23 | 17 |
| 21:00 | 38 | 63 | 121 | 49 | 7 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 281 | 25 | 19 |
| 22:00 | 22 | 45 | 65 | 50 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 194 | 26 | 19 |
| 23:00 | 4 | 27 | 41 | 41 | 15 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 130 | 28 | 22 |

| % | 16.3% | 22.2% | 43.6% | 13.8% | 3.4% | 0.6% | 0.1% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | | |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|-------|--|
| AM Peak | 09:00 | 08:00 | 08:00 | 07:00 | 05:00 | 00:00 | 02:00 | 01:00 | | | | | | | 10:00 | |
| Vol. | 80 | 112 | 216 | 92 | 36 | 8 | 2 | 1 | | | | | | | 440 | |
| PM Peak | 18:00 | 16:00 | 12:00 | 16:00 | 23:00 | 12:00 | | | | | | | | | 16:00 | |
| Vol. | 135 | 120 | 229 | 70 | 15 | 4 | | | | | | | | | 509 | |
| Total | 1224 | 1663 | 3266 | 1036 | 257 | 46 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 7499 | 632 | |

Percent
 15th Percentile : 8 MPH
 50th Percentile : 18 MPH
 85th Percentile : 24 MPH
 95th Percentile : 28 MPH

Stats
 10 MPH Pace Speed : 16-25 MPH
 Number in Pace : 3841
 Percent in Pace : 51.2%
 Number of Vehicles > 25 MPH : 983
 Percent of Vehicles > 25 MPH : 13.1%
 Mean Speed(Average) : 18 MPH

Somerville Avenue
 between Park Street and Laurel Street
 City, State: Somerville, MA
 Client: Design Consultants / J. Sobel



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133530 A SPEED
 Site Code: 2013-099
 Date Start: 10-Sep-13

EB

| Start Time | 1 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | Total | 85th % ile | Ave Speed |
|------------|-----------|-----------|------------|------------|-----------|----------|----------|----|----|----|----|----|----|------------|------------|-----------|
| 09/10/13 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 01:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 02:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 03:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 04:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 05:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 06:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 07:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 08:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 09:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 10:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 11:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 12 PM | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 13:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 14:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 15:00 | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * | * |
| 16:00 | 13 | 45 | 163 | 93 | 13 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 328 | 26 | 22 |
| 17:00 | 7 | 52 | 191 | 45 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 297 | 24 | 21 |
| 18:00 | 11 | 67 | 210 | 26 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 315 | 23 | 20 |
| 19:00 | 5 | 67 | 215 | 82 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 372 | 25 | 21 |
| 20:00 | 2 | 25 | 160 | 86 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 280 | 26 | 23 |
| 21:00 | 3 | 17 | 114 | 89 | 20 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 245 | 28 | 24 |
| 22:00 | 1 | 12 | 66 | 108 | 23 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 216 | 29 | 25 |
| 23:00 | 0 | 1 | 24 | 71 | 16 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 117 | 30 | 27 |

| % | 1.9% | 13.2% | 52.7% | 27.6% | 3.9% | 0.6% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | |
|--------------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|-------|------|-----|
| AM Peak Vol. | | | | | | | | | | | | | | | | |
| PM Peak Vol. | 16:00 | 18:00 | 19:00 | 22:00 | 22:00 | 22:00 | 23:00 | | | | | | | 19:00 | | |
| Total | 42 | 286 | 1143 | 600 | 84 | 14 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2170 | 211 |

Percent
 15th Percentile : 16 MPH
 50th Percentile : 21 MPH
 85th Percentile : 26 MPH
 95th Percentile : 29 MPH

Stats
 10 MPH Pace Speed : 19-28 MPH
 Number in Pace : 1506
 Percent in Pace : 69.4%
 Number of Vehicles > 25 MPH : 506
 Percent of Vehicles > 25 MPH : 23.3%
 Mean Speed(Average) : 22 MPH

Somerville Avenue
 between Park Street and Laurel Street
 City, State: Somerville, MA
 Client: Design Consultants / J. Sobel



PRECISION
 D A T A
 INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequests@pdillc.com

133530 A SPEED
 Site Code: 2013-099
 Date Start: 10-Sep-13

EB

| Start Time | 1 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | Total | 85th % ile | Ave Speed |
|------------|----|----|-----|-----|----|----|----|----|----|----|----|----|----|-------|------------|-----------|
| 09/11/ | | | | | | | | | | | | | | | | |
| 13 | 0 | 0 | 5 | 21 | 27 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 61 | 34 | 30 |
| 01:00 | 0 | 1 | 5 | 25 | 15 | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 53 | 34 | 29 |
| 02:00 | 0 | 0 | 3 | 7 | 14 | 10 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 37 | 32 |
| 03:00 | 2 | 0 | 3 | 4 | 16 | 10 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 36 | 36 | 30 |
| 04:00 | 0 | 1 | 4 | 8 | 18 | 9 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 45 | 38 | 32 |
| 05:00 | 1 | 1 | 8 | 39 | 36 | 11 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 98 | 34 | 29 |
| 06:00 | 1 | 3 | 47 | 86 | 82 | 13 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 233 | 32 | 28 |
| 07:00 | 4 | 26 | 180 | 150 | 39 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 401 | 28 | 24 |
| 08:00 | 22 | 53 | 208 | 93 | 20 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 397 | 26 | 21 |
| 09:00 | 11 | 59 | 204 | 117 | 12 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 404 | 26 | 22 |
| 10:00 | 4 | 33 | 199 | 121 | 14 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 372 | 27 | 23 |
| 11:00 | 6 | 36 | 232 | 103 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 389 | 26 | 22 |
| 12 PM | 3 | 32 | 180 | 114 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 344 | 27 | 23 |
| 13:00 | 0 | 41 | 230 | 97 | 6 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 377 | 26 | 22 |
| 14:00 | 17 | 33 | 191 | 110 | 17 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 369 | 27 | 22 |
| 15:00 | 15 | 28 | 237 | 102 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 399 | 26 | 22 |
| 16:00 | 2 | 35 | 211 | 100 | 13 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 362 | 26 | 23 |
| 17:00 | 6 | 48 | 227 | 76 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 365 | 25 | 22 |
| 18:00 | 20 | 64 | 178 | 48 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 314 | 24 | 20 |
| 19:00 | 15 | 73 | 247 | 63 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 405 | 24 | 20 |
| 20:00 | 3 | 22 | 156 | 82 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 269 | 26 | 23 |
| 21:00 | 4 | 20 | 161 | 107 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 305 | 27 | 23 |
| 22:00 | 0 | 8 | 78 | 84 | 32 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 211 | 30 | 26 |
| 23:00 | 0 | 6 | 24 | 65 | 21 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 122 | 30 | 27 |

| % | 2.1% | 9.8% | 50.5% | 28.6% | 7.3% | 1.5% | 0.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | | |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|-------|-----|
| AM Peak | 08:00 | 09:00 | 11:00 | 07:00 | 06:00 | 06:00 | 04:00 | 01:00 | | | | | | | 09:00 | |
| Vol. | 22 | 59 | 232 | 150 | 82 | 13 | 4 | 1 | | | | | | | 404 | |
| PM Peak | 18:00 | 19:00 | 19:00 | 12:00 | 22:00 | 22:00 | | | | | | | | | 19:00 | |
| Vol. | 20 | 73 | 247 | 114 | 32 | 9 | | | | | | | | | 405 | |
| Total | 136 | 623 | 3218 | 1822 | 462 | 93 | 11 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 6368 | 696 |

Pecent
 t
 15th Percentile : 17 MPH
 50th Percentile : 22 MPH
 85th Percentile : 27 MPH
 95th Percentile : 31 MPH

Stats
 10 MPH Pace Speed : 19-28 MPH
 Number in Pace : 4363
 Percent in Pace : 68.5%
 Number of Vehicles > 25 MPH : 1838
 Percent of Vehicles > 25 MPH : 28.9%
 Mean Speed(Average) : 23 MPH

Somerville Avenue
between Park Street and Laurel Street
City, State: Somerville, MA
Client: Design Consultants / J. Sobel



PRECISION
DATA
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

133530 A VOLUME
Site Code: 2013-099
Date Start: 10-Sep-13

| Start Time | WB | | EB | | Combin ed | | 10-Sep-13 Tue | | | | | | | |
|------------|------|------|-------|------|-----------|------|---------------|-----|---|---|-------|-----|---|---|
| | A.M. | P.M. | A.M. | P.M. | A.M. | P.M. | | | | | | | | |
| 12:00 | * | * | * | * | * | * | | | | | | | | |
| 12:15 | * | * | * | * | * | * | | | | | | | | |
| 12:30 | * | * | * | * | * | * | | | | | | | | |
| 12:45 | * | 0 | * | 0 | * | 0 | 0 | | | | | | | |
| 01:00 | * | * | * | * | * | * | | | | | | | | |
| 01:15 | * | * | * | * | * | * | | | | | | | | |
| 01:30 | * | * | * | * | * | * | | | | | | | | |
| 01:45 | * | 0 | * | 0 | * | 0 | 0 | | | | | | | |
| 02:00 | * | * | * | * | * | * | | | | | | | | |
| 02:15 | * | * | * | * | * | * | | | | | | | | |
| 02:30 | * | * | * | * | * | * | | | | | | | | |
| 02:45 | * | 0 | * | 0 | * | 0 | 0 | | | | | | | |
| 03:00 | * | * | * | * | * | * | | | | | | | | |
| 03:15 | * | * | * | * | * | * | | | | | | | | |
| 03:30 | * | * | * | * | * | * | | | | | | | | |
| 03:45 | * | 0 | * | 0 | * | 0 | 0 | | | | | | | |
| 04:00 | * | | 135 | * | | 74 | 209 | | | | | | | |
| 04:15 | * | | 111 | * | | 87 | 198 | | | | | | | |
| 04:30 | * | | 131 | * | | 91 | 222 | | | | | | | |
| 04:45 | * | 0 | 108 | 485 | * | 0 | 76 | 328 | * | 0 | 184 | 813 | | |
| 05:00 | * | | 145 | * | | 63 | * | 208 | | | | | | |
| 05:15 | * | | 139 | * | | 91 | * | 230 | | | | | | |
| 05:30 | * | | 127 | * | | 73 | * | 200 | | | | | | |
| 05:45 | * | 0 | 113 | 524 | * | 0 | 70 | 297 | * | 0 | 183 | 821 | | |
| 06:00 | * | | 123 | * | | 56 | * | 179 | | | | | | |
| 06:15 | * | | 122 | * | | 84 | * | 206 | | | | | | |
| 06:30 | * | | 124 | * | | 83 | * | 207 | | | | | | |
| 06:45 | * | 0 | 122 | 491 | * | 0 | 92 | 315 | * | 0 | 214 | 806 | | |
| 07:00 | * | | 111 | * | | 86 | * | 197 | | | | | | |
| 07:15 | * | | 122 | * | | 98 | * | 220 | | | | | | |
| 07:30 | * | | 114 | * | | 88 | * | 202 | | | | | | |
| 07:45 | * | 0 | 96 | 443 | * | 0 | 100 | 372 | * | 0 | 196 | 815 | | |
| 08:00 | * | | 110 | * | | 78 | * | 188 | | | | | | |
| 08:15 | * | | 97 | * | | 65 | * | 162 | | | | | | |
| 08:30 | * | | 98 | * | | 76 | * | 174 | | | | | | |
| 08:45 | * | 0 | 82 | 387 | * | 0 | 61 | 280 | * | 0 | 143 | 667 | | |
| 09:00 | * | | 110 | * | | 57 | * | 167 | | | | | | |
| 09:15 | * | | 67 | * | | 52 | * | 119 | | | | | | |
| 09:30 | * | | 58 | * | | 68 | * | 126 | | | | | | |
| 09:45 | * | 0 | 59 | 294 | * | 0 | 68 | 245 | * | 0 | 127 | 539 | | |
| 10:00 | * | | 58 | * | | 65 | * | 123 | | | | | | |
| 10:15 | * | | 57 | * | | 44 | * | 101 | | | | | | |
| 10:30 | * | | 44 | * | | 59 | * | 103 | | | | | | |
| 10:45 | * | 0 | 49 | 208 | * | 0 | 48 | 216 | * | 0 | 97 | 424 | | |
| 11:00 | * | | 32 | * | | 37 | * | 69 | | | | | | |
| 11:15 | * | | 31 | * | | 26 | * | 57 | | | | | | |
| 11:30 | * | | 27 | * | | 31 | * | 58 | | | | | | |
| 11:45 | * | 0 | 25 | 115 | * | 0 | 23 | 117 | * | 0 | 48 | 232 | | |
| Total | 0 | | 2947 | | 0 | | 2170 | | 0 | | 5117 | | | |
| Percent | 0.0% | | 57.6% | | 0.0% | | 42.4% | | | | | | | |
| Day Total | | | 2947 | | | | 2170 | | | | 5117 | | | |
| Peak Vol. | - | - | 05:00 | - | - | - | 07:00 | - | - | - | 04:30 | - | - | - |
| P.H.F. | - | - | 524 | - | - | - | 372 | - | - | - | 844 | - | - | - |
| | | | 0.903 | | | | 0.930 | | | | 0.917 | | | |

Somerville Avenue
 between Park Street and Laurel Street
 City, State: Somerville, MA
 Client: Design Consultants / J. Sobel

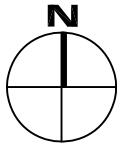


PRECISION
 D A T A
 INDUSTRIES, LLC

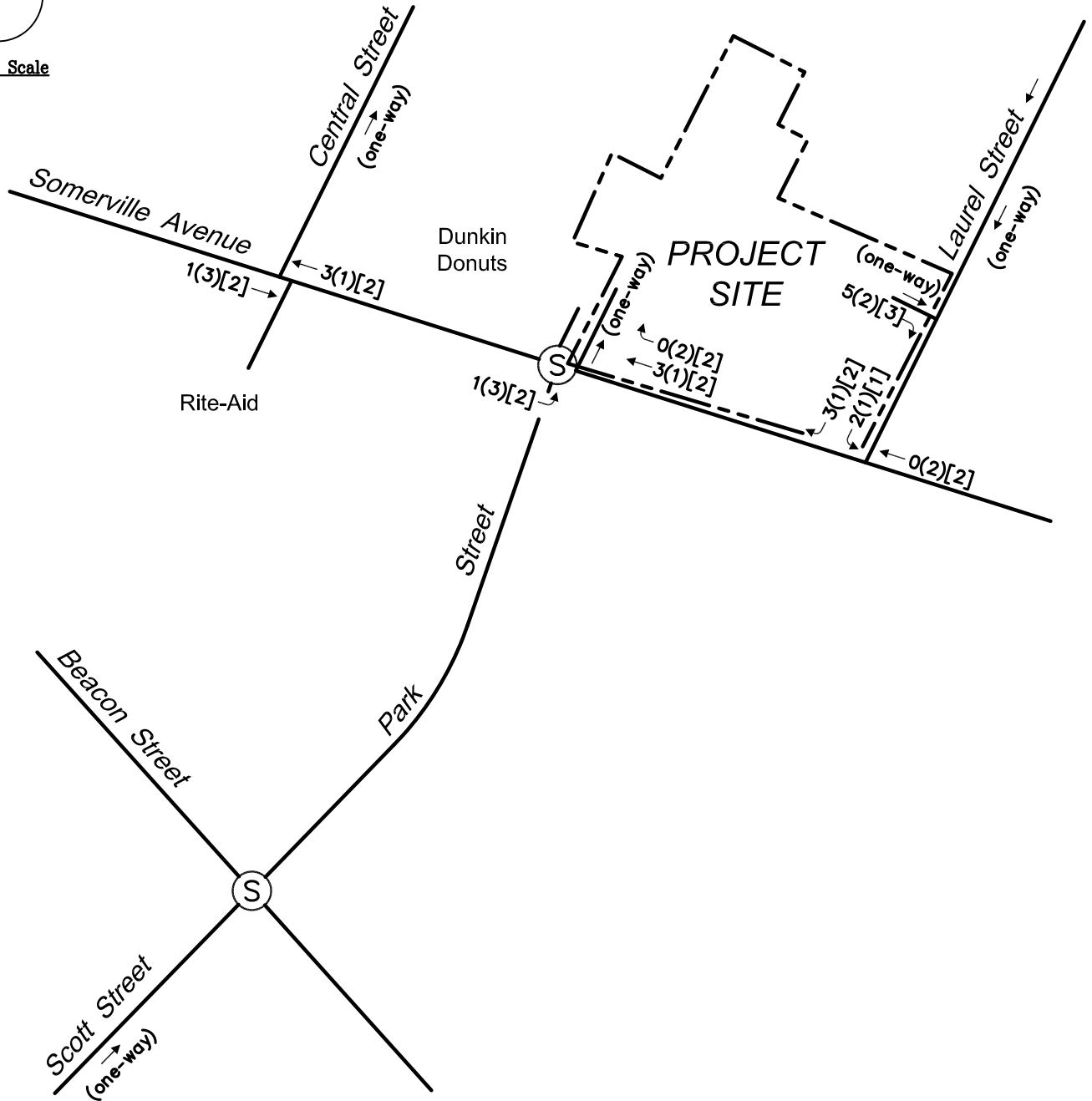
P.O. Box 301 Berlin, MA 01503
 Office: 508.481.3999 Fax: 508.545.1234
 Email: datarequests@pdillc.com

133530 A VOLUME
 Site Code: 2013-099
 Date Start: 10-Sep-13

| Start Time | WB | | EB | | Combin ed | | 11-Sep- 13 Wed | | | | | |
|---------------|-------|------|-------|------|--------------|------|----------------------|-----|-------|-----|-------|-----|
| | A.M. | P.M. | A.M. | P.M. | A.M. | P.M. | | | | | | |
| 12:00 | 22 | 117 | | 19 | | 41 | 208 | | | | | |
| 12:15 | 16 | 110 | | 14 | | 30 | 202 | | | | | |
| 12:30 | 12 | 128 | | 14 | | 26 | 198 | | | | | |
| 12:45 | 17 | 67 | 110 | 465 | 14 | 61 | 91 | 344 | 31 | 128 | 201 | 809 |
| 01:00 | 14 | | 112 | | 13 | | 83 | | 27 | | 195 | |
| 01:15 | 12 | | 113 | | 17 | | 85 | | 29 | | 198 | |
| 01:30 | 14 | | 115 | | 10 | | 99 | | 24 | | 214 | |
| 01:45 | 8 | 48 | 111 | 451 | 13 | 53 | 110 | 377 | 21 | 101 | 221 | 828 |
| 02:00 | 6 | | 117 | | 9 | | 104 | | 15 | | 221 | |
| 02:15 | 3 | | 103 | | 13 | | 81 | | 16 | | 184 | |
| 02:30 | 10 | | 103 | | 4 | | 104 | | 14 | | 207 | |
| 02:45 | 4 | 23 | 102 | 425 | 11 | 37 | 80 | 369 | 15 | 60 | 182 | 794 |
| 03:00 | 11 | | 125 | | 7 | | 91 | | 18 | | 216 | |
| 03:15 | 5 | | 106 | | 11 | | 97 | | 16 | | 203 | |
| 03:30 | 11 | | 96 | | 6 | | 105 | | 17 | | 201 | |
| 03:45 | 6 | 33 | 123 | 450 | 12 | 36 | 106 | 399 | 18 | 69 | 229 | 849 |
| 04:00 | 7 | | 123 | | 9 | | 108 | | 16 | | 231 | |
| 04:15 | 8 | | 123 | | 9 | | 100 | | 17 | | 223 | |
| 04:30 | 9 | | 145 | | 16 | | 65 | | 25 | | 210 | |
| 04:45 | 15 | 39 | 118 | 509 | 11 | 45 | 89 | 362 | 26 | 84 | 207 | 871 |
| 05:00 | 11 | | 118 | | 16 | | 84 | | 27 | | 202 | |
| 05:15 | 19 | | 132 | | 18 | | 92 | | 37 | | 224 | |
| 05:30 | 38 | | 109 | | 30 | | 103 | | 68 | | 212 | |
| 05:45 | 36 | 104 | 140 | 499 | 34 | 98 | 86 | 365 | 70 | 202 | 226 | 864 |
| 06:00 | 48 | | 108 | | 39 | | 79 | | 87 | | 187 | |
| 06:15 | 61 | | 126 | | 54 | | 81 | | 115 | | 207 | |
| 06:30 | 79 | | 105 | | 72 | | 55 | | 151 | | 160 | |
| 06:45 | 93 | 281 | 117 | 456 | 68 | 233 | 99 | 314 | 161 | 514 | 216 | 770 |
| 07:00 | 97 | | 114 | | 103 | | 106 | | 200 | | 220 | |
| 07:15 | 105 | | 116 | | 83 | | 113 | | 188 | | 229 | |
| 07:30 | 106 | | 121 | | 106 | | 112 | | 212 | | 233 | |
| 07:45 | 125 | 433 | 105 | 456 | 109 | 401 | 74 | 405 | 234 | 834 | 179 | 861 |
| 08:00 | 122 | | 100 | | 104 | | 90 | | 226 | | 190 | |
| 08:15 | 118 | | 99 | | 105 | | 68 | | 223 | | 167 | |
| 08:30 | 101 | | 104 | | 89 | | 57 | | 190 | | 161 | |
| 08:45 | 94 | 435 | 108 | 411 | 99 | 397 | 54 | 269 | 193 | 832 | 162 | 680 |
| 09:00 | 119 | | 94 | | 98 | | 80 | | 217 | | 174 | |
| 09:15 | 104 | | 69 | | 116 | | 83 | | 220 | | 152 | |
| 09:30 | 105 | | 51 | | 91 | | 68 | | 196 | | 119 | |
| 09:45 | 106 | 434 | 67 | 281 | 99 | 404 | 74 | 305 | 205 | 838 | 141 | 586 |
| 10:00 | 114 | | 54 | | 92 | | 63 | | 206 | | 117 | |
| 10:15 | 100 | | 61 | | 86 | | 52 | | 186 | | 113 | |
| 10:30 | 118 | | 41 | | 94 | | 53 | | 212 | | 94 | |
| 10:45 | 108 | 440 | 38 | 194 | 100 | 372 | 43 | 211 | 208 | 812 | 81 | 405 |
| 11:00 | 114 | | 33 | | 121 | | 40 | | 235 | | 73 | |
| 11:15 | 110 | | 36 | | 101 | | 37 | | 211 | | 73 | |
| 11:30 | 108 | | 29 | | 68 | | 27 | | 176 | | 56 | |
| 11:45 | 103 | 435 | 32 | 130 | 99 | 389 | 18 | 122 | 202 | 824 | 50 | 252 |
| Total | 2772 | | 4727 | | 2526 | | 3842 | | 5298 | | 8569 | |
| Percent | 52.3% | | 55.2% | | 47.7% | | 44.8% | | | | | |
| Day Total | | 7499 | | | 6368 | | | | 13867 | | | |
| Peak | 07:30 | - | 03:45 | - | 07:30 | - | 06:45 | - | 07:30 | - | 06:45 | - |
| Vol. | 471 | - | 514 | - | 424 | - | 430 | - | 895 | - | 898 | - |
| P.H.F. | 0.942 | | 0.886 | | 0.972 | | 0.951 | | 0.956 | | 0.964 | |



Not To Scale



Legend



Existing Traffic Signal

xx(YY)[ZZ] AM(PM)[Saturday] Peak Hour Volumes

Design Consultants, Inc.

Consulting Engineers and Surveyors



120 MIDDLESEX AVENUE, SUITE 20
SOMERVILLE, MA 02145
(617) 776-3350

515 Somerville Ave
Somerville, MA

Site Trips

Figure B4

APPENDIX B – TRIP GENERATION

Land Use: 220, Apartments

number of units: **12**

| | AM Peak | PM Peak | Weekday Daily | Sat. Midday Peak | Sat. Daily |
|----------------------------------|---------|---------|---------------|------------------|------------|
| Average Rate (per num. of units) | 0.51 | 0.62 | 6.65 | 0.52 | 6.39 |
| Percent Entering | 20% | 65% | 50% | 50% | 50% |
| Percent Exiting | 80% | 35% | 50% | 50% | 50% |
| Total Trips | 6 | 7 | 80 | 6 | 77 |
| Entering Trips | 1 | 5 | 40 | 3 | 39 |
| Exiting Trips | 5 | 2 | 40 | 3 | 38 |

Land Use: 826, Specialty Retail

SF **1,201**

| | AM Peak ¹ | PM Peak | Weekday Daily | Sat. Midday Peak ² | Sat. Daily |
|------------------------|----------------------|---------|---------------|-------------------------------|------------|
| Average Rate (per KSF) | 6.84 | 2.71 | 44.32 | 2.71 | 42.04 |
| Percent Entering | 48% | 44% | 50% | 44% | 50% |
| Percent Exiting | 52% | 56% | 50% | 56% | 50% |
| Total Trips | 8 | 3 | 53 | 3 | 50 |
| Entering Trips | 4 | 1 | 27 | 1 | 25 |
| Exiting Trips | 4 | 2 | 26 | 2 | 25 |

¹Peak hour of the generator due to unavailable peak hour of adjacent street data

²Assume weekday PM peak hour due to unavailable Saturday Data

Total Project Site

| 508-510 Somerville Ave Project | AM Peak | PM Peak | Weekday Daily | Sat. Midday Peak | Sat. Daily |
|--|-----------|----------|---------------|------------------|------------|
| Residential Apartments | | | | | |
| Gross Entering Trips | 1 | 5 | 40 | 3 | 39 |
| Gross Exiting Trips | 5 | 2 | 40 | 3 | 38 |
| Gross Total Trips | 6 | 7 | 80 | 6 | 77 |
| Transit / Bike / Walk / Telecommute (57.8%) --US Census Tract 3512.04-- | | | | | |
| Entering Trips | 1 | 3 | 23 | 2 | 23 |
| Exiting Trips | 3 | 1 | 23 | 2 | 22 |
| Auto Enter Trips | 0 | 2 | 17 | 1 | 16 |
| Auto Exit Trips | 2 | 1 | 17 | 1 | 16 |
| Auto Trips | 2 | 3 | 34 | 2 | 32 |
| Ground floor supporting Retail | | | | | |
| Entering Trips | 4 | 1 | 27 | 1 | 25 |
| Exiting Trips | 4 | 2 | 26 | 2 | 25 |
| Total Auto Enter Trips | 4 | 3 | 44 | 2 | 41 |
| Total Auto Exit Trips | 6 | 3 | 43 | 3 | 41 |
| Total Auto Trips (retail+residential) | 10 | 6 | 87 | 5 | 82 |

APPENDIX C – CAPACITY ANALYSIS

HCM Unsignalized Intersection Capacity Analysis

1: Rite Aid/Central St & Somerville Ave

12/2/2013



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR | | |
|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | | | | |
| Volume (veh/h) | 65 | 671 | 6 | 1 | 424 | 209 | 1 | 2 | 1 | 0 | 0 | 0 | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | | | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | | | |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.91 | 0.91 | 0.91 | 0.33 | 0.33 | 0.33 | 0.92 | 0.92 | 0.92 | | |
| Hourly flow rate (vph) | 68 | 706 | 6 | 1 | 466 | 230 | 3 | 6 | 3 | 0 | 0 | 0 | | |
| Pedestrians | | | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | | | |
| Median type | None | | | | | None | | | | | | | | |
| Median storage (veh) | | | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | 191 | | |
| pX, platoon unblocked | 0.82 | | | | | | 0.82 | 0.82 | | | 0.82 | 0.82 | 0.82 | |
| vC, conflicting volume | 696 | | | | | 713 | | | 1429 | 1544 | 709 | 1435 | 1432 | 581 |
| vC1, stage 1 conf vol | | | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | | | |
| vCu, unblocked vol | 519 | | | | | 713 | | | 1414 | 1554 | 709 | 1421 | 1418 | 379 |
| tC, single (s) | 4.1 | | | | | 4.2 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | | | |
| tF (s) | 2.2 | | | | | 2.3 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 92 | | | | | 100 | | | 97 | 93 | 99 | 100 | 100 | 100 |
| cM capacity (veh/h) | 854 | | | | | 869 | | | 90 | 86 | 437 | 82 | 103 | 548 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|------------------------|------|------|------|
| Volume Total | 781 | 697 | 12 |
| Volume Left | 68 | 1 | 3 |
| Volume Right | 6 | 230 | 3 |
| cSH | 854 | 869 | 109 |
| Volume to Capacity | 0.08 | 0.00 | 0.11 |
| Queue Length 95th (ft) | 7 | 0 | 9 |
| Control Delay (s) | 2.0 | 0.0 | 42.1 |
| Lane LOS | A | A | E |
| Approach Delay (s) | 2.0 | 0.0 | 42.1 |
| Approach LOS | | | E |

| Intersection Summary | | |
|-----------------------------------|-------|------------------------|
| Average Delay | 1.4 | |
| Intersection Capacity Utilization | 87.7% | ICU Level of Service E |
| Analysis Period (min) | 15 | |

Queues

2: Park St/Driveway & Somerville Ave

12/2/2013



| Lane Group | EBT | EBR | WBL | WBT | NBT | SBT |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 587 | 206 | 99 | 492 | 295 | 39 |
| v/c Ratio | 0.84 | 0.29 | 0.41 | 0.56 | 0.67 | 0.09 |
| Control Delay | 29.8 | 3.4 | 11.8 | 11.5 | 27.9 | 16.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 29.8 | 3.4 | 11.8 | 11.5 | 27.9 | 16.3 |
| Queue Length 50th (ft) | 182 | 0 | 15 | 97 | 89 | 10 |
| Queue Length 95th (ft) | #326 | 30 | 34 | 167 | #166 | 22 |
| Internal Link Dist (ft) | 111 | | | 206 | 1198 | 16 |
| Turn Bay Length (ft) | | | 150 | | | |
| Base Capacity (vph) | 795 | 791 | 241 | 1055 | 438 | 438 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.74 | 0.26 | 0.41 | 0.47 | 0.67 | 0.09 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

2: Park St/Driveway & Somerville Ave

12/2/2013



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|------|-------|------|-------|-------|------|------|-------|------|------|------|------|
| Lane Configurations | | ↑ | ↗ | ↖ | ↑ | | | ↕ | | | ↕ | |
| Volume (vph) | 2 | 509 | 179 | 91 | 411 | 41 | 178 | 15 | 49 | 19 | 8 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | 1.00 | 0.99 | | | 0.97 | | | 1.00 | |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | 0.96 | | | 0.97 | |
| Satd. Flow (prot) | | 1809 | 1538 | 1671 | 1735 | | | 1730 | | | 1760 | |
| Flt Permitted | | 1.00 | 1.00 | 0.16 | 1.00 | | | 0.76 | | | 0.77 | |
| Satd. Flow (perm) | | 1807 | 1538 | 276 | 1735 | | | 1360 | | | 1401 | |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.92 | 0.92 | 0.92 | 0.82 | 0.82 | 0.82 | 0.70 | 0.70 | 0.70 |
| Adj. Flow (vph) | 2 | 585 | 206 | 99 | 447 | 45 | 217 | 18 | 60 | 27 | 11 | 1 |
| RTOR Reduction (vph) | 0 | 0 | 128 | 0 | 6 | 0 | 0 | 15 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 587 | 78 | 99 | 486 | 0 | 0 | 280 | 0 | 0 | 38 | 0 |
| Heavy Vehicles (%) | 5% | 5% | 5% | 8% | 8% | 8% | 3% | 3% | 3% | 4% | 4% | 4% |
| Turn Type | Perm | NA | Perm | pm+pt | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 21.5 | 21.5 | 29.5 | 29.5 | | | 17.4 | | | 17.4 | |
| Effective Green, g (s) | | 21.5 | 21.5 | 29.5 | 29.5 | | | 17.4 | | | 17.4 | |
| Actuated g/C Ratio | | 0.38 | 0.38 | 0.52 | 0.52 | | | 0.31 | | | 0.31 | |
| Clearance Time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 682 | 581 | 216 | 899 | | | 415 | | | 428 | |
| v/s Ratio Prot | | | | 0.02 | c0.28 | | | | | | | |
| v/s Ratio Perm | | c0.32 | 0.05 | 0.21 | | | | c0.21 | | | 0.03 | |
| v/c Ratio | | 0.86 | 0.13 | 0.46 | 0.54 | | | 0.68 | | | 0.09 | |
| Uniform Delay, d1 | | 16.3 | 11.6 | 10.0 | 9.2 | | | 17.3 | | | 14.1 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 10.8 | 0.1 | 1.5 | 0.7 | | | 8.5 | | | 0.4 | |
| Delay (s) | | 27.1 | 11.7 | 11.5 | 9.8 | | | 25.8 | | | 14.5 | |
| Level of Service | | C | B | B | A | | | C | | | B | |
| Approach Delay (s) | | 23.1 | | | 10.1 | | | 25.8 | | | 14.5 | |
| Approach LOS | | C | | | B | | | C | | | B | |

Intersection Summary

| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 18.9 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 56.9 | Sum of lost time (s) | 15.0 |
| Intersection Capacity Utilization | 79.7% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

3: Somerville Ave & Laurel St

12/2/2013



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|------------------------|------|------|------|------|------|------|
| Lane Configurations | | ↑ | ↑ | | ↘ | |
| Volume (veh/h) | 0 | 551 | 455 | 0 | 101 | 78 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.94 | 0.94 | 0.96 | 0.96 | 0.79 | 0.79 |
| Hourly flow rate (vph) | 0 | 586 | 474 | 0 | 128 | 99 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | | 286 | | | | |
| pX, platoon unblocked | | | | | 0.71 | |
| vC, conflicting volume | 474 | | | | 1060 | 474 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 474 | | | | 883 | 474 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 43 | 83 |
| cM capacity (veh/h) | 1078 | | | | 226 | 590 |

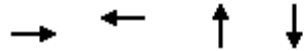
| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|------------------------|------|------|------|
| Volume Total | 586 | 474 | 227 |
| Volume Left | 0 | 0 | 128 |
| Volume Right | 0 | 0 | 99 |
| cSH | 1700 | 1700 | 309 |
| Volume to Capacity | 0.34 | 0.28 | 0.73 |
| Queue Length 95th (ft) | 0 | 0 | 136 |
| Control Delay (s) | 0.0 | 0.0 | 43.1 |
| Lane LOS | | | E |
| Approach Delay (s) | 0.0 | 0.0 | 43.1 |
| Approach LOS | | | E |

| Intersection Summary | | | |
|-----------------------------------|-------|-----|------------------------|
| Average Delay | | 7.6 | |
| Intersection Capacity Utilization | 46.0% | | ICU Level of Service A |
| Analysis Period (min) | | 15 | |

Queues

4: Scott St/Park St & Beacon St

12/2/2013



| Lane Group | EBT | WBT | NBT | SBT |
|-------------------------|------|------|------|------|
| Lane Group Flow (vph) | 416 | 371 | 140 | 212 |
| v/c Ratio | 0.57 | 0.49 | 0.25 | 0.47 |
| Control Delay | 13.6 | 10.7 | 11.0 | 12.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 13.6 | 10.7 | 11.0 | 12.7 |
| Queue Length 50th (ft) | 76 | 54 | 23 | 30 |
| Queue Length 95th (ft) | 142 | 110 | 47 | 71 |
| Internal Link Dist (ft) | 225 | 136 | 194 | 1198 |
| Turn Bay Length (ft) | | | | |
| Base Capacity (vph) | 735 | 759 | 570 | 452 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.57 | 0.49 | 0.25 | 0.47 |

Intersection Summary

HCM Signalized Intersection Capacity Analysis

4: Scott St/Park St & Beacon St

12/2/2013



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|------|-------|------|------|------|------|------|------|------|------|-------|------|
| Lane Configurations | | ↖ | | | ↗ | | | ↕ | | | ↕ | |
| Volume (vph) | 30 | 361 | 0 | 0 | 261 | 99 | 32 | 75 | 8 | 156 | 0 | 27 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 0.96 | | | 0.99 | | | 0.98 | |
| Flt Protected | | 1.00 | | | 1.00 | | | 0.99 | | | 0.96 | |
| Satd. Flow (prot) | | 1820 | | | 1726 | | | 1784 | | | 1718 | |
| Flt Permitted | | 0.95 | | | 1.00 | | | 0.88 | | | 0.66 | |
| Satd. Flow (perm) | | 1741 | | | 1726 | | | 1588 | | | 1187 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.97 | 0.97 | 0.97 | 0.82 | 0.82 | 0.82 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 32 | 384 | 0 | 0 | 269 | 102 | 39 | 91 | 10 | 181 | 0 | 31 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 31 | 0 | 0 | 6 | 0 | 0 | 31 | 0 |
| Lane Group Flow (vph) | 0 | 416 | 0 | 0 | 340 | 0 | 0 | 134 | 0 | 0 | 181 | 0 |
| Heavy Vehicles (%) | 4% | 4% | 4% | 6% | 6% | 6% | 4% | 4% | 4% | 4% | 4% | 4% |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 19.0 | | | 19.0 | | | 16.0 | | | 16.0 | |
| Effective Green, g (s) | | 19.0 | | | 19.0 | | | 16.0 | | | 16.0 | |
| Actuated g/C Ratio | | 0.42 | | | 0.42 | | | 0.36 | | | 0.36 | |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Lane Grp Cap (vph) | | 735 | | | 728 | | | 564 | | | 422 | |
| v/s Ratio Prot | | | | | 0.20 | | | | | | | |
| v/s Ratio Perm | | c0.24 | | | | | | 0.08 | | | c0.15 | |
| v/c Ratio | | 0.57 | | | 0.47 | | | 0.24 | | | 0.43 | |
| Uniform Delay, d1 | | 9.9 | | | 9.4 | | | 10.2 | | | 11.0 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 3.1 | | | 2.2 | | | 1.0 | | | 3.2 | |
| Delay (s) | | 13.0 | | | 11.5 | | | 11.2 | | | 14.2 | |
| Level of Service | | B | | | B | | | B | | | B | |
| Approach Delay (s) | | 13.0 | | | 11.5 | | | 11.2 | | | 14.2 | |
| Approach LOS | | B | | | B | | | B | | | B | |

Intersection Summary

| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 12.5 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.50 | | |
| Actuated Cycle Length (s) | 45.0 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 69.1% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

HCM Unsignalized Intersection Capacity Analysis

1: Rite Aid/Central St & Somerville Ave

12/2/2013



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | | |
| Volume (veh/h) | 96 | 473 | 17 | 4 | 573 | 389 | 2 | 13 | 7 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.95 | 0.95 | 0.95 | 0.69 | 0.69 | 0.69 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 103 | 509 | 18 | 4 | 603 | 409 | 3 | 19 | 10 | 0 | 0 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | 191 | | | | | | | |
| pX, platoon unblocked | 0.73 | | | | | | 0.73 | 0.73 | | 0.73 | 0.73 | 0.73 |
| vC, conflicting volume | 1013 | | | 527 | | | 1541 | 1745 | 518 | 1560 | 1550 | 808 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 830 | | | 527 | | | 1556 | 1837 | 518 | 1583 | 1568 | 548 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 82 | | | 100 | | | 95 | 59 | 98 | 100 | 100 | 100 |
| cM capacity (veh/h) | 583 | | | 1040 | | | 58 | 46 | 562 | 37 | 66 | 390 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|------------------------|------|------|-------|
| Volume Total | 630 | 1017 | 32 |
| Volume Left | 103 | 4 | 3 |
| Volume Right | 18 | 409 | 10 |
| cSH | 583 | 1040 | 66 |
| Volume to Capacity | 0.18 | 0.00 | 0.48 |
| Queue Length 95th (ft) | 16 | 0 | 48 |
| Control Delay (s) | 4.7 | 0.1 | 101.9 |
| Lane LOS | A | A | F |
| Approach Delay (s) | 4.7 | 0.1 | 101.9 |
| Approach LOS | | | F |

| Intersection Summary | | |
|-----------------------------------|-------|----------------------|
| Average Delay | | 3.8 |
| Intersection Capacity Utilization | 98.7% | ICU Level of Service |
| Analysis Period (min) | | 15 |
| | | F |

Queues

2: Park St/Driveway & Somerville Ave

12/2/2013



| Lane Group | EBT | EBR | WBL | WBT | NBT | SBT |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 420 | 107 | 73 | 567 | 474 | 11 |
| v/c Ratio | 0.78 | 0.20 | 0.30 | 0.81 | 0.78 | 0.02 |
| Control Delay | 32.9 | 4.2 | 14.3 | 26.3 | 26.0 | 10.4 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 32.9 | 4.2 | 14.3 | 26.3 | 26.0 | 10.4 |
| Queue Length 50th (ft) | 143 | 0 | 15 | 164 | 142 | 2 |
| Queue Length 95th (ft) | #284 | 25 | 37 | #286 | #302 | 7 |
| Internal Link Dist (ft) | 111 | | | 206 | 1198 | 16 |
| Turn Bay Length (ft) | | | 150 | | | |
| Base Capacity (vph) | 553 | 560 | 240 | 815 | 611 | 695 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.76 | 0.19 | 0.30 | 0.70 | 0.78 | 0.02 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

2: Park St/Driveway & Somerville Ave

12/2/2013



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|------|------|------|-------|-------|------|------|-------|------|------|------|------|
| Lane Configurations | | ↑ | ↗ | ↖ | ↑ | | | ↕ | | | ↕ | |
| Volume (vph) | 0 | 382 | 97 | 72 | 543 | 19 | 395 | 7 | 48 | 5 | 3 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | 1.00 | 0.99 | | | 0.99 | | | 1.00 | |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | 0.96 | | | 0.97 | |
| Satd. Flow (prot) | | 1863 | 1583 | 1752 | 1835 | | | 1759 | | | 1841 | |
| Flt Permitted | | 1.00 | 1.00 | 0.20 | 1.00 | | | 0.74 | | | 0.83 | |
| Satd. Flow (perm) | | 1863 | 1583 | 377 | 1835 | | | 1366 | | | 1568 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.99 | 0.99 | 0.99 | 0.95 | 0.95 | 0.95 | 0.67 | 0.67 | 0.67 |
| Adj. Flow (vph) | 0 | 420 | 107 | 73 | 548 | 19 | 416 | 7 | 51 | 7 | 4 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 77 | 0 | 2 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 420 | 30 | 73 | 565 | 0 | 0 | 467 | 0 | 0 | 11 | 0 |
| Heavy Vehicles (%) | 2% | 2% | 2% | 3% | 3% | 3% | 2% | 2% | 2% | 0% | 0% | 0% |
| Turn Type | | NA | Perm | pm+pt | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | | | 4 | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 16.4 | 16.4 | 23.7 | 23.7 | | | 25.2 | | | 25.2 | |
| Effective Green, g (s) | | 16.4 | 16.4 | 23.7 | 23.7 | | | 25.2 | | | 25.2 | |
| Actuated g/C Ratio | | 0.28 | 0.28 | 0.40 | 0.40 | | | 0.43 | | | 0.43 | |
| Clearance Time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 518 | 440 | 205 | 738 | | | 584 | | | 670 | |
| v/s Ratio Prot | | 0.23 | | 0.01 | c0.31 | | | | | | | |
| v/s Ratio Perm | | | 0.02 | 0.13 | | | | c0.34 | | | 0.01 | |
| v/c Ratio | | 0.81 | 0.07 | 0.36 | 0.77 | | | 0.80 | | | 0.02 | |
| Uniform Delay, d1 | | 19.8 | 15.6 | 12.5 | 15.2 | | | 14.7 | | | 9.7 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 9.3 | 0.1 | 1.1 | 4.7 | | | 11.0 | | | 0.0 | |
| Delay (s) | | 29.1 | 15.7 | 13.6 | 19.9 | | | 25.6 | | | 9.8 | |
| Level of Service | | C | B | B | B | | | C | | | A | |
| Approach Delay (s) | | 26.4 | | | 19.2 | | | 25.6 | | | 9.8 | |
| Approach LOS | | C | | | B | | | C | | | A | |

Intersection Summary

| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 23.3 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 58.9 | Sum of lost time (s) | 15.0 |
| Intersection Capacity Utilization | 69.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

3: Somerville Ave & Laurel St

12/2/2013



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|------------------------|------|------|------|------|------|------|
| Lane Configurations | | ↑ | ↑ | | ↘ | ↘ |
| Volume (veh/h) | 0 | 453 | 576 | 0 | 44 | 59 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.97 | 0.97 | 0.60 | 0.60 |
| Hourly flow rate (vph) | 0 | 503 | 594 | 0 | 73 | 98 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | | 286 | | | | |
| pX, platoon unblocked | | | | | 0.78 | |
| vC, conflicting volume | 594 | | | | 1097 | 594 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 594 | | | | 986 | 594 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 66 | 80 |
| cM capacity (veh/h) | 982 | | | | 214 | 501 |

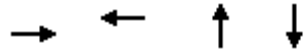
| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|------------------------|------|------|------|
| Volume Total | 503 | 594 | 172 |
| Volume Left | 0 | 0 | 73 |
| Volume Right | 0 | 0 | 98 |
| cSH | 1700 | 1700 | 318 |
| Volume to Capacity | 0.30 | 0.35 | 0.54 |
| Queue Length 95th (ft) | 0 | 0 | 75 |
| Control Delay (s) | 0.0 | 0.0 | 28.8 |
| Lane LOS | | | D |
| Approach Delay (s) | 0.0 | 0.0 | 28.8 |
| Approach LOS | | | D |

| Intersection Summary | | | |
|-----------------------------------|--|-------|----------------------|
| Average Delay | | 3.9 | |
| Intersection Capacity Utilization | | 43.0% | ICU Level of Service |
| Analysis Period (min) | | 15 | A |

Queues

4: Scott St/Park St & Beacon St

12/2/2013



| Lane Group | EBT | WBT | NBT | SBT |
|-------------------------|------|------|------|------|
| Lane Group Flow (vph) | 461 | 577 | 297 | 168 |
| v/c Ratio | 0.76 | 0.72 | 0.48 | 0.41 |
| Control Delay | 22.0 | 16.7 | 14.3 | 11.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 22.0 | 16.7 | 14.3 | 11.7 |
| Queue Length 50th (ft) | 94 | 102 | 56 | 22 |
| Queue Length 95th (ft) | #224 | #240 | 104 | 44 |
| Internal Link Dist (ft) | 225 | 136 | 194 | 1198 |
| Turn Bay Length (ft) | | | | |
| Base Capacity (vph) | 610 | 796 | 616 | 412 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.76 | 0.72 | 0.48 | 0.41 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

4: Scott St/Park St & Beacon St

12/2/2013



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|------|-------|------|------|------|------|------|-------|------|------|------|------|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Volume (vph) | 52 | 382 | 0 | 0 | 362 | 163 | 40 | 206 | 12 | 107 | 0 | 17 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 0.96 | | | 0.99 | | | 0.98 | |
| Flt Protected | | 0.99 | | | 1.00 | | | 0.99 | | | 0.96 | |
| Satd. Flow (prot) | | 1870 | | | 1802 | | | 1837 | | | 1753 | |
| Flt Permitted | | 0.77 | | | 1.00 | | | 0.93 | | | 0.59 | |
| Satd. Flow (perm) | | 1446 | | | 1802 | | | 1722 | | | 1074 | |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.91 | 0.91 | 0.91 | 0.87 | 0.87 | 0.87 | 0.74 | 0.74 | 0.74 |
| Adj. Flow (vph) | 55 | 406 | 0 | 0 | 398 | 179 | 46 | 237 | 14 | 145 | 0 | 23 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 36 | 0 | 0 | 4 | 0 | 0 | 31 | 0 |
| Lane Group Flow (vph) | 0 | 461 | 0 | 0 | 541 | 0 | 0 | 293 | 0 | 0 | 137 | 0 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 1% | 1% | 1% | 2% | 2% | 2% | 2% | 2% | 2% |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 19.0 | | | 19.0 | | | 16.0 | | | 16.0 | |
| Effective Green, g (s) | | 19.0 | | | 19.0 | | | 16.0 | | | 16.0 | |
| Actuated g/C Ratio | | 0.42 | | | 0.42 | | | 0.36 | | | 0.36 | |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Lane Grp Cap (vph) | | 610 | | | 760 | | | 612 | | | 381 | |
| v/s Ratio Prot | | | | | 0.30 | | | | | | | |
| v/s Ratio Perm | | c0.32 | | | | | | c0.17 | | | 0.13 | |
| v/c Ratio | | 0.76 | | | 0.71 | | | 0.48 | | | 0.36 | |
| Uniform Delay, d1 | | 11.0 | | | 10.7 | | | 11.3 | | | 10.7 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 8.5 | | | 5.6 | | | 2.7 | | | 2.6 | |
| Delay (s) | | 19.5 | | | 16.4 | | | 13.9 | | | 13.3 | |
| Level of Service | | B | | | B | | | B | | | B | |
| Approach Delay (s) | | 19.5 | | | 16.4 | | | 13.9 | | | 13.3 | |
| Approach LOS | | B | | | B | | | B | | | B | |

Intersection Summary

| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 16.5 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.63 | | |
| Actuated Cycle Length (s) | 45.0 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 89.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

HCM Unsignalized Intersection Capacity Analysis

1: Rite Aid/Central St & Somerville Ave

12/2/2013



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | | |
| Volume (veh/h) | 103 | 535 | 10 | 3 | 494 | 260 | 2 | 2 | 2 | 0 | 0 | 0 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.86 | 0.86 | 0.86 | 0.98 | 0.98 | 0.98 | 0.75 | 0.75 | 0.75 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 120 | 622 | 12 | 3 | 504 | 265 | 3 | 3 | 3 | 0 | 0 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | 191 | | | | | | | |
| pX, platoon unblocked | 0.74 | | | | | | 0.74 | 0.74 | | 0.74 | 0.74 | 0.74 |
| vC, conflicting volume | 769 | | | 634 | | | 1510 | 1643 | 628 | 1514 | 1516 | 637 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 514 | | | 634 | | | 1514 | 1693 | 628 | 1519 | 1522 | 335 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 85 | | | 100 | | | 96 | 95 | 99 | 100 | 100 | 100 |
| cM capacity (veh/h) | 779 | | | 949 | | | 65 | 59 | 487 | 61 | 74 | 524 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|------------------------|------|------|------|
| Volume Total | 753 | 772 | 8 |
| Volume Left | 120 | 3 | 3 |
| Volume Right | 12 | 265 | 3 |
| cSH | 779 | 949 | 87 |
| Volume to Capacity | 0.15 | 0.00 | 0.09 |
| Queue Length 95th (ft) | 14 | 0 | 7 |
| Control Delay (s) | 3.8 | 0.1 | 50.6 |
| Lane LOS | A | A | F |
| Approach Delay (s) | 3.8 | 0.1 | 50.6 |
| Approach LOS | | | F |

| Intersection Summary | | |
|-----------------------------------|-------|----------------------|
| Average Delay | | 2.2 |
| Intersection Capacity Utilization | 89.8% | ICU Level of Service |
| Analysis Period (min) | | 15 |
| | | E |

Queues

2: Park St/Driveway & Somerville Ave

12/2/2013



| Lane Group | EBT | EBR | WBL | WBT | NBT | SBT |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 476 | 122 | 74 | 555 | 291 | 19 |
| v/c Ratio | 0.89 | 0.22 | 0.31 | 0.78 | 0.46 | 0.03 |
| Control Delay | 43.9 | 5.1 | 14.5 | 24.0 | 13.9 | 10.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 43.9 | 5.1 | 14.5 | 24.0 | 13.9 | 10.3 |
| Queue Length 50th (ft) | 169 | 0 | 16 | 158 | 66 | 4 |
| Queue Length 95th (ft) | #337 | 31 | 37 | 262 | 127 | 11 |
| Internal Link Dist (ft) | 111 | | | 206 | 1198 | 16 |
| Turn Bay Length (ft) | | | 150 | | | |
| Base Capacity (vph) | 534 | 548 | 235 | 831 | 629 | 677 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.89 | 0.22 | 0.31 | 0.67 | 0.46 | 0.03 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

2: Park St/Driveway & Somerville Ave

12/2/2013



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|------|-------|------|-------|-------|------|------|-------|------|------|------|------|
| Lane Configurations | | ↑ | ↗ | ↖ | ↑ | | | ↕ | | | ↕ | |
| Volume (vph) | 5 | 423 | 110 | 70 | 506 | 16 | 205 | 7 | 59 | 10 | 3 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | | | 0.97 | | | 0.99 | |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | 0.96 | | | 0.96 | |
| Satd. Flow (prot) | | 1862 | 1583 | 1787 | 1873 | | | 1742 | | | 1819 | |
| Flt Permitted | | 0.99 | 1.00 | 0.19 | 1.00 | | | 0.77 | | | 0.81 | |
| Satd. Flow (perm) | | 1847 | 1583 | 352 | 1873 | | | 1386 | | | 1529 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.94 | 0.94 | 0.94 | 0.93 | 0.93 | 0.93 | 0.70 | 0.70 | 0.70 |
| Adj. Flow (vph) | 6 | 470 | 122 | 74 | 538 | 17 | 220 | 8 | 63 | 14 | 4 | 1 |
| RTOR Reduction (vph) | 0 | 0 | 88 | 0 | 2 | 0 | 0 | 16 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 476 | 34 | 74 | 553 | 0 | 0 | 275 | 0 | 0 | 18 | 0 |
| Heavy Vehicles (%) | 2% | 2% | 2% | 1% | 1% | 1% | 2% | 2% | 2% | 0% | 0% | 0% |
| Turn Type | Perm | NA | Perm | pm+pt | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 16.4 | 16.4 | 23.7 | 23.7 | | | 25.1 | | | 25.1 | |
| Effective Green, g (s) | | 16.4 | 16.4 | 23.7 | 23.7 | | | 25.1 | | | 25.1 | |
| Actuated g/C Ratio | | 0.28 | 0.28 | 0.40 | 0.40 | | | 0.43 | | | 0.43 | |
| Clearance Time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 515 | 441 | 198 | 754 | | | 591 | | | 652 | |
| v/s Ratio Prot | | | | 0.01 | c0.30 | | | | | | | |
| v/s Ratio Perm | | c0.26 | 0.02 | 0.14 | | | | c0.20 | | | 0.01 | |
| v/c Ratio | | 0.92 | 0.08 | 0.37 | 0.73 | | | 0.47 | | | 0.03 | |
| Uniform Delay, d1 | | 20.6 | 15.6 | 13.0 | 14.9 | | | 12.1 | | | 9.8 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 22.4 | 0.1 | 1.2 | 3.7 | | | 2.6 | | | 0.1 | |
| Delay (s) | | 43.0 | 15.7 | 14.2 | 18.6 | | | 14.7 | | | 9.9 | |
| Level of Service | | D | B | B | B | | | B | | | A | |
| Approach Delay (s) | | 37.5 | | | 18.1 | | | 14.7 | | | 9.9 | |
| Approach LOS | | D | | | B | | | B | | | A | |

Intersection Summary

| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 24.9 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.69 | | |
| Actuated Cycle Length (s) | 58.8 | Sum of lost time (s) | 15.0 |
| Intersection Capacity Utilization | 80.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

3: Somerville Ave & Laurel St

12/2/2013



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|------------------------|------|------|------|------|------|------|
| Lane Configurations | | ↑ | ↑ | | ↘ | |
| Volume (veh/h) | 0 | 497 | 538 | 0 | 38 | 54 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.89 | 0.89 | 0.96 | 0.96 | 0.79 | 0.79 |
| Hourly flow rate (vph) | 0 | 558 | 560 | 0 | 48 | 68 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | | 286 | | | | |
| pX, platoon unblocked | | | | | 0.75 | |
| vC, conflicting volume | 560 | | | | 1119 | 560 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 560 | | | | 992 | 560 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 77 | 87 |
| cM capacity (veh/h) | 1011 | | | | 205 | 529 |

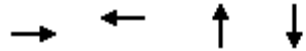
| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|------------------------|------|------|------|
| Volume Total | 558 | 560 | 116 |
| Volume Left | 0 | 0 | 48 |
| Volume Right | 0 | 0 | 68 |
| cSH | 1700 | 1700 | 321 |
| Volume to Capacity | 0.33 | 0.33 | 0.36 |
| Queue Length 95th (ft) | 0 | 0 | 40 |
| Control Delay (s) | 0.0 | 0.0 | 22.5 |
| Lane LOS | | | C |
| Approach Delay (s) | 0.0 | 0.0 | 22.5 |
| Approach LOS | | | C |

| Intersection Summary | | | |
|-----------------------------------|--|-------|----------------------|
| Average Delay | | 2.1 | |
| Intersection Capacity Utilization | | 40.4% | ICU Level of Service |
| Analysis Period (min) | | 15 | A |

Queues

4: Scott St/Park St & Beacon St

12/2/2013



| Lane Group | EBT | WBT | NBT | SBT |
|-------------------------|------|------|------|------|
| Lane Group Flow (vph) | 446 | 510 | 84 | 212 |
| v/c Ratio | 0.62 | 0.65 | 0.13 | 0.43 |
| Control Delay | 14.7 | 13.7 | 10.1 | 11.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 14.7 | 13.7 | 10.1 | 11.7 |
| Queue Length 50th (ft) | 84 | 84 | 13 | 30 |
| Queue Length 95th (ft) | 157 | 161 | 33 | 57 |
| Internal Link Dist (ft) | 225 | 136 | 194 | 1198 |
| Turn Bay Length (ft) | | | | |
| Base Capacity (vph) | 723 | 788 | 636 | 494 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.62 | 0.65 | 0.13 | 0.43 |

Intersection Summary

HCM Signalized Intersection Capacity Analysis

4: Scott St/Park St & Beacon St

12/2/2013



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|------|------|------|------|-------|------|------|------|------|------|-------|------|
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Volume (vph) | 42 | 359 | 0 | 0 | 316 | 138 | 10 | 59 | 4 | 131 | 0 | 32 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | | | 0.96 | | | 0.99 | | | 0.97 | |
| Flt Protected | | 0.99 | | | 1.00 | | | 0.99 | | | 0.96 | |
| Satd. Flow (prot) | | 1871 | | | 1786 | | | 1854 | | | 1760 | |
| Flt Permitted | | 0.91 | | | 1.00 | | | 0.95 | | | 0.71 | |
| Satd. Flow (perm) | | 1714 | | | 1786 | | | 1781 | | | 1304 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.89 | 0.89 | 0.89 | 0.87 | 0.87 | 0.87 | 0.77 | 0.77 | 0.77 |
| Adj. Flow (vph) | 47 | 399 | 0 | 0 | 355 | 155 | 11 | 68 | 5 | 170 | 0 | 42 |
| RTOR Reduction (vph) | 0 | 0 | 0 | 0 | 35 | 0 | 0 | 3 | 0 | 0 | 31 | 0 |
| Lane Group Flow (vph) | 0 | 446 | 0 | 0 | 475 | 0 | 0 | 81 | 0 | 0 | 181 | 0 |
| Heavy Vehicles (%) | 1% | 1% | 1% | 2% | 2% | 2% | 1% | 1% | 1% | 1% | 1% | 1% |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | | | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 19.0 | | | 19.0 | | | 16.0 | | | 16.0 | |
| Effective Green, g (s) | | 19.0 | | | 19.0 | | | 16.0 | | | 16.0 | |
| Actuated g/C Ratio | | 0.42 | | | 0.42 | | | 0.36 | | | 0.36 | |
| Clearance Time (s) | | 5.0 | | | 5.0 | | | 5.0 | | | 5.0 | |
| Lane Grp Cap (vph) | | 723 | | | 754 | | | 633 | | | 463 | |
| v/s Ratio Prot | | | | | c0.27 | | | | | | | |
| v/s Ratio Perm | | 0.26 | | | | | | 0.05 | | | c0.14 | |
| v/c Ratio | | 0.62 | | | 0.63 | | | 0.13 | | | 0.39 | |
| Uniform Delay, d1 | | 10.2 | | | 10.2 | | | 9.8 | | | 10.9 | |
| Progression Factor | | 1.00 | | | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 3.9 | | | 4.0 | | | 0.4 | | | 2.5 | |
| Delay (s) | | 14.1 | | | 14.2 | | | 10.2 | | | 13.3 | |
| Level of Service | | B | | | B | | | B | | | B | |
| Approach Delay (s) | | 14.1 | | | 14.2 | | | 10.2 | | | 13.3 | |
| Approach LOS | | B | | | B | | | B | | | B | |

Intersection Summary

| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 13.7 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 45.0 | Sum of lost time (s) | 10.0 |
| Intersection Capacity Utilization | 74.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

Queues

2: Park St/Driveway & Somerville Ave

7/1/2014



| Lane Group | EBT | EBR | WBL | WBT | NBT | SBT |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 618 | 216 | 104 | 520 | 310 | 41 |
| v/c Ratio | 0.85 | 0.29 | 0.44 | 0.57 | 0.75 | 0.10 |
| Control Delay | 29.5 | 3.2 | 11.9 | 11.1 | 33.6 | 17.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 29.5 | 3.2 | 11.9 | 11.1 | 33.6 | 17.2 |
| Queue Length 50th (ft) | 189 | 0 | 15 | 100 | 98 | 11 |
| Queue Length 95th (ft) | #340 | 30 | 34 | 171 | #190 | 24 |
| Internal Link Dist (ft) | 364 | | | 229 | 559 | 16 |
| Turn Bay Length (ft) | | | 150 | | | |
| Base Capacity (vph) | 830 | 824 | 239 | 1090 | 414 | 413 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.74 | 0.26 | 0.44 | 0.48 | 0.75 | 0.10 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

2: Park St/Driveway & Somerville Ave

7/1/2014



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|------|-------|------|-------|-------|------|------|-------|------|------|------|------|
| Lane Configurations | | ↑ | ↗ | ↖ | ↑ | | | ↕ | | | ↕ | |
| Volume (vph) | 3 | 535 | 188 | 96 | 435 | 43 | 187 | 16 | 51 | 20 | 8 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | 1.00 | 0.99 | | | 0.97 | | | 1.00 | |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | 0.96 | | | 0.97 | |
| Satd. Flow (prot) | | 1809 | 1538 | 1671 | 1735 | | | 1731 | | | 1759 | |
| Flt Permitted | | 1.00 | 1.00 | 0.15 | 1.00 | | | 0.76 | | | 0.77 | |
| Satd. Flow (perm) | | 1806 | 1538 | 260 | 1735 | | | 1358 | | | 1401 | |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.92 | 0.92 | 0.92 | 0.82 | 0.82 | 0.82 | 0.70 | 0.70 | 0.70 |
| Adj. Flow (vph) | 3 | 615 | 216 | 104 | 473 | 47 | 228 | 20 | 62 | 29 | 11 | 1 |
| RTOR Reduction (vph) | 0 | 0 | 131 | 0 | 7 | 0 | 0 | 14 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 618 | 85 | 104 | 513 | 0 | 0 | 296 | 0 | 0 | 40 | 0 |
| Heavy Vehicles (%) | 5% | 5% | 5% | 8% | 8% | 8% | 3% | 3% | 3% | 4% | 4% | 4% |
| Turn Type | Perm | NA | Perm | pm+pt | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 22.4 | 22.4 | 30.4 | 30.4 | | | 16.4 | | | 16.4 | |
| Effective Green, g (s) | | 22.4 | 22.4 | 30.4 | 30.4 | | | 16.4 | | | 16.4 | |
| Actuated g/C Ratio | | 0.39 | 0.39 | 0.54 | 0.54 | | | 0.29 | | | 0.29 | |
| Clearance Time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 712 | 606 | 213 | 928 | | | 392 | | | 404 | |
| v/s Ratio Prot | | | | 0.03 | c0.30 | | | | | | | |
| v/s Ratio Perm | | c0.34 | 0.06 | 0.23 | | | | c0.22 | | | 0.03 | |
| v/c Ratio | | 0.87 | 0.14 | 0.49 | 0.55 | | | 0.75 | | | 0.10 | |
| Uniform Delay, d1 | | 15.8 | 11.0 | 9.8 | 8.7 | | | 18.4 | | | 14.8 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 10.9 | 0.1 | 1.8 | 0.7 | | | 12.7 | | | 0.5 | |
| Delay (s) | | 26.7 | 11.1 | 11.6 | 9.4 | | | 31.0 | | | 15.3 | |
| Level of Service | | C | B | B | A | | | C | | | B | |
| Approach Delay (s) | | 22.7 | | | 9.8 | | | 31.0 | | | 15.3 | |
| Approach LOS | | C | | | A | | | C | | | B | |

Intersection Summary

| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 19.5 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 56.8 | Sum of lost time (s) | 15.0 |
| Intersection Capacity Utilization | 83.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

Queues

2: Park St/Driveway & Somerville Ave

7/1/2014



| Lane Group | EBT | EBR | WBL | WBT | NBT | SBT |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 449 | 112 | 77 | 600 | 497 | 11 |
| v/c Ratio | 0.87 | 0.21 | 0.35 | 0.83 | 0.80 | 0.02 |
| Control Delay | 42.4 | 5.2 | 16.3 | 28.9 | 28.5 | 10.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 42.4 | 5.2 | 16.3 | 28.9 | 28.5 | 10.7 |
| Queue Length 50th (ft) | 169 | 0 | 18 | 197 | 163 | 2 |
| Queue Length 95th (ft) | #324 | 31 | 41 | #363 | #335 | 8 |
| Internal Link Dist (ft) | 226 | | | 199 | 559 | 16 |
| Turn Bay Length (ft) | | | 150 | | | |
| Base Capacity (vph) | 529 | 538 | 218 | 794 | 618 | 702 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.85 | 0.21 | 0.35 | 0.76 | 0.80 | 0.02 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

2: Park St/Driveway & Somerville Ave

7/1/2014



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|------|------|------|-------|-------|------|------|-------|------|------|------|------|
| Lane Configurations | | ↕ | ↗ | ↖ | ↕ | | | ↕ | | | ↕ | |
| Volume (vph) | 7 | 401 | 102 | 76 | 572 | 22 | 415 | 7 | 50 | 5 | 3 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | 1.00 | 0.99 | | | 0.99 | | | 1.00 | |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | 0.96 | | | 0.97 | |
| Satd. Flow (prot) | | 1861 | 1583 | 1752 | 1835 | | | 1759 | | | 1841 | |
| Flt Permitted | | 0.99 | 1.00 | 0.18 | 1.00 | | | 0.74 | | | 0.83 | |
| Satd. Flow (perm) | | 1838 | 1583 | 325 | 1835 | | | 1366 | | | 1570 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.99 | 0.99 | 0.99 | 0.95 | 0.95 | 0.95 | 0.67 | 0.67 | 0.67 |
| Adj. Flow (vph) | 8 | 441 | 112 | 77 | 578 | 22 | 437 | 7 | 53 | 7 | 4 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 81 | 0 | 2 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 449 | 31 | 77 | 598 | 0 | 0 | 490 | 0 | 0 | 11 | 0 |
| Heavy Vehicles (%) | 2% | 2% | 2% | 3% | 3% | 3% | 2% | 2% | 2% | 0% | 0% | 0% |
| Turn Type | Perm | NA | Perm | pm+pt | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 17.7 | 17.7 | 25.8 | 25.8 | | | 28.1 | | | 28.1 | |
| Effective Green, g (s) | | 17.7 | 17.7 | 25.8 | 25.8 | | | 28.1 | | | 28.1 | |
| Actuated g/C Ratio | | 0.28 | 0.28 | 0.40 | 0.40 | | | 0.44 | | | 0.44 | |
| Clearance Time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 509 | 438 | 200 | 740 | | | 600 | | | 690 | |
| v/s Ratio Prot | | | | 0.02 | c0.33 | | | | | | | |
| v/s Ratio Perm | | 0.24 | 0.02 | 0.14 | | | | c0.36 | | | 0.01 | |
| v/c Ratio | | 0.88 | 0.07 | 0.39 | 0.81 | | | 0.82 | | | 0.02 | |
| Uniform Delay, d1 | | 22.1 | 17.0 | 13.9 | 16.9 | | | 15.7 | | | 10.1 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 16.3 | 0.1 | 1.2 | 6.5 | | | 11.7 | | | 0.0 | |
| Delay (s) | | 38.4 | 17.1 | 15.1 | 23.3 | | | 27.4 | | | 10.1 | |
| Level of Service | | D | B | B | C | | | C | | | B | |
| Approach Delay (s) | | 34.2 | | | 22.4 | | | 27.4 | | | 10.1 | |
| Approach LOS | | C | | | C | | | C | | | B | |

Intersection Summary

| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 27.5 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.89 | | |
| Actuated Cycle Length (s) | 63.9 | Sum of lost time (s) | 15.0 |
| Intersection Capacity Utilization | 98.5% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

Queues

2: Park St/Driveway & Somerville Ave

7/1/2014



| Lane Group | EBT | EBR | WBL | WBT | NBT | SBT |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 502 | 129 | 79 | 588 | 306 | 21 |
| v/c Ratio | 0.77 | 0.20 | 0.29 | 0.70 | 0.59 | 0.04 |
| Control Delay | 25.5 | 4.0 | 10.4 | 16.4 | 21.3 | 14.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 25.5 | 4.0 | 10.4 | 16.4 | 21.3 | 14.3 |
| Queue Length 50th (ft) | 154 | 0 | 13 | 136 | 86 | 5 |
| Queue Length 95th (ft) | #288 | 28 | 31 | 225 | #187 | 14 |
| Internal Link Dist (ft) | 361 | | | 239 | 559 | 16 |
| Turn Bay Length (ft) | | | 150 | | | |
| Base Capacity (vph) | 774 | 740 | 273 | 1111 | 517 | 531 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.65 | 0.17 | 0.29 | 0.53 | 0.59 | 0.04 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

2: Park St/Driveway & Somerville Ave

7/1/2014



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|------|-------|------|-------|-------|------|------|-------|------|------|------|------|
| Lane Configurations | | ↑ | ↗ | ↖ | ↑ | | | ↕ | | | ↕ | |
| Volume (vph) | 7 | 445 | 116 | 74 | 534 | 19 | 215 | 7 | 62 | 11 | 3 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | 1.00 | 0.99 | | | 0.97 | | | 0.99 | |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | 0.96 | | | 0.96 | |
| Satd. Flow (prot) | | 1861 | 1583 | 1787 | 1872 | | | 1742 | | | 1819 | |
| Flt Permitted | | 0.99 | 1.00 | 0.20 | 1.00 | | | 0.77 | | | 0.77 | |
| Satd. Flow (perm) | | 1842 | 1583 | 372 | 1872 | | | 1383 | | | 1462 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.94 | 0.94 | 0.94 | 0.93 | 0.93 | 0.93 | 0.70 | 0.70 | 0.70 |
| Adj. Flow (vph) | 8 | 494 | 129 | 79 | 568 | 20 | 231 | 8 | 67 | 16 | 4 | 1 |
| RTOR Reduction (vph) | 0 | 0 | 85 | 0 | 2 | 0 | 0 | 16 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 502 | 44 | 79 | 586 | 0 | 0 | 290 | 0 | 0 | 20 | 0 |
| Heavy Vehicles (%) | 2% | 2% | 2% | 1% | 1% | 1% | 2% | 2% | 2% | 0% | 0% | 0% |
| Turn Type | Perm | NA | Perm | pm+pt | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 19.1 | 19.1 | 26.2 | 26.2 | | | 19.5 | | | 19.5 | |
| Effective Green, g (s) | | 19.1 | 19.1 | 26.2 | 26.2 | | | 19.5 | | | 19.5 | |
| Actuated g/C Ratio | | 0.34 | 0.34 | 0.47 | 0.47 | | | 0.35 | | | 0.35 | |
| Clearance Time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 631 | 542 | 228 | 880 | | | 484 | | | 511 | |
| v/s Ratio Prot | | | | 0.01 | c0.31 | | | | | | | |
| v/s Ratio Perm | | c0.27 | 0.03 | 0.15 | | | | c0.21 | | | 0.01 | |
| v/c Ratio | | 0.80 | 0.08 | 0.35 | 0.67 | | | 0.60 | | | 0.04 | |
| Uniform Delay, d1 | | 16.5 | 12.4 | 10.1 | 11.4 | | | 14.9 | | | 11.9 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 6.9 | 0.1 | 0.9 | 1.9 | | | 5.4 | | | 0.1 | |
| Delay (s) | | 23.4 | 12.4 | 11.1 | 13.3 | | | 20.3 | | | 12.1 | |
| Level of Service | | C | B | B | B | | | C | | | B | |
| Approach Delay (s) | | 21.2 | | | 13.0 | | | 20.3 | | | 12.1 | |
| Approach LOS | | C | | | B | | | C | | | B | |

Intersection Summary

| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 17.5 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.73 | | |
| Actuated Cycle Length (s) | 55.7 | Sum of lost time (s) | 15.0 |
| Intersection Capacity Utilization | 83.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

Queues

2: Park St/Driveway & Somerville Ave

7/1/2014



| Lane Group | EBT | EBR | WBL | WBT | NBT | SBT |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 621 | 216 | 104 | 520 | 311 | 41 |
| v/c Ratio | 0.86 | 0.29 | 0.44 | 0.57 | 0.75 | 0.10 |
| Control Delay | 29.8 | 3.2 | 12.0 | 11.1 | 33.8 | 17.2 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 29.8 | 3.2 | 12.0 | 11.1 | 33.8 | 17.2 |
| Queue Length 50th (ft) | 191 | 0 | 15 | 100 | 98 | 11 |
| Queue Length 95th (ft) | #343 | 30 | 34 | 171 | #191 | 24 |
| Internal Link Dist (ft) | 364 | | | 229 | 559 | 16 |
| Turn Bay Length (ft) | | | 150 | | | |
| Base Capacity (vph) | 829 | 823 | 237 | 1089 | 414 | 412 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.75 | 0.26 | 0.44 | 0.48 | 0.75 | 0.10 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

2: Park St/Driveway & Somerville Ave

7/1/2014



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|------|-------|------|-------|-------|------|------|-------|------|------|------|------|
| Lane Configurations | | ↑ | ↗ | ↖ | ↑ | | | ↕ | | | ↕ | |
| Volume (vph) | 3 | 538 | 188 | 96 | 435 | 43 | 187 | 16 | 52 | 20 | 8 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | 1.00 | 0.99 | | | 0.97 | | | 1.00 | |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | 0.96 | | | 0.97 | |
| Satd. Flow (prot) | | 1809 | 1538 | 1671 | 1735 | | | 1731 | | | 1759 | |
| Flt Permitted | | 1.00 | 1.00 | 0.15 | 1.00 | | | 0.76 | | | 0.77 | |
| Satd. Flow (perm) | | 1806 | 1538 | 257 | 1735 | | | 1359 | | | 1400 | |
| Peak-hour factor, PHF | 0.87 | 0.87 | 0.87 | 0.92 | 0.92 | 0.92 | 0.82 | 0.82 | 0.82 | 0.70 | 0.70 | 0.70 |
| Adj. Flow (vph) | 3 | 618 | 216 | 104 | 473 | 47 | 228 | 20 | 63 | 29 | 11 | 1 |
| RTOR Reduction (vph) | 0 | 0 | 131 | 0 | 7 | 0 | 0 | 15 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 621 | 85 | 104 | 513 | 0 | 0 | 296 | 0 | 0 | 40 | 0 |
| Heavy Vehicles (%) | 5% | 5% | 5% | 8% | 8% | 8% | 3% | 3% | 3% | 4% | 4% | 4% |
| Turn Type | Perm | NA | Perm | pm+pt | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 22.4 | 22.4 | 30.4 | 30.4 | | | 16.4 | | | 16.4 | |
| Effective Green, g (s) | | 22.4 | 22.4 | 30.4 | 30.4 | | | 16.4 | | | 16.4 | |
| Actuated g/C Ratio | | 0.39 | 0.39 | 0.54 | 0.54 | | | 0.29 | | | 0.29 | |
| Clearance Time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 712 | 606 | 212 | 928 | | | 392 | | | 404 | |
| v/s Ratio Prot | | | | 0.03 | c0.30 | | | | | | | |
| v/s Ratio Perm | | c0.34 | 0.06 | 0.24 | | | | c0.22 | | | 0.03 | |
| v/c Ratio | | 0.87 | 0.14 | 0.49 | 0.55 | | | 0.76 | | | 0.10 | |
| Uniform Delay, d1 | | 15.9 | 11.0 | 9.9 | 8.7 | | | 18.4 | | | 14.8 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 11.4 | 0.1 | 1.8 | 0.7 | | | 12.7 | | | 0.5 | |
| Delay (s) | | 27.3 | 11.1 | 11.7 | 9.4 | | | 31.1 | | | 15.3 | |
| Level of Service | | C | B | B | A | | | C | | | B | |
| Approach Delay (s) | | 23.1 | | | 9.8 | | | 31.1 | | | 15.3 | |
| Approach LOS | | C | | | A | | | C | | | B | |

Intersection Summary

| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 19.7 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.84 | | |
| Actuated Cycle Length (s) | 56.8 | Sum of lost time (s) | 15.0 |
| Intersection Capacity Utilization | 83.4% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

4: Somerville Ave

7/1/2014



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|------------------------|------|------|------|------|------|------|
| Lane Configurations | ↻ | | | ↻ | | ↻ |
| Volume (veh/h) | 606 | 4 | 0 | 574 | 0 | 6 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 659 | 4 | 0 | 624 | 0 | 7 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | 309 | | | | | |
| pX, platoon unblocked | | | 0.68 | 0.68 | 0.68 | |
| vC, conflicting volume | | | 663 | 1285 | 661 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 271 | 1184 | 268 | |
| tC, single (s) | | | 4.1 | 6.4 | 6.2 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | 3.5 | 3.3 | |
| p0 queue free % | | | 100 | 100 | 99 | |
| cM capacity (veh/h) | | | 880 | 142 | 525 | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|------------------------|------|------|------|
| Volume Total | 663 | 624 | 7 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 4 | 0 | 7 |
| cSH | 1700 | 1700 | 525 |
| Volume to Capacity | 0.39 | 0.37 | 0.01 |
| Queue Length 95th (ft) | 0 | 0 | 1 |
| Control Delay (s) | 0.0 | 0.0 | 11.9 |
| Lane LOS | | | B |
| Approach Delay (s) | 0.0 | 0.0 | 11.9 |
| Approach LOS | | | B |

| Intersection Summary | | | |
|-----------------------------------|-------|----------------------|---|
| Average Delay | | 0.1 | |
| Intersection Capacity Utilization | 42.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

Queues

2: Park St/Driveway & Somerville Ave

7/1/2014



| Lane Group | EBT | EBR | WBL | WBT | NBT | SBT |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 446 | 112 | 77 | 600 | 498 | 11 |
| v/c Ratio | 0.86 | 0.21 | 0.35 | 0.83 | 0.81 | 0.02 |
| Control Delay | 40.8 | 5.2 | 16.3 | 28.9 | 28.7 | 10.7 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 40.8 | 5.2 | 16.3 | 28.9 | 28.7 | 10.7 |
| Queue Length 50th (ft) | 167 | 0 | 18 | 197 | 164 | 2 |
| Queue Length 95th (ft) | #321 | 31 | 41 | #363 | #336 | 8 |
| Internal Link Dist (ft) | 226 | | | 199 | 559 | 16 |
| Turn Bay Length (ft) | | | 150 | | | |
| Base Capacity (vph) | 534 | 538 | 218 | 794 | 617 | 702 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.84 | 0.21 | 0.35 | 0.76 | 0.81 | 0.02 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

2: Park St/Driveway & Somerville Ave

7/1/2014



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|------|------|------|-------|-------|------|------|-------|------|------|------|------|
| Lane Configurations | | ↕ | ↗ | ↖ | ↕ | | | ↕ | | | ↕ | |
| Volume (vph) | 3 | 403 | 102 | 76 | 572 | 22 | 415 | 7 | 51 | 5 | 3 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | 1.00 | 0.99 | | | 0.99 | | | 1.00 | |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | 0.96 | | | 0.97 | |
| Satd. Flow (prot) | | 1862 | 1583 | 1752 | 1835 | | | 1758 | | | 1841 | |
| Flt Permitted | | 1.00 | 1.00 | 0.18 | 1.00 | | | 0.74 | | | 0.83 | |
| Satd. Flow (perm) | | 1855 | 1583 | 325 | 1835 | | | 1366 | | | 1570 | |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.99 | 0.99 | 0.99 | 0.95 | 0.95 | 0.95 | 0.67 | 0.67 | 0.67 |
| Adj. Flow (vph) | 3 | 443 | 112 | 77 | 578 | 22 | 437 | 7 | 54 | 7 | 4 | 0 |
| RTOR Reduction (vph) | 0 | 0 | 81 | 0 | 2 | 0 | 0 | 7 | 0 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 446 | 31 | 77 | 598 | 0 | 0 | 491 | 0 | 0 | 11 | 0 |
| Heavy Vehicles (%) | 2% | 2% | 2% | 3% | 3% | 3% | 2% | 2% | 2% | 0% | 0% | 0% |
| Turn Type | Perm | NA | Perm | pm+pt | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 17.7 | 17.7 | 25.8 | 25.8 | | | 28.1 | | | 28.1 | |
| Effective Green, g (s) | | 17.7 | 17.7 | 25.8 | 25.8 | | | 28.1 | | | 28.1 | |
| Actuated g/C Ratio | | 0.28 | 0.28 | 0.40 | 0.40 | | | 0.44 | | | 0.44 | |
| Clearance Time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 513 | 438 | 200 | 740 | | | 600 | | | 690 | |
| v/s Ratio Prot | | | | 0.02 | c0.33 | | | | | | | |
| v/s Ratio Perm | | 0.24 | 0.02 | 0.14 | | | | c0.36 | | | 0.01 | |
| v/c Ratio | | 0.87 | 0.07 | 0.39 | 0.81 | | | 0.82 | | | 0.02 | |
| Uniform Delay, d1 | | 22.0 | 17.0 | 13.8 | 16.9 | | | 15.7 | | | 10.1 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 14.5 | 0.1 | 1.2 | 6.5 | | | 11.8 | | | 0.0 | |
| Delay (s) | | 36.5 | 17.1 | 15.1 | 23.3 | | | 27.5 | | | 10.1 | |
| Level of Service | | D | B | B | C | | | C | | | B | |
| Approach Delay (s) | | 32.6 | | | 22.4 | | | 27.5 | | | 10.1 | |
| Approach LOS | | C | | | C | | | C | | | B | |

Intersection Summary

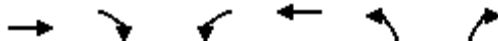
| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 27.0 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.90 | | |
| Actuated Cycle Length (s) | 63.9 | Sum of lost time (s) | 15.0 |
| Intersection Capacity Utilization | 98.4% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

4: Somerville Ave

7/1/2014



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|------------------------|------|------|------|------|------|------|
| Lane Configurations | ↷ | | | ↶ | | ↷ |
| Volume (veh/h) | 456 | 3 | 0 | 670 | 0 | 3 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 496 | 3 | 0 | 728 | 0 | 3 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | 279 | | | | | |
| pX, platoon unblocked | | | 0.77 | | 0.77 | 0.77 |
| vC, conflicting volume | | | 499 | | 1226 | 497 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 196 | | 1142 | 194 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 100 | | 100 | 99 |
| cM capacity (veh/h) | | | 1057 | | 170 | 651 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|------------------------|------|------|------|
| Volume Total | 499 | 728 | 3 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 3 | 0 | 3 |
| cSH | 1700 | 1700 | 651 |
| Volume to Capacity | 0.29 | 0.43 | 0.01 |
| Queue Length 95th (ft) | 0 | 0 | 0 |
| Control Delay (s) | 0.0 | 0.0 | 10.6 |
| Lane LOS | | | B |
| Approach Delay (s) | 0.0 | 0.0 | 10.6 |
| Approach LOS | | | B |

| Intersection Summary | | | |
|-----------------------------------|--|-------|----------------------|
| Average Delay | | 0.0 | |
| Intersection Capacity Utilization | | 38.6% | ICU Level of Service |
| Analysis Period (min) | | 15 | A |

Queues

2: Park St/Driveway & Somerville Ave

7/1/2014



| Lane Group | EBT | EBR | WBL | WBT | NBT | SBT |
|-------------------------|------|------|------|------|------|------|
| Lane Group Flow (vph) | 504 | 129 | 79 | 588 | 307 | 21 |
| v/c Ratio | 0.77 | 0.20 | 0.29 | 0.70 | 0.59 | 0.04 |
| Control Delay | 25.7 | 4.0 | 10.4 | 16.4 | 21.3 | 14.3 |
| Queue Delay | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Total Delay | 25.7 | 4.0 | 10.4 | 16.4 | 21.3 | 14.3 |
| Queue Length 50th (ft) | 154 | 0 | 13 | 136 | 87 | 5 |
| Queue Length 95th (ft) | #291 | 28 | 31 | 225 | #188 | 14 |
| Internal Link Dist (ft) | 361 | | | 239 | 559 | 16 |
| Turn Bay Length (ft) | | | 150 | | | |
| Base Capacity (vph) | 774 | 740 | 272 | 1111 | 518 | 531 |
| Starvation Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Spillback Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Storage Cap Reductn | 0 | 0 | 0 | 0 | 0 | 0 |
| Reduced v/c Ratio | 0.65 | 0.17 | 0.29 | 0.53 | 0.59 | 0.04 |

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

2: Park St/Driveway & Somerville Ave

7/1/2014



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|------|-------|------|-------|-------|------|------|-------|------|------|------|------|
| Lane Configurations | | ↑ | ↗ | ↖ | ↑ | | | ↕ | | | ↕ | |
| Volume (vph) | 7 | 446 | 116 | 74 | 534 | 19 | 215 | 7 | 63 | 11 | 3 | 1 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | | | 5.0 | |
| Lane Util. Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Frt | | 1.00 | 0.85 | 1.00 | 0.99 | | | 0.97 | | | 0.99 | |
| Flt Protected | | 1.00 | 1.00 | 0.95 | 1.00 | | | 0.96 | | | 0.96 | |
| Satd. Flow (prot) | | 1861 | 1583 | 1787 | 1872 | | | 1742 | | | 1819 | |
| Flt Permitted | | 0.99 | 1.00 | 0.20 | 1.00 | | | 0.77 | | | 0.77 | |
| Satd. Flow (perm) | | 1842 | 1583 | 368 | 1872 | | | 1384 | | | 1462 | |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.94 | 0.94 | 0.94 | 0.93 | 0.93 | 0.93 | 0.70 | 0.70 | 0.70 |
| Adj. Flow (vph) | 8 | 496 | 129 | 79 | 568 | 20 | 231 | 8 | 68 | 16 | 4 | 1 |
| RTOR Reduction (vph) | 0 | 0 | 85 | 0 | 2 | 0 | 0 | 16 | 0 | 0 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 504 | 44 | 79 | 586 | 0 | 0 | 291 | 0 | 0 | 20 | 0 |
| Heavy Vehicles (%) | 2% | 2% | 2% | 1% | 1% | 1% | 2% | 2% | 2% | 0% | 0% | 0% |
| Turn Type | Perm | NA | Perm | pm+pt | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | 3 | 8 | | | 2 | | | 6 | |
| Permitted Phases | 4 | | 4 | 8 | | | 2 | | | 6 | | |
| Actuated Green, G (s) | | 19.1 | 19.1 | 26.2 | 26.2 | | | 19.5 | | | 19.5 | |
| Effective Green, g (s) | | 19.1 | 19.1 | 26.2 | 26.2 | | | 19.5 | | | 19.5 | |
| Actuated g/C Ratio | | 0.34 | 0.34 | 0.47 | 0.47 | | | 0.35 | | | 0.35 | |
| Clearance Time (s) | | 5.0 | 5.0 | 5.0 | 5.0 | | | 5.0 | | | 5.0 | |
| Vehicle Extension (s) | | 3.0 | 3.0 | 3.0 | 3.0 | | | 3.0 | | | 3.0 | |
| Lane Grp Cap (vph) | | 631 | 542 | 226 | 880 | | | 484 | | | 511 | |
| v/s Ratio Prot | | | | 0.01 | c0.31 | | | | | | | |
| v/s Ratio Perm | | c0.27 | 0.03 | 0.15 | | | | c0.21 | | | 0.01 | |
| v/c Ratio | | 0.80 | 0.08 | 0.35 | 0.67 | | | 0.60 | | | 0.04 | |
| Uniform Delay, d1 | | 16.6 | 12.4 | 10.2 | 11.4 | | | 14.9 | | | 11.9 | |
| Progression Factor | | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | | | 1.00 | |
| Incremental Delay, d2 | | 7.0 | 0.1 | 0.9 | 1.9 | | | 5.4 | | | 0.1 | |
| Delay (s) | | 23.6 | 12.4 | 11.1 | 13.3 | | | 20.3 | | | 12.1 | |
| Level of Service | | C | B | B | B | | | C | | | B | |
| Approach Delay (s) | | 21.3 | | | 13.0 | | | 20.3 | | | 12.1 | |
| Approach LOS | | C | | | B | | | C | | | B | |

Intersection Summary

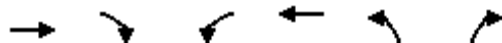
| | | | |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay | 17.6 | HCM 2000 Level of Service | B |
| HCM 2000 Volume to Capacity ratio | 0.74 | | |
| Actuated Cycle Length (s) | 55.7 | Sum of lost time (s) | 15.0 |
| Intersection Capacity Utilization | 83.9% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

4: Somerville Ave

7/1/2014



| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|------------------------|------|------|------|------|------|------|
| Lane Configurations | ↑ | | | ↑ | | ↑ |
| Volume (veh/h) | 518 | 2 | 0 | 627 | 0 | 3 |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 563 | 2 | 0 | 682 | 0 | 3 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | None | | |
| Median storage (veh) | | | | | | |
| Upstream signal (ft) | 319 | | | | | |
| pX, platoon unblocked | | | 0.75 | | 0.75 | 0.75 |
| vC, conflicting volume | | | 565 | | 1246 | 564 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 256 | | 1161 | 254 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 100 | | 100 | 99 |
| cM capacity (veh/h) | | | 984 | | 162 | 589 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|------------------------|------|------|------|
| Volume Total | 565 | 682 | 3 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 2 | 0 | 3 |
| cSH | 1700 | 1700 | 589 |
| Volume to Capacity | 0.33 | 0.40 | 0.01 |
| Queue Length 95th (ft) | 0 | 0 | 0 |
| Control Delay (s) | 0.0 | 0.0 | 11.1 |
| Lane LOS | | | B |
| Approach Delay (s) | 0.0 | 0.0 | 11.1 |
| Approach LOS | | | B |

| Intersection Summary | | | |
|-----------------------------------|--|-------|------------------------|
| Average Delay | | 0.0 | |
| Intersection Capacity Utilization | | 37.4% | ICU Level of Service A |
| Analysis Period (min) | | 15 | |