

**TRAFFIC
SOLUTIONS, LLC**

Traffic Impact & Access Study

**100 Temple Street
Somerville, Massachusetts**

Prepared for:

**Somerville Community
Corporation
337 Somerville Avenue, 2nd Floor
Somerville, Massachusetts 02143**

Prepared by:

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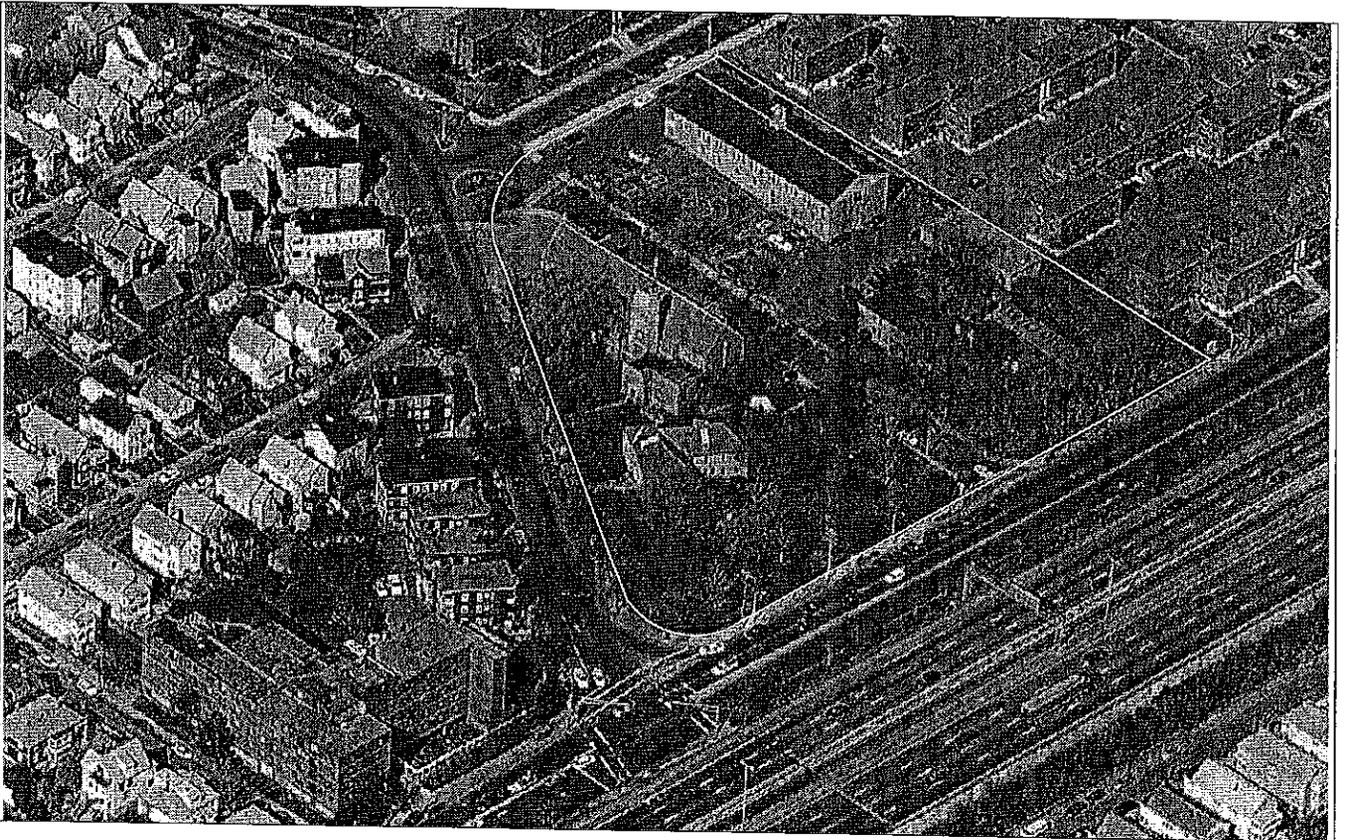
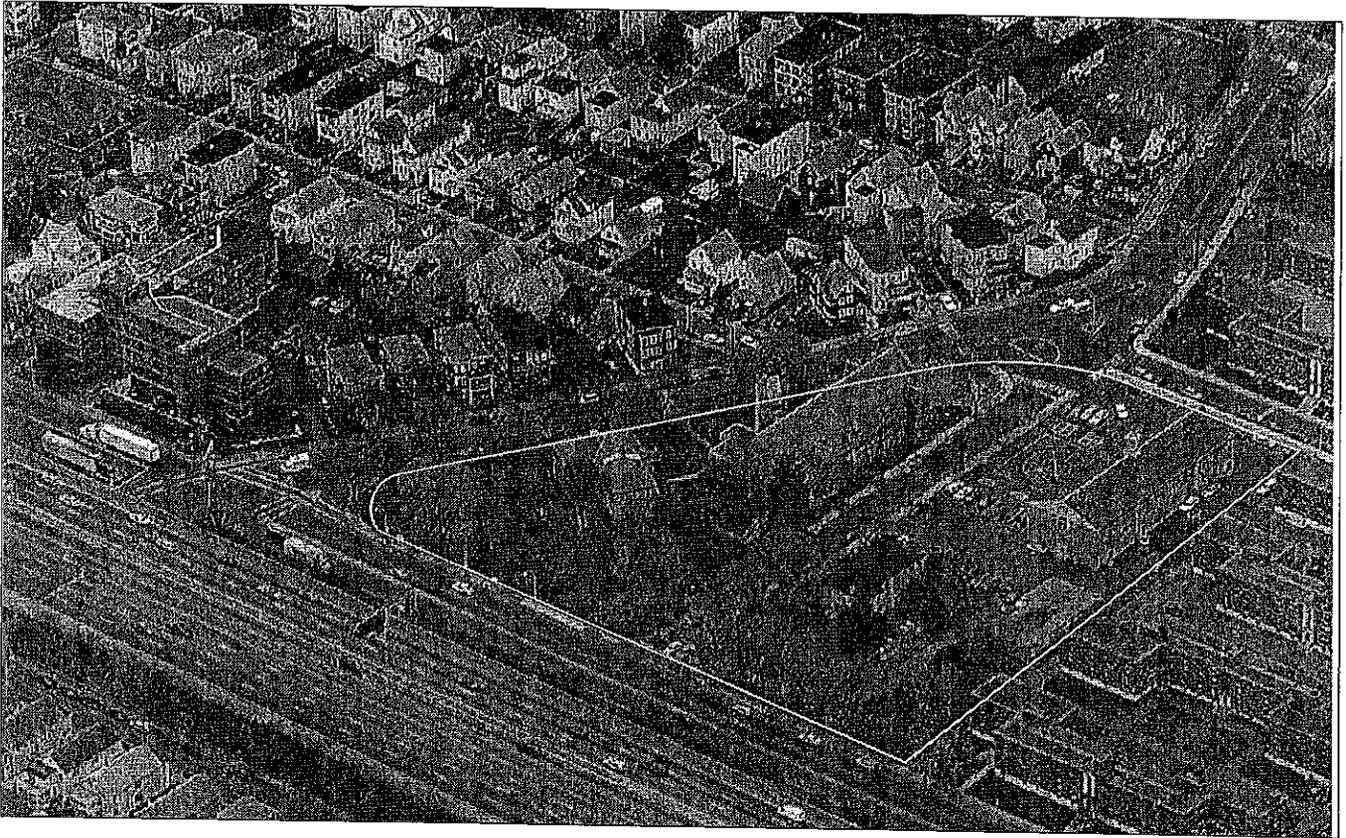
October 10, 2006

Executive Summary

The Somerville Community Corporation (SCC) proposes to construct a mixed-use project on land once used for Saint Polycarp's parish in Somerville, Massachusetts. SCC anticipates the reconstruction of two parcels, 100 Temple Street and 8 Butler Drive. 100 Temple Street is approximately 1.46 Acres and 8 Butler Drive is approximately 1.7 acres. Both Figure 1 and Figure 2 provide an overview of the location of the Site. The Somerville Community Corporation is currently plans to construct a mixed use building on the 100 Temple Street parcel. This mixed use building will house 24 rental units and will have 2,00SF of retail space on the first floor as well.

The proposed development will also include 60 mixed income condominiums on the 80 Butler Drive parcel. The existing Just-a-Start use (located on 8 Butler Drive) will remain on-site but will move to the existing rectory building. In addition, the existing church (located on 100 Temple Street) is expected to remain a church and be owned and occupied by a third party.

The information provided in this report confirms that the proposed project will not have adverse effects to the surrounding street network. In fact, the report estimates that the project's effects will be negligible. Even using a very conservative approach, the study results suggest that the project's impacts will be minimal.



Temple Street

Temple Street is a two-lane urban collector roadway. Temple Street extends from Broadway to Mystic Avenue. The roadway is approximately 43 feet wide (curb to curb), has a seven (7) foot wide sidewalk on the west side, and an eleven (11) foot wide sidewalk on the east side. The land uses abutting the roadway, in the vicinity of the Site, are primarily residential though a few commercial uses exist on the street as well.

Broadway

Broadway is a four-lane divided urban minor arterial roadway. Broadway extends from the Arlington Town line to the Boston (Charlestown) City line. The roadway is approximately 80 feet wide (curb to curb) and has a seven (7) foot wide sidewalk on both sides. The land uses abutting the roadway are both commercial and residential.

Butler Drive

Butler Drive is a two-lane local roadway. Butler Drive extends from Temple Street to Mystic Avenue but there is no access to Mystic Avenue resulting in a "dead end". The roadway is approximately 24 feet wide (curb to curb), has a five (5) foot wide sidewalk on both sides. The land uses abutting the roadway are a church (and related uses), the Just-A-Start program, and formerly a school.

Memorial Road

Memorial Road is a two-lane privately owned local roadway. Memorial Road extends from Temple Street to the Somerville Housing Authority internal street network. The roadway is approximately 24 feet wide (curb to curb) and has a five (5) foot wide sidewalk both sides. The land use abutting the roadway is residential with one exception, an existing non-residential use located on the Site.

Temple Road

Temple Road is a two-lane local roadway. Temple Road extends from Mystic Avenue to Shore Drive. The roadway is approximately 35 feet wide (curb to curb), has a six and a half (6.5) foot wide sidewalk on both sides. The land use abutting the roadway is residential.

1.3 Intersections

Mystic Avenue and Temple Street/Temple Road

The intersection of Mystic Avenue and Temple Street/Temple Road is a State owned signalized, four legged intersection. Mystic Avenue, the east/west roadway, has two approach lanes on the west side, one through lane (12 feet) and one shared through/right turn lane (12 feet). On the east side, there are three lanes, one left (10 feet), one through (11 feet), and one shared right/through lane (12 feet). Temple Street has two approach lanes on the south side, one left lane (10.5 feet) and one through/right lane (11.5 feet). Temple Road has one approach lane on the north (18 feet).

Broadway and Temple Street

The Intersection of Broadway and Temple Street is a City owned signalized, three legged intersection. Broadway, the east/west roadway, has three approach lanes on the west side (eastbound approach), one left turn lane (11 feet), one through lane (11 feet), and another through lane (12 feet). On the east side (westbound approach), there are four lanes, one left (11 feet), two through lanes (11 feet), and one right lane (11 feet). It should be noted that the left turn accommodates vehicles turning onto Marshall Street (just prior to the intersection). Temple Street has two approach lanes on the north side, one left lane (11 feet) and one right lane (11 feet).

The intersection control is semi-actuated – Temple Street traffic is detected by inductive loops. It is a four phase signal with a 100 second cycle length. The intersection is time-based coordinated with the intersection of Broadway at School Street.

Concrete sidewalks are provided on each side of each approach roadway. Handicapped access ramps are provided where appropriate. Crosswalks exist on the east side and the north side of the intersection.

The pavement on all approaches is in fair condition. The pavement markings are in good condition.

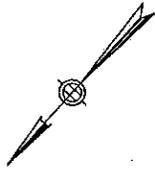
Broadway and School Street

The Intersection of Broadway and School Street is a City owned signalized, three legged intersection. Broadway, the east/west roadway, has two approach lanes on the west side (eastbound approach), one through lane (11 feet), and another through lane (12 feet). On the east side (westbound approach), there are three lanes, one left (11 feet), one through lane (11 feet), and another through lane (11 feet). School Street has one approach lanes on the south side, one shared left/right lane (12 feet).

The intersection control is semi-actuated – School Street traffic is detected by inductive loops. It is a three phase signal with a 100 second cycle length except when the exclusive pedestrian phase is activated. This traffic signal is time-based coordinated with the intersection of Broadway at Temple Street.

Concrete sidewalks are provided on each side of each approach roadway. Handicapped access ramps are provided where appropriate. Crosswalks exist on the west side and the south side of the intersection.

The pavement on all approaches is in good condition. The pavement markings are in good condition.

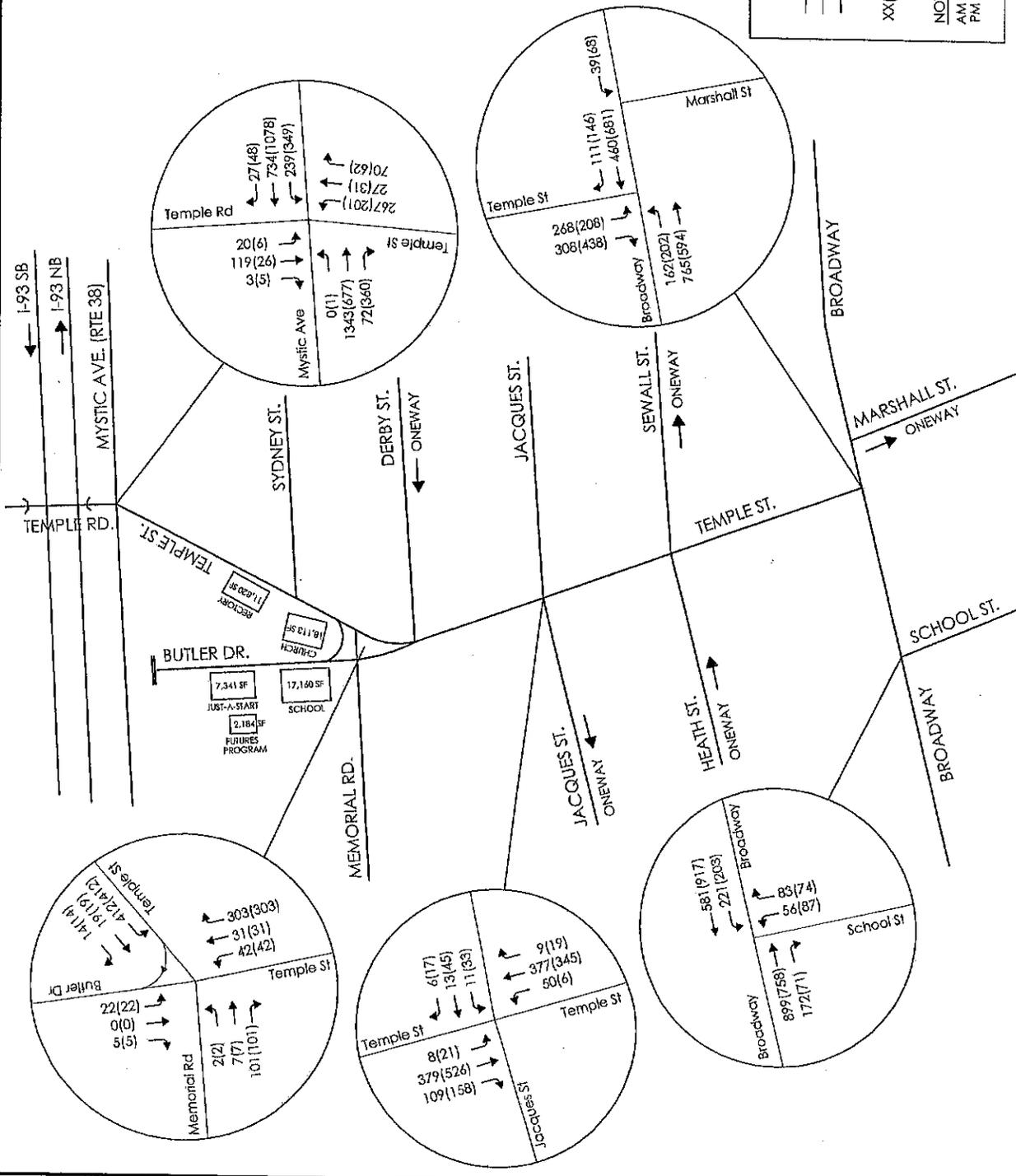


LEGEND

LEFT TURN MOVEMENT
 THROUGH MOVEMENT
 RIGHT TURN MOVEMENT

XX(XX)
 AM(PM) PEAK HOUR TRAFFIC VOLUMES

NOTE:
 AM PEAK HOUR = 7:30 AM - 8:30 AM
 PM PEAK HOUR = 4:45 PM - 5:45 PM



<p>TRAFFIC SOLUTIONS, LLC Planning, Permitting, & Design TWO CENTER PLAZA, SUITE 200 BOSTON, MASSACHUSETTS 02108</p>	<p>TITLE: EXISTING 2006 (UNADJUSTED) PEAK HOUR TURNING MOVEMENT COUNTS</p>	<p>PROJECT: 100 TEMPLE STREET SOMERVILLE, MASSACHUSETTS</p>	<p>PREPARED FOR: SOMERVILLE COMMUNITY CORPORATION (SCC)</p>
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FIGURE 3

a neighborhood type use and it doesn't draw regional type trips which require a vehicle. Therefore, the actual vehicle trips associated with this type of use is actually fewer than we had predicted using standard ITE trip generation rates (44 trips versus 69 trips). But for conservative purposes, we have used the 69 trips in our analyses.

Table 2 - Convenience Store Empirical Data

	Vehicle Trip	Walking Trip	Bicycle Trip	Other Trip	Total Trips
4:45-5:00	22	8	0	0	30
5:00-5:15	6	2	0	0	8
5:15-5:30	6	10	4	0	20
5:30-5:45	10	16	0	0	26
Peak Hour Total	44	36	4	0	84
<i>Percent of Total</i>	52%	43%	5%	0%	100%

In addition, it should be noted that the estimated number of trips for the Just-A-Start program appears to be unusually high for the evening peak hour. Since there is no use provided in the ITE trip generation manual for a Just-A-Start type use, a housing use (LUC 220 Apartment) was used to estimate the number of trips associated with this use. Only one additional unit is proposed but the ITE trip generation estimates for LUC 220 suggest 18 new trips in the evening peak hour. Based upon engineering experience, this estimate appears to be highly unlikely. However, no adjustments were made to the estimated number of trips associated with this use resulting in a more conservative approach.

Mode Split

It is standard practice to consider other modes of travel when considering site trips. Based on U.S. census data, 30% of persons currently living in the vicinity of the Site use modes of travel other than passenger cars (i.e. bus, subway, walk, bicycle, taxi, and work from home) to travel to work.

Although it is an acceptable practice to reduce site trips due to mode split, no mode split reductions were taken per direction from the City Traffic Engineer. This results in a more conservative analysis of the intersections within the study area.

Table 3 - U.S. Census Data - Journey to Work Mode Splits

	Number	Percentage of Total
Drive Alone	1747	50.9%
Drive (2 persons)	531	15.5%
Drive (3 persons)	85	2.5%
Drive (4 or more persons)	44	1.3%
Bus	371	10.8%
Subway	337	9.8%
Walk	202	5.9%
Work From Home	60	1.7%
Bicycle	28	0.8%
Taxi	10	0.3%
Other	14	0.4%
Ferry	0	0.0%
Total	3429	100.0%
Summary	Number	Percentage of Total
Drive	2407	70%
Other Mode of Transportation	1022	30%
Total	3429	100.0%

Net Trip Generation

The net trip generation is computed by subtracting credits from the gross trip generation for the project. In this case, a conservative approach was taken; only internally mixed-use credits were applied. Existing use trip credits, pass-by credits, and mode split credits were not applied. Table 4 - Net Trip Generation summarizes the results of this computation. The table clearly indicates that the amount of trips estimated in the morning peak hour remains unchanged and the amount of trips estimated in the evening peak hour have only been reduced by 16 trips.

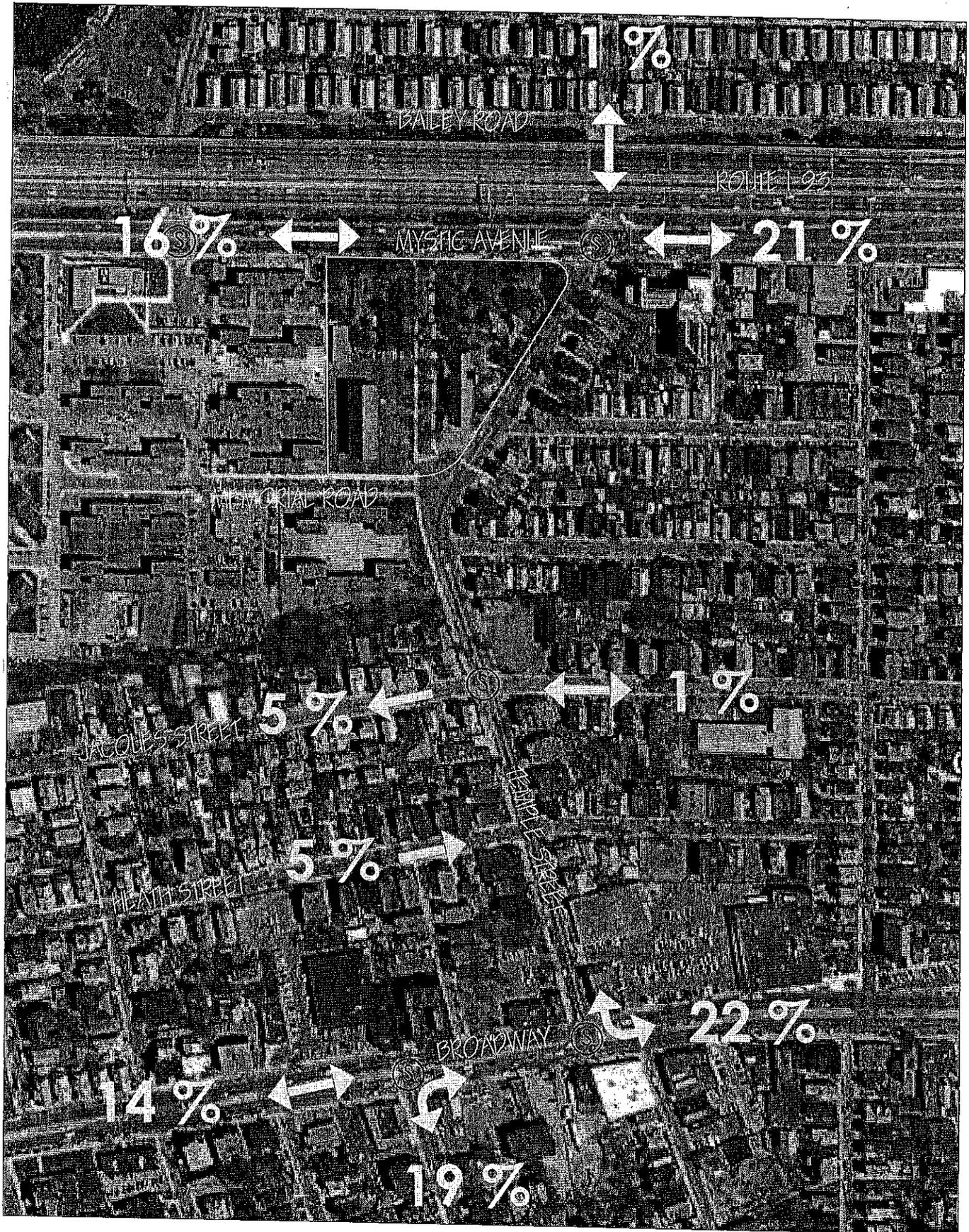


FIGURE 4 - TRIP DISTRIBUTION

2.5 Trip Assignment

Trip assignment is accomplished by combining the total trip generation, (with credits taken for each of the allowed reductions), with the trip distribution patterns; in essence the trip assignment is a distribution of the project trips. This step assigns each of the project trips to a specific turning movement for each of the study peak hours. The site generated trips assigned to study area intersections in 2011 for build conditions are shown in Figure 6 – Site Generated Trips.

After assigning the net site trips to the network one can clearly see that the site trips represent a small fraction of the traffic that is present at each intersection within the study area.

Table 5 – Percent Traffic Increase at Each Intersection

Signalized Intersections	AM Peak Hour	PM Peak Hour
Mystic Ave at Temple St	1.3%	1.5%
Broadway at Temple St	3.0%	3.2%
Broadway at School St	1.9%	2.1%
Jacques St at Temple St	7.0%	6.6%
Unsignalized Intersections	AM Peak Hour	PM Peak Hour
Temple St at Memorial Rd	9.5%	8.9%
Mystic Ave at Site Drive	1.3%	1.5%

2.6 Capacity Analysis

Intersection capacity is defined by the geometry of the approaches and the control characteristics. Intersections can be either signalized, or unsignalized. Intersections can only process so many vehicles in a given period of time, commonly referred to as throughput. The approaching volume is typically compared to the intersection's capacity, resulting in a flow that can be processed in a given period.

Level of service (LOS) is a term used to describe the quality of the traffic flow on a roadway facility at a particular point in time. It is an aggregate measure of travel delay, travel speed, congestion, driver discomfort, convenience, and safety based on a comparison of roadway system capacity to roadway system travel demand. Operating levels of service are reported on a scale of A to F, with A representing the best operating conditions and F representing the worst operating conditions (Table 6). Depending upon the type of facility being analyzed, LOS A represents free-flow or uncongested conditions with little or no delay to motorists, while LOS F represents a forced-flow condition with long delays and traffic demands possibly exceeding roadway capacity.

LOS D is often cited as the design standard for suburban roadways. However, when trying to establish minimum "acceptable" LOS thresholds for existing roadways a number of factors must be considered. These include existing operating levels of service on other similar and nearby facilities, the duration of the peak traffic periods, the feasibility and cost of providing traffic mitigation, and applicable state and local regulations.

Table 6 - Level of Service Criteria -Intersections

Level of Service	Average Delay per Vehicle (Seconds)	
	Signalized Intersections	Unsignalized Intersections
A	≤10.0	≤10.0
B	10.1 to 20.0	10.1 to 15.0
C	20.1 to 35.0	15.1 to 25.0
D	35.1 to 55.0	25.1 to 35.0
E	55.1 to 80.0	35.1 to 50.0
F	>80.0	>50.0

Source: *Highway Capacity Manual*, Special Report 209, Fourth Edition, Transportation Research Board, National Research Council, Washington, DC, 2000.

Each year, MassHighway adds intersection crash rates to their database to establish standardized baseline rates for both signalized and unsignalized intersections throughout the Commonwealth. These official rates can be used as an effective tool to measure safety hazards at specific locations. MassHighway reported that the official crash rate for District 4 in 2004 was 0.87 per MEV for signalized intersections and 0.63 for unsignalized intersections. Crash rates at most study area intersections fall well below these values indicating that there appear to be no unusual safety problems at these locations. The only exception is Mystic Avenue at Temple Street which has a slightly higher than average crash rate for a signalized intersection.

3 Future Conditions – No Build

In accordance with the standards of the Executive Office of Environmental Affairs and the Executive Office of Transportation, a 5-year planning horizon (2011) was used to evaluate future traffic operations without the proposed project. Figure 7 - 2011 No-Build Condition – Peak Hour Traffic Volume Counts depicts the future no-build volumes graphically. The SYNCHRO output tables for all of the analyses associated with the no-build conditions have been included in the appendices of this report.

Table 9 – 2011 No-Build Conditions – LOS Summary

	AM Peak Hour		PM Peak Hour	
	Avg. Delay (Seconds)	LOS	Avg. Delay (Seconds)	LOS
Signalized Intersections				
Mystic Avenue at Temple Street	44.2	D	22.7	C
Broadway at Temple Street	21.3	C	31.2	C
Broadway at School Street	11.4	C	16.9	B
Temple Street at Jacques Street	29.6	B	12.7	B
Unsignalized Intersections				
Temple Street at Memorial Road	7.4	-	29.7	-

Note: These analyses do not utilize existing use credits for the school (an existing permitted use).

4 Future Conditions – Build

In accordance with the standards of the Executive Office of Environmental Affairs and the Executive Office of Transportation, a 5-year planning horizon (2011) was used to evaluate future traffic operations with the proposed project. Figure 8 – 2011 Build Condition – Peak Hour Traffic Volume Counts depicts the future no-build volumes graphically. The SYNCHRO output tables for all of the analyses associated with the build conditions have been included in the appendices of this report.

Table 10 - 2011 No-Build Conditions (with Mitigation) – LOS Summary

	AM Peak Hour		PM Peak Hour	
	Avg. Delay (Seconds)	LOS	Avg. Delay (Seconds)	LOS
Signalized Intersections				
Mystic Avenue at Temple Street	49.6	D	24.5	C
Broadway at Temple Street	30.6	C	31.8	C
Broadway at School Street	21.9	C	17.3	B
Temple Street at Jacques Street	11.9	B	12.7	B
Unsignalized Intersections				
Temple Street at Memorial Road	4.0	-	2.6	-
Mystic Avenue at Site Drive	0.2	-	0.2	-
Memorial Road at Site Drive	2.3	-	4.1	-

Note: These analyses do not utilize credits associated with pass-by trips for the retail use (typically 25%).

There are minimal changes in the average delay. Consequently, there are no changes in letter grade from the future no-build to the future build condition. These analyses results indicate that the project will have a negligible effect on future traffic operations.

5 Mitigation Measures – Action

The analyses results presented in Section 5 assume mitigation measures as outlined below. Mitigation includes the redesign of the intersection of Temple Street at Memorial Road and Butler Drive. The proposed improvements involve eliminating the Butler Drive connection to this intersection. Currently, the intersection is a four legged intersection. The elimination of Butler Drive results in a simplified three legged intersection. This improvement had been planned as part of the Temple Street Reconstruction Project but that project has since been delayed. It is uncertain if and when this project will move forward since the project is not programmed for any specific year on the State's Transportation Improvement Plan (TIP). Therefore, the developer has taken it upon themselves to construct these improvements prior to the Temple Street Reconstruction Project.

The proposed improvements will result in a number of benefits as outlined below. First and foremost, the redesigned intersection will better define roadway alignment and paths of travel, thereby improving safety and reducing driver confusion. Vehicles exiting Memorial Road onto Temple Street will no longer have to compete for a limited number of acceptable gaps with vehicles exiting Butler Drive when accessing Temple Street. This new configuration enables a driver exiting Memorial Road to focus their attention on the Temple Street traffic stream. After stopping at the stop sign, a driver can choose an acceptable gap. The inclusion of Butler Drive had affected the frequency of acceptable gaps available to drivers exiting Memorial Road.

Mitigation also includes re-timing of the traffic signals so that they perform at optimal levels under the build condition, as presented in this report.

6 Conclusions

The information provided in this report confirms that the proposed project will not have adverse effects to the surrounding street network. In fact, the report estimates that the project's effects will be negligible. Even though standard engineering practices permit project proponents to reduce number of single occupant vehicles to a site in order to more accurately estimate the number of vehicle trips that will be added to a street network, these practices have not been applied to this study. Although these standard credits have been discussed in this report, the City has requested that these practices not be applied to this project. If used, the results would better estimate the real implications of the project.

However, the City requested that a conservative approach be taken when estimating the number of vehicle trips to the site. Therefore, the future build analyses did not take credit for any of the above mentioned credits except for the internal mixed use credits. Even with this conservative approach, the results still suggest that the project's impacts will be negligible.

Data Acquisition, Transformation, & Analysis

50 Alden Avenue
Belchertown, MA 01007

N/S: Temple Street
E/W: Mystic Avenue
City, State: Somerville, MA
Client: TrafSol / D.Dulaski

File Name : Temple St. @ Mystic Ave. (AM)
Site Code : 00000000
Start Date : 3/7/2006
Page No : 1

Groups Printed- HVs - Busses

Start Time	Temple Street From North				Mystic Avenue From East				Temple Street From South				Mystic Avenue From West				Int. Total
	Right	Thru	Left	Other	Right	Thru	Left	Other	Right	Thru	Left	Other	Right	Thru	Left	Other	
07:00 AM	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	3
07:15 AM	0	0	0	0	1	2	0	0	0	0	0	0	0	1	0	0	4
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	4	0	0	1	0	0	0	0	2	0	0	8
08:00 AM	0	0	0	0	0	1	0	0	0	0	1	0	0	4	0	0	6
08:15 AM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
08:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Total	0	0	0	0	1	3	0	0	0	0	1	0	0	5	0	0	10
Grand Total	0	0	0	0	2	7	0	0	1	0	1	0	0	7	0	0	18
Apprch %	0	0	0	0	22.2	77.8	0	0	50	0	50	0	0	100	0	0	
Total %	0	0	0	0	11.1	38.9	0	0	5.6	0	5.6	0	0	38.9	0	0	
HVs	0	0	0	0	2	4	0	0	0	0	1	0	0	3	0	0	10
% HVs	0	0	0	0	100	57.1	0	0	0	0	100	0	0	42.9	0	0	55.6
Busses	0	0	0	0	0	3	0	0	1	0	0	0	0	4	0	0	8
% Busses	0	0	0	0	0	42.9	0	0	100	0	0	0	0	57.1	0	0	44.4

Start Time	Temple Street From North					Mystic Avenue From East					Temple Street From South					Mystic Avenue From West					Int. Total
	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total	Right	Thru	Left	Other	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	0	1	0	0	1	4
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	4	0	0	4	6
Total Volume	0	0	0	0	0	1	3	0	0	4	0	0	1	0	1	0	6	0	0	6	11
% App. Total	0	0	0	0	0	25	75	0	0		0	0	100	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.250	.375	.000	.000	.333	.000	.000	.250	.000	.250	.000	.375	.000	.000	.375	.458

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Client: TrafSol / D.Dulaski

File Name : Broadway St. @ School St. (AM)
Site Code : 00000000
Start Date : 3/7/2006
Page No : 1

Groups Printed- PCs - HVs - Buses

Start Time	None From North				Broadway Street From East				School Street From South				Broadway Street 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	0	0	99	40	1	15	0	7	3	36	214	0	0	415
07:15 AM	0	0	0	1	0	128	49	3	21	0	7	2	54	174	0	1	440
07:30 AM	0	0	0	0	0	135	71	5	25	0	13	6	51	216	0	8	530
07:45 AM	0	0	0	0	0	154	45	4	15	0	13	9	46	243	0	1	530
Total	0	0	0	1	0	516	205	13	76	0	40	20	187	847	0	10	1915
08:00 AM	0	0	0	0	0	148	58	0	25	0	16	5	37	205	0	2	496
08:15 AM	0	0	0	0	0	146	48	4	18	0	14	10	38	237	0	4	519
08:30 AM	0	0	0	0	0	107	38	2	12	0	13	6	37	211	0	5	431
08:45 AM	0	0	0	0	0	120	37	5	14	0	9	3	31	212	0	1	432
Total	0	0	0	0	0	521	181	11	69	0	52	24	143	865	0	12	1878
Grand Total	0	0	0	1	0	1037	386	24	145	0	92	44	330	1712	0	22	3793
Apprch %	0	0	0	100	0	71.7	26.7	1.7	51.6	0	32.7	15.7	16	82.9	0	1.1	
Total %	0	0	0	0	0	27.3	10.2	0.6	3.8	0	2.4	1.2	8.7	45.1	0	0.6	
PCs	0	0	0	0	0	975	380	22	142	0	92	44	327	1653	0	22	3657
% PCs	0	0	0	0	0	94	98.4	91.7	97.9	0	100	100	99.1	96.6	0	100	96.4
HVs	0	0	0	0	0	28	6	0	2	0	0	0	2	25	0	0	63
% HVs	0	0	0	0	0	2.7	1.6	0	1.4	0	0	0	0.6	1.5	0	0	1.7
Buses	0	0	0	1	0	34	0	2	1	0	0	0	1	34	0	0	73
% Buses	0	0	0	100	0	3.3	0	8.3	0.7	0	0	0	0.3	2	0	0	1.9

Start Time	None From North					Broadway Street From East					School Street From South					Broadway Street 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 07:30 AM																					
07:30 AM	0	0	0	0	0	0	135	71	5	211	25	0	13	6	44	51	216	0	8	275	530
07:45 AM	0	0	0	0	0	0	154	45	4	203	15	0	13	9	37	46	243	0	1	290	530
08:00 AM	0	0	0	0	0	0	148	58	0	206	25	0	16	5	46	37	205	0	2	244	496
08:15 AM	0	0	0	0	0	0	146	48	4	198	18	0	14	10	42	38	237	0	4	279	519
Total Volume	0	0	0	0	0	0	583	222	13	818	83	0	56	30	169	172	901	0	15	1088	2075
% App. Total	0	0	0	0	0	0	71.3	27.1	1.6		49.1	0	33.1	17.8		15.8	82.8	0	1.4		
PHF	.000	.000	.000	.000	.000	.000	.946	.782	.650	.969	.830	.000	.875	.750	.918	.843	.927	.000	.469	.938	.979

Data Acquisition, Transformation, & Analysis

50 Alden Avenue
Belchertown, MA 01007

N/S: School Street
E/W: Broadway Street
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File Name : Braodway St. @ School St. (PM)
Site Code : 66666666
Start Date : 3/7/2006
Page No : 1

Groups Printed- PCs - HVs - Busses

Start Time	None From North				Broadway Street From East				School Street From South				Broadway Street From West				Int. Total
	Rght	Thru	Left	Other	Rght	Thru	Left	Other	Rght	Thru	Left	Other	Rght	Thru	Left	Other	
04:00 PM	0	0	0	0	0	186	42	0	12	0	9	0	3	186	0	0	438
04:15 PM	0	0	0	0	0	212	65	2	22	0	18	1	17	181	0	2	520
04:30 PM	0	0	0	0	1	191	46	0	25	0	27	7	19	198	0	4	518
04:45 PM	0	0	0	0	0	219	49	6	21	0	20	5	13	182	0	4	519
Total	0	0	0	0	1	808	202	8	80	0	74	13	52	747	0	10	1995
05:00 PM	0	0	0	0	0	239	54	2	14	0	21	3	19	206	0	0	558
05:15 PM	0	0	0	0	0	210	50	2	22	0	24	6	20	169	0	10	513
05:30 PM	0	0	0	0	0	252	51	0	17	0	22	4	19	203	0	2	570
05:45 PM	0	0	0	0	1	209	60	1	14	0	18	1	19	165	0	3	491
Total	0	0	0	0	1	910	215	5	67	0	85	14	77	743	0	15	2132
Grand Total	0	0	0	0	2	1718	417	13	147	0	159	27	129	1490	0	25	4127
Apprch %	0	0	0	0	0.1	79.9	19.4	0.6	44.1	0	47.7	8.1	7.8	90.6	0	1.5	
Total %	0	0	0	0	0	41.6	10.1	0.3	3.6	0	3.9	0.7	3.1	36.1	0	0.6	
PCs	0	0	0	0	2	1689	416	13	147	0	159	27	129	1459	0	25	4066
% PCs	0	0	0	0	100	98.3	99.8	100	100	0	100	100	100	97.9	0	100	98.5
HVs	0	0	0	0	0	6	1	0	0	0	0	0	0	10	0	0	17
% HVs	0	0	0	0	0	0.3	0.2	0	0	0	0	0	0	0.7	0	0	0.4
Busses	0	0	0	0	0	23	0	0	0	0	0	0	0	21	0	0	44
% Busses	0	0	0	0	0	1.3	0	0	0	0	0	0	0	1.4	0	0	1.1

Start Time	None From North					Broadway Street From East					School Street From South					Broadway Street From West					Int. Total
	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	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	0	0	0	0	0	219	49	6	274	21	0	20	5	46	13	182	0	4	199	519
05:00 PM	0	0	0	0	0	0	239	54	2	295	14	0	21	3	38	19	206	0	0	225	558
05:15 PM	0	0	0	0	0	0	210	50	2	262	22	0	24	6	52	20	169	0	10	199	513
05:30 PM	0	0	0	0	0	0	252	51	0	303	17	0	22	4	43	19	203	0	2	224	570
Total Volume	0	0	0	0	0	0	920	204	10	1134	74	0	87	18	179	71	760	0	16	847	2160
% App. Total	0	0	0	0	0	0	81.1	18	0.9		41.3	0	48.6	10.1		8.4	89.7	0	1.9		
PHF	.000	.000	.000	.000	.000	.000	.913	.944	.417	.936	.841	.000	.906	.750	.861	.888	.922	.000	.400	.941	.947

Data Acquisition, Transformation, & Analysis

50 Alden Avenue
Belchertown, MA 01007

N/S: Temple Street
E/W: Broadway Street
City, State: Summerville, MA
Client: TrafSol / D.Dulaski

File Name : Broadway St. @ Temple St. (AM)
Site Code : 03070645
Start Date : 3/7/2006
Page No : 1

Groups Printed- PCs - HVs - Buses

Start Time	Temple Street From North				Broadway Street From East				None From South				Broadway Street From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
07:00 AM	51	0	39	12	33	85	10	1	0	0	0	3	0	174	42	0	450
07:15 AM	76	0	66	21	20	124	11	4	0	0	0	2	0	163	44	5	536
07:30 AM	77	0	63	26	31	127	19	0	0	0	0	1	0	198	49	4	595
07:45 AM	74	0	57	10	28	141	15	1	0	0	0	4	0	194	43	5	572
Total	278	0	225	69	112	477	55	6	0	0	0	10	0	729	178	14	2153
08:00 AM	81	0	75	4	29	105	2	0	0	0	0	3	0	176	42	2	519
08:15 AM	77	0	74	8	23	88	3	5	0	0	0	4	1	199	28	2	512
08:30 AM	67	0	65	8	26	88	10	3	0	0	0	5	0	206	30	2	510
08:45 AM	57	0	57	4	27	94	3	4	0	0	0	1	0	184	38	3	472
Total	282	0	271	24	105	375	18	12	0	0	0	13	1	765	138	9	2013
Grand Total	560	0	496	93	217	852	73	18	0	0	0	23	1	1494	316	23	4166
Approch %	48.7	0	43.2	8.1	18.7	73.4	6.3	1.6	0	0	0	100	0.1	81.5	17.2	1.3	
Total %	13.4	0	11.9	2.2	5.2	20.5	1.8	0.4	0	0	0	0.6	0	35.9	7.6	0.6	
PCs	553	0	493	93	216	804	71	18	0	0	0	23	1	1452	311	23	4058
% PCs	98.8	0	99.4	100	99.5	94.4	97.3	100	0	0	0	100	100	97.2	98.4	100	97.4
HVs	7	0	3	0	1	21	2	0	0	0	0	0	0	12	5	0	51
% HVs	1.2	0	0.6	0	0.5	2.5	2.7	0	0	0	0	0	0	0.8	1.6	0	1.2
Buses	0	0	0	0	0	27	0	0	0	0	0	0	0	30	0	0	57
% Buses	0	0	0	0	0	3.2	0	0	0	0	0	0	0	2	0	0	1.4

Start Time	Temple Street From North					Broadway Street From East					None From South					Broadway Street 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 07:15 AM																					
07:15 AM	76	0	66	21	163	20	124	11	4	159	0	0	0	2	2	0	163	44	5	212	536
07:30 AM	77	0	63	26	166	31	127	19	0	177	0	0	0	1	1	0	198	49	4	251	595
07:45 AM	74	0	57	10	141	28	141	15	1	185	0	0	0	4	4	0	194	43	5	242	572
08:00 AM	81	0	75	4	160	29	105	2	0	136	0	0	0	3	3	0	176	42	2	220	519
Total Volume	308	0	261	61	630	108	497	47	5	657	0	0	0	10	10	0	731	178	16	925	2222
% App. Total	48.9	0	41.4	9.7		16.4	75.6	7.2	0.8		0	0	0	100		0	79	19.2	1.7		
PHF	.951	.000	.870	.587	.949	.871	.881	.618	.313	.888	.000	.000	.000	.625	.625	.000	.923	.908	.800	.921	.934

Data Acquisition, Transformation, & Analysis

50 Alden Avenue
Belchertown, MA 01007

N/S: Temple Street
E/W: Broadway Street
City, State: Sommerville, MA
Client: TrafSol / D.Dulaski

File Name : Braodway St. @ Temple St. (PM)
Site Code : 03070652
Start Date : 3/7/2006
Page No : 1

Groups Printed- PCs - HVs - Busses

Start Time	Temple Street From North				Broadway Street From East				Temple Street From South				Broadway Street From West				Int. Total
	Rght	Thru	Left	Other	Rght	Thru	Left	Other	Rght	Thru	Left	Other	Rght	Thru	Left	Other	
04:00 PM	90	0	60	0	57	144	18	3	0	0	0	0	0	150	57	6	585
04:15 PM	121	0	58	3	35	130	13	5	0	0	0	7	0	131	42	8	553
04:30 PM	101	0	42	8	33	138	15	4	0	0	0	10	0	163	52	3	569
04:45 PM	119	0	52	2	33	151	12	8	0	0	0	2	0	156	45	6	586
Total	431	0	212	13	158	563	58	20	0	0	0	19	0	600	196	23	2293
05:00 PM	104	0	49	3	33	174	24	3	0	0	0	1	0	145	58	12	606
05:15 PM	104	0	45	11	36	179	20	5	0	0	0	4	0	147	43	2	596
05:30 PM	112	1	63	1	44	179	12	4	0	0	0	3	0	148	57	4	628
05:45 PM	101	0	54	0	37	152	8	10	0	0	0	3	0	141	43	12	561
Total	421	1	211	15	150	684	64	22	0	0	0	11	0	581	201	30	2391
Grand Total	852	1	423	28	308	1247	122	42	0	0	0	30	0	1181	397	53	4684
Apprch %	65.3	0.1	32.4	2.1	17.9	72.5	7.1	2.4	0	0	0	100	0	72.4	24.3	3.2	
Total %	18.2	0	9	0.6	6.6	26.6	2.6	0.9	0	0	0	0.6	0	25.2	8.5	1.1	
PCs	849	0	419	28	307	1222	122	42	0	0	0	30	0	1157	396	53	4625
% PCs	99.6	0	99.1	100	99.7	98	100	100	0	0	0	100	0	98	99.7	100	98.7
HVs	3	1	4	0	1	3	0	0	0	0	0	0	0	5	1	0	18
% HVs	0.4	100	0.9	0	0.3	0.2	0	0	0	0	0	0	0	0.4	0.3	0	0.4
Busses	0	0	0	0	0	22	0	0	0	0	0	0	0	19	0	0	41
% Busses	0	0	0	0	0	1.8	0	0	0	0	0	0	0	1.6	0	0	0.9

Start Time	Temple Street From North					Broadway Street From East					Temple Street From South					Broadway Street From West					Int. Total
	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	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	119	0	52	2	173	33	151	12	8	204	0	0	0	2	2	0	156	45	6	207	586
05:00 PM	104	0	49	3	156	33	174	24	3	234	0	0	0	1	1	0	145	58	12	215	606
05:15 PM	104	0	45	11	160	36	179	20	5	240	0	0	0	4	4	0	147	43	2	192	596
05:30 PM	112	1	63	1	177	44	179	12	4	239	0	0	0	3	3	0	148	57	4	209	628
Total Volume	439	1	209	17	666	146	683	68	20	917	0	0	0	10	10	0	596	203	24	823	2416
% App. Total	65.9	0.2	31.4	2.6		15.9	74.5	7.4	2.2		0	0	0	100		0	72.4	24.7	2.9		
PHF	.922	.250	.829	.386	.941	.830	.954	.708	.625	.955	.000	.000	.000	.625	.625	.000	.955	.875	.500	.957	.962

Data Acquisition, Transformation, & Analysis

50 Alden Avenue
Belchertown, MA 01007

N/S: Temple Street
E/W: Jacques Street
City, State: Summerville, MA
Client: TrafSol / D.Dulaski

File Name : Temple St. @ Jacques St. (AM)
Site Code : 03070622
Start Date : 3/7/2006
Page No : 1

Groups Printed- PCs - HVs - Buses

Start Time	Temple Street From North				Jacques Street From East				Temple Street From South				Jacques Street From West				Int. Total
	Right	Thru	Left	Peds													
07:00 AM	6	78	8	0	0	0	0	0	19	72	4	6	1	0	1	0	195
07:15 AM	1	92	4	0	0	1	0	0	25	98	2	5	3	2	3	2	238
07:30 AM	2	88	9	0	0	0	0	0	26	87	1	0	0	4	4	0	221
07:45 AM	2	117	15	0	0	0	0	0	34	81	4	1	1	2	2	0	259
Total	11	375	36	0	0	1	0	0	104	338	11	12	5	8	10	2	913
08:00 AM	1	100	19	0	0	0	0	0	34	109	2	5	0	6	2	1	279
08:15 AM	4	73	7	0	0	0	0	0	15	103	1	2	5	1	3	1	215
08:30 AM	2	76	4	0	0	0	0	0	9	88	5	4	2	4	1	3	198
08:45 AM	4	62	4	0	0	0	0	0	18	105	3	4	1	2	1	3	207
Total	11	311	34	0	0	0	0	0	76	405	11	15	8	13	7	8	899
Grand Total	22	686	70	0	0	1	0	0	180	743	22	27	13	21	17	10	1812
Apprch %	2.8	88.2	9	0	0	100	0	0	18.5	76.4	2.3	2.8	21.3	34.4	27.9	16.4	
Total %	1.2	37.9	3.9	0	0	0.1	0	0	9.9	41	1.2	1.5	0.7	1.2	0.9	0.6	
PCs	22	670	69	0	0	1	0	0	177	727	22	27	12	21	17	10	1775
% PCs	100	97.7	98.6	0	0	100	0	0	98.3	97.8	100	100	92.3	100	100	100	98
HVs	0	8	1	0	0	0	0	0	2	10	0	0	1	0	0	0	22
% HVs	0	1.2	1.4	0	0	0	0	0	1.1	1.3	0	0	7.7	0	0	0	1.2
Buses	0	8	0	0	0	0	0	0	1	6	0	0	0	0	0	0	15
% Buses	0	1.2	0	0	0	0	0	0	0.6	0.8	0	0	0	0	0	0	0.8

Start Time	Temple Street From North					Jacques Street From East					Temple Street From South					Jacques Street 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 07:15 AM																					
07:15 AM	1	92	4	0	97	0	1	0	0	1	25	98	2	5	130	3	2	3	2	10	238
07:30 AM	2	88	9	0	99	0	0	0	0	0	26	87	1	0	114	0	4	4	0	8	221
07:45 AM	2	117	15	0	134	0	0	0	0	0	34	81	4	1	120	1	2	2	0	5	259
08:00 AM	1	100	19	0	120	0	0	0	0	0	34	109	2	5	150	0	6	2	1	9	279
Total Volume	6	397	47	0	450	0	1	0	0	1	119	375	9	11	514	4	14	11	3	32	997
% App. Total	1.3	88.2	10.4	0		0	100	0	0		23.2	73	1.8	2.1		12.5	43.8	34.4	9.4		
PHF	.750	.848	.618	.000	.840	.000	.250	.000	.000	.250	.875	.860	.563	.550	.857	.333	.583	.688	.375	.800	.893

Data Acquisition, Transformation, & Analysis

50 Alden Avenue
Belchertown, MA 01007

N/S: Temple Street
E/W: Jacques Street
City, State: Somerville, MA
Client: TrafSol / D.Dulaski

File Name : Temple St. @ Jacques St. (PM)
Site Code : 03070677
Start Date : 3/7/2006
Page No : 1

Groups Printed- PCs - HVs - Busses

Start Time	Temple Street From North				Jacques Street From East				Temple Street From South				Jacques Street From West				Int. Total
	Rght	Thru	Left	Other	Rght	Thru	Left	Other	Rght	Thru	Left	Other	Rght	Thru	Left	Other	
04:00 PM	3	81	9	9	0	0	0	0	12	177	3	0	6	6	3	3	312
04:15 PM	3	94	10	6	0	1	0	0	26	200	6	0	4	9	7	2	368
04:30 PM	3	88	12	5	0	2	0	0	45	130	4	1	5	5	2	4	306
04:45 PM	8	84	14	3	0	2	0	5	35	143	3	6	8	11	5	3	330
Total	17	347	45	23	0	5	0	5	118	650	16	7	23	31	17	12	1316
05:00 PM	8	68	12	4	0	0	0	4	38	123	6	5	4	8	9	5	294
05:15 PM	3	83	9	9	0	1	0	0	42	115	6	7	2	15	10	3	305
05:30 PM	0	111	9	8	0	0	0	0	43	146	6	1	3	11	9	5	352
05:45 PM	4	92	9	4	0	1	0	2	28	146	5	1	1	10	14	2	319
Total	15	354	39	25	0	2	0	6	151	530	23	14	10	44	42	15	1270
Grand Total	32	701	84	48	0	7	0	11	269	1180	39	21	33	75	59	27	2586
Approch %	3.7	81	9.7	5.5	0	38.9	0	61.1	17.8	78.2	2.6	1.4	17	38.7	30.4	13.9	
Total %	1.2	27.1	3.2	1.9	0	0.3	0	0.4	10.4	45.6	1.5	0.8	1.3	2.9	2.3	1	
PCs	31	699	84	48	0	0	0	11	269	1180	39	21	33	65	58	27	2565
% PCs	96.9	99.7	100	100	0	0	0	100	100	100	100	100	100	86.7	98.3	100	99.2
HVVs	1	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4
% HVVs	3.1	0.3	0	0	0	0	0	0	0	0	0	0	0	0	1.7	0	0.2
Busses	0	0	0	0	0	7	0	0	0	0	0	0	0	10	0	0	17
% Busses	0	0	0	0	0	100	0	0	0	0	0	0	0	13.3	0	0	0.7

Start Time	Temple Street From North					Jacques Street From East					Temple Street From South					Jacques Street From West					Int. Total
	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	3	81	9	9	102	0	0	0	0	0	12	177	3	0	192	6	6	3	3	18	312
04:15 PM	3	94	10	6	113	0	1	0	0	1	26	200	6	0	232	4	9	7	2	22	368
04:30 PM	3	88	12	5	108	0	2	0	0	2	45	130	4	1	180	5	5	2	4	16	306
04:45 PM	8	84	14	3	109	0	2	0	5	7	35	143	3	6	187	8	11	5	3	27	330
Total Volume	17	347	45	23	432	0	5	0	5	10	118	650	16	7	791	23	31	17	12	83	1316
% App. Total	3.9	80.3	10.4	5.3		0	50	0	50		14.9	82.2	2	0.9		27.7	37.3	20.5	14.5		
PHF	.531	.923	.804	.639	.956	.000	.625	.000	.250	.357	.656	.813	.667	.292	.852	.719	.705	.607	.750	.769	.894

Data Acquisition, Transformation, & Analysis

50 Alden Avenue
Belchertown, MA 01007

N/S: Temple Street
E/W: Memorial Road
City, State: Summerville, MA
Client: TrafSol / D.Dulaski

File Name : Temple St. @ Memorial Rd. (AM)
Site Code : 03070633
Start Date : 3/7/2006
Page No : 1

Groups Printed- PCs - HVs - Buses

Start Time	Temple Street From North				None From East				Temple Street From South				Memorial Road From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
07:00 AM	13	82	0	1	0	0	0	2	0	65	11	1	16	3	0	3	197
07:15 AM	8	96	0	2	0	0	0	0	0	73	15	0	26	2	1	0	223
07:30 AM	7	94	0	0	0	0	0	0	0	74	20	0	30	1	2	0	228
07:45 AM	15	105	0	1	0	0	0	0	0	87	21	0	32	0	0	0	261
Total	43	377	0	4	0	0	0	2	0	299	67	1	104	6	3	3	909
08:00 AM	6	113	0	0	0	0	0	0	0	81	13	0	23	3	0	0	239
08:15 AM	5	101	0	0	0	0	0	0	0	62	19	0	16	3	0	0	206
08:30 AM	11	88	0	4	0	0	0	0	0	63	18	0	10	10	0	0	204
08:45 AM	3	105	0	0	0	0	0	0	0	53	11	0	12	2	0	0	186
Total	25	407	0	4	0	0	0	0	0	259	61	0	61	18	0	0	835
Grand Total	68	784	0	8	0	0	0	2	0	558	128	1	165	24	3	3	1744
Apprch %	7.9	91.2	0	0.9	0	0	0	100	0	81.2	18.6	0.1	84.6	12.3	1.5	1.5	
Total %	3.9	45	0	0.5	0	0	0	0.1	0	32	7.3	0.1	9.5	1.4	0.2	0.2	
PCs	66	773	0	8	0	0	0	2	0	552	127	1	160	24	3	3	1719
% PCs	97.1	98.6	0	100	0	0	0	100	0	98.9	99.2	100	97	100	100	100	98.6
HVs	1	8	0	0	0	0	0	0	0	5	0	0	1	0	0	0	15
% HVs	1.5	1	0	0	0	0	0	0	0	0.9	0	0	0.6	0	0	0	0.9
Buses	1	3	0	0	0	0	0	0	0	1	1	0	4	0	0	0	10
% Buses	1.5	0.4	0	0	0	0	0	0	0	0.2	0.8	0	2.4	0	0	0	0.6

Start Time	Temple Street From North					None From East					Temple Street From South					Memorial Road 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 07:15 AM																					
07:15 AM	8	96	0	2	106	0	0	0	0	0	0	73	15	0	88	26	2	1	0	29	223
07:30 AM	7	94	0	0	101	0	0	0	0	0	0	74	20	0	94	30	1	2	0	33	228
07:45 AM	15	105	0	1	121	0	0	0	0	0	0	87	21	0	108	32	0	0	0	32	261
08:00 AM	6	113	0	0	119	0	0	0	0	0	0	81	13	0	94	23	3	0	0	26	239
Total Volume	36	408	0	3	447	0	0	0	0	0	0	315	69	0	384	111	6	3	0	120	951
% App. Total	8.1	91.3	0	0.7		0	0	0	0		0	82	18	0		92.5	5	2.5	0		909
PHF	.600	.903	.000	.375	.924	.000	.000	.000	.000	.000	.000	.905	.821	.000	.889	.867	.500	.375	.000	.909	.911

Data Acquisition, Transformation, & Analysis

50 Alden Avenue
Belchertown, MA 01007

N/S: Temple Street
E/W: Memorial Street
City, State: Sommerville, MA
Client: TrafSol / D.Dulaski

File Name : Temple St. Memorial St. (PM)
Site Code : 91119111
Start Date : 3/7/2006
Page No : 1

Groups Printed- PCs - HVs - Buses

Start Time	Temple Street From North				Memorial Street From East				Temple Street From South				Memorial Street From West				Int. Total
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	
04:00 PM	6	201	0	0	6	0	8	1	0	95	0	0	17	0	1	2	337
04:15 PM	18	179	0	1	6	0	2	1	0	87	0	0	18	3	3	0	318
04:30 PM	43	153	0	0	1	0	6	0	0	95	1	0	10	0	1	0	310
04:45 PM	8	174	0	1	6	0	5	1	0	80	0	3	5	0	4	0	287
Total	75	707	0	2	19	0	21	3	0	357	1	3	50	3	9	2	1252
05:00 PM	3	181	0	0	7	0	7	0	0	89	0	0	7	0	0	1	295
05:15 PM	8	217	0	0	5	0	3	0	0	95	0	1	4	0	1	0	334
05:30 PM	10	188	0	0	4	0	4	1	0	83	0	1	15	1	0	0	307
Grand Total	96	1293	0	2	35	0	35	4	0	624	1	5	76	4	10	3	2188
Apprch %	6.9	93	0	0.1	47.3	0	47.3	5.4	0	99	0.2	0.8	81.7	4.3	10.8	3.2	
Total %	4.4	59.1	0	0.1	1.6	0	1.6	0.2	0	28.5	0	0.2	3.5	0.2	0.5	0.1	
PCs	96	1289	0	2	35	0	35	4	0	623	1	5	76	4	10	3	2183
% PCs	100	99.7	0	100	100	0	100	100	0	99.8	100	100	100	100	100	100	99.8
HVs	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
% HVs	0	0.2	0	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0.1
Buses	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
% Buses	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1

Start Time	Temple Street From North					Memorial Street From East					Temple Street From South					Memorial Street 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 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	6	201	0	0	207	6	0	8	1	15	0	95	0	0	95	17	0	1	2	20	337
04:15 PM	18	179	0	1	198	6	0	2	1	9	0	87	0	0	87	18	3	3	0	24	318
04:30 PM	43	153	0	0	196	1	0	6	0	7	0	95	1	0	96	10	0	1	0	11	310
04:45 PM	8	174	0	1	183	6	0	5	1	12	0	80	0	3	83	5	0	4	0	9	287
Total Volume	75	707	0	2	784	19	0	21	3	43	0	357	1	3	361	50	3	9	2	64	1252
% App. Total	9.6	90.2	0	0.3	44.2	0	48.8	7			0	98.9	0.3	0.8	78.1	4.7	14.1	3.1			
PHF	.436	.879	.000	.500	.947	.792	.000	.656	.750	.717	.000	.939	.250	.250	.940	.694	.250	.563	.250	.667	.929

Data Acquisition, Transformation, & Analysis

50 Alden Avenue
Belchertown, MA 01007

N/S: Temple Street
E/W: Mystic Avenue
City, State: Sommerville, MA
Client: TrafSol / D.Dulaski

File Name : Temple St. @ Mystic
Site Code : 00000000
Start Date : 3/7/2006
Page No : 1

Groups Printed- PCs - HVs - Busses

Start Time	Temple Street From North				Mystic Avenue From East				Temple Street From South				Mystic Avenue From West				Int. Total
	Rght	Thru	Left	Other	Rght	Thru	Left	Other	Rght	Thru	Left	Other	Rght	Thru	Left	Other	
07:00 AM	1	8	3	0	7	145	49	0	13	4	62	0	25	333	1	0	651
07:15 AM	1	29	2	0	5	158	53	1	16	2	59	0	22	321	0	0	669
07:30 AM	1	27	5	0	7	192	62	0	24	3	70	0	21	342	0	0	754
07:45 AM	0	27	6	0	5	201	64	0	18	8	71	2	16	364	0	0	782
Total	3	91	16	0	24	696	228	1	71	17	262	2	84	1360	1	0	2856
08:00 AM	1	33	7	0	9	155	59	0	15	7	53	0	20	340	0	0	699
08:15 AM	1	32	2	0	6	188	55	0	13	9	74	0	15	301	0	0	696
08:30 AM	2	17	1	0	8	210	56	0	12	3	47	0	25	386	1	0	768
08:45 AM	0	17	0	0	6	176	49	0	7	5	48	0	18	239	0	0	565
Total	4	99	10	0	29	729	219	0	47	24	222	0	78	1266	1	0	2728
Grand Total	7	190	26	0	53	1425	447	1	118	41	484	2	162	2626	2	0	5584
Approch %	3.1	85.2	11.7	0	2.8	74	23.2	0.1	18.3	6.4	75	0.3	5.8	94.1	0.1	0	
Total %	0.1	3.4	0.5	0	0.9	25.5	8	0	2.1	0.7	8.7	0	2.9	47	0	0	
PCs	7	190	26	0	43	1298	447	1	116	41	479	2	162	2491	2	0	5305
% PCs	100	100	100	0	81.1	91.1	100	100	98.3	100	99	100	100	94.9	100	0	95
HVs	0	0	0	0	10	118	0	0	1	0	5	0	0	128	0	0	262
% HVs	0	0	0	0	18.9	8.3	0	0	0.8	0	1	0	0	4.9	0	0	4.7
Busses	0	0	0	0	0	9	0	0	1	0	0	0	0	7	0	0	17
% Busses	0	0	0	0	0	0.6	0	0	0.8	0	0	0	0	0.3	0	0	0.3

Start Time	Temple Street From North					Mystic Avenue From East					Temple Street From South					Mystic Avenue From West					Int. Total
	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	App. Total	Rght	Thru	Left	Other	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	27	6	0	33	5	201	64	0	270	18	8	71	2	99	16	364	0	0	380	782
08:00 AM	1	33	7	0	41	9	155	59	0	223	15	7	53	0	75	20	340	0	0	360	699
08:15 AM	1	32	2	0	35	6	188	55	0	249	13	9	74	0	96	15	301	0	0	316	696
08:30 AM	2	17	1	0	20	8	210	56	0	274	12	3	47	0	62	25	386	1	0	412	768
Total Volume	4	109	16	0	129	28	754	234	0	1016	58	27	245	2	332	76	1391	1	0	1468	2945
% App. Total	3.1	84.5	12.4	0		2.8	74.2	23	0		17.5	8.1	73.8	0.6		5.2	94.8	0.1	0		
PHF	.500	.826	.571	.000	.787	.778	.898	.914	.000	.927	.806	.750	.828	.250	.838	.760	.901	.250	.000	.891	.941

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : Somerville

COUNT DATE :

DISTRICT : _____

UNSIGNALIZED :

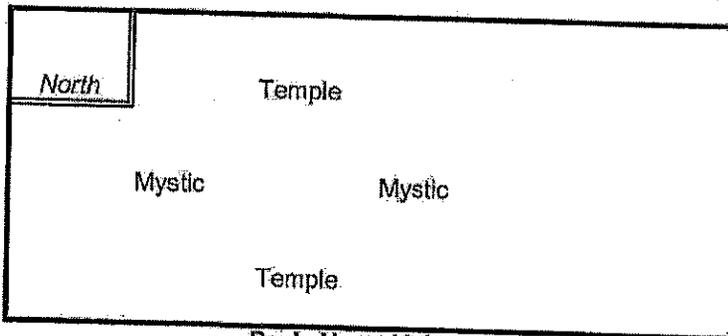
SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Mystic Street

MINOR STREET(S) : Temple Street

INTERSECTION
DIAGRAM
(Label Approaches)



Peak Hour Volumes

APPROACH: DIRECTION :	1	2	3	4	5	Total
VOLUMES (AM/PM):	From North	From South	From East	From West		Entering
	142	365	1,003	1,419		2,929

"K" FACTOR : APPROACH ADT : ADT = TOTAL VOL/"K" FACT.

TOTAL # OF CRASHES : # OF YEARS : AVERAGE # OF CRASHES (A) :

CRASH RATE CALCULATION : RATE = $\frac{(A * 1,000,000)}{(ADT * 365)}$

Comments : AM Peak Hour
Project Title & Date:

Masshighway

CRASH RATE WORKSHEET

CITY/TOWN : Somerville

COUNT DATE :

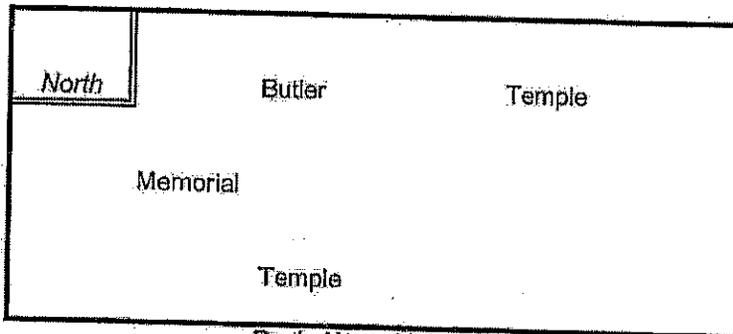
DISTRICT : _____ UNSIGNALIZED : SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Temple Street

MINOR STREET(S) : Memorial Road, Butler Drive

INTERSECTION
DIAGRAM
(Label Approaches)



Peak Hour Volumes

	1	2	3	4	5	Total
DIRECTION :	From North	From NE	From South	From West		Entering
VOLUMES (AM/PM) :	27	448	377	110		960

"K" FACTOR : APPROACH ADT : ADT = TOTAL VOL/"K" FACT.

TOTAL # OF CRASHES : # OF YEARS : AVERAGE # OF CRASHES (A) :

CRASH RATE CALCULATION : RATE = $\frac{(A * 1,000,000)}{(ADT * 365)}$

Comments : AM Peak Hour
Project Title & Date:

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : Somerville

COUNT DATE :

DISTRICT : _____

UNSIGNALIZED :

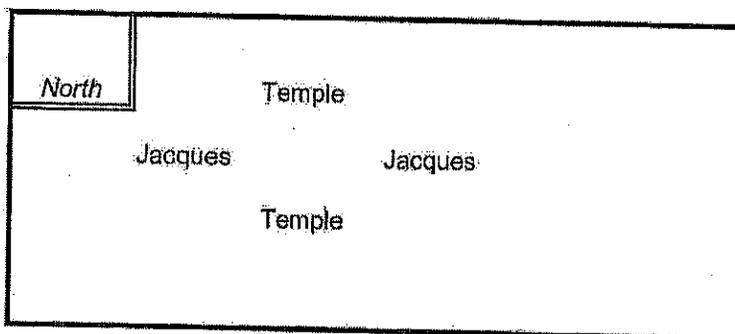
SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Temple Street

MINOR STREET(S) : Jacques Street

INTERSECTION
DIAGRAM
(Label Approaches)



Peak Hour Volumes

APPROACH :	1	2	3	4	5	Total
DIRECTION :	From North	From South	From West			Entering
VOLUMES (AM/PM) :	437	497	30			964

"K" FACTOR : APPROACH ADT : ADT = TOTAL VOL/"K" FACT.

TOTAL # OF CRASHES : # OF YEARS : AVERAGE # OF CRASHES (A) :

CRASH RATE CALCULATION : RATE = $\frac{(A * 1,000,000)}{(ADT * 365)}$

Comments : AM Peak Hour
Project Title & Date:

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : Somerville

COUNT DATE :

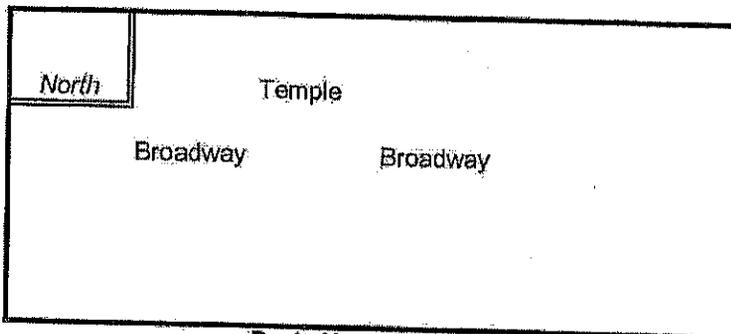
DISTRICT : _____ UNSIGNALIZED : SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Broadway Street

MINOR STREET(S) : Temple Street

INTERSECTION
DIAGRAM
(Label Approaches)



Peak Hour Volumes

	1	2	3	4	5	Total
APPROACH : DIRECTION :	From North	From East	From West			Entering
VOLUMES (AM/PM) :	578	611	929			2,118

"K" FACTOR : APPROACH ADT : ADT = TOTAL VOL/"K" FACT.

TOTAL # OF CRASHES : # OF YEARS : AVERAGE # OF CRASHES (A) :

CRASH RATE CALCULATION : RATE = $(A * 1,000,000) / (ADT * 365)$

Comments : AM Peak Hour
Project Title & Date:

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : Somerville

COUNT DATE :

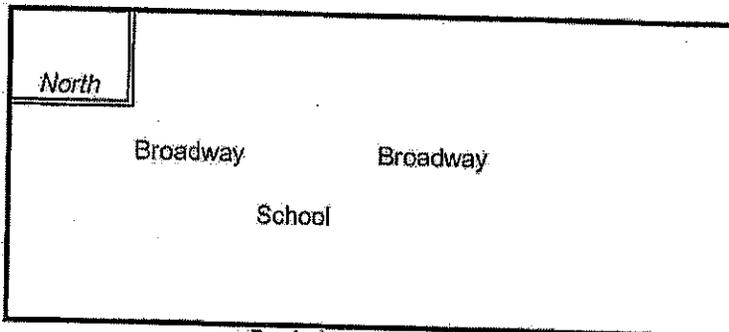
DISTRICT : _____ UNSIGNALIZED : SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Broadway Street

MINOR STREET(S) : School Street

INTERSECTION
DIAGRAM
(Label Approaches)



Peak Hour Volumes						
	1	2	3	4	5	Total
APPROACH: DIRECTION: VOLUMES (AM/PM):	From South	From East	From West			Entering
	83	805	1,073			1,961

"K" FACTOR : APPROACH ADT : ADT = TOTAL VOL/"K" FACT.

TOTAL # OF CRASHES : # OF YEARS : AVERAGE # OF CRASHES (A) :

CRASH RATE CALCULATION : RATE = $\frac{(A * 1,000,000)}{(ADT * 365)}$

Comments : AM Peak Hour
Project Title & Date:

HCM Unsignalized Intersection Capacity Analysis

1: Memorial Road & Temple Street

6/28/2006

Movement	EBL2	EBL	EBR	NBL	NET	NBR	SBL	SBT	SBR	SWU	SWL	SWR
Lane Configurations		T			+			+			T	
Sign Control		Stop			Free			Free			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	2	7	103	43	35	311	435	22	14	22	2	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	8	112	47	38	338	473	24	15	0	2	5
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None									None	
Median storage (veh)												
Upstream signal (ft)					730							
pX, platoon unblocked	0.90	0.90					0.90			0.00	0.90	0.90
vC, conflicting volume	1280	1447	32	39			376			0	1393	1285
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1310	1494	32	39			310			0	1435	1316
tC, single (s)	7.1	6.5	6.2	4.1			4.1			0.0	7.1	6.5
tC, 2 stage (s)												
tE (s)	3.5	4.0	3.3	2.2			2.2			0.0	3.5	4.0
p0 queue free %	97	88	89	97			58			0	96	93
cM capacity (veh/h)	77	63	1042	1571			1130			0	54	80
Direction, Lane #	EB 1	NB 1	SB 1	SW 1								
Volume Total	122	423	512	8								
Volume Left	2	47	473	2								
Volume Right	112	338	15	0								
cSH	474	1571	1130	71								
Volume to Capacity	0.26	0.03	0.42	0.11								
Queue Length 95th (ft)	25	2	53	9								
Control Delay (s)	15.2	1.1	10.0	62.0								
Lane LOS	C	A	A	F								
Approach Delay (s)	15.2	1.1	10.0	62.0								
Approach LOS	C			F								
Intersection Summary												
Average Delay			7.4									
Intersection Capacity Utilization			73.0%									
Analysis Period (min)			15									
ICU Level of Service										D		

HCM Signalized Intersection Capacity Analysis
 4: Mystic Avenue & Temple Street

6/28/2006

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		←		←	←		←	←			←	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor		0.95		1.00	0.95		1.00	1.00			1.00	
Frt		0.99		1.00	0.99		1.00	0.89			1.00	
Flt Protected		1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)		3512		1770	3520		1770	1661			1845	
Flt Permitted		1.00		0.95	1.00		0.60	1.00			0.96	
Satd. Flow (perm)		3512		1770	3520		1113	1661			1774	
Volume (vph)	0	1377	74	246	753	28	275	28	72	20	122	3
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1497	80	267	818	30	299	30	78	22	133	3
RTOR Reduction (vph)	0	5	0	0	3	0	0	58	0	0	1	0
Lane Group Flow (vph)	0	1572	0	267	845	0	299	50	0	0	157	0
Turn Type		Perm		Prot			Perm			custom		
Protected Phases		6		5	2		4		4		8	8
Permitted Phases		6										
Actuated Green, G (s)		34.0		11.0	50.0		20.0	20.0			20.0	
Effective Green, g (s)		35.0		12.0	51.0		21.0	21.0			21.0	
Actuated g/C Ratio		0.44		0.15	0.64		0.26	0.26			0.26	
Clearance Time (s)		5.0		5.0	5.0		5.0	5.0			5.0	
Vehicle Extension (s)		4.0		4.0	4.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		1537		266	2244		292	436			466	
v/s Ratio Prot		c0.45		c0.15	0.24			0.03				
v/s Ratio Perm							c0.27				0.09	
v/c Ratio		1.02		1.00	0.38		1.02	0.12			0.34	
Uniform Delay, d1		22.5		34.0	6.9		29.5	22.4			23.9	
Progression Factor		1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2		28.9		56.1	0.1		59.0	0.1			0.4	
Delay (s)		51.4		90.1	7.1		88.5	22.6			24.3	
Level of Service		D		F	A		F	C			C	
Approach Delay (s)		51.4			27.0			71.0			24.3	
Approach LOS		D			C			E			C	
Intersection Summary												
HCM Average Control Delay			44.2			HCM Level of Service					D	
HCM Volume to Capacity ratio			1.02									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			98.4%			ICU Level of Service					F	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
5: Broadway & Temple Street

6/28/2006

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗	↗				↖		↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0				4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00				1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00	0.85				1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00				0.95		1.00
Satd. Flow (prot)	1770	3539		1770	3539	1583				1770		1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00				0.95		1.00
Satd. Flow (perm)	1770	3539		1770	3539	1583				1770		1583
Volume (vph)	167	784	0	40	471	114	0	0	0	276	0	317
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	182	852	0	43	512	124	0	0	0	300	0	345
RTOR Reduction (vph)	0	0	0	0	0	102	0	0	0	0	0	247
Lane Group Flow (vph)	182	852	0	43	512	22	0	0	0	300	0	98
Turn Type	Prot			Prot		custom				custom		custom
Protected Phases	7	10 11		3	14 15	15						
Permitted Phases										6		6
Actuated Green, G (s)	20.0	43.0		20.0	42.0	18.0				29.0		29.0
Effective Green, g (s)	21.0	43.0		21.0	43.0	19.0				30.0		30.0
Actuated g/C Ratio	0.20	0.41		0.20	0.41	0.18				0.28		0.28
Clearance Time (s)	5.0			5.0		5.0				5.0		5.0
Lane Grp Cap (vph)	351	1436		351	1436	284				501		448
v/s Ratio Prot	c0.10	c0.24		0.02	0.14	0.01						
v/s Ratio Perm										c0.17		0.06
v/c Ratio	0.52	0.59		0.12	0.36	0.08				0.60		0.22
Uniform Delay, d1	38.0	24.7		34.9	21.9	36.2				32.8		29.0
Progression Factor	1.00	1.00		1.00	1.00	1.00				1.00		1.00
Incremental Delay, d2	5.4	1.8		0.7	0.7	0.5				5.2		1.1
Delay (s)	43.4	26.5		35.6	22.6	36.7				38.0		30.2
Level of Service	D	C		D	C	D				D		C
Approach Delay (s)		29.4			26.0		0.0				33.8	
Approach LOS		C			C		A				C	
Intersection Summary												
HCM Average Control Delay			29.6			HCM Level of Service	C					
HCM Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			106.0			Sum of lost time (s)	12.0					
Intersection Capacity Utilization			50.3%			ICU Level of Service	A					
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
8: Broadway & School Street

6/28/2006



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑↑	↑↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frt	0.98		1.00	1.00	0.92	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	3454		1770	3539	1679	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	3454		1770	3539	1679	
Volume (vph)	923	176	227	597	57	85
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1003	191	247	649	62	92
RTOR Reduction (vph)	24	0	0	0	70	0
Lane Group Flow (vph)	1170	0	247	649	84	0
Turn Type			Prot			
Protected Phases	4		3	8	2	
Permitted Phases						
Actuated Green, G (s)	26.0		12.0	42.0	16.0	
Effective Green, g (s)	26.0		12.0	42.0	16.0	
Actuated g/C Ratio	0.39		0.18	0.64	0.24	
Clearance Time (s)	4.0		4.0	4.0	4.0	
Lane Grp Cap (vph)	1361		322	2252	407	
v/s Ratio Prot	c0.34		c0.14	0.18	c0.05	
v/s Ratio Perm						
v/c Ratio	0.86		0.77	0.29	0.21	
Uniform Delay, d1	18.3		25.7	5.3	19.9	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	7.3		16.0	0.3	1.2	
Delay (s)	25.6		41.6	5.7	21.1	
Level of Service	C		D	A	C	
Approach Delay (s)	25.6			15.6	21.1	
Approach LOS	C			B	C	
Intersection Summary						
HCM Average Control Delay			21.3		HCM Level of Service	C
HCM Volume to Capacity ratio			0.65			
Actuated Cycle Length (s)			66.0		Sum of lost time (s)	12.0
Intersection Capacity Utilization			62.1%		ICU Level of Service	B
Analysis Period (min)			15			

c Critical Lane Group

Queues

14: Jaques Street & Temple Street

6/28/2006



Lane Group	WBT	NBT	SBT
Lane Group Flow (vph)	33	488	556
v/c Ratio	0.06	0.48	0.50
Control Delay	15.3	11.3	10.9
Queue Delay	0.0	1.0	0.0
Total Delay	15.3	12.4	10.9
Queue Length 50th (ft)	7	134	146
Queue Length 95th (ft)	28	207	225
Internal Link Dist (ft)	431	368	650
Turn Bay Length (ft)			
Base Capacity (vph)	530	1017	1103
Starvation Cap Reductn	0	293	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.06	0.67	0.50
Intersection Summary			

HCM Unsignalized Intersection Capacity Analysis
 1: Memorial Road & Temple Street

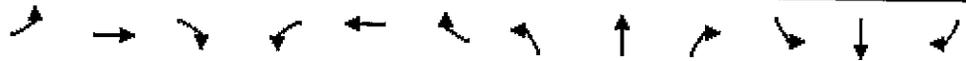
6/28/2006



Movement	EBL	EBR	NBL	NBR	SWL	SWR
Lane Configurations	T		T		T	
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Volume (veh/h)	23	149	103	311	422	37
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	162	112	338	459	40
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (ft)			719			607
pX, platoon unblocked						
vC, conflicting volume	1041	479	499			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1041	479	499			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	89	72	89			
cM capacity (veh/h)	228	587	1065			
Direction, Lane #	EB 1	NB 1	SW 1			
Volume Total	187	450	499			
Volume Left	25	112	0			
Volume Right	162	0	40			
cSH	485	1065	1700			
Volume to Capacity	0.39	0.11	0.29			
Queue Length 95th (ft)	45	9	0			
Control Delay (s)	17.0	3.0	0.0			
Lane LOS	C	A				
Approach Delay (s)	17.0	3.0	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			4.0			
Intersection Capacity Utilization			71.0%	ICU Level of Service	C	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
 4: Mystic Avenue & Temple Street

6/28/2006



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑↑		↖	↑			↑↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor		0.95		1.00	0.95		1.00	1.00			1.00	
Frt		0.99		1.00	0.99		1.00	0.90			1.00	
Flt Protected		1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)		3515		1770	3520		1770	1684			1845	
Flt Permitted		1.00		0.95	1.00		0.60	1.00			0.96	
Satd. Flow (perm)		3515		1770	3520		1113	1684			1779	
Volume (vph)	0	1413	66	255	753	28	286	29	52	20	122	3
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1536	72	277	818	30	311	32	57	22	133	3
RTOR Reduction (vph)	0	4	0	0	3	0	0	42	0	0	1	0
Lane Group Flow (vph)	0	1604	0	277	845	0	311	47	0	0	157	0
Turn Type		Perm		Prot			Perm			custom		
Protected Phases		6		5	2		4					
Permitted Phases		6										
Actuated Green, G (s)		34.0		11.0	50.0		20.0	20.0		8	8	
Effective Green, g (s)		35.0		12.0	51.0		21.0	21.0			20.0	
Actuated g/C Ratio		0.44		0.15	0.64		0.26	0.26			0.26	
Clearance Time (s)		5.0		5.0	5.0		5.0	5.0			5.0	
Vehicle Extension (s)		4.0		4.0	4.0		3.0	3.0			3.0	
Lane Grp Cap (vph)		1538		266	2244		292	442			467	
v/s Ratio Prot		c0.46		c0.16	0.24			0.03				
v/s Ratio Perm							c0.28				0.09	
v/c Ratio		1.04		1.04	0.38		1.07	0.11			0.34	
Uniform Delay, d1		22.5		34.0	6.9		29.5	22.4			23.9	
Progression Factor		1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2		35.0		66.4	0.1		70.9	0.1			0.4	
Delay (s)		57.5		100.4	7.1		100.4	22.5			24.3	
Level of Service		E		F	A		F	C			C	
Approach Delay (s)		57.5			30.0			83.1			24.3	
Approach LOS		E			C			F			C	
Intersection Summary												
HCM Average Control Delay			49.6			HCM Level of Service					D	
HCM Volume to Capacity ratio			1.05									
Actuated Cycle Length (s)			80.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			99.8%			ICU Level of Service					F	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
5: Broadway & Temple Street

6/28/2006

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖		↖	↖↖	↖				↖		↖
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0				4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00				1.00		1.00
Frt	1.00	1.00		1.00	1.00	0.85				1.00		0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00				0.95		1.00
Satd. Flow (prot)	1770	3539		1770	3539	1583				1770		1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00				0.95		1.00
Satd. Flow (perm)	1770	3539		1770	3539	1583				1770		1583
Volume (vph)	181	784	0	40	471	123	0	0	0	292	0	341
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	197	852	0	43	512	134	0	0	0	317	0	371
RTOR Reduction (vph)	0	0	0	0	0	111	0	0	0	0	0	259
Lane Group Flow (vph)	197	852	0	43	512	23	0	0	0	317	0	112
Turn Type	Prot			Prot	custom					Prot		custom
Protected Phases	7	9 11		3	13 15	15				1		
Permitted Phases												6
Actuated Green, G (s)	20.0	41.0		20.0	40.0	17.0				31.0		31.0
Effective Green, g (s)	21.0	41.0		21.0	41.0	18.0				32.0		32.0
Actuated g/C Ratio	0.20	0.39		0.20	0.39	0.17				0.30		0.30
Clearance Time (s)	5.0			5.0		5.0				5.0		5.0
Lane Grp Cap (vph)	351	1369		351	1369	269				584		478
v/s Ratio Prot	c0.11	c0.24		0.02	0.14	0.01				c0.18		
v/s Ratio Perm												
v/c Ratio	0.56	0.62		0.12	0.37	0.08				0.59		0.07
Uniform Delay, d1	38.3	26.2		34.9	28.3	37.1				31.5		27.8
Progression Factor	1.00	1.00		1.00	1.00	1.00				1.00		1.00
Incremental Delay, d2	6.4	2.1		0.7	0.8	0.6				4.8		1.1
Delay (s)	44.7	28.4		35.6	24.1	37.7				36.3		28.9
Level of Service	D	C		D	C	D				D		C
Approach Delay (s)		31.5			27.4		0.0				32.3	
Approach LOS		C			C		A				C	
Intersection Summary												
HCM Average Control Delay			30.6				HCM Level of Service					C
HCM Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			106.0				Sum of lost time (s)				12.0	
Intersection Capacity Utilization			51.2%				ICU Level of Service					A
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
8: Broadway & School Street

6/28/2006



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑↑	↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frt	0.98		1.00	1.00	0.91	
Flt Protected	1.00		0.95	1.00	0.98	
Satd. Flow (prot)	3455		1770	3539	1670	
Flt Permitted	1.00		0.95	1.00	0.98	
Satd. Flow (perm)	3455		1770	3539	1670	
Volume (vph)	927	176	241	607	51	94
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1008	191	262	660	55	102
RTOR Reduction (vph)	24	0	0	0	77	0
Lane Group Flow (vph)	1175	0	262	660	80	0
Turn Type			Prot			
Protected Phases	4		3	8	2	
Permitted Phases						
Actuated Green, G (s)	26.0		12.0	42.0	16.0	
Effective Green, g (s)	26.0		12.0	42.0	16.0	
Actuated g/C Ratio	0.39		0.18	0.64	0.24	
Clearance Time (s)	4.0		4.0	4.0	4.0	
Lane Grp Cap (vph)	1361		322	2252	405	
v/s Ratio Prot	c0.34		c0.15	0.19	c0.05	
v/s Ratio Perm						
v/c Ratio	0.86		0.81	0.29	0.20	
Uniform Delay, d1	18.4		25.9	5.4	19.9	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	7.5		19.8	0.3	1.1	
Delay (s)	25.8		45.7	5.7	21.0	
Level of Service	C		D	A	C	
Approach Delay (s)	25.8			17.1	21.0	
Approach LOS	C			B	C	
Intersection Summary						
HCM Average Control Delay			21.9		HCM Level of Service	C
HCM Volume to Capacity ratio			0.66			
Actuated Cycle Length (s)			66.0		Sum of lost time (s)	12.0
Intersection Capacity Utilization			63.2%		ICU Level of Service	B
Analysis Period (min)			15			

c Critical Lane Group

Queues

14: Jaques Street & Temple Street

6/28/2006



Lane Group	WBT	NBT	SBT
Lane Group Flow (vph)	33	515	602
v/c Ratio	0.06	0.51	0.55
Control Delay	15.3	11.8	11.7
Queue Delay	0.0	1.2	0.0
Total Delay	15.3	12.9	11.7
Queue Length 50th (ft)	7	144	166
Queue Length 95th (ft)	28	223	255
Internal Link Dist (ft)	431	368	639
Turn Bay Length (ft)			
Base Capacity (vph)	530	1016	1104
Starvation Cap Reductn	0	283	0
Spillback Cap Reductn	0	0	4
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.06	0.70	0.55
Intersection Summary			

HCM Unsignalized Intersection Capacity Analysis

17: Memorial Road &

6/28/2006



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	2	110	43	82	61	6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	120	47	89	66	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	136				215	91
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	136				215	91
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				91	99
cM capacity (veh/h)	1448				772	966
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	122	136	73			
Volume Left	2	0	66			
Volume Right	0	89	7			
cSH	1448	1700	786			
Volume to Capacity	0.00	0.08	0.09			
Queue Length 95th (ft)	0	0	8			
Control Delay (s)	0.1	0.0	10.0			
Lane LOS	A		B			
Approach Delay (s)	0.1	0.0	10.0			
Approach LOS			B			
Intersection Summary						
Average Delay			2.3			
Intersection Capacity Utilization		17.8%		IGU Level of Service	A	
Analysis Period (min)		15				

Queues
4: Mystic Avenue & Temple Street

6/28/2006



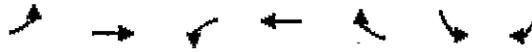
Lane Group	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1182	405	1254	237	86	42
v/c Ratio	0.90	0.88	0.51	0.88	0.23	0.12
Control Delay	31.0	50.4	6.3	64.2	15.6	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	50.4	6.3	64.2	15.6	24.9
Queue Length 50th (ft)	258	193	126	116	15	15
Queue Length 95th (ft)	#393	#350	166	#243	52	42
Internal Link Dist. (ft)	279		419		527	185
Turn Bay Length (ft)						
Base Capacity (vph)	1338	473	2482	277	387	363
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	0.88	0.86	0.51	0.86	0.22	0.12

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

Queues

5: Broadway & Temple Street

6/28/2006

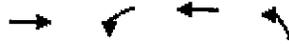


Fane Group	EBL	EBT	WBL	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	252	662	76	759	179	250	513
v/c Ratio	0.63	0.51	0.19	0.58	0.44	0.48	0.63
Control Delay	45.0	27.8	34.7	29.2	9.8	34.7	7.1
Queue Delay	0.5	1.6	0.0	0.1	0.0	0.0	0.1
Total Delay	45.5	29.4	34.7	29.2	9.8	34.7	7.2
Queue Length 50th (ft)	155	181	42	215	0	140	8
Queue Length 95th (ft)	242	237	83	277	60	218	96
Internal Link Dist (ft)		298		315			
Turn Bay Length (ft)							150
Base Capacity (vph)	401	1302	401	1302	404	518	815
Starvation Cap Reductn	22	440	0	0	0	0	0
Spillback Cap Reductn	0	0	0	43	5	0	12
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.77	0.19	0.60	0.45	0.48	0.64
Intersection Summary							

Queues

8: Broadway & School Street

6/28/2006

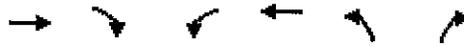


Lane Group	EBT	WBL	WBT	NBL
Lane Group Flow (vph)	934	241	1034	195
v/c Ratio	0.76	0.64	0.47	0.40
Control Delay	23.6	32.9	7.6	15.4
Queue Delay	0.2	0.0	0.5	0.0
Total Delay	23.8	32.9	8.1	15.4
Queue Length 50th (ft)	168	89	102	39
Queue Length 95th (ft)	236	#165	140	91
Internal Link Dist (ft)	257		298	401
Turn Bay Length (ft)				
Base Capacity (vph)	1228	375	2198	491
Starvation Cap Reductn	0	0	677	0
Spillback Cap Reductn	32	0	0	1
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.78	0.64	0.68	0.40

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

HCM Unsignalized Intersection Capacity Analysis
 10: Mystic Avenue & Butler Drive

6/28/2006



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑↑		↑	
Sign Control	Free		Free		Stop	
Grade	0%		0%		0%	
Volume (veh/h)	1055	20	0	1328	0	32
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1147	22	0	1443	0	35
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh						
Upstream signal (ft)	359					
pX, platoon unblocked	0.83					
vC, conflicting volume			1168		1879	584
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1168		1855	584
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	92
cM capacity (veh/h)			594		54	455
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	764	404	722	722	35	
Volume Left	0	0	0	0	0	
Volume Right	0	22	0	0	35	
cSH	1700	1700	1700	1700	455	
Volume to Capacity	0.45	0.24	0.42	0.42	0.08	
Queue Length 95th (ft)	0	0	0	0	6	
Control Delay (s)	0.0	0.0	0.0	0.0	13.6	
Lane LOS						B
Approach Delay (s)	0.0		0.0		13.6	
Approach LOS						B
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			40.0%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis
 14: Jaques Street & Temple Street

6/28/2006



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↕			↕			↕		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)					4.0			4.0			4.0		
Lane Util. Factor					1.00			1.00			1.00		
Frts					0.94			0.99			0.97		
Flt Protected					0.99			1.00			1.00		
Satd. Flow (prot)					1729			1843			1806		
Flt Permitted					0.99			0.88			0.98		
Satd. Flow (perm)					1729			1626			1773		
Volume (vph)	0	0	0	18	34	46	45	398	19	22	577	165	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	0	0	20	37	50	49	433	21	24	627	179	
RTOR Reduction (vph)	0	0	0	0	37	0	0	2	0	0	11	0	
Lane Group Flow (vph)	0	0	0	0	70	0	0	501	0	0	819	0	
Turn Type					Perm			Perm			Perm		
Protected Phases						8			2			6	
Permitted Phases													
Actuated Green, G (s)						20.0			55.0			55.0	
Effective Green, g (s)						22.0			57.0			57.0	
Actuated g/C Ratio						0.25			0.66			0.66	
Clearance Time (s)						6.0			6.0			6.0	
Lane Grp Cap (vph)						437			1065			1162	
v/s Ratio Prot													
v/s Ratio Perm						0.04			0.31			0.46	
v/c Ratio						0.16			0.47			0.70	
Uniform Delay, d1						25.3			7.5			9.6	
Progression Factor						1.00			1.00			1.00	
Incremental Delay, d2						0.8			1.5			3.6	
Delay (s)						26.1			9.0			13.2	
Level of Service						C			A			B	
Approach Delay (s)		0.0				26.1			9.0			13.2	
Approach LOS		A				C			A			B	
Intersection Summary													
HCM Average Control Delay				12.7								HCM Level of Service	B
HCM Volume to Capacity ratio				0.55									
Actuated Cycle Length (s)				87.0								Sum of lost time (s)	8.0
Intersection Capacity Utilization				57.4%								ICU Level of Service	B
Analysis Period (min)				15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 1: Memorial Road & Temple Street

6/28/2006



Movement	EBL2	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	SWU	SWL	SWR
Lane Configurations	T				T			T			T	
Sign Control	Stop				Free			Free			Stop	
Grade	0%				0%			0%			0%	
Volume (veh/h)	5	1	32	0	2	355	788	20	7	15	24	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	1	35	0	2	386	857	22	8	0	26	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)					730							
pX, platoon unblocked	0.97	0.97					0.97			0.00	0.97	0.97
vC, conflicting volume	1934	2127	26	29			388			0	1969	1938
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1967	2167	26	29			366			0	2004	1971
tC, single (s)	7.1	6.5	6.2	4.1			4.1			0.0	7.1	6.5
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	2.2			2.2			0.0	3.5	4.0
p0 queue free %	69	91	97	100			26			0	0	100
cM capacity (veh/h)	18	12	1050	1584			1151			0	15	15
Direction, Lane #	EB-1	NB-1	SB-1	SW-1								
Volume Total	41	388	886	26								
Volume Left	5	0	857	26								
Volume Right	35	386	8	0								
cSH	95	1584	1151	15								
Volume to Capacity	0.43	0.00	0.74	1.71								
Queue Length 95th (ft)	45	0	182	97								
Control Delay (s)	68.8	0.0	16.5	858.3								
Lane LOS	F		C	F								
Approach Delay (s)	68.8	0.0	16.5	858.3								
Approach LOS	F			F								
Intersection Summary												
Average Delay			29.7									
Intersection Capacity Utilization			87.2%		ICU Level of Service		E					
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis
4: Mystic Avenue & Temple Street

6/28/2006

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕		↕	↕↕		↕	↕				↕↕
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0				4.0
Lane Util. Factor		0.95		1.00	0.95		1.00	1.00				1.00
Flt		0.95		1.00	0.99		1.00	0.90				0.98
Flt Protected		1.00		0.95	1.00		0.95	1.00				0.99
Satd. Flow (prot)		3357		1770	3517		1770	1681				1817
Flt Permitted		0.95		0.95	1.00		0.73	1.00				0.96
Satd. Flow (perm)		3204		1770	3517		1360	1681				1751
Volume (vph)	1	698	364	358	1105	49	207	32	60	6	27	5
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	759	396	389	1201	53	225	35	65	7	29	5
RTOR Reduction (vph)	0	83	0	0	4	0	0	52	0	0	4	0
Lane Group Flow (vph)	0	1073	0	389	1250	0	225	48	0	0	37	0
Turn Type		Perm		Prot			Perm			custom		
Protected Phases		6		5	2		4			8		8
Permitted Phases		6					4					8
Actuated Green, G (s)		28.0		18.9	51.9		14.7	14.7				14.7
Effective Green, g (s)		29.0		19.9	52.9		15.7	15.7				15.7
Actuated g/C Ratio		0.38		0.26	0.69		0.20	0.20				0.20
Clearance Time (s)		5.0		5.0	5.0		5.0	5.0				5.0
Vehicle Extension (s)		4.0		4.0	4.0		3.0	3.0				3.0
Lane Grp Cap (vph)		1213		460	2429		279	345				359
v/s Ratio Prot				c0.22	0.36			0.03				
v/s Ratio Perm		c0.33					c0.17					0.02
v/c Ratio		0.88		0.85	0.51		0.81	0.14				0.10
Uniform Delay, d1		22.2		26.9	5.7		29.0	24.9				24.7
Progression Factor		1.00		1.00	1.00		1.00	1.00				1.00
Incremental Delay, d2		8.2		13.9	0.2		15.5	0.2				0.1
Delay (s)		30.4		40.8	5.9		44.5	25.1				24.9
Level of Service		C		D	A		D	C				C
Approach Delay (s)		30.4			14.2			38.5				24.9
Approach LOS		C			B			D				C
Intersection Summary												
HCM Average Control Delay			22.7			HCM Level of Service						C
HCM Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			76.6			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			91.2%			ICU Level of Service						F
Analysis Period (min)			15									
Ⓞ Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
5: Broadway & Temple Street

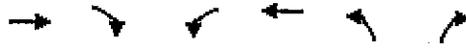
6/28/2006

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↗				↖	↗	↗
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0				4.0	4.0	4.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00				1.00	1.00	0.85
Frt	1.00	1.00		1.00	1.00	0.85				1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00				0.95	1.00	1.00
Satd. Flow (prot)	1770	3539		1770	3539	1583				1770	1770	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00				0.95	1.00	1.00
Satd. Flow (perm)	1770	3539		1770	3539	1583				1770	1770	1583
Volume (vph)	209	609	0	70	698	150	0	0	0	214	0	450
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	227	662	0	76	759	163	0	0	0	233	0	489
RTOR Reduction (vph)	0	0	0	0	0	137	0	0	0	0	0	339
Lane Group Flow (vph)	227	662	0	76	759	26	0	0	0	233	0	150
Turn Type	Prot			Prot		custom				custom		custom
Protected Phases	7	10 11		3	14 15	15						
Permitted Phases										6		6
Actuated Green, G (s)	22.0	39.0		22.0	38.0	16.0				31.0		31.0
Effective Green, g (s)	23.0	39.0		23.0	39.0	17.0				32.0		32.0
Actuated g/C Ratio	0.22	0.37		0.22	0.37	0.16				0.30		0.30
Clearance Time (s)	5.0			5.0		5.0				5.0		5.0
Lane Grp Cap (vph)	384	1302		384	1302	254				534		478
v/s Ratio Prot	c0.13	0.19		0.04	c0.21	0.02						
v/s Ratio Perm										c0.13		0.09
v/c Ratio	0.59	0.51		0.20	0.58	0.10				0.44		0.31
Uniform Delay, d1	37.3	26.0		34.0	27.0	88.0				29.7		28.5
Progression Factor	1.00	1.00		1.00	1.00	1.00				1.00		1.00
Incremental Delay, d2	6.5	1.4		1.2	1.9	0.8				2.6		1.7
Delay (s)	43.8	27.5		35.1	28.9	38.8				32.3		30.2
Level of Service	D	C		D	C	D				C		C
Approach Delay (s)		31.6			31.0		0.0				30.9	
Approach LOS		C			C		A				C	
Intersection Summary												
HCM Average Control Delay			31.2				HCM Level of Service			C		
HCM Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			106.0				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			53.8%				ICU Level of Service			A		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
8: Broadway & School Street

6/28/2006



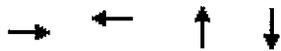
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑↑	↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0	4.0	4.0	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frt	0.99		1.00	1.00	0.94	
Flt Protected	1.00		0.95	1.00	0.97	
Satd. Flow (prot)	3494		1770	3539	1701	
Flt Permitted	1.00		0.95	1.00	0.97	
Satd. Flow (perm)	3494		1770	3539	1701	
Volume (vph)	778	73	209	942	89	76
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	846	79	227	1024	97	83
RTOR Reduction (vph)	10	0	0	0	47	0
Lane Group Flow (vph)	915	0	227	1024	133	0
Turn Type			Prot			
Protected Phases	4		3	8	2	
Permitted Phases						
Actuated Green, G (s)	23.0		14.0	41.0	17.0	
Effective Green, g (s)	23.0		14.0	41.0	17.0	
Actuated g/C Ratio	0.35		0.21	0.62	0.26	
Clearance Time (s)	4.0		4.0	4.0	4.0	
Lane Grp Cap (vph)	1218		375	2198	438	
v/s Ratio Prot	c0.26		c0.13	0.29	c0.08	
v/s Ratio Perm						
v/c Ratio	0.75		0.61	0.47	0.30	
Uniform Delay, d1	19.0		23.5	6.7	19.7	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	4.3		7.1	0.7	1.8	
Delay (s)	23.3		30.6	7.4	21.5	
Level of Service	C		C	A	C	
Approach Delay (s)	23.3			11.6	21.5	
Approach LOS	C			B	C	
Intersection Summary						
HCM Average Control Delay			16.9		HCM Level of Service	B
HCM Volume to Capacity ratio			0.57			
Actuated Cycle Length (s)			66.0		Sum of lost time (s)	12.0
Intersection Capacity Utilization			55.0%		ICU Level of Service	A
Analysis Period (min)			15			

c Critical Lane Group

Queues

14: Jaques Street & Temple Street

6/28/2006



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	3	105	457	788
v/c Ratio	0.01	0.22	0.44	0.68
Control Delay	23.7	15.6	9.2	13.2
Queue Delay	0.0	0.0	0.8	0.0
Total Delay	23.7	15.6	10.0	13.2
Queue Length 50th (ft)	1	23	109	234
Queue Length 95th (ft)	8	63	171	363
Internal Link Dist (ft)	510	431	368	650
Turn Bay Length (ft)				
Base Capacity (vph)	493	480	1044	1153
Starvation Cap Reductn	0	0	315	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.01	0.22	0.63	0.68
Intersection Summary				



SOMERVILLE COMMUNITY CORPORATION
337 Somerville Avenue, Second Floor • Somerville, MA 02143

March 5, 2007

Mr. Michael Gleba
City of Somerville Planning Director
93 Highland Avenue
Somerville, MA 02143

RE: Special Permit with Site Plan Review for 16 Butler Drive/100 Temple Street

Dear Michael,

I am writing today to clarify and amend the Somerville Community Corporation's Special Permit with Site Plan Review application that was submitted to the City of Somerville Planning Staff on January 5, 2007. After review by several city departments and additional studies completed by Traffic Solutions, the Project's traffic engineering consultants, it has come to our attention that in lieu of applying for a variance for Section 9.5.1 for the number of parking spaces provided, we should seek a special permit for a reduction of required parking for a specific use as set forth in Section 9.13.f of the Somerville Zoning Ordinance. In addition, I want to mention that we are still seeking a special permit per Section 9.13.e for shared parking as applied for in the SPSR application.

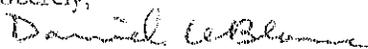
Based on the information provided in the SPSR application, it is the belief of the developer that the redevelopment of the Saint Polycarp Church site will need fewer parking spaces for residential uses than is required by Section 9.5 of the SZO. This conclusion is based on data that shows that car ownership is lower for low-income individuals and families when compared with the rest of the population. Additionally, data from other SCC-developed properties with similar demographic populations indicates lower than average car ownership rates (see SPSR application dated 1/5/2007).

A minimum of 44 of the 84 proposed new residential units at the Saint Polycarp Village will be for families and individuals earning less than 80% of the area median income (the US Department of Housing and Urban Development's definition of low-income). There will be a minimum of 6 one bedroom, 18 two bedroom, and 20 three bedroom affordable residential units provided on the site. A 20% reduction in parking for the affordable residential units is the equivalent of 15.2 spaces (see enclosed Parking Analysis).

The required number of parking spaces per the Somerville Zoning Ordinance for all uses on the site is 163.5 spaces. With the 20% reduction for affordable housing, the required amount would be reduced to 148 spaces. The requested special permit for shared parking (SZO section 9.13e) would reduce the number of required parking spaces by an additional 11.5 spots. The total number of off-street parking spaces required given the 9.13e and 9.13f special permits would be 137 spaces; this is less than the 138 on-site parking spaces we are currently proposing.

We appreciate your assistance with this request. Please let Katie Anthony in my office know if you need more information, or if you have any questions or comments regarding this matter.

Sincerely,


Daniel LeBlanc
Chief Executive Officer