McMAHON TRANSPORTATION ENGINEERS & PLANNERS

McMAHON ASSOCIATES
300 Myles Standish Boulevard | Suite 201 | Taunton, MA 02780
p 508-823-2245| f 508-823-2246
mcmahonassociates.com

PRINCIPALS
Joseph W. McMahon, P.E.
Joseph J. DeSantis, P.E., PTOE
John S. DePalma
William T. Steffens
Casey A. Moore, P.E.
Gary R. McNaughton, P.E., PTOE

ASSOCIATES
John J. Mitchell, P.E.
Christopher J. Williams, P.E.
R. Trent Ebersole, P.E.
Matthew M. Kozsuch, P.E.
Maureen Chlebek, P.E., PTOE

January 19, 2016 **DRAFT**

Chief Robert E. Meaney, Jr.
Medfield Police Department
110 North Street
Medfield, MA 02052

RE: Traffic Signal Warrant Analysis
Route 27 at South Street - Medfield, MA

Dear Chief Meaney:

McMahon Associates has completed a traffic warrant analysis at the intersection of Route 27 (Spring Street/High Street) at South Street in Medfield, Massachusetts. The purpose of this study is to evaluate existing traffic conditions at the intersection and to determine if a traffic signal is warranted. Our assessment is based on a review of current traffic volumes, accident data, and anticipated traffic growth over a 10-year period. This study examines and documents future conditions under unsignalized and signalized scenarios.

EXISTING CONDITIONS

The study area is composed of the two intersections of Route 27 with South Street, which are offset intersections approximately 600 feet apart. The study area intersections are displayed in the attached Figure 1. The southerly intersection of Route 27 (High Street) and South Street is currently signalized, while the northerly intersection of Route 27 (Spring Street) and South Street is unsignalized, with free-flowing traffic on Route 27 and stop control on South Street.

Route 27 (Spring Street/High Street) is a two-way, two-lane urban principal arterial under Town of Medfield jurisdiction. Route 27 is approximately 30 feet in width providing one-foot wide shoulders on either side of the roadway and generally runs in the north-south direction through the Town of Medfield. Route 27 currently has a posted speed limit of 40 miles an hour in the study area.

Both segments of South Street are two-lane, two-way urban minor arterials also under Town of Medfield jurisdiction, which runs in the east-west direction through the Town of Medfield. The two segments of South Streets have shoulder widths varying from one to three feet on either side, with a posted speed limit of 30 miles an hour in the study area.

Route 27 (High Street) at South Street

At the southerly intersection with South Street, Route 27 (High Street) provides a through lane and exclusive right turn lane on the southbound approach, and a through lane and exclusive left turn lane on the northbound approach. South Street is approximately 40 feet in width and provides a single multi-use lane on the eastbound approach with shoulder widths ranging from one to three feet on either side. There is a crosswalk located across the southbound approach at the intersection, which spans across Route 27 and provides connectivity between the sidewalk on the eastern side of Route 27 and the northern side of South Street. There is also a raised island present on the southbound approach to facilitate the channelized right turn lane. The intersection of Route 27 (High Street) at South Street is currently signalized in all directions and provides an exclusive pedestrian phase.

Route 27 (Spring Street) at South Street

The northerly intersection of Route 27 (Spring Street) at South Street is approximately 25 feet in width at its intersection with South Street, providing one-foot shoulders on either side. South Street is approximately 75 feet wide at its intersection with Route 27 (Spring Street), with no shoulders on either side of the roadway. South Street is currently under stop control at the intersection, while Route 27 (Spring Street) is free-flowing in the north-south direction. There are currently no crosswalks present at the intersection of Route 27 (Spring Street) at South Street. However, there is an existing portion of sidewalk on the southeastern corner of the intersection which provides connectivity to the intersection of Route 27 (High Street) at South Street.

Sight Distance

A field review of the available sight distance was conducted at the South Street westbound approach at the intersection of Route 27 (Spring Street). Route 27 (Spring Street) has a posted speed limit of 40 miles per hour in both directions. The American Association of State Highway and Transportation Officials' (AASHTO) publication, *A Policy on Geometric Design, 2011 Edition*, defines minimum and desirable sight distances at intersections. The minimum sight distance is based on the required stopping sight distance (SSD) for vehicles traveling along the main road and the desirable sight distance allows vehicles to enter the main street traffic flow without requiring the mainline traffic to slow to less than 70% of their speed and is referred to as intersection sight distance (ISD). According to AASHTO, "If the available sight distance for an entering or crossing vehicle is at least equal to the appropriate stopping sight distance for the major road, then drivers have sufficient time to anticipate and avoid collisions." The following table summarizes the sight distance standards for the various speeds.

Table 1
Sight Distance Requirements

Approach	Movement	Speed (MPH)	SSD Required (ft)	SSD Measured (ft)	ISD Required (ft)	ISD Measured (ft)	Meets Requirements
South Street WB at Route 27 (Spring Street)	Left (South)	40	305	500+	445	500+	Yes
	Right (North)	40	305	500+	445	500+	Yes

For the westbound approach of South Street, there is over 500 feet of sight distance in either direction along Route 27 (Spring Street). Based on the above mentioned requirements for stopping sight distance and intersection sight distance with a posted speed limit of 40 miles per hour, the South Street approach at the intersection with Route 27 (Spring Street) provides sufficient available sight distance.

Existing Traffic Volumes
To assess peak hour traffic conditions, manual turning movement counts were conducted at the study area intersections on Tuesday, November 10, 2015. The traffic counts were conducted during the weekday morning peak period from 7:00 AM to 9:00 AM and the weekday afternoon peak period from 4:00 PM to 6:00 PM. The traffic counts are summarized in 15 minute intervals and are attached. The resulting 2015 unsignalized traffic volumes are shown in Figure 2.

In addition, Automatic Traffic Recorder (ATR) data was collected for a 24-hour period from Tuesday, November 10, 2015 through Wednesday, November 11, 2015 on both Route 27 (Spring Street) and South Street to determine the hourly distributions of traffic for the traffic signal warrant analysis.

MUTCD Signal Warrants
Signal warrant analyses were performed for the unsignalized intersection based on procedures outlined in the latest edition of the Manual on Uniform Traffic Control Devices (MUTCD). The MUTCD establishes nine criteria, referred to as warrants, for the installation of traffic signals. The manual states that satisfaction of these warrants does not in itself require the installation of a traffic signal. However, a traffic signal should not be installed unless one or more of the warrants are met. The analyses performed for this report are based on the criteria for the eight-hour, four-hour, and peak hour volume warrants, as well as the pedestrian volume and crash experience warrants.

Eight-hour, four-hour and peak hour signal warrant analyses were performed using existing traffic volumes at the intersection of Route 27 (Spring Street) and South Street. The results of the signal warrant analyses are attached, and a summary of the results are presented below in Table 2.

Table 2: Signal Warrant Summary

Intersection	Eight-Hour	Four-Hour	Peak Hour	Pedestrian	Crash Experience
Route 27 (Spring Street) at South Street	Yes	Yes	Yes	No	No

As seen in Table 2, the intersection of Route 27 (Spring Street) at South Street meets the peak hour, four hour traffic signal warrants (Warrant 2 and 3), and the eight-hour traffic signal warrant (Warrant 1), but does not meet the pedestrian warrant (Warrant 4), or crash experience warrant (Warrant 7).

For the eight-hour vehicular volume signal warrant (Warrant 1) to be met, minimum vehicular volumes for the major street and minor street, found in Table 4C-1 of the MUTCD, must be exceeded for one of two volume conditions. Per MUTCD methodology, the 70% factor lowering the volume thresholds required for satisfying the warrants is applicable to this intersection because of the 40 mph posted speed limit. A summary of the results of the eight-hour warrant are presented below in Table 3.

Table 3: Eight-Hour (Warrant 1) Signal Warrant Summary

Existing 2015						
Hour	Northbound Volume	Southbound Volume	Total Major Street Volume	Minor Street Volume	Condition 1 Met[1]	Condition 2 Met[2]
6:00 AM	819	306	1125	33	**no**	**no**
7:00 AM	1388	640	2028	143	**yes**	**yes**
8:00 AM	1100	588	1688	132	**yes**	**yes**
9:00 AM	649	501	1150	99	**no**	**yes**
10:00 AM	485	421	906	111	**yes**	**yes**
11:00 AM	469	512	981	141	**yes**	**yes**
12:00 PM	486	475	961	142	**yes**	**yes**
1:00 PM	488	487	975	137	**yes**	**yes**
2:00 PM	593	773	1366	279	**yes**	**yes**
3:00 PM	581	934	1515	302	**yes**	**yes**
4:00 PM	674	1007	1681	276	**yes**	**yes**
5:00 PM	702	1010	1712	218	**yes**	**yes**
6:00 PM	581	882	1463	215	**yes**	**yes**
7:00 PM	369	452	821	130	**yes**	**yes**

1 Major street volume greater than 350 vehicles per hour and minor street volume greater than 105 vehicles per hour.
2 Major street volumes greater than 525 vehicles per hour and minor street volume greater than 53 vehicles per hour.
****Speed Limit is 40 mph on Route 27 (Spring Street)

As seen in Table 3, both Conditions 1 and 2 of the eight-hour signal warrant were satisfied during ten consecutive hours, which surpasses the necessary eight-hour signal warrant requirements. Based on the results of the eight-hour signal warrant and MUTCD criteria, the installation of a traffic signal at the intersection is warranted. In addition, the results of four-hour and peak hour warrants also support the installation of a traffic signal at the intersection.

Accident Summary

Crash data for the study area intersection was obtained from the Massachusetts Department of Transportation (MassDOT) for the most recent three-year period available. This data includes complete yearly crash summaries for 2011, 2012, and 2013. A summary of the crash data is attached.

The signalized intersection of Route 27 (High Street) at South Street had a total of 11 crashes reported over the three-year period from 2011-2013, resulting in a crash rate of 0.44 crashes per million entering vehicles at the intersection. This value is lower than the average crash rates of 0.80 and 0.89 for signalized intersections statewide and in MassDOT District 3, respectively. It should also be noted that the majority of the crashes were rear-end type crashes resulting in property damage, which are typical at a signalized intersection.

The unsignalized intersection of Route 27 (Spring Street) at South Street had a total of nine crashes reported over the three-year period from 2011-2013, resulting in a crash rate of 0.37 crashes per million entering vehicles. This is lower than both the statewide and MassDOT District 3 averages for unsignalized intersections of 0.60 and 0.66 crashes per million entering vehicles, respectively. The majority of the crashes that occurred at the intersection were angle or rear-end collisions; however, there were two crashes that were head-on collisions. All of the reported crashes resulted in property damage and there do not appear to be any trends related to weather or time of day.

BACKGROUND TRAFFIC GROWTH

A background growth rate of one percent per year was identified in order to forecast increases in traffic volumes on the study area roadways and intersections for our future analyses based on information provided by the Town of Medfield. This rate captures growth associated with general changes in population and accounts for other small developments in the vicinity of the study area and is consistent with similar traffic studies completed in this area in recent years. No additional developments or other roadway projects were identified to be included in the future traffic analysis. The resulting 2025 Unsignalized traffic volumes are shown in Figure 3 for the weekday morning and weekday afternoon.

TRAFFIC OPERATIONS ANALYSIS

As a basis for this assessment, intersection capacity analyses were conducted using Synchro capacity analysis software for the study area intersection under the 2015 Existing, 2025 Unsignalized, and 2025 Signalized conditions. The analysis was based on procedures contained in the *Highway Capacity Manual* (HCM). Capacity analysis summaries are attached. A discussion of the evaluation criteria and a summary of the results of the capacity analyses are presented below.

Level-of-Service Criteria

Operating levels of service (LOS) are reported on a scale of A to F with A representing the best conditions (with little or no delay) and F representing the worst operating conditions (long delays). In an urbanized area, LOS D is typically considered adequate.

Capacity Analysis Results

Intersection capacity analyses were conducted for the study area intersections to evaluate the 2015 Existing conditions, as well as 2025 Unsignalized, and 2025 Signalized peak hour traffic conditions. Based on our analysis, the peak hour of the adjacent street traffic occurs between 7:15 AM and 8:15 AM for the weekday morning, and 4:45 PM and 5:45 PM for the weekday afternoon peak periods. The results of the capacity analyses are presented in Tables 4 and 5 below for the morning and afternoon peaks, respectively.

Table 4: Morning Level of Service Summary

Intersection	Movement		2015 Existing LOS[1]	2015 Existing Delay[2]	2015 Existing V/C[3]	2025 Unsignalized LOS[1]	2025 Unsignalized Delay[2]	2025 Unsignalized V/C[3]	2025 Signalized LOS[1]	2025 Signalized Delay[2]	2025 Signalized V/C[3]
Route 27 (High Street)	EB	L	F	155.9	1.28	F	213.6	1.41	F	81.8	1.06
at South Street		R	A	3.8	0.12	A	0.1	0.05	A	0.6	0.05
	NB	L	B	10.2	0.14	B	10.6	0.16	E	76.9	0.56
		T	F	227.1	1.44	F	293.1	1.59	F	271.9	1.51
	SB	T	C	33.4	0.92	D	53.7	1.02	F	67.8	0.96
		R	A	0.1	0.10	A	0.1	0.11	A	0.8	0.11
		Overall	*F*	*134.1*	*1.44*	*F*	*179.4*	*1.59*	*F*	*148.1*	*1.51*
Route 27 (Spring Street)	WB	L	F	1175.1	3.24	F	2097.3	5.17	D	39.0	0.68
at South Street		R	D	28.3	0.11	D	34.7	0.15	B	11.4	0.09
	NB	TR	A	0.0	0.00	A	0.0	0.00	A	11.8	0.78
	SB	LT	C	18.2	0.06	C	21.2	0.08	A	8.1	0.64
		Overall							*B*	*10.3*	*0.78*

1 Level-of-Service

2 Average vehicle delay in seconds

3 Volume to capacity ratio

n/a Not Applicable

Table 5: Afternoon Level of Service Summary

Intersection	Movement		2015 Existing LOS[1]	2015 Existing Delay[2]	2015 Existing V/C[3]	2025 Unsignalized LOS[1]	2025 Unsignalized Delay[2]	2025 Unsignalized V/C[3]	2025 Signalized LOS[1]	2025 Signalized Delay[2]	2025 Signalized V/C[3]
Route 27 (High Street)	EB	L	B	12.2	0.36	B	12.5	0.39	E	79.0	0.75
at South Street		R	A	0.0	0.02	A	0.0	0.02	A	0.7	0.02
	NB	L	B	10.8	0.31	B	11.8	0.34	B	10.4	0.20
		T	C	34.8	0.94	E	61.3	1.05	B	14.3	0.61
	SB	T	B	15.8	0.75	C	20.6	0.83	B	13.6	0.48
		R	A	0.4	0.30	A	0.5	0.33	A	1.2	0.34
		Overall	*B*	*18.1*	*0.94*	*C*	*28.6*	*1.05*	*B*	*15.6*	*0.75*
Route 27 (Spring Street)	WB	L	F	1250.2	3.53	F	2116.2	5.39	F	94.1	1.04
at South Street		R	C	15.7	0.05	C	17.2	0.07	B	15.2	0.08
	NB	TR	A	0.0	0.00	A	0.0	0.00	A	6.7	0.57
	SB	LT	B	10.2	0.02	B	10.7	0.03	B	16.1	0.86
		Overall							*C*	*21.0*	*1.04*

1 Level-of-Service
2 Average vehicle delay in seconds
3 Volume to capacity ratio
n/a Not Applicable

As seen in Tables 4 and 5, the proposed signal at the intersection of Route 27 (Spring Street) at South Street is expected to operate at an overall LOS B during the weekday morning peak hour and at overall LOS C during the weekday afternoon peak hour. During the weekday morning peak hour, the westbound and southbound movements are expected to improve in operations compared to the future unsignalized condition, based on the level of service. During the weekday afternoon peak hour, the westbound right and southbound movements are expected to improve compared to the future unsignalized condition, based on level of service. The implementation of a signal at the intersection will potentially improve the operations of the South Street westbound approach. In addition, the potential implementation of a dedicated northbound right turn lane on the Route 27 (South Street) approach, as shown in Figure 4, is expected to improve operations at the intersection. The implementation of a traffic signal in combination with northbound right turn lane modifications on Route 27 (Spring Street/South Street) would potentially involve Right-of-Way impacts.

RECOMMENDATIONS

Based on the MUTCD traffic signal warrants, accident data, and sight distance measurements, it is recommended that a two-phase actuated traffic signal be installed at the intersection of Route 27 (Spring Street) at South Street. A traffic signal will provide significant operational improvements to the South Street westbound approach while maintaining adequate operations for Route 27 (Spring Street/South Street). A traffic signal concept plan for the intersection of

Route 27 (Spring Street) at South Street is shown in Figure 4. The preliminary construction cost to install a signal at this intersection is approximately $200,000. This estimate does not include costs related to potential roadway widening on the eastern side of the northbound approach on Route 27 (South Street), which will allow for more efficient traffic operations at the intersection. In addition, the potential right-of-way or land acquisition costs have not been accounted for in this estimate.

CONCLUSION

Based on the existing traffic volumes, accident history, and signal warrant analysis, it is recommended that an actuated and coordinated traffic signal be installed at the intersection of Route 27 (Spring Street) at South Street. The signal warrant analysis concludes that the intersection volumes adequately satisfy the peak hour, four-hour, and eight-hour warrant requirements. The capacity analysis indicates that signalizing the intersection will minimize delay, and allow the intersection to operate at a LOS B and C during the weekday morning and weekday afternoon peak hours. Under the future unsignalized conditions, motorists on South Street will continue to experience long delays in the LOS F range during both peak hours. By installing a signal, these motorists will experience much more acceptable levels of service.

We trust that our review and recommendations have provided you with the appropriate technical information to finalize a decision on this request. Please do not hesitate to contact me should you require any further information.

Very truly yours,

Phil Viveiros, P.E., PTOE
Project Manager

Attachments

- Figure 1 – Study Area Map
- Figure 2 – 2015 Existing Weekday Peak Hour Volumes
- Figure 3 – 2025 Future Weekday Peak Hour Volumes
- Figure 4 – Traffic Signal Concept Plan
- Traffic Count Data
- Signal Warrant Backup
- Synchro Analysis Reports

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Figure 1
Study Area Map
Route 27 at South Street
Medfield, MA

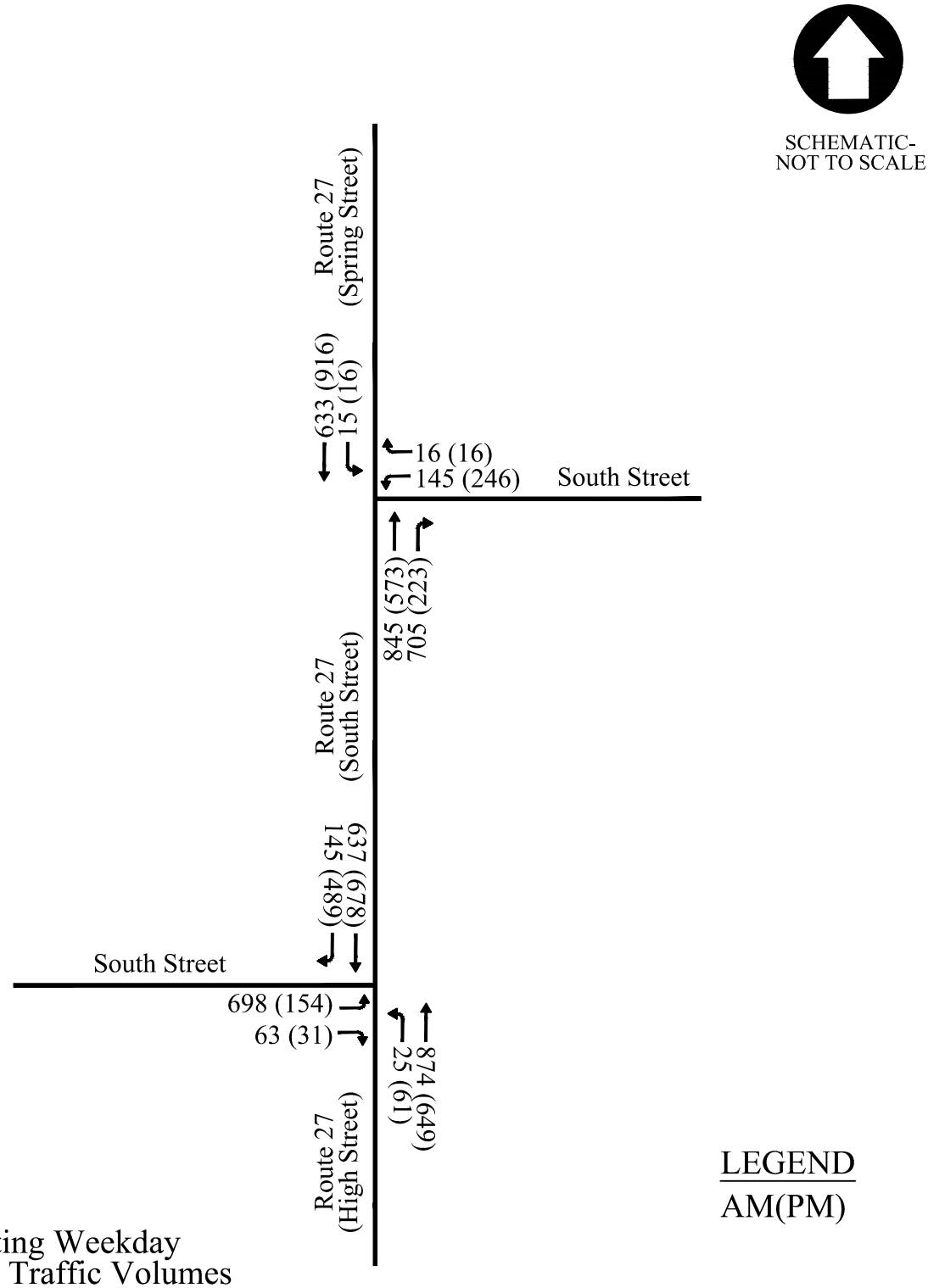

Figure 2
2015 Existing Weekday
Peak Hour Traffic Volumes

Route 27 at South Street

Medfield, MA

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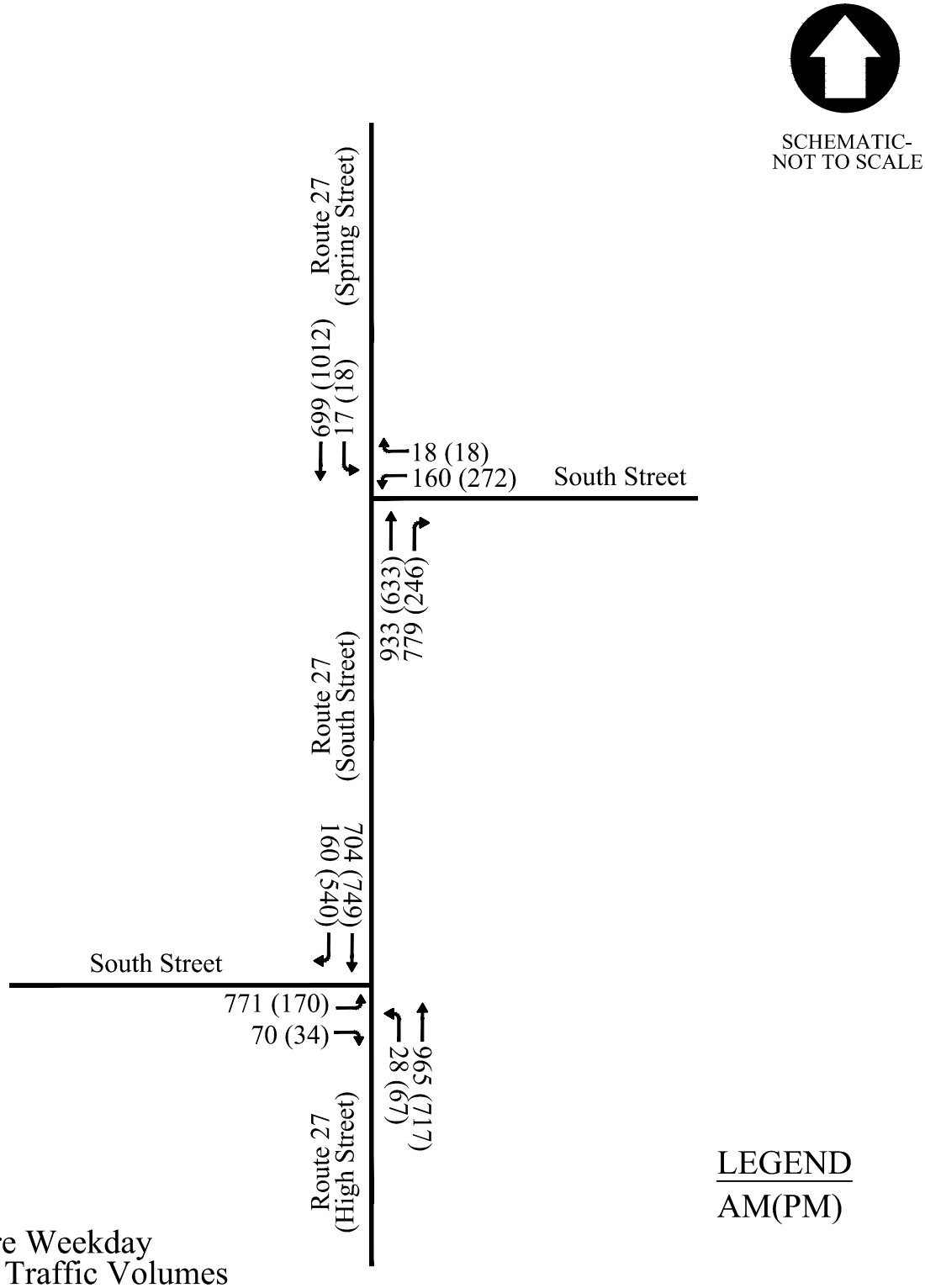

Figure 3
2025 Future Weekday
Peak Hour Traffic Volumes

Route 27 at South Street

Medfield, MA

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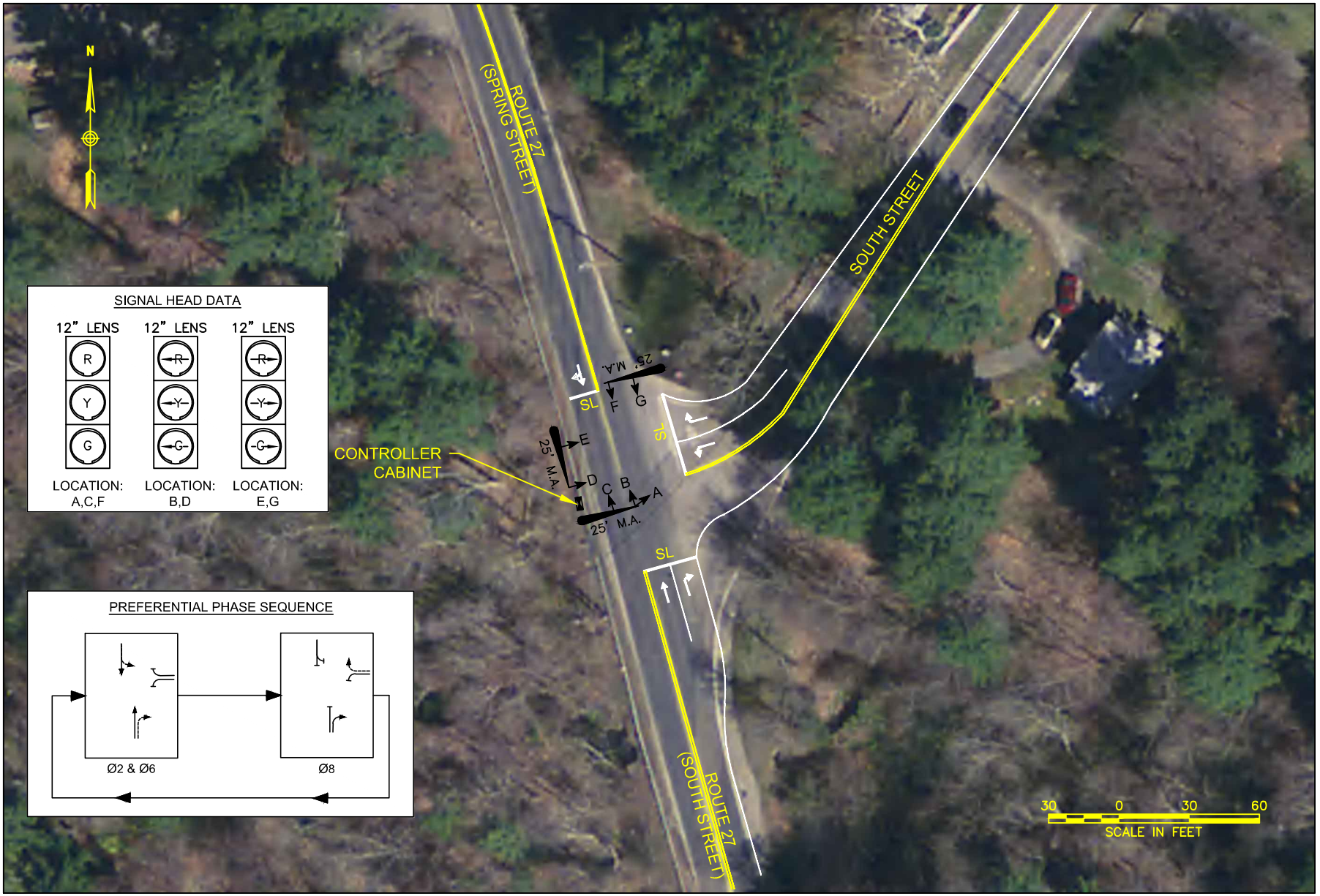

SL = Stop Line

Figure 4
Traffic Signal Concept Plan
Route 27 (Spring Street) at South Street
Medfield, MA

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Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/S: Spring Street/South Street (27)
E: South Street
City, State: Medfield, MA
Client: McM/A. Bulhoes

File Name : 04653A
Site Code : Y1565811
Start Date : 11/10/2015
Page No : 1

Groups Printed- Cars & Peds - Trucks & Buses - Bikes by Direction

	Spring Street (Route 27) From North			South Street From East			South Street (Route 27) From South			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
07:00 AM	99	3	0	3	38	0	189	172	0	504
07:15 AM	119	6	0	4	39	0	199	168	0	535
07:30 AM	162	1	1	3	37	0	169	240	0	613
07:45 AM	146	1	0	3	27	0	146	182	0	505
Total	526	11	1	13	141	0	703	762	0	2157
08:00 AM	154	6	0	5	30	0	133	185	0	513
08:15 AM	151	1	0	3	30	0	114	210	0	509
08:30 AM	142	4	0	4	29	0	90	169	0	438
08:45 AM	104	6	0	7	31	0	108	136	0	392
Total	551	17	0	19	120	0	445	700	0	1852
Grand Total	1077	28	1	32	261	0	1148	1462	0	4009
Apprch %	97.4	2.5	0.1	10.9	89.1	0	44	56	0	
Total %	26.9	0.7	0	0.8	6.5	0	28.6	36.5	0	
Cars & Peds	1039	22	1	30	249	0	1126	1413	0	3880
% Cars & Peds	96.5	78.6	100	93.8	95.4	0	98.1	96.6	0	96.8
Trucks & Buses	38	6	0	2	12	0	21	49	0	128
% Trucks & Buses	3.5	21.4	0	6.2	4.6	0	1.8	3.4	0	3.2
Bikes by Direction	0	0	0	0	0	0	1	0	0	1
% Bikes by Direction	0	0	0	0	0	0	0.1	0	0	0

	Spring Street (Route 27) From North				South Street From East				South Street (Route 27) From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. 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	119	**6**	0	125	4	**39**	0	**43**	**199**	168	0	367	535
07:30 AM	**162**	1	**1**	**164**	3	37	0	40	169	**240**	0	**409**	**613**
07:45 AM	146	1	0	147	3	27	0	30	146	182	0	328	505
08:00 AM	154	6	0	160	**5**	30	0	35	133	185	0	318	513
Total Volume	581	14	1	596	15	133	0	148	647	775	0	1422	2166
% App. Total	97.5	2.3	0.2		10.1	89.9	0		45.5	54.5	0		
PHF	.897	.583	.250	.909	.750	.853	.000	.860	.813	.807	.000	.869	.883
Cars & Peds	559	10	1	570	14	129	0	143	635	750	0	1385	2098
% Cars & Peds	96.2	71.4	100	95.6	93.3	97.0	0	96.6	98.1	96.8	0	97.4	96.9
Trucks & Buses	22	4	0	26	1	4	0	5	11	25	0	36	67
% Trucks & Buses	3.8	28.6	0	4.4	6.7	3.0	0	3.4	1.7	3.2	0	2.5	3.1
Bikes by Direction	0	0	0	0	0	0	0	0	1	0	0	1	1
% Bikes by Direction	0	0	0	0	0	0	0	0	0.2	0	0	0.1	0.0

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Mario Perone, mperone1@verizon.net
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N/S: Spring Street/South Street (27)
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Groups Printed- Cars & Peds

	Spring Street (Route 27) From North			South Street From East			South Street (Route 27) From South			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
07:00 AM	96	2	0	2	37	0	186	167	0	490
07:15 AM	117	4	0	4	39	0	193	162	0	519
07:30 AM	158	1	1	3	36	0	168	232	0	599
07:45 AM	138	1	0	3	25	0	141	179	0	487
Total	509	8	1	12	137	0	688	740	0	2095
08:00 AM	146	4	0	4	29	0	133	177	0	493
08:15 AM	150	1	0	3	28	0	111	202	0	495
08:30 AM	134	4	0	4	26	0	90	166	0	424
08:45 AM	100	5	0	7	29	0	104	128	0	373
Total	530	14	0	18	112	0	438	673	0	1785
Grand Total	1039	22	1	30	249	0	1126	1413	0	3880
Apprch %	97.8	2.1	0.1	10.8	89.2	0	44.3	55.7	0	
Total %	26.8	0.6	0	0.8	6.4	0	29	36.4	0	

	Spring Street (Route 27) From North				South Street From East				South Street (Route 27) From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. 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	117	**4**	0	121	**4**	**39**	0	**43**	**193**	162	0	355	519
07:30 AM	**158**	1	**1**	**160**	3	36	0	39	168	**232**	0	**400**	**599**
07:45 AM	138	1	0	139	3	25	0	28	141	179	0	320	487
08:00 AM	146	4	0	150	4	29	0	33	133	177	0	310	493
Total Volume	559	10	1	570	14	129	0	143	635	750	0	1385	2098
% App. Total	98.1	1.8	0.2		9.8	90.2	0		45.8	54.2	0		
PHF	.884	.625	.250	.891	.875	.827	.000	.831	.823	.808	.000	.866	.876

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N/S: Spring Street/South Street (27)
E: South Street
City, State: Medfield, MA
Client: McM/A. Bulhoes

File Name : 04653A
Site Code : Y1565811
Start Date : 11/10/2015
Page No : 1

Groups Printed- Trucks & Buses

	Spring Street (Route 27) From North			South Street From East			South Street (Route 27) From South			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
07:00 AM	3	1	0	1	1	0	3	5	0	14
07:15 AM	2	2	0	0	0	0	5	6	0	15
07:30 AM	4	0	0	0	1	0	1	8	0	14
07:45 AM	8	0	0	0	2	0	5	3	0	18
Total	17	3	0	1	4	0	14	22	0	61
08:00 AM	8	2	0	1	1	0	0	8	0	20
08:15 AM	1	0	0	0	2	0	3	8	0	14
08:30 AM	8	0	0	0	3	0	0	3	0	14
08:45 AM	4	1	0	0	2	0	4	8	0	19
Total	21	3	0	1	8	0	7	27	0	67
Grand Total	38	6	0	2	12	0	21	49	0	128
Apprch %	86.4	13.6	0	14.3	85.7	0	30	70	0	
Total %	29.7	4.7	0	1.6	9.4	0	16.4	38.3	0	

	Spring Street (Route 27) From North				South Street From East				South Street (Route 27) From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. 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	2	**2**	0	4	0	0	0	0	**5**	6	0	**11**	15
07:30 AM	4	0	0	4	0	1	0	1	1	**8**	0	9	14
07:45 AM	**8**	0	0	8	0	**2**	0	**2**	5	3	0	8	18
08:00 AM	8	2	0	**10**	**1**	1	0	2	0	8	0	8	**20**
Total Volume	22	4	0	26	1	4	0	5	11	25	0	36	67
% App. Total	84.6	15.4	0		20	80	0		30.6	69.4	0		
PHF	.688	.500	.000	.650	.250	.500	.000	.625	.550	.781	.000	.818	.838

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/S: Spring Street/South Street (27)
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Client: McM/A. Bulhoes

File Name : 04653A
Site Code : Y1565811
Start Date : 11/10/2015

Groups Printed- Bikes by Direction

	Spring Street (Route 27) From North			South Street From East			South Street (Route 27) From South			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	1	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	1	0	0	1
Apprch %	0	0	0	0	0	0	100	0	0	
Total %	0	0	0	0	0	0	100	0	0	

	Spring Street (Route 27) From North				South Street From East				South Street (Route 27) From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	**1**	0	0	**1**	**1**
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	1	0	0	1	1
% App. Total	0	0	0		0	0	0		100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.250

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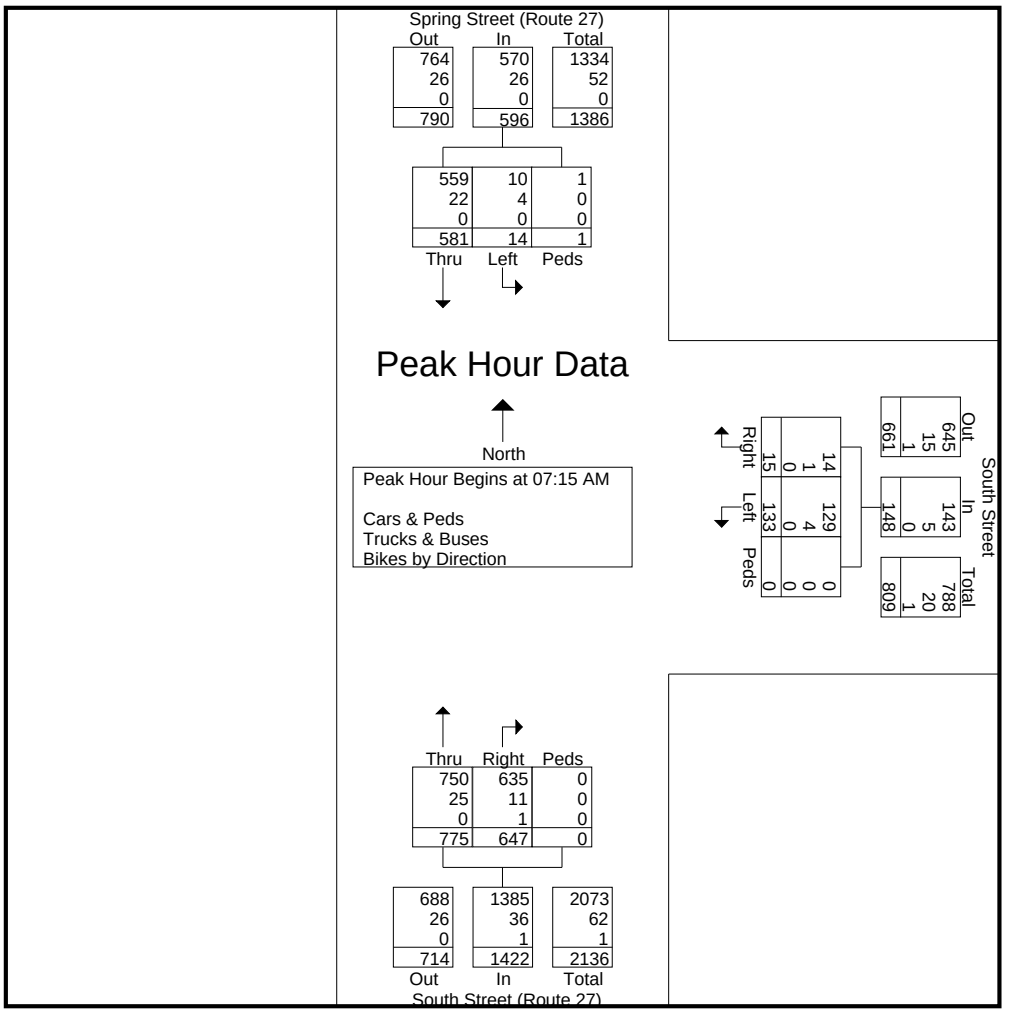
Client: McM/A. Bulhoes

File Name : 04653A
Site Code : Y1565811
Start Date : 11/10/2015
Page No : 1

	Spring Street (Route 27) From North				South Street From East				South Street (Route 27) From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. 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	119	**6**	0	125	4	**39**	0	**43**	**199**	168	0	367	535
07:30 AM	**162**	1	**1**	**164**	3	37	0	40	169	**240**	0	**409**	**613**
07:45 AM	146	1	0	147	3	27	0	30	146	182	0	328	505
08:00 AM	154	6	0	160	**5**	30	0	35	133	185	0	318	513
Total Volume	581	14	1	596	15	133	0	148	647	775	0	1422	2166
% App. Total	97.5	2.3	0.2		10.1	89.9	0		45.5	54.5	0		
PHF	.897	.583	.250	.909	.750	.853	.000	.860	.813	.807	.000	.869	.883
Cars & Peds	559	10	1	570	14	129	0	143	635	750	0	1385	2098
% Cars & Peds	96.2	71.4	100	95.6	93.3	97.0	0	96.6	98.1	96.8	0	97.4	96.9
Trucks & Buses	22	4	0	26	1	4	0	5	11	25	0	36	67
% Trucks & Buses	3.8	28.6	0	4.4	6.7	3.0	0	3.4	1.7	3.2	0	2.5	3.1
Bikes by Direction	0	0	0	0	0	0	0	0	1	0	0	1	1
% Bikes by Direction	0	0	0	0	0	0	0	0	0.2	0	0	0.1	0.0



Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/S: South Street/High Street (27)
W: South Street
City, State: Medfield, MA
Client: McM/A. Bulhoes

File Name : 04653B
Site Code : Y1565811
Start Date : 11/10/2015
Page No : 1

Groups Printed- Cars & Peds - Trucks & Buses - Bikes by Direction

	South Street (Route 27) From North			High Street (Route 27) From South			South Street From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
07:00 AM	19	117	0	158	2	0	17	196	0	509
07:15 AM	30	130	0	189	4	0	10	188	0	551
07:30 AM	40	162	0	222	4	0	16	192	0	636
07:45 AM	25	148	0	184	8	0	21	147	0	533
Total	114	557	0	753	18	0	64	723	0	2229
08:00 AM	38	144	0	207	7	0	11	113	0	520
08:15 AM	25	153	2	173	6	0	17	153	0	529
08:30 AM	37	131	2	174	7	0	17	84	0	452
08:45 AM	34	102	0	142	7	0	14	105	0	404
Total	134	530	4	696	27	0	59	455	0	1905
Grand Total	248	1087	4	1449	45	0	123	1178	0	4134
Apprch %	18.5	81.2	0.3	97	3	0	9.5	90.5	0	
Total %	6	26.3	0.1	35.1	1.1	0	3	28.5	0	
Cars & Peds	240	1045	4	1392	41	0	120	1162	0	4004
% Cars & Peds	96.8	96.1	100	96.1	91.1	0	97.6	98.6	0	96.9
Trucks & Buses	8	42	0	57	4	0	3	15	0	129
% Trucks & Buses	3.2	3.9	0	3.9	8.9	0	2.4	1.3	0	3.1
Bikes by Direction	0	0	0	0	0	0	0	1	0	1
% Bikes by Direction	0	0	0	0	0	0	0	0.1	0	0

	South Street (Route 27) From North				High Street (Route 27) From South				South Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. 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	30	130	0	160	189	4	0	193	10	188	0	198	551
07:30 AM	**40**	**162**	0	**202**	**222**	4	0	**226**	16	**192**	0	**208**	**636**
07:45 AM	25	148	0	173	184	**8**	0	192	**21**	147	0	168	533
08:00 AM	38	144	0	182	207	7	0	214	11	113	0	124	520
Total Volume	133	584	0	717	802	23	0	825	58	640	0	698	2240
% App. Total	18.5	81.5	0		97.2	2.8	0		8.3	91.7	0		
PHF	.831	.901	.000	.887	.903	.719	.000	.913	.690	.833	.000	.839	.881
Cars & Peds	128	563	0	691	773	22	0	795	57	631	0	688	2174
% Cars & Peds	96.2	96.4	0	96.4	96.4	95.7	0	96.4	98.3	98.6	0	98.6	97.1
Trucks & Buses	5	21	0	26	29	1	0	30	1	8	0	9	65
% Trucks & Buses	3.8	3.6	0	3.6	3.6	4.3	0	3.6	1.7	1.3	0	1.3	2.9
Bikes by Direction	0	0	0	0	0	0	0	0	0	1	0	1	1
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0.2	0	0.1	0.0

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/S: South Street/High Street (27)
W: South Street
City, State: Medfield, MA
Client: McM/A. Bulhoes

File Name : 04653B
Site Code : Y1565811
Start Date : 11/10/2015
Page No : 1

Groups Printed- Cars & Peds

	South Street (Route 27) From North			High Street (Route 27) From South			South Street From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
07:00 AM	18	114	0	151	1	0	17	195	0	496
07:15 AM	30	128	0	180	4	0	9	184	0	535
07:30 AM	38	159	0	214	4	0	16	191	0	622
07:45 AM	23	140	0	180	7	0	21	143	0	514
Total	109	541	0	725	16	0	63	713	0	2167
08:00 AM	37	136	0	199	7	0	11	113	0	503
08:15 AM	25	150	2	165	5	0	16	150	0	513
08:30 AM	35	122	2	171	6	0	17	84	0	437
08:45 AM	34	96	0	132	7	0	13	102	0	384
Total	131	504	4	667	25	0	57	449	0	1837
Grand Total	240	1045	4	1392	41	0	120	1162	0	4004
Apprch %	18.6	81.1	0.3	97.1	2.9	0	9.4	90.6	0	
Total %	6	26.1	0.1	34.8	1	0	3	29	0	

	South Street (Route 27) From North				High Street (Route 27) From South				South Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. 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	30	128	0	158	180	4	0	184	9	184	0	193	535
07:30 AM	**38**	**159**	0	**197**	**214**	4	0	**218**	16	**191**	0	**207**	**622**
07:45 AM	23	140	0	163	180	**7**	0	187	**21**	143	0	164	514
08:00 AM	37	136	0	173	199	7	0	206	11	113	0	124	503
Total Volume	128	563	0	691	773	22	0	795	57	631	0	688	2174
% App. Total	18.5	81.5	0		97.2	2.8	0		8.3	91.7	0		
PHF	.842	.885	.000	.877	.903	.786	.000	.912	.679	.826	.000	.831	.874

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File Name : 04653B
Site Code : Y1565811
Start Date : 11/10/2015
Page No : 1

Groups Printed- Trucks & Buses

	South Street (Route 27) From North			High Street (Route 27) From South			South Street From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
07:00 AM	1	3	0	7	1	0	0	1	0	13
07:15 AM	0	2	0	9	0	0	1	3	0	15
07:30 AM	2	3	0	8	0	0	0	1	0	14
07:45 AM	2	8	0	4	1	0	0	4	0	19
Total	5	16	0	28	2	0	1	9	0	61
08:00 AM	1	8	0	8	0	0	0	0	0	17
08:15 AM	0	3	0	8	1	0	1	3	0	16
08:30 AM	2	9	0	3	1	0	0	0	0	15
08:45 AM	0	6	0	10	0	0	1	3	0	20
Total	3	26	0	29	2	0	2	6	0	68
Grand Total	8	42	0	57	4	0	3	15	0	129
Apprch %	16	84	0	93.4	6.6	0	16.7	83.3	0	
Total %	6.2	32.6	0	44.2	3.1	0	2.3	11.6	0	

	South Street (Route 27) From North				High Street (Route 27) From South				South Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. 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	1	8	0	9	8	0	0	8	0	0	0	0	17
08:15 AM	0	3	0	3	8	**1**	0	9	**1**	**3**	0	**4**	16
08:30 AM	**2**	**9**	0	**11**	3	1	0	4	0	0	0	0	15
08:45 AM	0	6	0	6	**10**	0	0	**10**	1	3	0	4	**20**
Total Volume	3	26	0	29	29	2	0	31	2	6	0	8	68
% App. Total	10.3	89.7	0		93.5	6.5	0		25	75	0		
PHF	.375	.722	.000	.659	.725	.500	.000	.775	.500	.500	.000	.500	.850

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Client: McM/A. Bulhoes

File Name : 04653B
Site Code : Y1565811
Start Date : 11/10/2015

Groups Printed- Bikes by Direction

	South Street (Route 27) From North			High Street (Route 27) From South			South Street From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	1	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	1	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	1	0	1
Apprch %	0	0	0	0	0	0	0	100	0	
Total %	0	0	0	0	0	0	0	100	0	

	South Street (Route 27) From North				High Street (Route 27) From South				South Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	**1**
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	1	0	1	1
% App. Total	0	0	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.250

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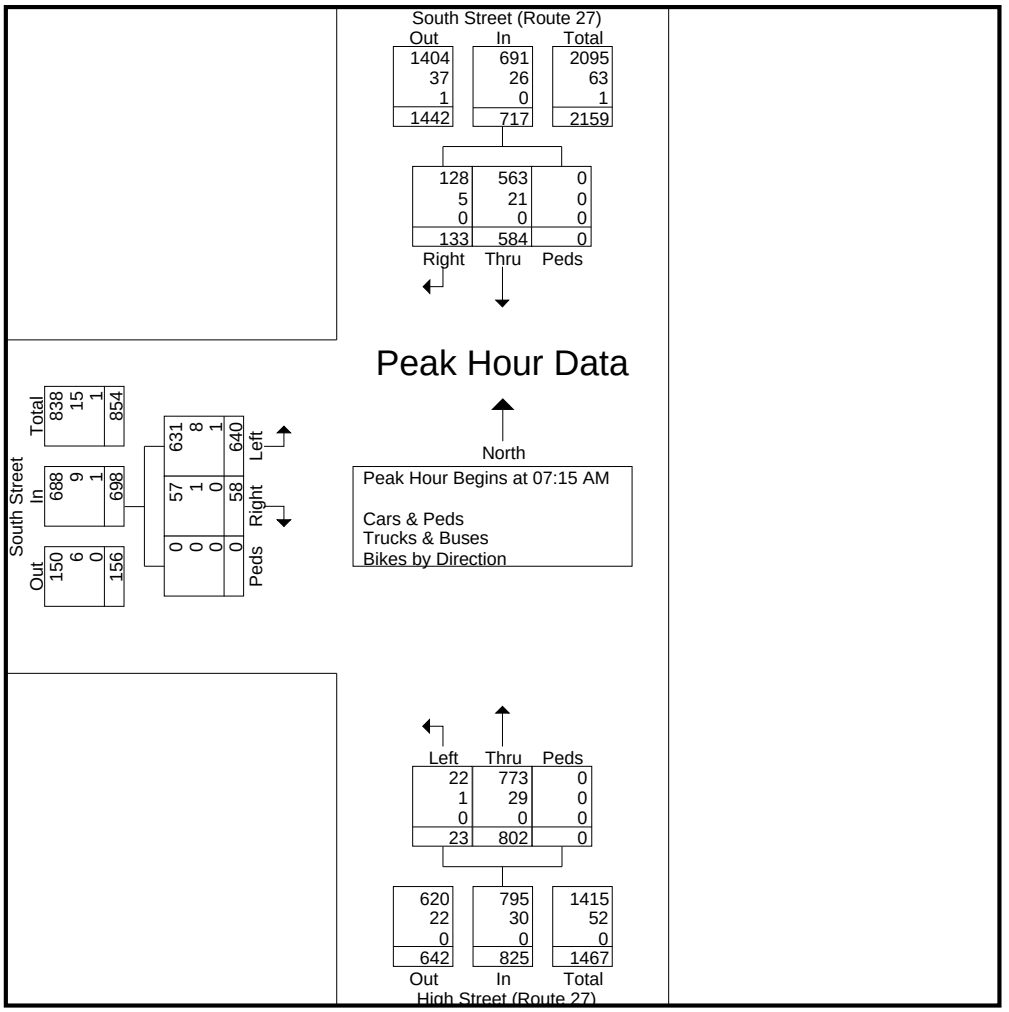
Site Code : Y1565811
Start Date : 11/10/2015
Page No : 1

	South Street (Route 27) From North				High Street (Route 27) From South				South Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. 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	30	130	0	160	189	4	0	193	10	188	0	198	551
07:30 AM	**40**	**162**	0	**202**	**222**	4	0	**226**	16	**192**	0	**208**	**636**
07:45 AM	25	148	0	173	184	**8**	0	192	**21**	147	0	168	533
08:00 AM	38	144	0	182	207	7	0	214	11	113	0	124	520
Total Volume	133	584	0	717	802	23	0	825	58	640	0	698	2240
% App. Total	18.5	81.5	0		97.2	2.8	0		8.3	91.7	0		
PHF	.831	.901	.000	.887	.903	.719	.000	.913	.690	.833	.000	.839	.881
Cars & Peds	128	563	0	691	773	22	0	795	57	631	0	688	2174
% Cars & Peds	96.2	96.4	0	96.4	96.4	95.7	0	96.4	98.3	98.6	0	98.6	97.1
Trucks & Buses	5	21	0	26	29	1	0	30	1	8	0	9	65
% Trucks & Buses	3.8	3.6	0	3.6	3.6	4.3	0	3.6	1.7	1.3	0	1.3	2.9
Bikes by Direction	0	0	0	0	0	0	0	0	0	1	0	1	1
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0.2	0	0.1	0.0



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E: South Street
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Client: McM/A. Bulhoes

File Name : 04653AA
Site Code : Y1565811
Start Date : 11/10/2015
Page No : 1

Groups Printed- Cars & Peds - Trucks & Buses - Bikes by Direction

	Spring Street (Route 27) From North			South Street From East			South Street (Route 27) From South			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
04:00 PM	175	4	0	3	74	0	53	115	0	424
04:15 PM	172	5	0	2	71	0	51	111	0	412
04:30 PM	197	5	0	5	60	0	49	122	0	438
04:45 PM	211	4	0	3	63	0	51	117	0	449
Total	755	18	0	13	268	0	204	465	0	1723
05:00 PM	196	2	0	4	65	0	47	117	0	431
05:15 PM	215	3	0	6	41	0	61	165	0	491
05:30 PM	218	6	0	2	57	0	46	127	0	456
05:45 PM	194	6	0	2	54	0	36	119	0	411
Total	823	17	0	14	217	0	190	528	0	1789
Grand Total	1578	35	0	27	485	0	394	993	0	3512
Apprch %	97.8	2.2	0	5.3	94.7	0	28.4	71.6	0	
Total %	44.9	1	0	0.8	13.8	0	11.2	28.3	0	
Cars & Peds	1550	35	0	25	485	0	391	975	0	3461
% Cars & Peds	98.2	100	0	92.6	100	0	99.2	98.2	0	98.5
Trucks & Buses	28	0	0	2	0	0	3	18	0	51
% Trucks & Buses	1.8	0	0	7.4	0	0	0.8	1.8	0	1.5
Bikes by Direction	0	0	0	0	0	0	0	0	0	0
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0

	Spring Street (Route 27) From North				South Street From East				South Street (Route 27) From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. 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	211	4	0	215	3	63	0	66	51	117	0	168	449
05:00 PM	196	2	0	198	4	**65**	0	**69**	47	117	0	164	431
05:15 PM	215	3	0	218	**6**	41	0	47	**61**	**165**	0	**226**	**491**
05:30 PM	**218**	**6**	0	**224**	2	57	0	59	46	127	0	173	456
Total Volume	840	15	0	855	15	226	0	241	205	526	0	731	1827
% App. Total	98.2	1.8	0		6.2	93.8	0		28	72	0		
PHF	.963	.625	.000	.954	.625	.869	.000	.873	.840	.797	.000	.809	.930
Cars & Peds	823	15	0	838	14	226	0	240	204	516	0	720	1798
% Cars & Peds	98.0	100	0	98.0	93.3	100	0	99.6	99.5	98.1	0	98.5	98.4
Trucks & Buses	17	0	0	17	1	0	0	1	1	10	0	11	29
% Trucks & Buses	2.0	0	0	2.0	6.7	0	0	0.4	0.5	1.9	0	1.5	1.6
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/S: Spring Street/South Street (27)
E: South Street
City, State: Medfield, MA
Client: McM/A. Bulhoes

File Name : 04653AA
Site Code : Y1565811
Start Date : 11/10/2015
Page No : 1

Groups Printed- Cars & Peds

	Spring Street (Route 27) From North			South Street From East			South Street (Route 27) From South			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
04:00 PM	171	4	0	3	74	0	53	113	0	418
04:15 PM	168	5	0	2	71	0	50	108	0	404
04:30 PM	195	5	0	4	60	0	48	121	0	433
04:45 PM	208	4	0	3	63	0	50	115	0	443
Total	742	18	0	12	268	0	201	457	0	1698
05:00 PM	190	2	0	4	65	0	47	114	0	422
05:15 PM	211	3	0	5	41	0	61	162	0	483
05:30 PM	214	6	0	2	57	0	46	125	0	450
05:45 PM	193	6	0	2	54	0	36	117	0	408
Total	808	17	0	13	217	0	190	518	0	1763
Grand Total	1550	35	0	25	485	0	391	975	0	3461
Apprch %	97.8	2.2	0	4.9	95.1	0	28.6	71.4	0	
Total %	44.8	1	0	0.7	14	0	11.3	28.2	0	

	Spring Street (Route 27) From North				South Street From East				South Street (Route 27) From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. 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	208	4	0	212	3	63	0	66	50	115	0	165	443
05:00 PM	190	2	0	192	4	**65**	0	**69**	47	114	0	161	422
05:15 PM	211	3	0	214	**5**	41	0	46	**61**	**162**	0	**223**	**483**
05:30 PM	**214**	**6**	0	**220**	2	57	0	59	46	125	0	171	450
Total Volume	823	15	0	838	14	226	0	240	204	516	0	720	1798
% App. Total	98.2	1.8	0		5.8	94.2	0		28.3	71.7	0		
PHF	.961	.625	.000	.952	.700	.869	.000	.870	.836	.796	.000	.807	.931

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

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E: South Street
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Client: McM/A. Bulhoes

File Name : 04653AA
Site Code : Y1565811
Start Date : 11/10/2015
Page No : 1

Groups Printed- Trucks & Buses

	Spring Street (Route 27) From North			South Street From East			South Street (Route 27) From South			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
04:00 PM	4	0	0	0	0	0	0	2	0	6
04:15 PM	4	0	0	0	0	0	1	3	0	8
04:30 PM	2	0	0	1	0	0	1	1	0	5
04:45 PM	3	0	0	0	0	0	1	2	0	6
Total	13	0	0	1	0	0	3	8	0	25
05:00 PM	6	0	0	0	0	0	0	3	0	9
05:15 PM	4	0	0	1	0	0	0	3	0	8
05:30 PM	4	0	0	0	0	0	0	2	0	6
05:45 PM	1	0	0	0	0	0	0	2	0	3
Total	15	0	0	1	0	0	0	10	0	26
Grand Total	28	0	0	2	0	0	3	18	0	51
Apprch %	100	0	0	100	0	0	14.3	85.7	0	
Total %	54.9	0	0	3.9	0	0	5.9	35.3	0	

	Spring Street (Route 27) From North				South Street From East				South Street (Route 27) From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. 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	3	0	0	3	0	0	0	0	**1**	2	0	**3**	6
05:00 PM	**6**	0	0	**6**	0	0	0	0	0	**3**	0	3	**9**
05:15 PM	4	0	0	4	**1**	0	0	**1**	0	3	0	3	8
05:30 PM	4	0	0	4	0	0	0	0	0	2	0	2	6
Total Volume	17	0	0	17	1	0	0	1	1	10	0	11	29
% App. Total	100	0	0		100	0	0		9.1	90.9	0		
PHF	.708	.000	.000	.708	.250	.000	.000	.250	.250	.833	.000	.917	.806

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

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File Name : 04653AA
Site Code : Y1565811
Start Date : 11/10/2015
Page No : 1

Groups Printed- Bikes by Direction

	Spring Street (Route 27) From North			South Street From East			South Street (Route 27) From South			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0	0	0	0	0	0	
Total %										

	Spring Street (Route 27) From North				South Street From East				South Street (Route 27) From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. 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	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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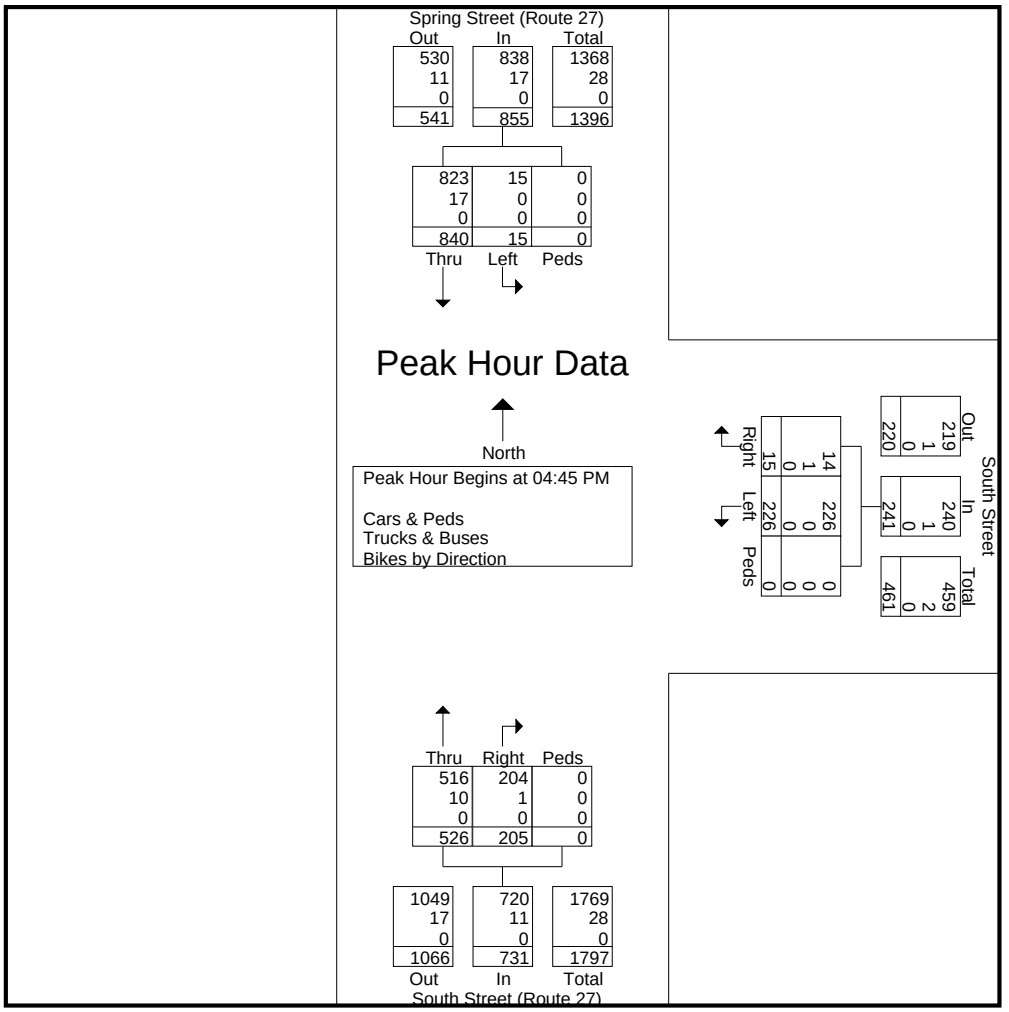
File Name : 04653AA
Site Code : Y1565811
Start Date : 11/10/2015
Page No : 1

	Spring Street (Route 27) From North				South Street From East				South Street (Route 27) From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. 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	211	4	0	215	3	63	0	66	51	117	0	168	449
05:00 PM	196	2	0	198	4	**65**	0	**69**	47	117	0	164	431
05:15 PM	215	3	0	218	**6**	41	0	47	**61**	**165**	0	**226**	**491**
05:30 PM	**218**	**6**	0	**224**	2	57	0	59	46	127	0	173	456
Total Volume	840	15	0	855	15	226	0	241	205	526	0	731	1827
% App. Total	98.2	1.8	0		6.2	93.8	0		28	72	0		
PHF	.963	.625	.000	.954	.625	.869	.000	.873	.840	.797	.000	.809	.930
Cars & Peds	823	15	0	838	14	226	0	240	204	516	0	720	1798
% Cars & Peds	98.0	100	0	98.0	93.3	100	0	99.6	99.5	98.1	0	98.5	98.4
Trucks & Buses	17	0	0	17	1	0	0	1	1	10	0	11	29
% Trucks & Buses	2.0	0	0	2.0	6.7	0	0	0.4	0.5	1.9	0	1.5	1.6
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0



Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/S: South Street/High Street (27)
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City, State: Medfield, MA
Client: McM/A. Bulhoes

File Name : 04653BB
Site Code : Y1565811
Start Date : 11/10/2015
Page No : 1

Groups Printed- Cars & Peds - Trucks & Buses - Bikes by Direction

	South Street (Route 27) From North			High Street (Route 27) From South			South Street From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
04:00 PM	102	145	0	121	10	0	9	42	0	429
04:15 PM	94	148	0	119	14	0	11	45	0	431
04:30 PM	97	158	0	129	17	0	7	47	0	455
04:45 PM	115	162	0	141	20	0	5	36	0	479
Total	408	613	0	510	61	0	32	170	0	1794
05:00 PM	108	153	0	139	13	0	9	28	0	450
05:15 PM	114	149	0	179	11	0	8	38	0	499
05:30 PM	112	158	0	136	12	0	6	39	0	463
05:45 PM	105	147	0	124	16	0	10	28	0	430
Total	439	607	0	578	52	0	33	133	0	1842
Grand Total	847	1220	0	1088	113	0	65	303	0	3636
Apprch %	41	59	0	90.6	9.4	0	17.7	82.3	0	
Total %	23.3	33.6	0	29.9	3.1	0	1.8	8.3	0	
Cars & Peds	843	1194	0	1072	112	0	65	299	0	3585
% Cars & Peds	99.5	97.9	0	98.5	99.1	0	100	98.7	0	98.6
Trucks & Buses	4	26	0	16	1	0	0	4	0	51
% Trucks & Buses	0.5	2.1	0	1.5	0.9	0	0	1.3	0	1.4
Bikes by Direction	0	0	0	0	0	0	0	0	0	0
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0

	South Street (Route 27) From North				High Street (Route 27) From South				South Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. 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	**115**	**162**	0	**277**	141	**20**	0	161	5	36	0	41	479
05:00 PM	108	153	0	261	139	13	0	152	**9**	28	0	37	450
05:15 PM	114	149	0	263	**179**	11	0	**190**	8	38	0	**46**	**499**
05:30 PM	112	158	0	270	136	12	0	148	6	**39**	0	45	463
Total Volume	449	622	0	1071	595	56	0	651	28	141	0	169	1891
% App. Total	41.9	58.1	0		91.4	8.6	0		16.6	83.4	0		
PHF	.976	.960	.000	.967	.831	.700	.000	.857	.778	.904	.000	.918	.947
Cars & Peds	446	607	0	1053	588	56	0	644	28	138	0	166	1863
% Cars & Peds	99.3	97.6	0	98.3	98.8	100	0	98.9	100	97.9	0	98.2	98.5
Trucks & Buses	3	15	0	18	7	0	0	7	0	3	0	3	28
% Trucks & Buses	0.7	2.4	0	1.7	1.2	0	0	1.1	0	2.1	0	1.8	1.5
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

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Client: McM/A. Bulhoes

File Name : 04653BB
Site Code : Y1565811
Start Date : 11/10/2015

Groups Printed- Cars & Peds

	South Street (Route 27) From North			High Street (Route 27) From South			South Street From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
04:00 PM	102	142	0	119	10	0	9	42	0	424
04:15 PM	94	143	0	116	14	0	11	44	0	422
04:30 PM	96	156	0	127	17	0	7	47	0	450
04:45 PM	115	159	0	139	20	0	5	35	0	473
Total	407	600	0	501	61	0	32	168	0	1769
05:00 PM	107	149	0	136	13	0	9	28	0	442
05:15 PM	113	144	0	178	11	0	8	36	0	490
05:30 PM	111	155	0	135	12	0	6	39	0	458
05:45 PM	105	146	0	122	15	0	10	28	0	426
Total	436	594	0	571	51	0	33	131	0	1816
Grand Total	843	1194	0	1072	112	0	65	299	0	3585
Apprch %	41.4	58.6	0	90.5	9.5	0	17.9	82.1	0	
Total %	23.5	33.3	0	29.9	3.1	0	1.8	8.3	0	

	South Street (Route 27) From North				High Street (Route 27) From South				South Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. 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	**115**	**159**	0	**274**	139	**20**	0	159	5	35	0	40	473
05:00 PM	107	149	0	256	136	13	0	149	**9**	28	0	37	442
05:15 PM	113	144	0	257	**178**	11	0	**189**	8	36	0	44	**490**
05:30 PM	111	155	0	266	135	12	0	147	6	**39**	0	**45**	458
Total Volume	446	607	0	1053	588	56	0	644	28	138	0	166	1863
% App. Total	42.4	57.6	0		91.3	8.7	0		16.9	83.1	0		
PHF	.970	.954	.000	.961	.826	.700	.000	.852	.778	.885	.000	.922	.951

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File Name : 04653BB
Site Code : Y1565811
Start Date : 11/10/2015
Page No : 1

Groups Printed- Trucks & Buses

	South Street (Route 27) From North			High Street (Route 27) From South			South Street From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
04:00 PM	0	3	0	2	0	0	0	0	0	5
04:15 PM	0	5	0	3	0	0	0	1	0	9
04:30 PM	1	2	0	2	0	0	0	0	0	5
04:45 PM	0	3	0	2	0	0	0	1	0	6
Total	1	13	0	9	0	0	0	2	0	25
05:00 PM	1	4	0	3	0	0	0	0	0	8
05:15 PM	1	5	0	1	0	0	0	2	0	9
05:30 PM	1	3	0	1	0	0	0	0	0	5
05:45 PM	0	1	0	2	1	0	0	0	0	4
Total	3	13	0	7	1	0	0	2	0	26
Grand Total	4	26	0	16	1	0	0	4	0	51
Apprch %	13.3	86.7	0	94.1	5.9	0	0	100	0	
Total %	7.8	51	0	31.4	2	0	0	7.8	0	

	South Street (Route 27) From North				High Street (Route 27) From South				South Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. 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	**5**	0	**5**	**3**	0	0	**3**	0	**1**	0	**1**	**9**
04:30 PM	**1**	2	0	3	2	0	0	2	0	0	0	0	5
04:45 PM	0	3	0	3	2	0	0	2	0	1	0	1	6
05:00 PM	1	4	0	5	3	0	0	3	0	0	0	0	8
Total Volume	2	14	0	16	10	0	0	10	0	2	0	2	28
% App. Total	12.5	87.5	0		100	0	0		0	100	0		
PHF	.500	.700	.000	.800	.833	.000	.000	.833	.000	.500	.000	.500	.778

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Client: McM/A. Bulhoes

File Name : 04653BB
Site Code : Y1565811
Start Date : 11/10/2015

Groups Printed- Bikes by Direction

	South Street (Route 27) From North			High Street (Route 27) From South			South Street From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0	0	0	0	0	0	
Total %										

	South Street (Route 27) From North				High Street (Route 27) From South				South Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. 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	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

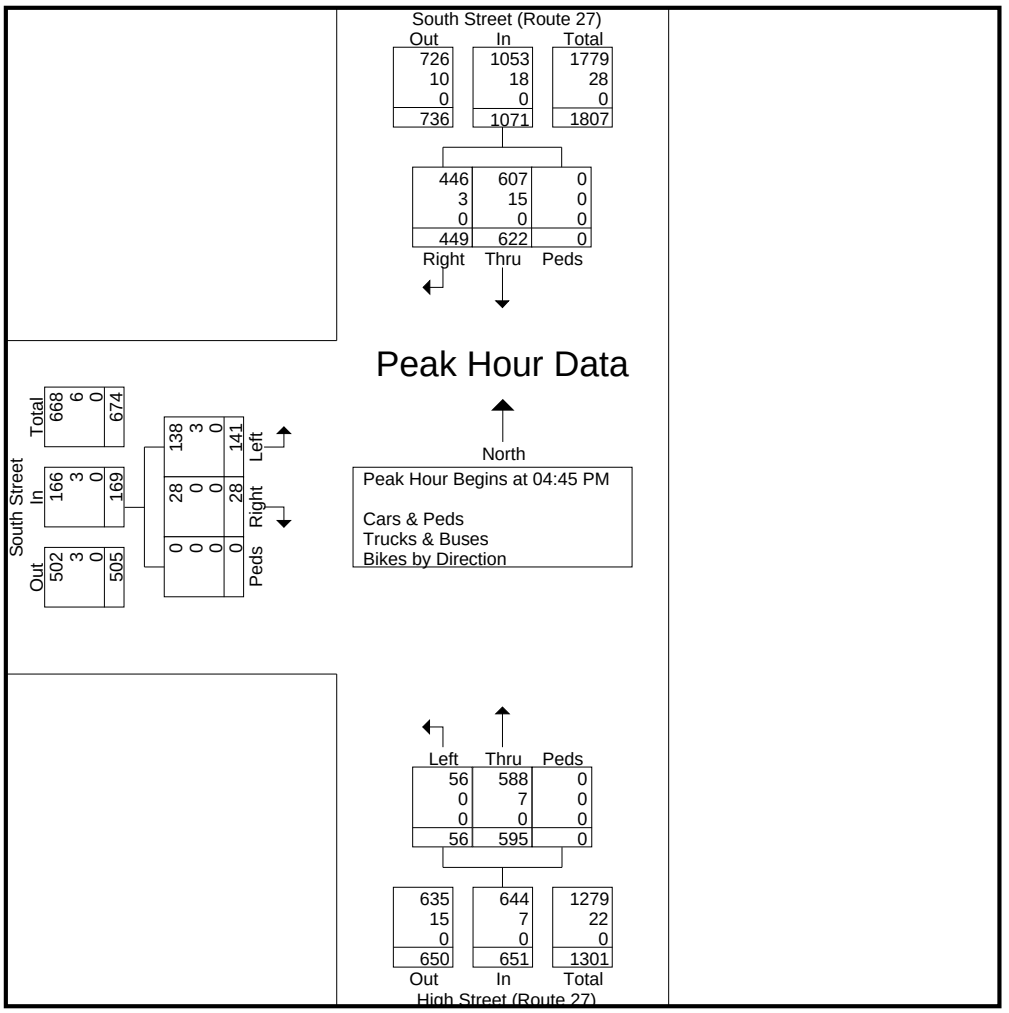
Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/S: South Street/High Street (27)
W: South Street
City, State: Medfield, MA
Client: McM/A. Bulhoes

File Name : 04653BB
Site Code : Y1565811
Start Date : 11/10/2015
Page No : 1

	South Street (Route 27) From North				High Street (Route 27) From South				South Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. 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	**115**	**162**	0	**277**	141	**20**	0	161	5	36	0	41	479
05:00 PM	108	153	0	261	139	13	0	152	**9**	28	0	37	450
05:15 PM	114	149	0	263	**179**	11	0	**190**	8	38	0	**46**	**499**
05:30 PM	112	158	0	270	136	12	0	148	6	**39**	0	45	463
Total Volume	449	622	0	1071	595	56	0	651	28	141	0	169	1891
% App. Total	41.9	58.1	0		91.4	8.6	0		16.6	83.4	0		
PHF	.976	.960	.000	.967	.831	.700	.000	.857	.778	.904	.000	.918	.947
Cars & Peds	446	607	0	1053	588	56	0	644	28	138	0	166	1863
% Cars & Peds	99.3	97.6	0	98.3	98.8	100	0	98.9	100	97.9	0	98.2	98.5
Trucks & Buses	3	15	0	18	7	0	0	7	0	3	0	3	28
% Trucks & Buses	0.7	2.4	0	1.7	1.2	0	0	1.1	0	2.1	0	1.8	1.5
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0	0



Transportation Data Corporation
Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

South Street east of
Spring Street (Route 27)
City, State: Medfield, MA
Client: McM/A. Bulhoes

04653Avolume
Site Code: Y-15658.11

Start Time	10-Nov-1 Tue	EB A.M.	EB P.M.	WB A.M.	WB P.M.	Combined A.M.	Combined P.M.	11-Nov Wed	EB A.M.	EB P.M.	WB A.M.	WB P.M.	Combined A.M.	Combined P.M.
12:00		2	44	2	39	4	83		*	*	*	*	*	*
12:15		0	41	1	40	1	81		*	*	*	*	*	*
12:30		3	33	5	31	8	64		*	*	*	*	*	*
12:45		2	26	1	32	3	58		*	*	*	*	*	*
01:00		1	37	0	36	1	73		*	*	*	*	*	*
01:15		1	32	2	28	3	60		*	*	*	*	*	*
01:30		0	33	0	38	0	71		*	*	*	*	*	*
01:45		0	50	0	35	0	85		*	*	*	*	*	*
02:00		0	48	0	59	0	107		*	*	*	*	*	*
02:15		1	40	0	84	1	124		*	*	*	*	*	*
02:30		0	***58***	0	57	0	115		*	*	*	*	*	*
02:45		2	***64***	0	***79***	2	***143***		*	*	*	*	*	*
03:00		0	***42***	0	***78***	0	***120***		*	*	*	*	*	*
03:15		0	***51***	2	***74***	2	***125***		*	*	*	*	*	*
03:30		1	44	0	***78***	1	***122***		*	*	*	*	*	*
03:45		1	44	1	72	2	116		*	*	*	*	*	*
04:00		1	56	0	75	1	131		*	*	*	*	*	*
04:15		2	51	1	74	3	125		*	*	*	*	*	*
04:30		3	49	0	62	3	111		*	*	*	*	*	*
04:45		4	47	0	65	4	112		*	*	*	*	*	*
05:00		3	50	2	67	5	117		*	*	*	*	*	*
05:15		21	62	2	42	23	104		*	*	*	*	*	*
05:30		12	53	8	58	20	111		*	*	*	*	*	*
05:45		24	40	3	51	27	91		*	*	*	*	*	*
06:00		40	55	4	60	44	115		*	*	*	*	*	*
06:15		67	48	5	53	72	101		*	*	*	*	*	*
06:30		84	56	9	47	93	103		*	*	*	*	*	*
06:45		***141***	44	15	55	156	99		*	*	*	*	*	*
07:00		***188***	35	***38***	37	***226***	72		*	*	*	*	*	*
07:15		***200***	37	***41***	34	***241***	71		*	*	*	*	*	*
07:30		***167***	28	***37***	37	***204***	65		*	*	*	*	*	*
07:45		139	17	***27***	22	***166***	39		*	*	*	*	*	*
08:00		134	18	34	30	168	48		*	*	*	*	*	*
08:15		113	20	31	36	144	56		*	*	*	*	*	*
08:30		95	21	32	28	127	49		*	*	*	*	*	*
08:45		108	29	35	14	143	43		*	*	*	*	*	*
09:00		62	17	30	54	92	71		*	*	*	*	*	*
09:15		63	15	18	15	81	30		*	*	*	*	*	*
09:30		46	9	21	19	67	28		*	*	*	*	*	*
09:45		36	17	30	23	66	40		*	*	*	*	*	*
10:00		35	10	27	13	62	23		*	*	*	*	*	*
10:15		32	8	28	9	60	17		*	*	*	*	*	*
10:30		33	10	29	12	62	22		*	*	*	*	*	*
10:45		30	6	27	18	57	24		*	*	*	*	*	*
11:00		39	4	26	8	65	12		*	*	*	*	*	*
11:15		33	6	28	10	61	16		*	*	*	*	*	*
11:30		34	6	50	9	84	15		*	*	*	*	*	*
11:45		24	6	37	6	61	12		*	*	*	*	*	*
Total		2027	1617	689	2003	2716	3620		0	0	0	0	0	0
Day Total		3644		2692		6336			0		0		0	
% Total		32.0%	25.5%	10.9%	31.6%				0.0%	0.0%	0.0%	0.0%		
Peak		06:45	02:30	07:00	02:45	07:00	02:45							
Vol.		696	215	143	309	837	510							
P.H.F.		0.870	0.840	0.872	0.978	0.868	0.892							

ADT ADT 6,336 AADT 6,336

Transportation Data Corporation
Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

South Street east of
Spring Street (Route 27)
City, State: Medfield, MA
Client: McM/A. Bulhoes

04653Avolume
Site Code: Y-15658.11

Start Time	10-Nov-15 Tue	EB Morning	EB Afternoon	Hour Totals Morning	Hour Totals Afternoon	WB Morning	WB Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		2	44			2	39				
12:15		0	41			1	40				
12:30		3	33			5	31				
12:45		2	26	7	144	1	32	9	142	16	286
01:00		1	37			0	36				
01:15		1	32			2	28				
01:30		0	33			0	38				
01:45		0	50	2	152	0	35	2	137	4	289
02:00		0	48			0	59				
02:15		1	40			0	84				
02:30		0	58			0	57				
02:45		2	64	3	210	0	79	0	279	3	489
03:00		0	42			0	78				
03:15		0	51			2	74				
03:30		1	44			0	78				
03:45		1	44	2	181	1	72	3	302	5	483
04:00		1	56			0	75				
04:15		2	51			1	74				
04:30		3	49			0	62				
04:45		4	47	10	203	0	65	1	276	11	479
05:00		3	50			2	67				
05:15		21	62			2	42				
05:30		12	53			8	58				
05:45		24	40	60	205	3	51	15	218	75	423
06:00		40	55			4	60				
06:15		67	48			5	53				
06:30		84	56			9	47				
06:45		141	44	332	203	15	55	33	215	365	418
07:00		188	35			38	37				
07:15		200	37			41	34				
07:30		167	28			37	37				
07:45		139	17	694	117	27	22	143	130	837	247
08:00		134	18			34	30				
08:15		113	20			31	36				
08:30		95	21			32	28				
08:45		108	29	450	88	35	14	132	108	582	196
09:00		62	17			30	54				
09:15		63	15			18	15				
09:30		46	9			21	19				
09:45		36	17	207	58	30	23	99	111	306	169
10:00		35	10			27	13				
10:15		32	8			28	9				
10:30		33	10			29	12				
10:45		30	6	130	34	27	18	111	52	241	86
11:00		39	4			26	8				
11:15		33	6			28	10				
11:30		34	6			50	9				
11:45		24	6	130	22	37	6	141	33	271	55
Total		2027	1617			689	2003			2716	3620
Percent		55.6%	44.4%			25.6%	74.4%			42.9%	57.1%
Combined Total		3644				2692				6336	
Total		2027	1617			689	2003			2716	3620
Percent		55.6%	44.4%			25.6%	74.4%			42.9%	57.1%
Combined Total		3644				2692				6336	
ADT		ADT 6,336			AADT 6,336						

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

South Street (Route 27) between
South Street East & South Street West
City, State: Medfield, MA
Client: McM/A. Bulhoes

04653Bvolume
Site Code: Y-15658.11

Start Time	10-Nov-1 Tue	SB A.M.	SB P.M.	NB A.M.	NB P.M.	Combined A.M.	Combined P.M.	11-Nov Wed	SB A.M.	SB P.M.	NB A.M.	NB P.M.	Combined A.M.	Combined P.M.
12:00		8	109	7	119	15	228		*	*	*	*	*	*
12:15		8	116	4	134	12	250		*	*	*	*	*	*
12:30		13	118	7	117	20	235		*	*	*	*	*	*
12:45		4	132	6	116	10	248		*	*	*	*	*	*
01:00		3	117	5	98	8	215		*	*	*	*	*	*
01:15		2	120	1	121	3	241		*	*	*	*	*	*
01:30		2	126	2	116	4	242		*	*	*	*	*	*
01:45		2	124	3	153	5	277		*	*	*	*	*	*
02:00		1	162	2	134	3	296		*	*	*	*	*	*
02:15		3	216	3	124	6	340		*	*	*	*	*	*
02:30		1	184	2	157	3	341		*	*	*	*	*	*
02:45		0	211	1	178	1	389		*	*	*	*	*	*
03:00		1	225	2	125	3	350		*	*	*	*	*	*
03:15		6	233	3	154	9	387		*	*	*	*	*	*
03:30		2	225	3	150	5	375		*	*	*	*	*	*
03:45		5	251	2	152	7	403		*	*	*	*	*	*
04:00		1	240	3	172	4	412		*	*	*	*	*	*
04:15		6	239	9	147	15	386		*	*	*	*	*	*
04:30		4	256	8	***177***	12	***433***		*	*	*	*	*	*
04:45		8	***272***	14	***178***	22	***450***		*	*	*	*	*	*
05:00		8	***247***	11	***152***	19	***399***		*	*	*	*	*	*
05:15		12	***249***	54	***230***	66	***479***		*	*	*	*	*	*
05:30		38	***268***	57	164	95	432		*	*	*	*	*	*
05:45		34	246	76	156	110	402		*	*	*	*	*	*
06:00		43	251	92	162	135	413		*	*	*	*	*	*
06:15		55	223	156	154	211	377		*	*	*	*	*	*
06:30		87	212	271	134	358	346		*	*	*	*	*	*
06:45		121	196	300	131	421	327		*	*	*	*	*	*
07:00		139	144	***341***	116	***480***	260		*	*	*	*	*	*
07:15		***147***	125	***357***	99	***504***	224		*	*	*	*	*	*
07:30		***189***	98	***379***	85	***568***	183		*	*	*	*	*	*
07:45		***165***	85	***311***	69	***476***	154		*	*	*	*	*	*
08:00		***155***	77	304	57	459	134		*	*	*	*	*	*
08:15		143	112	306	76	449	188		*	*	*	*	*	*
08:30		160	81	241	57	401	138		*	*	*	*	*	*
08:45		130	61	249	66	379	127		*	*	*	*	*	*
09:00		137	85	181	40	318	125		*	*	*	*	*	*
09:15		144	60	180	57	324	117		*	*	*	*	*	*
09:30		112	51	165	40	277	91		*	*	*	*	*	*
09:45		108	53	123	33	231	86		*	*	*	*	*	*
10:00		109	51	106	28	215	79		*	*	*	*	*	*
10:15		112	26	125	34	237	60		*	*	*	*	*	*
10:30		99	44	130	27	229	71		*	*	*	*	*	*
10:45		101	37	124	17	225	54		*	*	*	*	*	*
11:00		95	26	127	15	222	41		*	*	*	*	*	*
11:15		130	22	118	24	248	46		*	*	*	*	*	*
11:30		115	17	130	19	245	36		*	*	*	*	*	*
11:45		172	14	94	21	266	35		*	*	*	*	*	*
Total		3140	6837	5195	5085	8335	11922		0	0	0	0	0	0
Day Total		9977		10280		20257			0		0		0	
% Total		15.5%	33.8%	25.6%	25.1%				0.0%	0.0%	0.0%	0.0%		
Peak		07:15	04:45	07:00	04:30	07:00	04:30							
Vol.		656	1036	1388	737	2028	1761							
P.H.F.		0.868	0.952	0.916	0.801	0.893	0.919							

ADT ADT 20,257 AADT 20,257

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

South Street (Route 27) between
South Street East & South Street West
City, State: Medfield, MA
Client: McM/A. Bulhoes

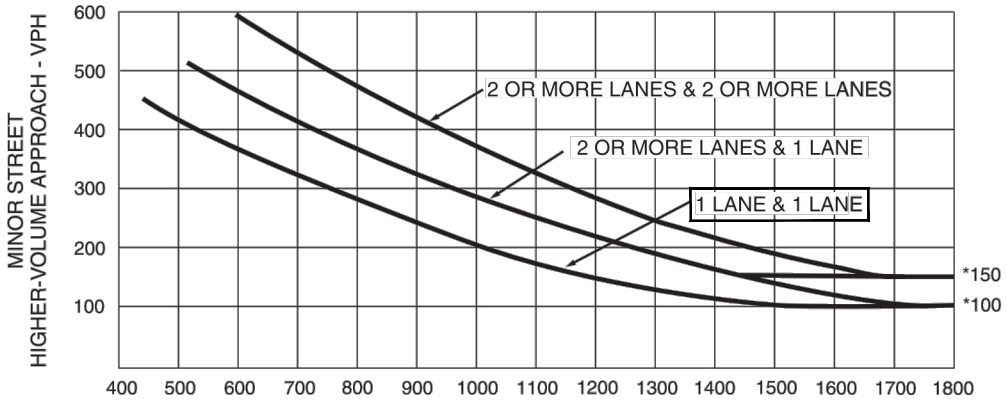
04653Bvolume
Site Code: Y-15658.11

Start Time	10-Nov-15 Tue	SB Morning	SB Afternoon	Hour Totals Morning	Hour Totals Afternoon	NB Morning	NB Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		8	109			7	119				
12:15		8	116			4	134				
12:30		13	118			7	117				
12:45		4	132	33	475	6	116	24	486	57	961
01:00		3	117			5	98				
01:15		2	120			1	121				
01:30		2	126			2	116				
01:45		2	124	9	487	3	153	11	488	20	975
02:00		1	162			2	134				
02:15		3	216			3	124				
02:30		1	184			2	157				
02:45		0	211	5	773	1	178	8	593	13	1366
03:00		1	225			2	125				
03:15		6	233			3	154				
03:30		2	225			3	150				
03:45		5	251	14	934	2	152	10	581	24	1515
04:00		1	240			3	172				
04:15		6	239			9	147				
04:30		4	256			8	177				
04:45		8	272	19	1007	14	178	34	674	53	1681
05:00		8	247			11	152				
05:15		12	249			54	230				
05:30		38	268			57	164				
05:45		34	246	92	1010	76	156	198	702	290	1712
06:00		43	251			92	162				
06:15		55	223			156	154				
06:30		87	212			271	134				
06:45		121	196	306	882	300	131	819	581	1125	1463
07:00		139	144			341	116				
07:15		147	125			357	99				
07:30		189	98			379	85				
07:45		165	85	640	452	311	69	1388	369	2028	821
08:00		155	77			304	57				
08:15		143	112			306	76				
08:30		160	81			241	57				
08:45		130	61	588	331	249	66	1100	256	1688	587
09:00		137	85			181	40				
09:15		144	60			180	57				
09:30		112	51			165	40				
09:45		108	53	501	249	123	33	649	170	1150	419
10:00		109	51			106	28				
10:15		112	26			125	34				
10:30		99	44			130	27				
10:45		101	37	421	158	124	17	485	106	906	264
11:00		95	26			127	15				
11:15		130	22			118	24				
11:30		115	17			130	19				
11:45		172	14	512	79	94	21	469	79	981	158
Total		3140	6837			5195	5085			8335	11922
Percent		31.5%	68.5%			50.5%	49.5%			41.1%	58.9%
Combined Total		9977				10280				20257	

Total		3140	6837			5195	5085			8335	11922
Percent		31.5%	68.5%			50.5%	49.5%			41.1%	58.9%
Combined Total		9977				10280				20257	
ADT	ADT 20,257			AADT 20,257							

Route 27 (Spring Street) at South Street

Figure 4C-3. Warrant 3, Peak Hour



Time	Major Vol	Minor Vol
7:15a-8:15a	2017	148
**Exceeds limits of graph		

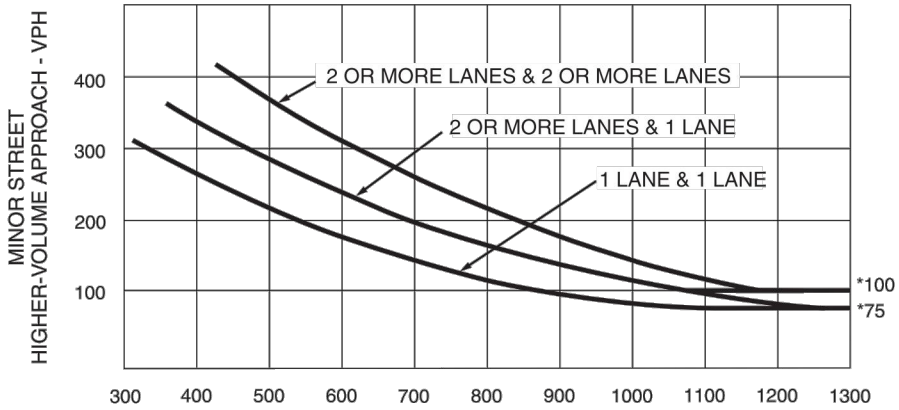
MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Peak Hour Volumes exceeds warrant requirements for 1 Lane & 1 Lane

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h OR ABOVE 40 mph ON MAJOR STREET)

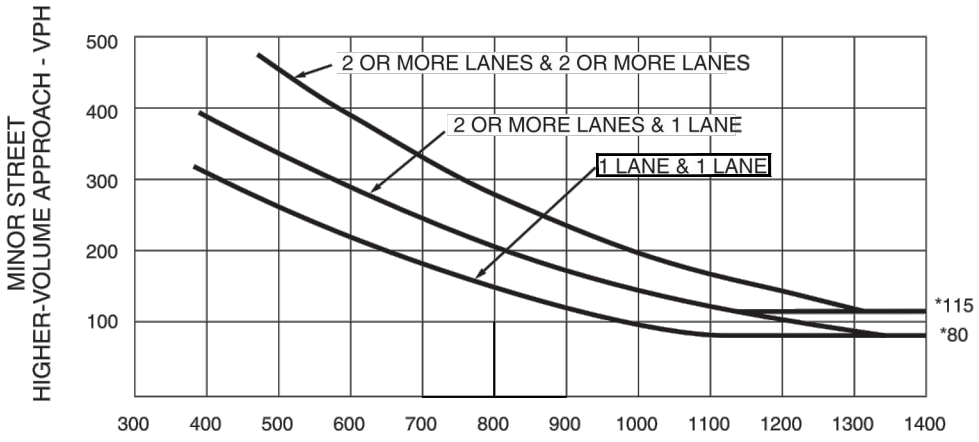


MAJOR STREET—TOTAL OF BOTH APPROACHES—
VEHICLES PER HOUR (VPH)

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

Route 27 (Spring Street) at South Street

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



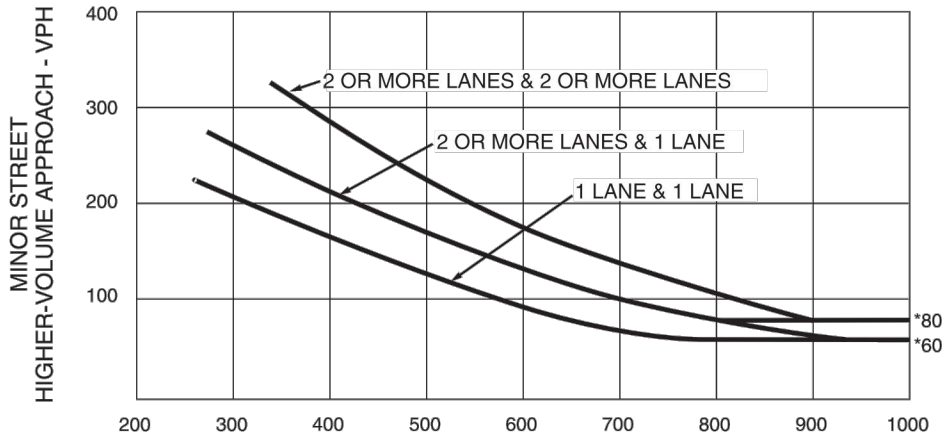
*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Time	Major Vol	Minor Vol
7a-8a	2002	154
8a-9a	1713	139
4p-5p	1223	571
5p-6p	1212	630
**Exceeds limits of graph		

4 - Hour Volumes exceeds warrant requirements for 1 Lane & 1 Lane

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 70 km/h OR ABOVE 40 mph ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

Medfield
Eight-Hour Vehicular Volume Signal Warrant

Intersection of Route 27 (Spring Street) and South Street

Existing 2015						
Hour	Northbound Volume	Southbound Volume	Total Major Street Volume	Minor Street Volume	Condition 1 Met[1]	Condition 2 Met[2]
6:00 AM	819	306	1125	33	**no**	**no**
7:00 AM	1388	640	2028	143	**yes**	**yes**
8:00 AM	1100	588	1688	132	**yes**	**yes**
9:00 AM	649	501	1150	99	**no**	**yes**
10:00 AM	485	421	906	111	**yes**	**yes**
11:00 AM	469	512	981	141	**yes**	**yes**
12:00 PM	486	475	961	142	**yes**	**yes**
1:00 PM	488	487	975	137	**yes**	**yes**
2:00 PM	593	773	1366	279	**yes**	**yes**
3:00 PM	581	934	1515	302	**yes**	**yes**
4:00 PM	674	1007	1681	276	**yes**	**yes**
5:00 PM	702	1010	1712	218	**yes**	**yes**
6:00 PM	581	882	1463	215	**yes**	**yes**
7:00 PM	369	452	821	130	**yes**	**yes**

1 Major street volume greater than 350 vehicles per hour and minor street volume greater than 105 vehicles per hour.

2 Major street volumes greater than 525 vehicles per hour and minor street volume greater than 53 vehicles per hour.

****Speed Limit is 40 mph on Route 27 (Spring Street)

Signal warranted: Yes

Intersection	
Int Delay, s/veh	74.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	145	16	845	705	15	633
Conflicting Peds, #/hr	0	1	0	0	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	40	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	87	87	92	92
Heavy Vehicles, %	3	7	3	2	29	4
Mvmt Flow	169	19	971	810	16	688

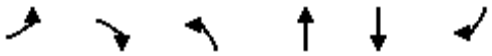
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2098	1378	0	0	1783	0
Stage 1	1377	-	-	-	-	-
Stage 2	721	-	-	-	-	-
Critical Hdwy	6.43	6.27	-	-	4.39	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.363	-	-	2.461	-
Pot Cap-1 Maneuver	~ 57	173	-	-	288	-
Stage 1	233	-	-	-	-	-
Stage 2	480	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 52	173	-	-	288	-
Mov Cap-2 Maneuver	~ 52	-	-	-	-	-
Stage 1	233	-	-	-	-	-
Stage 2	437	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 1061.1	0	0.4
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	52	173	288	-
HCM Lane V/C Ratio	-	-	3.242	0.108	0.057	-
HCM Control Delay (s)	-	-	$ 1175.1	28.3	18.2	0
HCM Lane LOS	-	-	F	D	C	A
HCM 95th %tile Q(veh)	-	-	18.1	0.4	0.2	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø9
Lane Configurations							
Volume (vph)	698	63	25	874	637	145	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	12	12	11	16	14	
Storage Length (ft)	0	0	0			100	
Storage Lanes	1	1	1			1	
Taper Length (ft)	25		25				
Satd. Flow (prot)	1728	1583	1736	1766	2071	1656	
Flt Permitted	0.950		0.276				
Satd. Flow (perm)	1728	1583	504	1766	2071	1656	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		75				117	
Link Speed (mph)	30			30	30		
Link Distance (ft)	311			319	541		
Travel Time (s)	7.1			7.3	12.3		
Peak Hour Factor	0.84	0.84	0.91	0.91	0.89	0.89	
Heavy Vehicles (%)	1%	2%	4%	4%	4%	4%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	831	75	27	960	716	163	
Turn Type	Prot	custom	Perm	NA	NA	custom	
Protected Phases	5	5		8	4	4	9
Permitted Phases		4 8	8			5	
Detector Phase	5	5	8	8	4	4	
Switch Phase							
Minimum Initial (s)	8.0	8.0	10.0	10.0	10.0	10.0	7.0
Minimum Split (s)	13.0	13.0	14.5	14.5	14.5	14.5	30.5
Total Split (s)	19.5	19.5	19.0	19.0	19.0	19.0	30.5
Total Split (%)	28.3%	28.3%	27.5%	27.5%	27.5%	27.5%	44%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	8.5
All-Red Time (s)	1.5	1.5	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	4.5	4.5	4.5	4.5	
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	Min	Min	None	None	None	None	None
Act Effct Green (s)	14.5	38.5	14.5	14.5	14.5	38.5	
Actuated g/C Ratio	0.38	1.00	0.38	0.38	0.38	1.00	
v/c Ratio	1.28	0.05	0.14	1.44	0.92	0.10	
Control Delay	155.9	0.1	10.2	227.1	33.4	0.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	155.9	0.1	10.2	227.1	33.4	0.1	
LOS	F	A	B	F	C	A	
Approach Delay	143.0			221.2	27.3		
Approach LOS	F			F	C		
Queue Length 50th (ft)	~243	0	4	~301	137	0	
Queue Length 95th (ft)	#360	0	15	#464	#297	0	
Internal Link Dist (ft)	231			239	461		
Turn Bay Length (ft)						100	
Base Capacity (vph)	650	1583	189	665	779	1656	

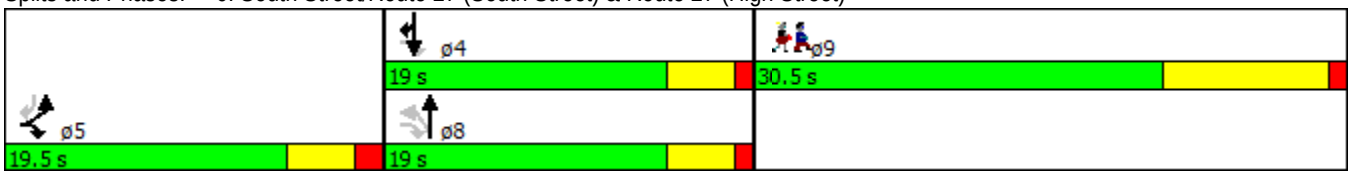
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø9
Starvation Cap Reductn	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	
Reduced v/c Ratio	1.28	0.05	0.14	1.44	0.92	0.10	

Intersection Summary			
Area Type:	Other		
Cycle Length: 69			
Actuated Cycle Length: 38.5			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.44			
Intersection Signal Delay: 134.1		Intersection LOS: F	
Intersection Capacity Utilization 92.6%		ICU Level of Service F	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

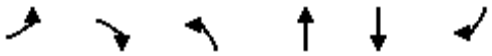
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: South Street/Route 27 (South Street) & Route 27 (High Street)



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	246	16	573	223	16	916
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	12	15	12	12	13
Storage Length (ft)	0	40		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1865	1509	1982	0	0	1924
Flt Permitted	0.950					0.999
Satd. Flow (perm)	1865	1509	1982	0	0	1924
Link Speed (mph)	30		40			40
Link Distance (ft)	358		541			377
Travel Time (s)	8.1		9.2			6.4
Peak Hour Factor	0.87	0.87	0.81	0.81	0.95	0.95
Heavy Vehicles (%)	0%	7%	2%	0%	0%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	283	18	982	0	0	981
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 81.3%		ICU Level of Service D	
Analysis Period (min) 15			



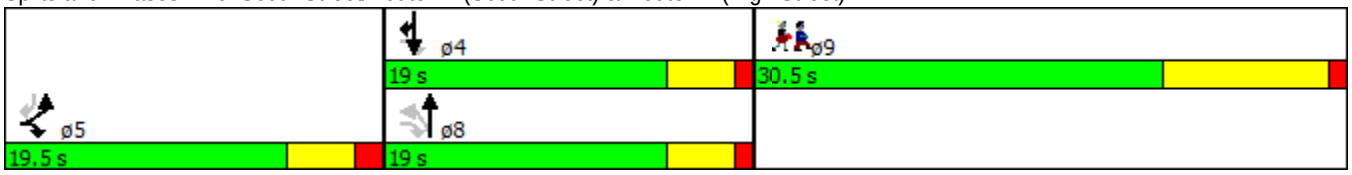
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø9
Lane Configurations							
Volume (vph)	154	31	61	649	678	489	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	12	12	11	16	14	
Storage Length (ft)	0	0	0			100	
Storage Lanes	1	1	1			1	
Taper Length (ft)	25		25				
Satd. Flow (prot)	1711	1615	1805	1818	2111	1706	
Flt Permitted	0.950		0.276				
Satd. Flow (perm)	1711	1615	524	1818	2111	1706	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		34				371	
Link Speed (mph)	30			30	30		
Link Distance (ft)	311			319	541		
Travel Time (s)	7.1			7.3	12.3		
Peak Hour Factor	0.92	0.92	0.86	0.86	0.97	0.97	
Heavy Vehicles (%)	2%	0%	0%	1%	2%	1%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	167	34	71	755	699	504	
Turn Type	Prot	custom	Perm	NA	NA	custom	
Protected Phases	5	5		8	4	4	9
Permitted Phases		4 8	8			5	
Detector Phase	5	5	8	8	4	4	
Switch Phase							
Minimum Initial (s)	8.0	8.0	10.0	10.0	10.0	10.0	7.0
Minimum Split (s)	13.0	13.0	14.5	14.5	14.5	14.5	30.5
Total Split (s)	19.5	19.5	19.0	19.0	19.0	19.0	30.5
Total Split (%)	28.3%	28.3%	27.5%	27.5%	27.5%	27.5%	44%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	8.5
All-Red Time (s)	1.5	1.5	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	4.5	4.5	4.5	4.5	
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	Min	Min	None	None	None	None	None
Act Effct Green (s)	8.9	32.9	14.5	14.5	14.5	32.9	
Actuated g/C Ratio	0.27	1.00	0.44	0.44	0.44	1.00	
v/c Ratio	0.36	0.02	0.31	0.94	0.75	0.30	
Control Delay	12.2	0.0	10.8	34.8	15.8	0.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	12.2	0.0	10.8	34.8	15.8	0.4	
LOS	B	A	B	C	B	A	
Approach Delay	10.1			32.7	9.3		
Approach LOS	B			C	A		
Queue Length 50th (ft)	23	0	7	106	86	0	
Queue Length 95th (ft)	52	0	26	#274	#240	0	
Internal Link Dist (ft)	231			239	461		
Turn Bay Length (ft)						100	
Base Capacity (vph)	755	1603	231	802	931	1706	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø9
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	0.22	0.02	0.31	0.94	0.75	0.30	

Intersection Summary			
Area Type:	Other		
Cycle Length: 69			
Actuated Cycle Length: 32.9			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 18.1		Intersection LOS: B	
Intersection Capacity Utilization 64.2%		ICU Level of Service C	
Analysis Period (min) 15			

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

Splits and Phases: 6: South Street/Route 27 (South Street) & Route 27 (High Street)



Intersection	
Int Delay, s/veh	132.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	160	18	933	779	17	699
Conflicting Peds, #/hr	0	1	0	0	1	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	40	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	87	87	92	92
Heavy Vehicles, %	3	7	3	2	29	4
Mvmt Flow	186	21	1072	895	18	760

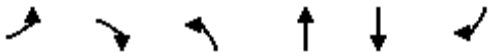
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2318	1522	0	0	1969	0
Stage 1	1521	-	-	-	-	-
Stage 2	797	-	-	-	-	-
Critical Hdwy	6.43	6.27	-	-	4.39	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.363	-	-	2.461	-
Pot Cap-1 Maneuver	~ 41	142	-	-	241	-
Stage 1	198	-	-	-	-	-
Stage 2	442	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 36	142	-	-	241	-
Mov Cap-2 Maneuver	~ 36	-	-	-	-	-
Stage 1	198	-	-	-	-	-
Stage 2	385	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 1888.7	0	0.5
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	36	142	241	-
HCM Lane V/C Ratio	-	-	5.168	0.147	0.077	-
HCM Control Delay (s)	-	-	$ 2097.3	34.7	21.2	0
HCM Lane LOS	-	-	F	D	C	A
HCM 95th %tile Q(veh)	-	-	21.9	0.5	0.2	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon



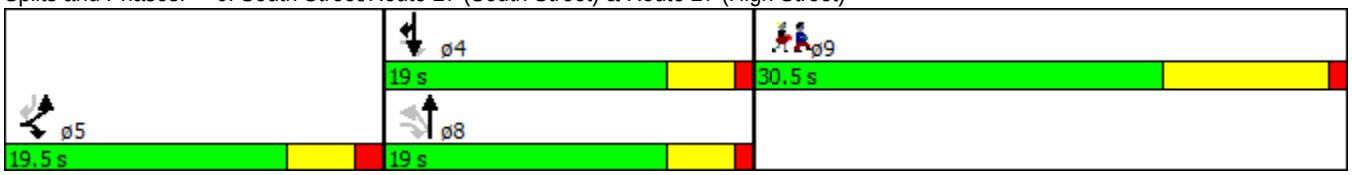
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø9
Lane Configurations							
Volume (vph)	771	70	28	965	704	160	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	12	12	11	16	14	
Storage Length (ft)	0	0	0			100	
Storage Lanes	1	1	1			1	
Taper Length (ft)	25		25				
Satd. Flow (prot)	1728	1583	1736	1766	2071	1656	
Flt Permitted	0.950		0.276				
Satd. Flow (perm)	1728	1583	504	1766	2071	1656	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		83				117	
Link Speed (mph)	30			30	30		
Link Distance (ft)	311			319	541		
Travel Time (s)	7.1			7.3	12.3		
Peak Hour Factor	0.84	0.84	0.91	0.91	0.89	0.89	
Heavy Vehicles (%)	1%	2%	4%	4%	4%	4%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	918	83	31	1060	791	180	
Turn Type	Prot	custom	Perm	NA	NA	custom	
Protected Phases	5	5		8	4	4	9
Permitted Phases		4 8	8			5	
Detector Phase	5	5	8	8	4	4	
Switch Phase							
Minimum Initial (s)	8.0	8.0	10.0	10.0	10.0	10.0	7.0
Minimum Split (s)	13.0	13.0	14.5	14.5	14.5	14.5	30.5
Total Split (s)	19.5	19.5	19.0	19.0	19.0	19.0	30.5
Total Split (%)	28.3%	28.3%	27.5%	27.5%	27.5%	27.5%	44%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	8.5
All-Red Time (s)	1.5	1.5	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	4.5	4.5	4.5	4.5	
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	Min	Min	None	None	None	None	None
Act Effct Green (s)	14.5	38.5	14.5	14.5	14.5	38.5	
Actuated g/C Ratio	0.38	1.00	0.38	0.38	0.38	1.00	
v/c Ratio	1.41	0.05	0.16	1.59	1.02	0.11	
Control Delay	213.6	0.1	10.6	293.1	53.7	0.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	213.6	0.1	10.6	293.1	53.7	0.1	
LOS	F	A	B	F	D	A	
Approach Delay	195.9			285.1	43.8		
Approach LOS	F			F	D		
Queue Length 50th (ft)	~284	0	4	~349	~164	0	
Queue Length 95th (ft)	#404	0	17	#518	#338	0	
Internal Link Dist (ft)	231			239	461		
Turn Bay Length (ft)						100	
Base Capacity (vph)	650	1583	189	665	779	1656	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø9
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	1.41	0.05	0.16	1.59	1.02	0.11	

Intersection Summary

Area Type: Other
Cycle Length: 69
Actuated Cycle Length: 38.5
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.59
Intersection Signal Delay: 179.4 Intersection LOS: F
Intersection Capacity Utilization 101.4% ICU Level of Service G
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: South Street/Route 27 (South Street) & Route 27 (High Street)



Intersection	
Int Delay, s/veh	264.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	272	18	633	246	18	1012
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	40	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	81	81	95	95
Heavy Vehicles, %	0	7	2	0	0	2
Mvmt Flow	313	21	781	304	19	1065

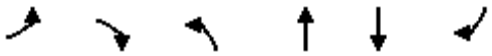
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2036	933	0	0	1085	0
Stage 1	933	-	-	-	-	-
Stage 2	1103	-	-	-	-	-
Critical Hdwy	6.4	6.27	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.363	-	-	2.2	-
Pot Cap-1 Maneuver	~ 63	316	-	-	651	-
Stage 1	386	-	-	-	-	-
Stage 2	321	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 58	316	-	-	651	-
Mov Cap-2 Maneuver	~ 58	-	-	-	-	-
Stage 1	386	-	-	-	-	-
Stage 2	~ 298	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	$ 1985.9	0	0.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	58	316	651	-
HCM Lane V/C Ratio	-	-	5.39	0.065	0.029	-
HCM Control Delay (s)	-	-	$ 2116.2	17.2	10.7	0
HCM Lane LOS	-	-	F	C	B	A
HCM 95th %tile Q(veh)	-	-	35.2	0.2	0.1	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon



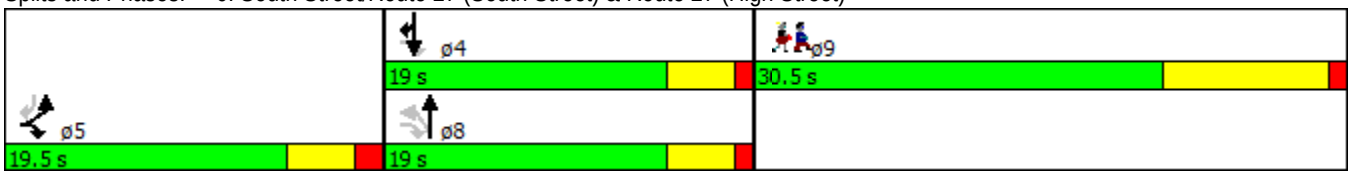
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø9
Lane Configurations							
Volume (vph)	170	34	67	717	749	540	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	12	12	11	16	14	
Storage Length (ft)	0	0	0			100	
Storage Lanes	1	1	1			1	
Taper Length (ft)	25		25				
Satd. Flow (prot)	1711	1615	1805	1818	2111	1706	
Flt Permitted	0.950		0.276				
Satd. Flow (perm)	1711	1615	524	1818	2111	1706	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		37				371	
Link Speed (mph)	30			30	30		
Link Distance (ft)	311			319	541		
Travel Time (s)	7.1			7.3	12.3		
Peak Hour Factor	0.92	0.92	0.86	0.86	0.97	0.97	
Heavy Vehicles (%)	2%	0%	0%	1%	2%	1%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	185	37	78	834	772	557	
Turn Type	Prot	custom	Perm	NA	NA	custom	
Protected Phases	5	5		8	4	4	9
Permitted Phases		4 8	8			5	
Detector Phase	5	5	8	8	4	4	
Switch Phase							
Minimum Initial (s)	8.0	8.0	10.0	10.0	10.0	10.0	7.0
Minimum Split (s)	13.0	13.0	14.5	14.5	14.5	14.5	30.5
Total Split (s)	19.5	19.5	19.0	19.0	19.0	19.0	30.5
Total Split (%)	28.3%	28.3%	27.5%	27.5%	27.5%	27.5%	44%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	8.5
All-Red Time (s)	1.5	1.5	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	4.5	4.5	4.5	4.5	
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	Min	Min	None	None	None	None	None
Act Effct Green (s)	9.1	33.1	14.5	14.5	14.5	33.1	
Actuated g/C Ratio	0.27	1.00	0.44	0.44	0.44	1.00	
v/c Ratio	0.39	0.02	0.34	1.05	0.83	0.33	
Control Delay	12.5	0.0	11.8	61.3	20.6	0.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	12.5	0.0	11.8	61.3	20.6	0.5	
LOS	B	A	B	E	C	A	
Approach Delay	10.4			57.1	12.2		
Approach LOS	B			E	B		
Queue Length 50th (ft)	26	0	8	~139	103	0	
Queue Length 95th (ft)	57	0	30	#319	#284	0	
Internal Link Dist (ft)	231			239	461		
Turn Bay Length (ft)						100	
Base Capacity (vph)	749	1597	229	796	925	1706	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø9
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	0.25	0.02	0.34	1.05	0.83	0.33	

Intersection Summary

Area Type: Other
Cycle Length: 69
Actuated Cycle Length: 33.1
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.05
Intersection Signal Delay: 28.6 Intersection LOS: C
Intersection Capacity Utilization 68.8% ICU Level of Service C
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: South Street/Route 27 (South Street) & Route 27 (High Street)

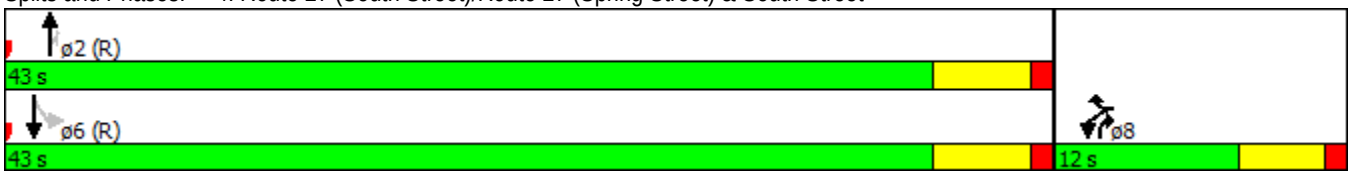


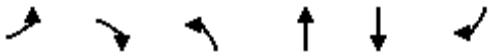
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	160	18	933	779	17	699
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	12	15	12	12	13
Storage Length (ft)	0	40		0	0	
Storage Lanes	1	1		1	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1811	1509	2029	1583	0	1876
Flt Permitted	0.950					0.950
Satd. Flow (perm)	1811	1509	2029	1551	0	1784
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		21				
Link Speed (mph)	30		40			40
Link Distance (ft)	358		541			377
Travel Time (s)	8.1		9.2			6.4
Confl. Peds. (#/hr)		1			1	
Confl. Bikes (#/hr)				1		
Peak Hour Factor	0.86	0.86	0.87	0.87	0.92	0.92
Heavy Vehicles (%)	3%	7%	3%	2%	29%	4%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	186	21	1072	895	0	778
Turn Type	Prot	Prot	NA	pm+ov	Perm	NA
Protected Phases	8	8	2	8		6
Permitted Phases				2	6	
Detector Phase	8	8	2	8	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	12.0	12.0	12.0	12.0	12.0	12.0
Total Split (s)	12.0	12.0	43.0	12.0	43.0	43.0
Total Split (%)	21.8%	21.8%	78.2%	21.8%	78.2%	78.2%
Yellow Time (s)	3.5	3.5	4.0	3.5	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	4.5	4.5	5.0	4.5		5.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	8.3	8.3	37.2	46.0		37.2
Actuated g/C Ratio	0.15	0.15	0.68	0.84		0.68
v/c Ratio	0.68	0.09	0.78	0.69		0.64
Control Delay	39.0	11.4	11.2	4.3		8.1
Queue Delay	0.0	0.0	0.6	0.0		0.0
Total Delay	39.0	11.4	11.8	4.3		8.1
LOS	D	B	B	A		A
Approach Delay	36.2		8.4			8.1
Approach LOS	D		A			A
Queue Length 50th (ft)	60	0	175	0		106
Queue Length 95th (ft)	#137	15	286	0		188
Internal Link Dist (ft)	278		461			297

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Bay Length (ft)		40				
Base Capacity (vph)	272	244	1401	1301		1232
Starvation Cap Reductn	0	0	94	0		0
Spillback Cap Reductn	0	0	0	0		0
Storage Cap Reductn	0	0	0	0		0
Reduced v/c Ratio	0.68	0.09	0.82	0.69		0.63

Intersection Summary			
Area Type:	Other		
Cycle Length: 55			
Actuated Cycle Length: 55			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 10.3		Intersection LOS: B	
Intersection Capacity Utilization 93.9%		ICU Level of Service F	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 4: Route 27 (South Street)/Route 27 (Spring Street) & South Street





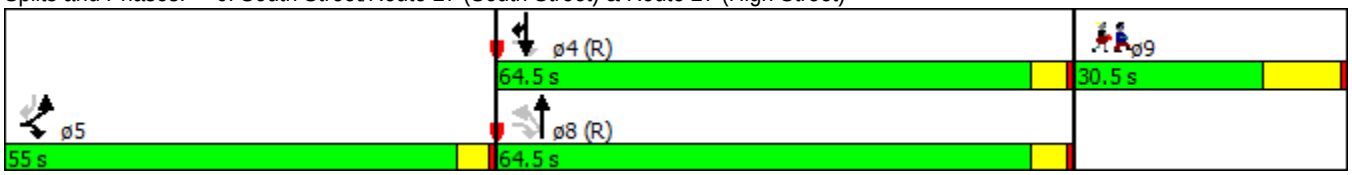
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø9
Lane Configurations							
Volume (vph)	771	70	28	965	704	160	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	12	12	11	16	14	
Storage Length (ft)	0	0	0			100	
Storage Lanes	1	1	1			1	
Taper Length (ft)	25		25				
Satd. Flow (prot)	1728	1583	1736	1766	2071	1656	
Flt Permitted	0.950		0.077				
Satd. Flow (perm)	1728	1583	141	1766	2071	1656	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		83				115	
Link Speed (mph)	30			30	30		
Link Distance (ft)	311			319	541		
Travel Time (s)	7.1			7.3	12.3		
Peak Hour Factor	0.84	0.84	0.91	0.91	0.89	0.89	
Heavy Vehicles (%)	1%	2%	4%	4%	4%	4%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	918	83	31	1060	791	180	
Turn Type	Prot	custom	Perm	NA	NA	custom	
Protected Phases	5	5		8	4	4	9
Permitted Phases		4 8	8			5	
Detector Phase	5	5	8	8	4	4	
Switch Phase							
Minimum Initial (s)	8.0	8.0	10.0	10.0	10.0	10.0	7.0
Minimum Split (s)	13.0	13.0	15.0	15.0	15.0	15.0	30.5
Total Split (s)	55.0	55.0	64.5	64.5	64.5	64.5	30.5
Total Split (%)	36.7%	36.7%	43.0%	43.0%	43.0%	43.0%	20%
Yellow Time (s)	3.5	3.5	4.0	4.0	4.0	4.0	8.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	5.0	5.0	5.0	5.0	
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	Min	Min	C-Min	C-Min	C-Max	C-Max	None
Act Effct Green (s)	75.5	143.6	59.5	59.5	59.5	143.5	
Actuated g/C Ratio	0.50	0.96	0.40	0.40	0.40	0.96	
v/c Ratio	1.06	0.05	0.56	1.51	0.96	0.11	
Control Delay	81.8	0.6	76.9	271.9	67.8	0.8	
Queue Delay	0.0	0.0	0.0	0.0	42.9	0.0	
Total Delay	81.8	0.6	76.9	271.9	110.7	0.8	
LOS	F	A	E	F	F	A	
Approach Delay	75.1			266.4	90.3		
Approach LOS	E			F	F		
Queue Length 50th (ft)	858	0	23	~1440	751	0	
Queue Length 95th (ft)	#1355	9	#81	#1703	#1005	28	
Internal Link Dist (ft)	231			239	461		
Turn Bay Length (ft)						100	
Base Capacity (vph)	870	1519	55	700	821	1589	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø9
Starvation Cap Reductn	0	0	0	0	230	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	
Reduced v/c Ratio	1.06	0.05	0.56	1.51	1.34	0.11	

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 0 (0%), Referenced to phase 4:SBT and 8:NBTL, Start of Green, Master Intersection			
Natural Cycle: 150			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.51			
Intersection Signal Delay: 148.1		Intersection LOS: F	
Intersection Capacity Utilization 101.4%		ICU Level of Service G	
Analysis Period (min) 15			

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

Splits and Phases: 6: South Street/Route 27 (South Street) & Route 27 (High Street)



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	272	18	633	246	18	1012
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	12	15	12	12	13
Storage Length (ft)	0	40		0	0	
Storage Lanes	1	1		1	0	
Taper Length (ft)	25				25	
Satd. Flow (prot)	1865	1509	2049	1615	0	1924
Flt Permitted	0.950					0.984
Satd. Flow (perm)	1865	1509	2049	1615	0	1895
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		13				
Link Speed (mph)	30		40			40
Link Distance (ft)	358		541			377
Travel Time (s)	8.1		9.2			6.4
Peak Hour Factor	0.87	0.87	0.81	0.81	0.95	0.95
Heavy Vehicles (%)	0%	7%	2%	0%	0%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	313	21	781	304	0	1084
Turn Type	Prot	Prot	NA	pm+ov	Perm	NA
Protected Phases	8	8	2	8		6
Permitted Phases				2	6	
Detector Phase	8	8	2	8	6	6
Switch Phase						
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0
Minimum Split (s)	12.0	12.0	12.0	12.0	12.0	12.0
Total Split (s)	12.0	12.0	43.0	12.0	43.0	43.0
Total Split (%)	21.8%	21.8%	78.2%	21.8%	78.2%	78.2%
Yellow Time (s)	3.5	3.5	4.0	3.5	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	4.5	4.5	5.0	4.5		5.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Min	None	C-Min	C-Min
Act Effct Green (s)	8.9	8.9	36.6	55.0		36.6
Actuated g/C Ratio	0.16	0.16	0.67	1.00		0.67
v/c Ratio	1.04	0.08	0.57	0.19		0.86
Control Delay	94.1	15.2	6.7	0.3		16.1
Queue Delay	0.0	0.0	0.0	0.0		0.0
Total Delay	94.1	15.2	6.7	0.3		16.1
LOS	F	B	A	A		B
Approach Delay	89.1		4.9			16.1
Approach LOS	F		A			B
Queue Length 50th (ft)	~132	2	97	0		195
Queue Length 95th (ft)	#248	17	131	0		#507
Internal Link Dist (ft)	278		461			297
Turn Bay Length (ft)		40				
Base Capacity (vph)	301	255	1415	1615		1309

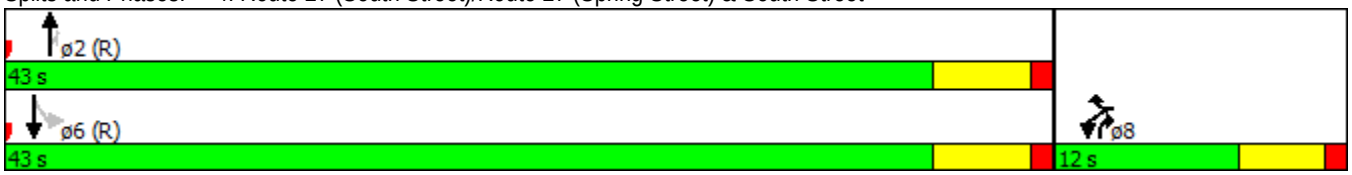
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Starvation Cap Reductn	0	0	0	0		0
Spillback Cap Reductn	0	0	0	0		0
Storage Cap Reductn	0	0	0	0		0
Reduced v/c Ratio	1.04	0.08	0.55	0.19		0.83

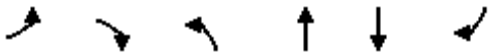
Intersection Summary			
Area Type:	Other		
Cycle Length: 55			
Actuated Cycle Length: 55			
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.04			
Intersection Signal Delay: 21.0		Intersection LOS: C	
Intersection Capacity Utilization 90.7%		ICU Level of Service E	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Splits and Phases: 4: Route 27 (South Street)/Route 27 (Spring Street) & South Street





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø9
Lane Configurations							
Volume (vph)	170	34	67	717	749	540	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	12	12	11	16	14	
Storage Length (ft)	0	0	0			100	
Storage Lanes	1	1	1			1	
Taper Length (ft)	25		25				
Satd. Flow (prot)	1711	1615	1805	1818	2111	1706	
Flt Permitted	0.950		0.273				
Satd. Flow (perm)	1711	1615	519	1818	2111	1706	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		37				366	
Link Speed (mph)	30			30	30		
Link Distance (ft)	311			319	541		
Travel Time (s)	7.1			7.3	12.3		
Peak Hour Factor	0.92	0.92	0.86	0.86	0.97	0.97	
Heavy Vehicles (%)	2%	0%	0%	1%	2%	1%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	185	37	78	834	772	557	
Turn Type	Prot	custom	Perm	NA	NA	custom	
Protected Phases	5	5		8	4	4	9
Permitted Phases		4 8	8			5	
Detector Phase	5	5	8	8	4	4	
Switch Phase							
Minimum Initial (s)	8.0	8.0	10.0	10.0	10.0	10.0	7.0
Minimum Split (s)	13.0	13.0	15.0	15.0	15.0	15.0	30.5
Total Split (s)	55.0	55.0	64.5	64.5	64.5	64.5	30.5
Total Split (%)	36.7%	36.7%	43.0%	43.0%	43.0%	43.0%	20%
Yellow Time (s)	3.5	3.5	4.0	4.0	4.0	4.0	8.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	5.0	5.0	5.0	5.0	
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	Min	Min	C-Min	C-Min	C-Max	C-Max	None
Act Effct Green (s)	21.8	143.6	113.2	113.2	113.2	143.5	
Actuated g/C Ratio	0.15	0.96	0.75	0.75	0.75	0.96	
v/c Ratio	0.75	0.02	0.20	0.61	0.48	0.34	
Control Delay	79.0	0.7	10.4	14.3	11.2	1.1	
Queue Delay	0.0	0.0	0.0	0.0	2.4	0.1	
Total Delay	79.0	0.7	10.4	14.3	13.6	1.2	
LOS	E	A	B	B	B	A	
Approach Delay	65.9			14.0	8.4		
Approach LOS	E			B	A		
Queue Length 50th (ft)	176	0	16	271	214	0	
Queue Length 95th (ft)	251	7	71	779	653	69	
Internal Link Dist (ft)	231			239	461		
Turn Bay Length (ft)						100	
Base Capacity (vph)	576	1548	391	1372	1593	1648	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø9
Starvation Cap Reductn	0	0	0	0	661	177	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	
Reduced v/c Ratio	0.32	0.02	0.20	0.61	0.83	0.38	

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 0 (0%), Referenced to phase 4:SBT and 8:NBTL, Start of Green, Master Intersection			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 15.6		Intersection LOS: B	
Intersection Capacity Utilization 69.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 6: South Street/Route 27 (South Street) & Route 27 (High Street)