BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

Richard A. Davey, MassDOT Secretary and CEO and MPO Chairman
Karl H. Quackenbush, Executive Director, MPO Staff

MEMORANDUM

DATE: **January 9, 2014**
TO: **Boston Region Metropolitan Planning Organization**
FROM: **Seth Asante, MPO Staff**
RE: **Traffic Signal-Retiming Study for Route 2 in Concord and Lincoln**

1 EXECUTIVE SUMMARY

This study provided sufficient information to assess the signal-timing issues in the Route 2 corridor caused by reconstruction of the Route 2, Route 2A, and Cambridge Street intersection. The analysis presented herein—along with the existing construction and permit jobs—will become part of a coordinated effort to improve traffic flow throughout the corridor. The traffic signal-retiming strategy would improve traffic flow over the short term, and would function only during the construction stage. After construction is complete, traffic flows would readjust to reflect changes in the highway network; and the MPO staff believes that post-construction traffic signal retiming should be conducted to reflect these changes.

MassDOT and the Boston Region Metropolitan Planning Organization (MPO) collected or provided operational, geometric, and safety data to evaluate existing and retimed conditions. The six signalized intersections were retimed in the corridor. Staff developed two new timing plans for this study: Option 1 consists of retiming and coordinating the existing traffic signal system; while Option 2 involves installing geometric improvements in addition to the retiming and coordinating.

This memorandum is organized into six sections:

- Section 1—Executive Summary
- Section 2—Background and Scope of Work
- Section 3—Data Collection
- Section 4—Evaluation of Existing Conditions
- Section 5—Development of New Timing Plans
- Section 6—Recommendations

1.1 Findings of Analysis

- Existing conditions indicate that the signalized intersections in the study area operate at or above capacity during peak periods because of high traffic demand.

- The following side streets experience long traffic delays and queues during peak periods:
    - Sudbury Road – northbound traffic
    - Walden Street – southbound traffic
    - Bedford Road – southbound traffic
- The left-turn traffic queue on Route 2 at the Main Street intersection frequently extends to the main travel lanes, disrupting traffic flow.
- Traffic signal retiming alone cannot offer significant benefits, as there is severe congestion and queuing throughout the Route 2 corridor and on some side streets.
- In addition to signal retiming, the following geometric improvements are necessary to improve traffic conditions:
    - Construction of a southbound left-turn lane on Bedford Road at Route 2
    - Construction of a northbound right-turn lane and a southbound left-turn lane on Sudbury Road
    - Construction of a westbound double left-turn lane on Route 2 at Main Street
- MPO staff recommends Option 1, retiming and coordinating existing traffic signal system, as a short-term solution to alleviate congestion. (See Appendix F for Option 1 retiming plans.)
- MPO staff recommends that MassDOT Highway Division District 4 consider Option 2, geometric improvements and signal retiming, as a medium-term solution.

2 BACKGROUND AND SCOPE OF WORK

The arterial segment of Route 2 in Concord and Lincoln was selected for study because the Boston Region MPO's LRTP identified Route 2 as one of the priority arterial segments in need of maintenance, safety, and mobility improvements. This segment was a high priority for improvement for MassDOT Highway Division District 4 because of serious congestion and safety issues. To help identify solutions for addressing problems in priority arterial segments, an arterial segment study was included in the federal fiscal year (FFY) 2013 Unified Planning Work Program (UPWP).[1]

[1] Boston Region Metropolitan Planning Organization, Unified Planning Work Program, Federal Fiscal Year 2013, Endorsed by the Boston Region Metropolitan Planning Organization on June 28, 2012.

2.1 Study Area and Purpose

The approximately 5.5-mile study area is comprised of Route 2 from the Baker Avenue Extension in Concord to Bedford Road in Lincoln (Figure 1). The purpose of this study was to retime six traffic signals in the study area in order to improve traffic operations on Route 2 during reconstruction of the intersection of Route 2, Route 2A, and the Cambridge Turnpike at Crosby Corner (Figure 1). Construction, which began in spring 2012 and should end in spring 2016, is expected to affect traffic flow on Route 2 in Concord and Lincoln. At the time of this writing, mitigation work, such as erosion control, relocation of utility lines and poles, excavation, and pothole repair is underway. The study also examined the effects of the retiming on traffic flow in the arterial segment. MPO staff conducted this study, working closely with the MassDOT Highway Division District 4.

We excluded the Route 2, Route 2A, and Cambridge Turnpike intersection from this study based on discussions with MassDOT Highway Division, as this intersection is currently under construction. This is only one section in the entire study area. In addition, the Concord Rotary, located on the western end of the study area (Figure 1), was excluded from the study because a proposed project would replace the existing Concord Rotary with a highway interchange. Presently, Concord Rotary traffic queues affect traffic on Route 2, particularly in the vicinity of the Route 2 and Baker Avenue Extension intersection.

2.2 Scope of Work

The project's work included data collection, assessment of existing conditions, and development of new timing plans and improvements. MassDOT and MPO staff collected the data; MPO staff conducted the assessment of existing conditions and developed new timings. The six intersections whose traffic signals were retimed are, from east to west (Figure 2):

- Route 2 and Bedford Road
- Route 2 and Route 126 (Walden Street)
- Route 2 and Sudbury Road
- Route 2 and Old-Road-to-Nine-Acre-Corner
- Route 2 and Main Street
- Route 2 and Baker Avenue Extension

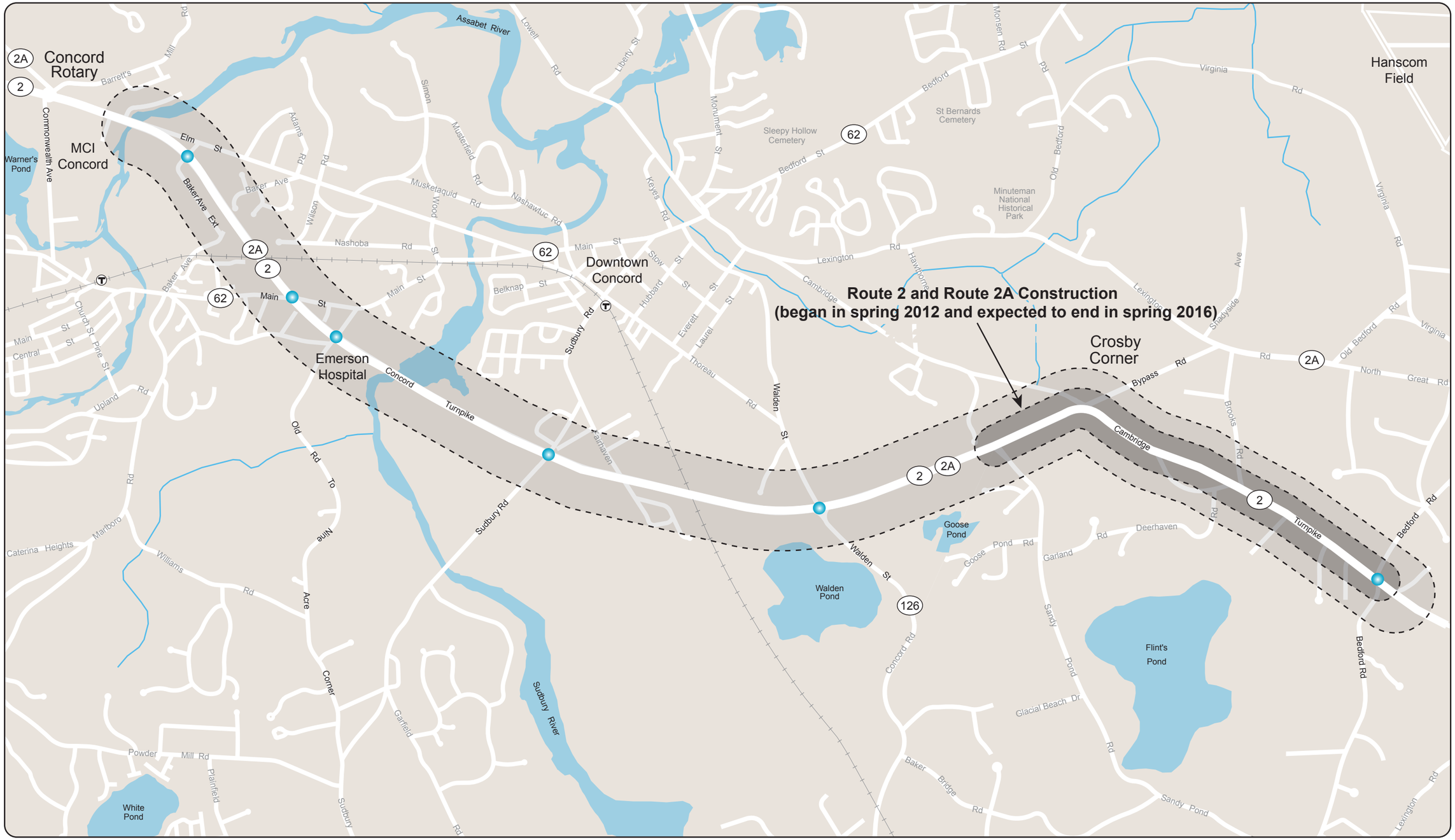

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FIGURE 1
Study Area

Priority Corridors for
LRTP Needs Assessment
Route 2 in Concord and Lincoln

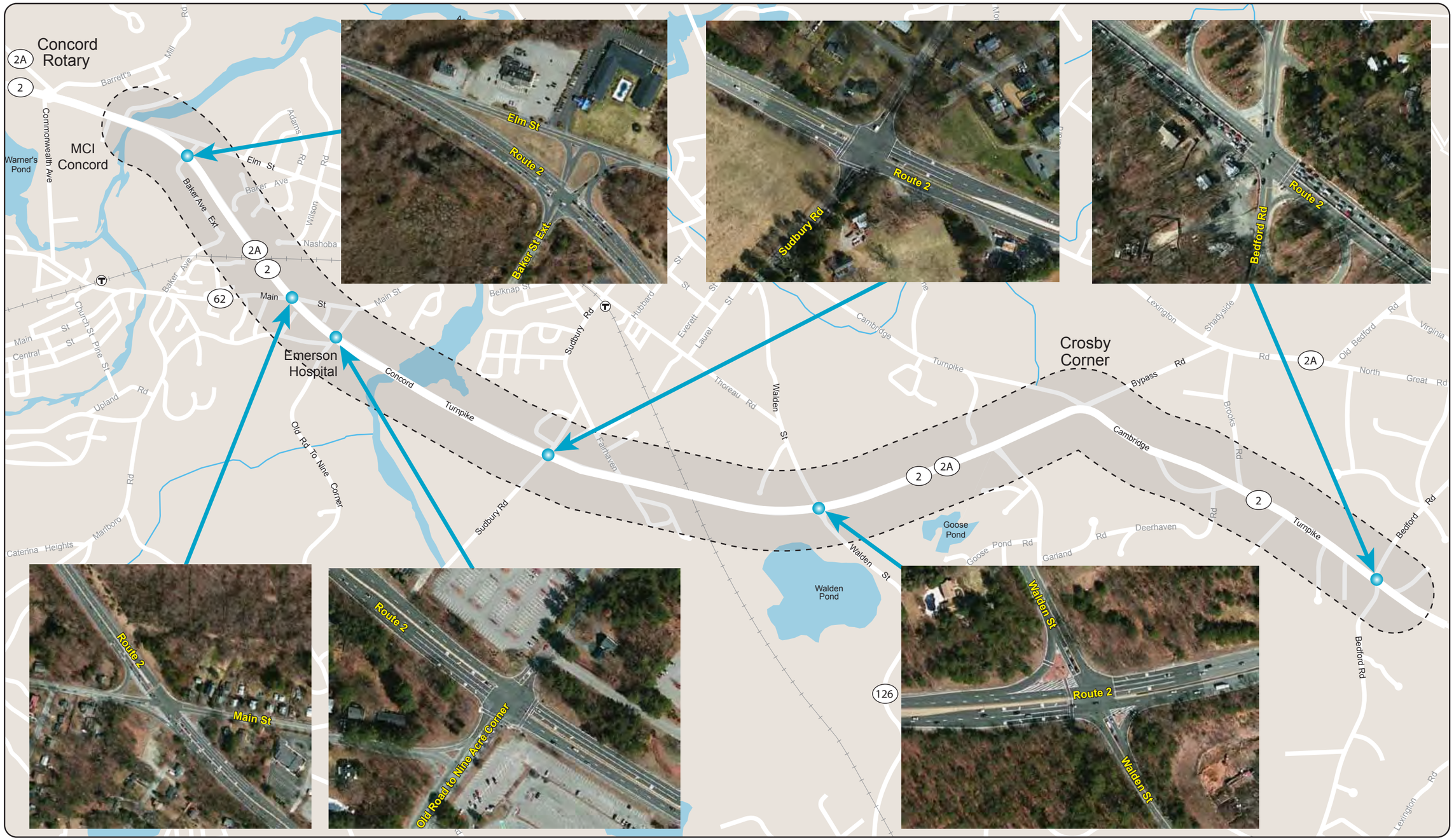

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FIGURE 2
Route 2 Study Intersections

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Priority Corridors for LRTP Needs Assessment
Route 2 in Concord and Lincoln

3 DATA COLLECTION

Data used to evaluate existing conditions and develop new timing plans was either collected in the field or obtained from other sources such as MassDOT traffic signal and crash databases. The data collected included:

- Turning-movement counts (TMC) for the study intersection were conducted during the AM peak travel period (7:00 AM to 9:00 AM) and the PM peak travel period (4:00 PM to 6:00 PM) on weekdays during November 2012. Heavy vehicles (vehicles with six or more tires), including school buses, transit buses, and trucks, were counted separately. Automatic traffic recorder (ATR) counts conducted in 2012 were obtained from MassDOT's Highway Division for three locations in the study area. The ATR counts were obtained through recorders over a period of 48 or more hours. (See Appendix A for complete ATR and TMC data.)
- Pedestrian counts for the study intersections were conducted simultaneously with the TMCs. MPO staff also took an inventory of pedestrian and bicycle amenities—such as curb cuts for wheelchairs, crosswalks, sidewalks, pedestrian signals, and user-activated push buttons—provided at study intersections.
- The MassDOT Highway Division provided traffic signal-timing plans and phase sequences of the study intersections. The Highway Division also provided as-built traffic signal plans or file drawings of each study intersection. (See Appendix B for signal-timing plans and as-built traffic signal plans.)
- MPO staff performed field reconnaissance to observe queue lengths.
- Crash data for the Route 2 intersections were obtained from MassDOT.

4 EVALUATION OF EXISTING CONDITIONS

It was important to understand existing traffic characteristics within the study area—including number and rates of crashes, delays, and queues—prior to developing new timing plans.

4.1 Roadway

Route 2 is under the jurisdiction of MassDOT and generally runs in an east-west direction (Figure 1). It is functionally classified as a principal arterial roadway. Route 2 is part of the national highway system (NHS), and as such is a federal-aid-eligible roadway. In the study area, Route 2 has two travel lanes in each direction—and exclusive turn lanes—which are wider at the signalized intersections. The posted speed limit on Route 2 is 45 miles per hour (mph), from the Bedford Road intersection in Lincoln to the Baker Avenue Extension

intersection in Concord. Route 2 has 6- to 8-foot shoulders on both sides of the roadway, and for the most part, a median barrier; however, the section between Sandy Pond Road and Oak Knoll Road has no shoulder or median. There are no sidewalks or bicycle lanes on Route 2.

4.2 Intersections

The major intersections on Route 2 are controlled by traffic signals. Figure 2 shows the configuration of the six signalized intersections that were studied. Here, crosswalks and pushbutton pedestrian signals have been installed and are functioning well. The minor intersections in the study area are controlled by stop signs on side streets, where only right-turning movements are permitted. Pedestrians are prohibited from crossing Route 2 at unsignalized intersections that contain a median barrier.

4.3 Traffic, Pedestrian, and Bicycle Volumes

The three locations of the ATR counts on Route 2 are cited below and displayed in Figure 3.

- Route 2 east of Concord Rotary in Concord
- Route 2 west of Walden Street in Concord
- Route 2 east of Bypass Road

Based on the ATR counts, the average weekday daily traffic volumes range between 41,000 and 51,000 vehicles. The TMCs also are summarized in Figure 3. The TMCs do not reflect the traffic queues or traffic demand at the intersections because only vehicles that pass through the intersections were counted—vehicles already in queue at the end of counting period were not counted. This situation occurs because congestion and queues on Route 2 last significantly longer than the periods during which the TMCs were conducted. Estimates of the average number queued vehicles were determined during field visits. See Table 1 for the percentage of heavy vehicles at study intersections during peak periods when the TMCs were conducted. The table indicates that this percentage ranges between 2.0 and 3.0 percent, which is not particularly high for peak-period traffic conditions. Also, staff did not detect any roadway geometry—such as turning radii—that would inhibit truck traffic flow.

The percentage of heavy vehicles was higher on Main Street and Old Road to Nine Acre Corner compared to the other cross streets. This study did not investigate the reasons for the high percentage of heavy vehicles here because it was not study's focus.

There were few pedestrians crossing Route 2 at the study intersections during peak periods (Table 2).

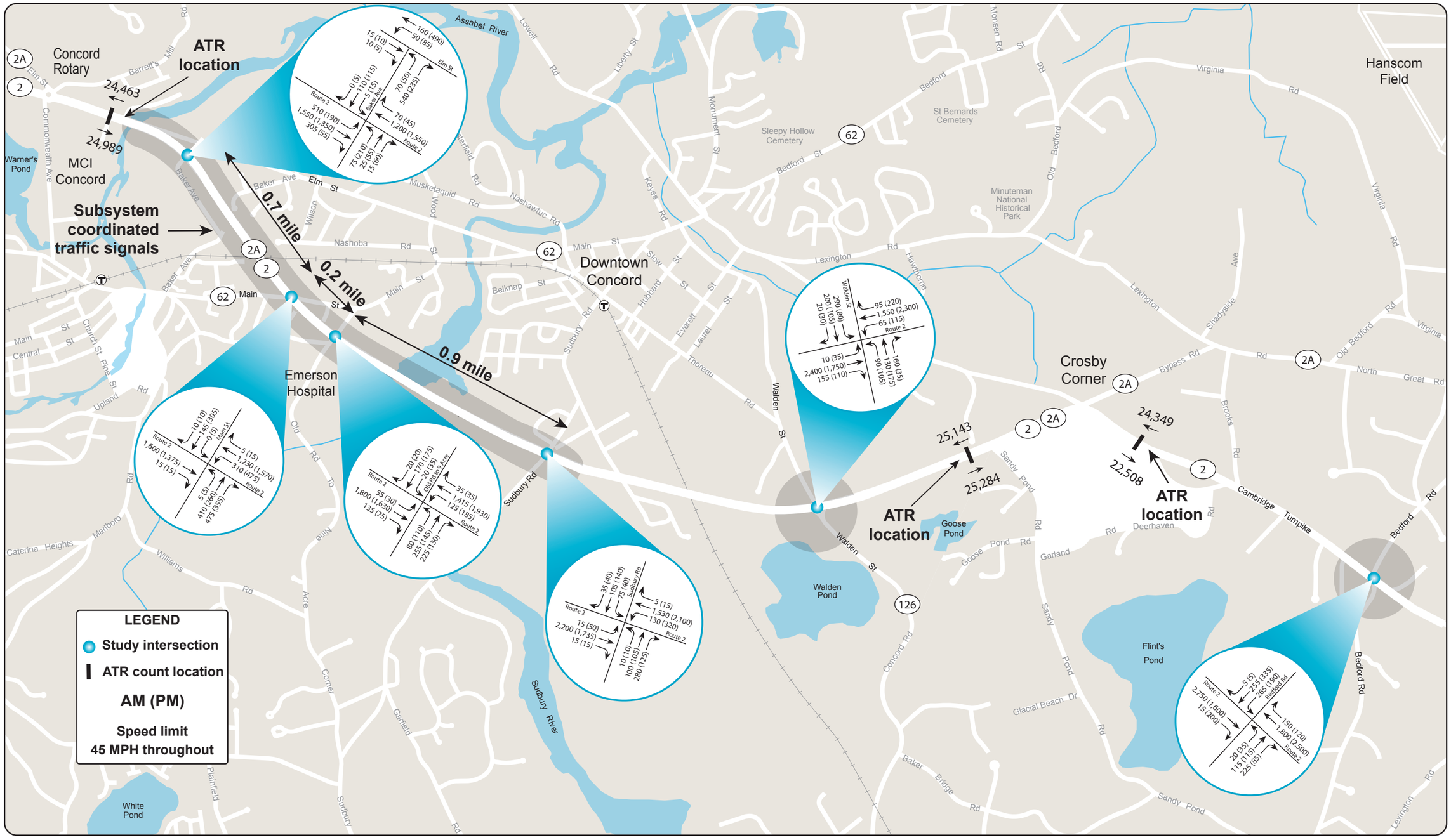

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FIGURE 3
Existing Turning-Movement Volumes

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Priority Corridors for LRTP Needs Assessment
Route 2 in Concord and Lincoln

TABLE 1
Percentage of Heavy Vehicles at Intersections during AM and PM Peak Periods

Intersection and Approach	Percentage of Heavy Vehicles
Route 2 at Bedford Road:	--
Route 2 EB	2.2%
Route 2 WB	2.1
Bedford Road NB	1.4
Bedford Road SB	1.0
Route 2 at Walden Street (Route 126):	**--**
Route 2 EB	2.6%
Route 2 WB	2.5
Walden Street NB	1.8
Walden Street SB	2.0
Route 2 at Sudbury Road:	**--**
Route 2 EB	2.8%
Route 2 WB	2.5
Sudbury NB	2.0
Sudbury SB	2.4
Route 2 at Old Road to Nine-Acre Corner:	**--**
Route 2 EB	2.6%
Route 2 WB	2.3
Old Road to Nine-Acre Corner NB	3.5
Old Road to Nine-Acre Corner SB	5.8
Route 2 at Main Street:	**--**
Route 2 EB	2.8%
Route 2 WB	2.6
Main Street NB	5.8
Main Street SB	8.1
Route 2 at Baker Avenue Extension:	**--**
Route 2 EB	2.7%
Route 2 WB	2.9
Baker Avenue Extension NB	2.0
Baker Avenue Extension SB	1.7

Note: The AM peak period is 7:00 AM to 9:00 AM and the PM peak period is 4:00 PM to 6:00 PM.
Source: Central Transportation Planning Staff.

TABLE 2
Pedestrian and Bicycle Counts at the Study Intersections

Intersection	AM Peak Period Pedestrian Crossings	PM Peak Period Pedestrian Crossings	AM Peak Period Bicycle Counts	PM Peak Period Bicycle Counts
Route 2 at Bedford Road	0	0	0	0
Route 2 at Walden Street (Route 126)	2	0	0	0
Route 2 at Sudbury Road	1	2	0	0
Route 2 at Old Road To Nine-Acre Corner	1	1	0	0
Route 2 at Main Street	0	2	0	0
Route 2 at Baker Avenue Extension	0	1	0	1

Note: The AM peak period is 7:00 AM to 9:00 AM; the PM peak period is 4:00 PM to 6:00 PM.
Source: Central Transportation Planning Staff.

4.4 Crash Data

MPO staff used crash data obtained from the MassDOT Registry of Motor Vehicles (RMV) to evaluate safety at the study intersections. The RMV crash data cover the period from January 2006 through December 2010. For details of crashes—severity, manner of collision, and ambient light conditions—at each of the study intersections, see Table 3. The average crash rates were calculated per MassDOT's methodology. The District 4 Highway Division's average crash rate (published by MassDOT based on crash information queried on January 23, 2013) is 0.77 crashes per million entering vehicles at signalized intersections. Four of the study intersections have crash rates greater than or equal to the District 4 average for signalized intersections:

- Route 2 and Bedford Road
- Route 2 and Walden Street (Route 126)
- Route 2 and Main Street
- Route 2 and Baker Avenue Extension

At each of these four intersections, the most prevalent crash type was rear-end collisions. The majority of crashes occurred on Route 2 rather than on the cross streets. The high number of rear-end collisions on Route 2 appears to result from unexpected stops because of traffic queues at the signalized intersections and high travel speeds. (See Appendix C for collision diagrams and crash-rate worksheets.)

TABLE 3
Crash Summaries and Rates for Study Intersections (2006–2010)

Characteristic	Route 2 at Bedford Road	Route 2 at Walden Street	Route 2 at Sudbury Road	Route 2 at Old Rd to Nine Acre Corner	Route 2 at Main Street	Route 2 at Baker Avenue Extension
Fatal Injury	0	0	0	0	0	1
Non-Fatal Injury	27	27	16	7	36	22
Property Damage Only	55	55	30	23	83	26
Unknown/Not Reported	4	7	3	2	5	0
Angle	17	5	6	10	14	18
Rear-End	47	70	38	15	91	25
Sideswipe	4	7	2	2	8	2
Single-Vehicle Crash	13	5	6	8	5	2
Head-On Collision	1	0	1	0	1	2
Unknown/Not Reported	3	3	1	0	4	0
Pedestrians	0	0	0	2	0	0
Bicyclists	0	0	0	0	1	0
AM or PM Peak Period*	31	31	23	15	41	20
Non-Peak Period	55	58	31	18	83	29
Dry	66	74	48	29	80	41
Wet or Icy	20	16	9	4	44	8
Daylight	72	81	46	24	100	44
Dark (Lit or Unlit)	14	9	8	9	21	4
Total Crashes	86	90	54	33	124	49
5-Year Average	18	18	11	7	25	10
Crash Rate	0.85	0.91	0.61	0.42	1.53	0.77

Note: Shading denotes intersections with crash rates higher than Highway Division District 4 average crash rate.
Source: Central Transportation Planning Staff.

4.5 Traffic Operations

Using the data collected, plus observed conditions in the field, MPO staff built a network for the AM and PM peak periods using Synchro Studio 8 traffic software. The TMC data, existing phases and sequences, network offsets, and phase intervals and splits were input to a model determined to the arterial levels of service (LOS), delays, and queues at the signalized intersections. LOS and capacity analyses were conducted on the 2012 existing conditions and calibrated to the observed operating conditions to provide a baseline scenario.

Two time settings were evaluated for existing conditions—AM and PM peak periods. No consideration was given for special events or weekend timing because there are no shopping malls or major sports facilities in the Route 2 corridor—the primary cause of congestion was high traffic volume resulting from commuter work trips.

Analyses were conducted in a manner consistent with the Highway Capacity Manual (HCM) 2010 methodology, which expresses the quality of driving conditions at signalized intersections it in terms of LOS ratings A through F:

- LOS A represents the best operating conditions, or little to no delay.
- LOS F represents the worst operating conditions, or very long delay.
- LOS E represents an intersection operating at capacity, or at the limit of acceptable delay.

Based on the Highway Division's existing signal-timing plan, traffic signals at the following intersections operate with coordination during peak periods:

- Route 2 at Baker Avenue Extension
- Route 2 at Main Street
- Route 2 at Old Road to Nine Acre Corner
- Route 2 at Sudbury Road

Traffic signal coordination occurs when a group of two or more traffic signals are working together so that cars moving through the group will make the least number of stops possible. In order for this to happen, each traffic signal in the group must allow a green light for all directions of travel during a fixed time period. Coordination operations are in effect during the morning peak period from 6:30 AM to 9:30 AM and during the evening peak period from 3:00 PM to 7:00 PM. The coordinated cycle lengths are 110 seconds for the AM peak period and 120 seconds for the PM peak period. The coordinated traffic signal system uses a global positioning system (GPS) timer to keep the traffic signals perfectly synchronized.

Traffic signals at the intersections of Route 2 and Walden Street and Bedford Road operate alone; they are not coordinated because of the long distances between them and the other signals.

4.5.1 Operating Problems

MPO staff observed the following operating conditions in the field:

1. During the AM peak period, long traffic queues develop on the Route 2 eastbound approaches at the signalized intersections.
    - At the Baker Avenue Extension intersection, the Route 2 eastbound queue extends westerly into the Concord Rotary.
    - At the Main Street intersection, the Route 2 eastbound queue sometimes extends westerly into the Baker Avenue Extension intersection.
    - At the Sudbury Road and Walden Street intersections, the Route 2 eastbound queue extends westerly to Fairhaven Road and the bridge over the Sudbury River.

- At the Bedford Road intersection, the Route 2 eastbound queue extends westerly to Orchard Lane.

2. Similarly, during the PM peak period, long traffic queues develop on the Route 2 westbound approaches at the signalized intersections.
    - The queue at the Concord Rotary extends easterly into the Baker Avenue intersection. Westbound traffic merging onto Route 2 from Elm Street contributes to this queue.
    - At the Baker Avenue Extension intersection, the Route 2 westbound queue extends easterly into the Main Street and Old Road to Nine Acres Corner intersections.
    - At the Sudbury Road and Walden Street intersections, the Route 2 westbound queue extends easterly to the Fitchburg commuter rail bridge and Sandy Pond Road.
    - At the Bedford Road intersection, the queue on Route 2 westbound extends easterly for about one-half mile.
3. Some of the side streets experience long queues, and it appears that not enough green times are allocated to the side streets, especially at:
    - Main Street northbound
    - Sudbury Road northbound
    - Walden Street southbound
    - Bedford Road southbound
4. During peak periods, left-turn queues on Route 2 at the Main Street and Baker Avenue Extension intersection extend into the main travel lanes, interrupting traffic flow.

    Tables 4 and 5 below present results of the intersection-capacity analysis for the existing conditions in terms of LOS, delays, and queues. The analysis shows that the signalized intersections are operating at or above capacity during peak periods. The analysis also indicates long queues on Route 2 and some of the side streets during peak periods. (See Appendix D for LOS analysis worksheets.)
5. At the signalized intersections, there are no bicycle detection devices on the side streets to help bicyclists cross Route 2. There also are no bicycle pavement markings or signs on the approaches of the side streets to let bicyclists know how to cross Route 2.

5 DEVELOPMENT OF NEW TIMING PLANS

MPO staff developed two timing plans and compared them with the existing timing plans put in place by MassDOT Highway Division District 4.

TABLE 4
AM Peak-Hour Level of Service

Approach	Movement	Existing LOS	Existing Delay[1]	Existing Queue[2]	Option 1 LOS	Option 1 Delay	Option 1 Queue	Option 2 LOS	Option 2 Delay	Option 2 Queue
Route 2 EB	T	F	117	#1443	F	138	#1523	F	136	#1572
Route 2 EB	R	A	5	0	A	6	0	A	6	0
Route 2 WB	T	B	12	494	B	15	562	B	15	562
Route 2 WB	R	A	5	0	A	6	0	A	6	0
Bedford St. NB	L+T	D	45	#306	D	42	#291	E	101	#261
Bedford St. NB	R	A	0	0	A	0	0	A	0	0
Bedford St. SB	L+T	F	>180	#863	F	>180	#855	--	--	--
Bedford St. SB	L*	--	--	--	--	--	--	F	> 180	#368
Bedford St. SB	T*	--	--	--	--	--	--	E	72	#291
Bedford St. SB	R	A	0	0	A	0	0	A	0	0
Overall	**All**	**F**	**117**	**--**	**F**	**114**	**--**	**F**	**91**	**--**
Route 2 EB	L	E	55	27	E	67	28	E	67	28
Route 2 EB	T	F	110	#1334	F	170	#1269	F	170	#1269
Route 2 EB	R	A	6	51	A	10	39	A	10	39
Route 2 WB	L	E	55	99	F	83	#124	F	83	#124
Route 2 WB	T	A	9	561	B	17	514	B	17	514
Route 2 WB	R	A	4	22	A	8	21	A	8	21
Walden St. NB	L	D	42	#161	E	60	#188	E	60	#188
Walden St. NB	T	D	47	#184	F	92	#226	F	92	#226
Walden St. NB	R	A	0	91	A	0	0	A	0	0
Walden St. SB	L	F	>180	#395	F	>180	#449	F	>180	#449
Walden St. SB	T	F	>180	216	D	43	228	D	53	228
Walden St. SB	R	A	0	0	A	0	0	A	0	0
Overall	**All**	**F**	**103**	**--**	**F**	**107**	**--**	**F**	**107**	**--**
Route 2 EB	L	D	51	m13	D	55	m14	D	54	m14
Route 2 EB	T	F	168	m#1044	F	149	m#1057	F	149	m#1057
Route 2 EB	R	B	11	m0	B	10	m0	B	10	0
Route 2 WB	L	E	55	#167	E	73	#219	E	73	#219
Route 2 WB	T	B	17	589	B	16	589	B	16	589
Route 2 WB	R	A	8	0	A	7	0	A	7	0
Sudbury Rd. NB	L+T+R	F	128	#445	F	152	#445	--	--	--
Sudbury Rd. NB	T+L*	--	--	--	--	--	--	D	39	126
Sudbury Rd. NB	R*	--	---	--	--	--	---	D	40	235
Sudbury Rd. SB	L+T+R	F	180	#589	F	>180	#415	--	--	--

Approach	Movement	Existing LOS	Existing Delay[1]	Existing Queue[2]	Option 1 LOS	Option 1 Delay	Option 1 Queue	Option 2 LOS	Option 2 Delay	Option 2 Queue
Sudbury Rd. SB	L*	--	--	--	--	--	--	D	46	96
Sudbury Rd. SB	T+R*	--	--	--	--	--	--	D	41	146
Overall	**All**	**F**	**109**	**--**	**F**	**104**	**---**	**F**	**86**	**--**
Route 2 EB	L	D	49	m44	D	54	m51	D	54	m52
Route 2 EB	T	D	37	m131	C	16	m154	C	16	m207
Route 2 EB	R	A	0	m0	A	0	m0	A	0	m4
Route 2 WB	L	D	58	m129	E	67	m149	E	67	m164
Route 2 WB	T+R	C	16	m228	B	14	m248	B	14	252
Old Rd to Nine Acre Rd NB	L	E	58	#165	E	62	#165	E	62	#165
Old Rd to Nine Acre Rd NB	T	D	53	#315	E	57	#315	E	57	#315
Old Rd to Nine Acre Rd NB	R	D	36	206	D	38	215	D	38	215
Old Rd to Nine Acre Rd SB	L	D	51	39	D	53	39	D	53	37
Old Rd to Nine Acre Rd SB	T+R	D	43	207	D	45	207	D	45	207
Overall	**All**	**D**	**32**	**--**	**C**	**24**	**--**	**C**	**24**	**--**
Route 2 EB	T	F	>180	#977	F	117	#888	E	71	#843
Route 2 EB	R	A	0	m0	A	0	m0	A	0	0
Route 2 WB	L	D	50	m#327	E	>180	m#481	E	75	m#215
Route 2 WB	T	B	12	310	B	11	272	B	12	240
Route 2 WB	R	A	0	m0	A	0	0	A	0	0
Main St NB	L+T	F	82	#550	F	94	#562	F	82	#550
Main St NB	R	A	0	m0	A	0	0	A	0	0
Main St SB	L+T+R	D	37	165	D	38	167	D	37	165
Overall	**All**	**F**	**123**	**--**	**F**	**82**	**--**	**D**	**52**	**--**
Route 2 EB	L	D	55	#546	E	64	#583	E	64	#583
Route 2 EB	T	A	13	390	B	12	313	B	12	313
Route 2 EB	R	A	1	23	A	0	18	A	0	18
Route 2 WB	T	D	60	m#741	D	48	m#626	D	49	m#618
Route 2 WB	R	A	0	m29	A	0	m17	A	0	m21
Baker Ave. Extension NB	L+T	D	48	120	D	52	143	D	52	#143
Baker Ave. Extension NB	R	D	39	0	D	42	0	D	42	0
Baker Ave. Extension SB	L	D	50	14	D	54	15	D	54	15
Baker Ave. Extension SB	T+R	D	42	127	D	45	135	D	45	135
Overall	**All**	**D**	**37**	**--**	**D**	**35**	**--**	**D**	**35**	**--**

*Geometric improvement.

[1] Delay in seconds per vehicle.

[2] 95th percentile queue length in feet.

means that the 95th percentile volume exceeds capacity. m means upstream metering is in effect.

Source: Central Transportation Planning Staff.

TABLE 5
PM Peak-Hour Level of Service

Approach	Movement	Existing LOS	Existing Delay[1]	Existing Queue[2]	Option 1 LOS	Option 1 Delay	Option 1 Queue	Option 2 LOS	Option 2 Delay	Option 2 Queue
Route 2 EB	T	B	14	467	B	13	467	B	13	467
Route 2 EB	R	A	7	52	A	7	52	A	7	52
Route 2 WB	T	F	112	#1378	F	112	582	F	112	#1378
Route 2 WB	R	F	83	24	F	107	--	F	107	24
Bedford St. NB	L+T	D	43	#342	D	43	#342	F	>180	#312
Bedford St. NB	R	A	0	0	A	0	39	A	0	0
Bedford St. SB	L+T	F	>180	#898	F	>180	#884	--	--	--
Bedford St. SB	L*	--	--	0	--	--	--	E	152	#277
Bedford St. SB	T*	--	--	--	--	--	--	D	90	467
Bedford St. SB	R	R	A	0	A	0	0	A	0	0
Overall	**All**	**F**	**104**	**--**	**F**	**103**	**--**	**F**	**96**	**--**
Route 2 EB	L	E	72	68	E	73	70	E	72	70
Route 2 EB	T	B	16	551	B	19	667	B	16	630
Route 2 EB	R	A	7	18	A	8	22	A	7	20
Route 2 WB	L	F	102	#224	E	77	#167	E	77	#183
Route 2 WB	T	D	36	#1209	D	45	#1256	D	35	966
Route 2 WB	R	A	6	24	A	6	23	A	6	27
Walden St. NB	L	F	92	#208	E	70	#185	E	76	#208
Walden St. NB	T	F	81	#292	E	63	#254	F	83	#292
Walden St. NB	R	A	0	10	A	0	0	A	0	0
Walden St. SB	L	F	174	#197	F	90	#180	F	153	#196
Walden St. SB	T	E	56	154	E	53	150	E	57	154
Walden St. SB	R	A	0	4	A	0	4	A	0	4
Overall	**All**	**C**	**34**	**--**	**C**	**36**	**--**	**C**	**33**	**--**
Route 2 EB	L	E	60	m45	E	65	m50	E	67	m54
Route 2 EB	T	F	120	m#798	F	82	m#917	D	39	m#885
Route 2 EB	R	B	18	m0	B	15	m0	B	13	0
Route 2 WB	L	E	57	#439	F	87	#475	E	72	#457
Route 2 WB	T	F	92	#1205	E	72	#1089	C	30	#884
Route 2 WB	R	A	9	0	A	8	0	A	6	0
Sudbury Rd. NB	L+T+R	D	52	252	E	60	#293	--	--	--
Sudbury Rd. NB	T+L*	--	--	--	--	--	--	D	57	#187
Sudbury Rd. NB	R*	--	--	--	--	--	---	C	31	99
Sudbury Rd. SB	L+T+R	E	57	#328	E	78	#365	--	--	--
Sudbury Rd. SB	L*	--	--	--	--	--	--	E	55	69
Sudbury Rd. SB	T+R*	--	--	--	--	--	--	E	58	#266
Overall	**All**	**F**	**95**	**--**	**E**	**76**	**--**	**D**	**38**	**--**

Approach	Movement	Existing LOS	Existing Delay[1]	Existing Queue[2]	Option 1 LOS	Option 1 Delay	Option 1 Queue	Option 2 LOS	Option 2 Delay	Option 2 Queue
Route 2 EB	L	E	56	m31	E	59	m29	E	60	m34
Route 2 EB	T	C	22	m#869	D	43	m434	C	25	m818
Route 2 EB	R	A	0	m22	A	0	m9	A	0	m0
Route 2 WB	L	D	52	m158	E	58	m167	E	55	m92
Route 2 WB	T+R	E	70	m#912	D	43	m#918	D	47	#1024
Old Rd to Nine Acre Rd NB	L	E	53	#186	E	74	#204	E	60	#204
Old Rd to Nine Acre Rd NB	T	D	39	168	D	44	175	D	43	175
Old Rd to Nine Acre Rd NB	R	C	27	94	C	31	105	C	35	105
Old Rd to Nine Acre Rd SB	L	D	43	55	D	49	58	D	47	58
Old Rd to Nine Acre Rd SB	T+R	D	41	221	D	48	231	D	46	231
Overall	**All**	**D**	**47**	**--**	**D**	**44**	**--**	**D**	**39**	**--**
Route 2 EB	T	E	40	#675	E	73	#791	C	31	#646
Route 2 EB	R	A	0	m0	A	0	m0	A	0	m0
Route 2 WB	L	F	174	m#530	E	74	m#494	D	52	m198
Route 2 WB	T	B	16	m41	B	16	m417	B	17	m57
Route 2 WB	R	A	0	m0	A	0	m1	A	0	m0
Main St NB	L+T	D	51	#338	D	51	#338	D	46	290
Main St NB	R	A	0	101	A	0	101	A	0	107
Main St SB	L+T+R	E	65	#444	E	65	#444	D	55	#396
Overall	**All**	**D**	**49**	**--**	**D**	**49**	**--**	**D**	**31**	**--**
Route 2 EB	L	E	75	#262	E	89	#307	E	75	#262
Route 2 EB	T	B	13	360	B	13	360	B	12	338
Route 2 EB	R	A	0	14	A	0	14	A	0	14
Route 2 WB	T	E	67	#898	E	59	#880	E	55	#835
Route 2 WB	R	A	0	m21	A	0	m8	A	0	m13
Baker Ave. Extension NB	L+T	E	75	#392	E	80	#401	E	64	#410
Baker Ave. Extension NB	R	D	36	30	D	36	30	D	37	30
Baker Ave. Extension SB	L	E	63	30	E	62	30	E	62	30
Baker Ave. Extension SB	T+R	D	37	133	D	37	135	D	39	136
Overall	**All**	**D**	**46**	**--**	**D**	**44**	**--**	**D**	**40**	**--**

* Geometric improvement
[1] Delay in seconds per vehicle.
[2] 95th percentile queue length in feet.
means that the 95th percentile volume exceeds capacity. m means upstream metering is in effect.
Source: Central Transportation Planning Staff.

5.1 Option1: Retiming and Coordinating of Existing Traffic Signal System

Option 1 consists of retiming and coordinating the existing traffic signal system using the methodology discussed earlier. For safety, enough time was allocated for pedestrians to cross Route 2 or a side street from curb to curb. Known as the “pedestrian clearance interval,” this is represented by the flashing DON'T WALK or upraised-hand signal. As with pedestrian crossings, adequate time was allocated for cross-street and left-turning traffic.

5.2 Option 2: Geometric Improvements and Retiming and Coordination

Option 2 consists of geometric improvements in addition to the signal retiming and coordination described in Option 1. Proposed new construction entails:

- Southbound left-turn lane on Bedford Road
- Northbound right-turn lane on Sudbury Road
- Southbound left-turn lane on Sudbury Road
- Second westbound left-turn lane on Route 2 at Main Street

Tables 4 and 5 below present results of the intersection-capacity analysis for the two options in terms of LOS, delays, and queues. (See Appendix D for the LOS analysis worksheets for the two options.)

There appears to be enough space in the right-of-way for constructing these geometric improvements. For each of these, a 200-foot turn lane would be sufficient to improve traffic operations. In addition, they each would require new traffic signal heads to control the turn lane. These improvements would cost between $500,000 and $750,000, except for the second westbound left-turn lane on Route 2 at Main Street, which would cost between $750,000 and $1.0 million.

5.3 Time-of-Day Signal Settings

The final component to the new timing plan is the time-of-day signal settings. These settings determine the optimal timing plan for each hour of a typical weekday. The time-of-day signal settings were obtained by evaluating the 24-hour ATR count data from three locations on Route 2. (See Appendix E for signal settings for the peak- and off-peak periods.) The peak-period operations are:

- AM peak period: 6:30 AM to 9:30 AM
- PM peak period: 3:30 PM to 7:00 PM

5.4 Measures of Effectiveness

To measure the effectiveness of the timing plans, Synchro 8 was used to evaluate arterial LOS—in terms of delay, travel time, and speed—for the two options described above. (See Table 6 below.)

- During the AM peak period, signal optimization yields about 8 percent improvement in travel time eastbound; the improvement increases to 10 percent with the addition of geometric improvements. Similarly, travel speed increases by 5 percent with signal optimization and by 11 percent with the addition of geometric improvements.

  During the PM peak period, signal optimization yields about 4 percent improvement in travel time westbound; the improvement increases to 9 percent with the addition of geometric improvements. Similarly, travel speed increases by 5 percent with signal optimization and by 11 percent with geometric improvements.

- Overall, the study shows that signal retiming would offer benefits in the Route 2 corridor, but it is not sufficient to stem the severe congestion and queuing throughout the corridor. For this, geometric improvements also are necessary.

- Geometric improvements would benefit traffic on the side streets where they were recommended. At the intersection of Sudbury Road, levels of service would improve from LOS E or F to LOS D for both the northbound and southbound approaches. At the Bedford Street intersection, levels of service would improve from LOS F to LOS E or D.

TABLE 6
Route 2 Signal-Retiming Results: Arterial Levels of Service

Scenario	Total Signal Delay (Minutes)	Change in Signal Delay (%)	Total Travel Time (minutes)	Change in Travel Time (%)	Arterial Speed (MPH)	Change in Arterial Speed (%)	Arterial LOS
AM Eastbound Route 2:	--	--	--	--	--	--	--
Existing Condition	10.6	--	18.6	--	18	--	D
Option 1	9.3	-12	17.1	-8	19	+5	D
Option 2	9.0	-15	16.6	-10	20	+11	D
AM Westbound Route 2:	--	--	--	--	--	--	--
Existing Condition	2.7	--	10.8	--	33	--	B
Option 1	2.4	-11	10.5	-3	34	+3	B
Option 2	2.3	-15	10.4	-4	35	+6	B
PM Eastbound Route 2:	--	--	--	--	--	--	--
Existing Condition	3.5	--	11.0	--	30	--	C
Option 1	3.1	-11	10.6	-4	31	+3	B
Option 2	2.8	-20	9.8	-11	34	+13	B
PM Westbound Route 2:	--	--	--	--	--	--	--
Existing Condition	10.1	--	18.1	--	18	--	D
Option 1	9.2	-9	17.3	-4	19	+5	D
Option 2	8.4	-17	16.5	-9	20	+11	D

LOS = Level of service.
Source: Central Transportation Planning Staff.

6. RECOMMENDATIONS

Short-Term Solution:

6.1 MPO staff recommends Option 1, retiming and coordination of the existing traffic signal system, to alleviate congestion in the Route 2 corridor for the near term. (See Appendix F for Option 1 Timing plans.)

6.2 Install bicycle detection devices, pavement markings, and signs to help bicyclists cross Route 2 at the signalized intersections.

Medium-Term Solution:

6.3 MPO staff recommends that MassDOT Highway Division District 4 consider Option 2, geometric improvements and retiming and coordination for the medium term.

6.4 Regarding Option 2, analysis shows benefits would be realized from the following construction:

- A northbound right-turn lane and a southbound left-turn lane on Sudbury Road—This would improve traffic flow and alleviate queues on Sudbury Road during the AM and PM peak periods. The improvements would require widening the Sudbury Road approaches, and could be accommodated within the existing right-of-way.
- A southbound left-turn lane on Bedford Road—This would improve traffic flow and reduce the length of AM and PM traffic queues on the approach. This improvement could be accommodated within the existing right-of-way.
- A second westbound left-turn lane on Route 2 for traffic turning onto Main Street—This would improve traffic flow at the intersection during the AM and PM peak periods. It also would help prevent the westbound left-turn lane queue from extending into the westbound through lane, which causes congestion at the intersection.
- This solution would require widening the Route 2 pavement within the existing right-of-way to accommodate the second left-turn lane, as well as widening a short portion of the Route 62 pavement west of Route 2 to accommodate a second westbound receiving lane. Currently, the existing Route 2 westbound exclusive-right-turn lane is highly underutilized and could be converted to a through-plus right-turn lane to limit the improvement to within the right-of-way.

SAA/saa

cc: M. Karas, MassDOT District 4
J. Onorato, MassDOT District 4

C. Raphael, MassDOT District 4
P. Nelson, MassDOT Planning

Figures

1. Study Area
2. Study Intersections
3. Existing Turning Movement Counts and Average Daily Traffic

Appendixes

A. Turning Movement and Automatic Traffic Recorder Counts
B. Existing Signal-Timing Information
C. Crash Rate Worksheets and Collision Diagrams
D. Level of Service Analyses
E. Time of Day Signal Settings
F. Timing Plan for Option 1—Retiming and Coordination of Existing Traffic Signals

Appendix A: Turning Movement and Automatic Traffic Recorder Counts

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Baker Avenue Extension
Counted by Miovision
S12-079 TMC # 1

File Name : S12-079TM1
Site Code : 89572
Start Date : 12/13/2012

Groups Printed- Car - Truck - Bike

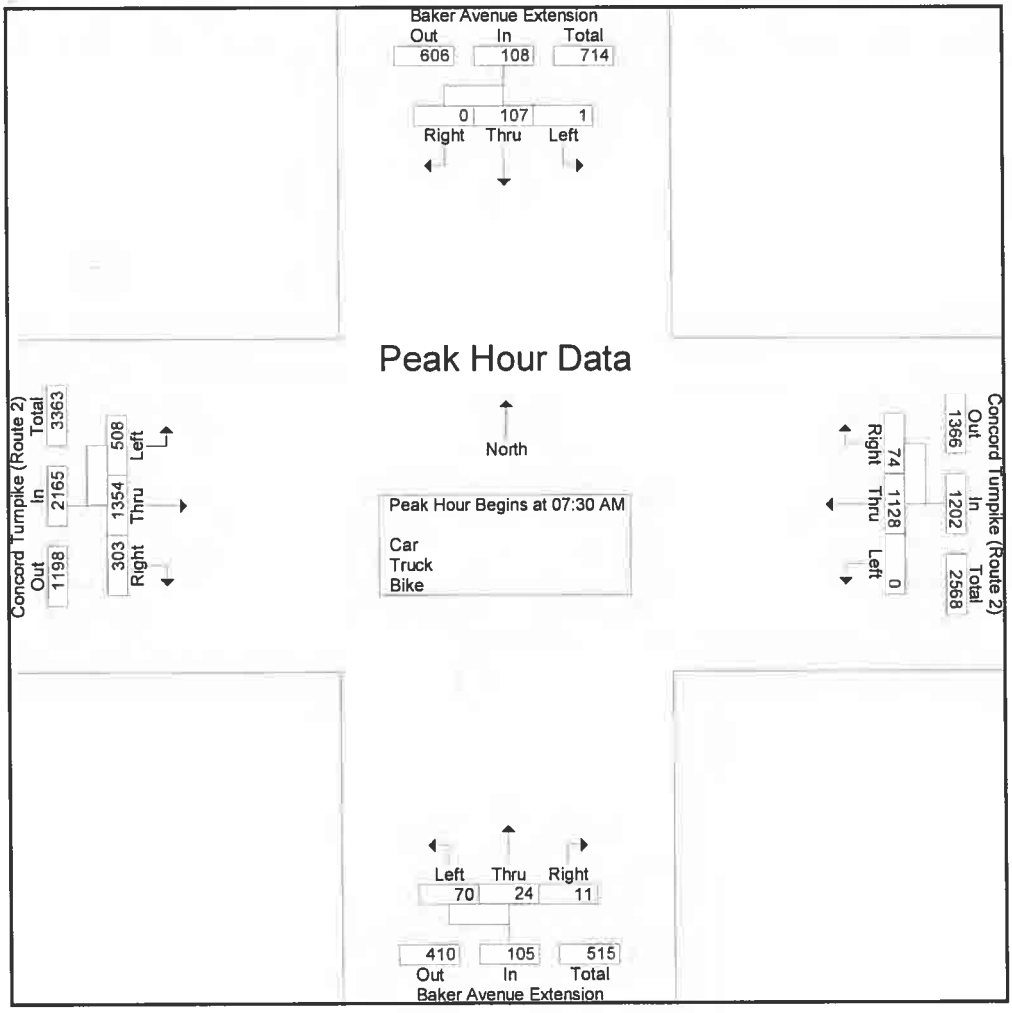
	Baker Avenue Extension From North				Concord Turnpike (Route 2) From East				Baker Avenue Extension From South				Concord Turnpike (Route 2) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	0	11	1	12	12	181	0	193	4	11	7	22	31	411	149	591	818
07:15 AM	0	12	1	13	13	224	0	237	0	8	7	15	44	372	150	566	831
07:30 AM	0	27	0	27	16	263	0	279	2	5	13	20	76	310	144	530	856
07:45 AM	0	25	0	25	18	317	0	335	2	8	15	25	103	314	143	560	945
Total	0	75	2	77	59	985	0	1044	8	32	42	82	254	1407	586	2247	3450
08:00 AM	0	20	1	21	19	280	0	299	4	3	22	29	55	360	125	540	889
08:15 AM	0	35	0	35	21	268	0	289	3	8	20	31	69	370	96	535	890
08:30 AM	0	27	2	29	15	249	0	264	9	8	19	36	60	363	75	498	827
08:45 AM	0	40	2	42	31	294	0	325	10	9	21	40	65	347	70	482	889
Total	0	122	5	127	86	1091	0	1177	26	28	82	136	249	1440	366	2055	3495
04:00 PM	1	17	6	24	9	304	0	313	12	15	58	85	21	240	50	311	733
04:15 PM	0	20	2	22	9	350	0	359	14	12	34	60	24	320	57	401	842
04:30 PM	0	11	0	11	1	314	0	315	22	18	60	100	8	265	40	313	739
04:45 PM	1	12	2	15	7	353	0	360	21	17	42	80	19	284	46	349	804
Total	2	60	10	72	26	1321	0	1347	69	62	194	325	72	1109	193	1374	3118
05:00 PM	0	18	3	21	11	268	0	279	21	14	62	97	10	283	33	326	723
05:15 PM	1	19	1	21	15	333	0	348	19	13	42	74	15	327	54	396	839
05:30 PM	1	17	4	22	7	294	0	301	7	10	57	74	8	298	39	345	742
05:45 PM	2	13	7	22	11	322	0	333	14	16	47	77	18	322	63	403	835
Total	4	67	15	86	44	1217	0	1261	61	53	208	322	51	1230	189	1470	3139
Grand Total	6	324	32	362	215	4614	0	4829	164	175	526	865	626	5186	1334	7146	13202
Apprch %	1.7	89.5	8.8		4.5	95.5	0		19	20.2	60.8		8.8	72.6	18.7		
Total %	0	2.5	0.2	2.7	1.6	34.9	0	36.6	1.2	1.3	4	6.6	4.7	39.3	10.1	54.1	
Car	6	318	32	356	211	4476	0	4687	155	170	523	848	615	5032	1306	6953	12844
% Car	100	98.1	100	98.3	98.1	97	0	97.1	94.5	97.1	99.4	98	98.2	97	97.9	97.3	97.3
Truck	0	6	0	6	4	137	0	141	9	5	3	17	11	154	28	193	357
% Truck	0	1.9	0	1.7	1.9	3	0	2.9	5.5	2.9	0.6	2	1.8	3	2.1	2.7	2.7
Bike	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
% Bike	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

File Name : S12-079TM1
Site Code : 89572
Start Date : 12/13/2012
Page No : 2

	Baker Avenue Extension From North				Concord Turnpike (Route 2) From East				Baker Avenue Extension From South				Concord Turnpike (Route 2) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	27	0	27	16	263	0	279	2	5	13	20	76	310	**144**	530	856
07:45 AM	0	25	0	25	18	**317**	0	**335**	2	**8**	15	25	**103**	314	143	**560**	**945**
08:00 AM	0	20	**1**	21	19	280	0	299	**4**	3	**22**	29	55	360	125	540	889
08:15 AM	0	**35**	0	**35**	**21**	268	0	289	3	8	20	**31**	69	**370**	96	535	890
Total Volume	0	107	1	108	74	1128	0	1202	11	24	70	105	303	1354	508	2165	3580
% App. Total	0	99.1	0.9		6.2	93.8	0		10.5	22.9	66.7		14	62.5	23.5		
PHF	.000	.764	.250	.771	.881	.890	.000	.897	.688	.750	.795	.847	.735	.915	.882	.967	.947

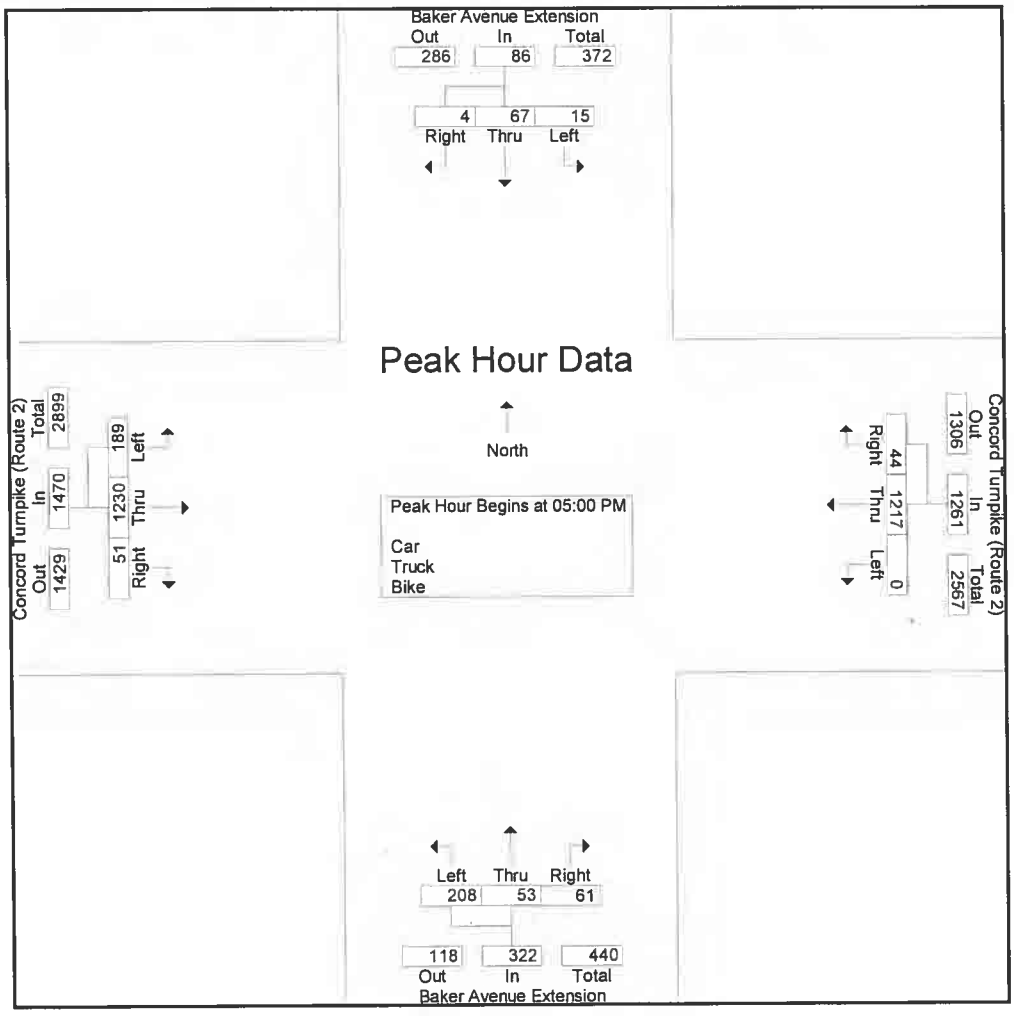


Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

File Name : S12-079TM1
Site Code : 89572
Start Date : 12/13/2012
Page No : 3

	Baker Avenue Extension From North				Concord Turnpike (Route 2) From East				Baker Avenue Extension From South				Concord Turnpike (Route 2) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	18	3	21	11	268	0	279	**21**	14	**62**	**97**	10	283	33	326	723
05:15 PM	1	**19**	1	21	**15**	**333**	0	**348**	19	13	42	74	15	**327**	54	396	**839**
05:30 PM	1	17	4	**22**	7	294	0	301	7	10	57	74	8	298	39	345	742
05:45 PM	**2**	13	**7**	22	11	322	0	333	14	**16**	47	77	**18**	322	**63**	**403**	835
Total Volume	4	67	15	86	44	1217	0	1261	61	53	208	322	51	1230	189	1470	3139
% App. Total	4.7	77.9	17.4		3.5	96.5	0		18.9	16.5	64.6		3.5	83.7	12.9		
PHF	.500	.882	.536	.977	.733	.914	.000	.906	.726	.828	.839	.830	.708	.940	.750	.912	.935



Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Baker Avenue Extension
Counted by Miovision
S12-079 TMC # 1

File Name : S12-079TM1
Site Code : 89572
Start Date : 12/13/2012
Page No : 1

Groups Printed- Car

	Baker Avenue Extension From North				Concord Turnpike (Route 2) From East				Baker Avenue Extension From South				Concord Turnpike (Route 2) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	0	11	1	12	11	176	0	187	3	10	7	20	29	397	148	574	793
07:15 AM	0	10	1	11	12	215	0	227	0	7	7	14	43	358	145	546	798
07:30 AM	0	26	0	26	15	256	0	271	1	5	12	18	72	291	140	503	818
07:45 AM	0	25	0	25	18	307	0	325	2	8	15	25	101	299	142	542	917
Total	0	72	2	74	56	954	0	1010	6	30	41	77	245	1345	575	2165	3326
08:00 AM	0	20	1	21	19	270	0	289	4	3	20	27	55	342	122	519	856
08:15 AM	0	34	0	34	21	254	0	275	3	8	20	31	68	359	93	520	860
08:30 AM	0	26	2	28	14	230	0	244	9	7	19	35	60	352	71	483	790
08:45 AM	0	40	2	42	31	274	0	305	7	7	21	35	65	332	67	464	846
Total	0	120	5	125	85	1028	0	1113	23	25	80	128	248	1385	353	1986	3352
04:00 PM	1	16	6	23	9	300	0	309	12	15	58	85	21	228	50	299	716
04:15 PM	0	20	2	22	9	344	0	353	13	12	34	59	24	315	54	393	827
04:30 PM	0	11	0	11	1	311	0	312	21	18	60	99	8	262	40	310	732
04:45 PM	1	12	2	15	7	339	0	346	19	17	42	78	19	278	46	343	782
Total	2	59	10	71	26	1294	0	1320	65	62	194	321	72	1083	190	1345	3057
05:00 PM	0	18	3	21	11	262	0	273	21	14	62	97	10	281	33	324	715
05:15 PM	1	19	1	21	15	327	0	342	19	13	42	74	15	322	54	391	828
05:30 PM	1	17	4	22	7	292	0	299	7	10	57	74	8	295	39	342	737
05:45 PM	2	13	7	22	11	319	0	330	14	16	47	77	17	321	62	400	829
Total	4	67	15	86	44	1200	0	1244	61	53	208	322	50	1219	188	1457	3109
Grand Total	6	318	32	356	211	4476	0	4687	155	170	523	848	615	5032	1306	6953	12844
Apprch %	1.7	89.3	9		4.5	95.5	0		18.3	20	61.7		8.8	72.4	18.8		
Total %	0	2.5	0.2	2.8	1.6	34.8	0	36.5	1.2	1.3	4.1	6.6	4.8	39.2	10.2	54.1	

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Baker Avenue Extension
Counted by Miovision
S12-079 TMC # 1

File Name : S12-079TM1
Site Code : 89572
Start Date : 12/13/2012
Page No : 1

Groups Printed- Truck

	Baker Avenue Extension From North				Concord Turnpike (Route 2) From East				Baker Avenue Extension From South				Concord Turnpike (Route 2) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	0	0	0	0	1	5	0	6	1	1	0	2	2	14	1	17	25
07:15 AM	0	2	0	2	1	9	0	10	0	1	0	1	1	14	5	20	33
07:30 AM	0	1	0	1	1	7	0	8	1	0	1	2	4	19	4	27	38
07:45 AM	0	0	0	0	0	10	0	10	0	0	0	0	2	15	1	18	28
Total	0	3	0	3	3	31	0	34	2	2	1	5	9	62	11	82	124
08:00 AM	0	0	0	0	0	10	0	10	0	0	2	2	0	18	3	21	33
08:15 AM	0	1	0	1	0	14	0	14	0	0	0	0	1	11	3	15	30
08:30 AM	0	1	0	1	1	19	0	20	0	1	0	1	0	11	4	15	37
08:45 AM	0	0	0	0	0	20	0	20	3	2	0	5	0	15	3	18	43
Total	0	2	0	2	1	63	0	64	3	3	2	8	1	55	13	69	143
04:00 PM	0	1	0	1	0	4	0	4	0	0	0	0	0	12	0	12	17
04:15 PM	0	0	0	0	0	6	0	6	1	0	0	1	0	5	3	8	15
04:30 PM	0	0	0	0	0	3	0	3	1	0	0	1	0	3	0	3	7
04:45 PM	0	0	0	0	0	14	0	14	2	0	0	2	0	6	0	6	22
Total	0	1	0	1	0	27	0	27	4	0	0	4	0	26	3	29	61
05:00 PM	0	0	0	0	0	5	0	5	0	0	0	0	0	2	0	2	7
05:15 PM	0	0	0	0	0	6	0	6	0	0	0	0	0	5	0	5	11
05:30 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	3	0	3	5
05:45 PM	0	0	0	0	0	3	0	3	0	0	0	0	1	1	1	3	6
Total	0	0	0	0	0	16	0	16	0	0	0	0	1	11	1	13	29
Grand Total	0	6	0	6	4	137	0	141	9	5	3	17	11	154	28	193	357
Apprch %	0	100	0		2.8	97.2	0		52.9	29.4	17.6		5.7	79.8	14.5		
Total %	0	1.7	0	1.7	1.1	38.4	0	39.5	2.5	1.4	0.8	4.8	3.1	43.1	7.8	54.1	

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Baker Avenue Extension
Counted by Miovision
S12-079 TMC # 1

File Name : S12-079TM1
Site Code : 89572
Start Date : 12/13/2012
Page No : 1

Groups Printed- Bike

	Baker Avenue Extension From North				Concord Turnpike (Route 2) From East				Baker Avenue Extension From South				Concord Turnpike (Route 2) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
05:00 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Apprch %	0	0	0		0	100	0		0	0	0		0	0	0		
Total %	0	0	0	0	0	100	0	100	0	0	0	0	0	0	0	0	

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Baker Avenue Extension
Counted by Miovision
S12-079 TMC # 1

File Name : S12-079TM1
Site Code : 89572
Start Date : 12/13/2012
Page No : 1

Groups Printed- People

	Baker Avenue Extension From North		Concord Turnpike (Route 2) From East		Baker Avenue Extension From South		Concord Turnpike (Route 2) From West		
Start Time	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Int. Total
04:30 PM	0	0	0	0	0	0	1	1	1
Total	0	0	0	0	0	0	1	1	1
Grand Total	0	0	0	0	0	0	1	1	1
Apprch %	0		0		0		100		
Total %	0	0	0	0	0	0	100	100	

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Baker Avenue Extension
Counted by Miovision
S12-079 TMC # 1

File Name : S12-079TM1
Site Code : 89572
Start Date : 12/13/2012
Page No : 1

Groups Printed- Pedal Bike (Crosswalk)

	Baker Avenue Extension From North		Concord Turnpike (Route 2) From East		Baker Avenue Extension From South		Concord Turnpike (Route 2) From West		
Start Time	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Int. Total
Grand Total	0	0	0	0	0	0	0	0	0
Apprch %	0		0		0		0		
Total %									

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2A (Elm St.) @ Baker Avenue Ext.
Counted by Miovision
S12-079 TMC # 2

File Name : S12-079TM2
Site Code : 89573
Start Date : 12/13/2012
Page No : 1

Groups Printed- Car - Truck - Bike

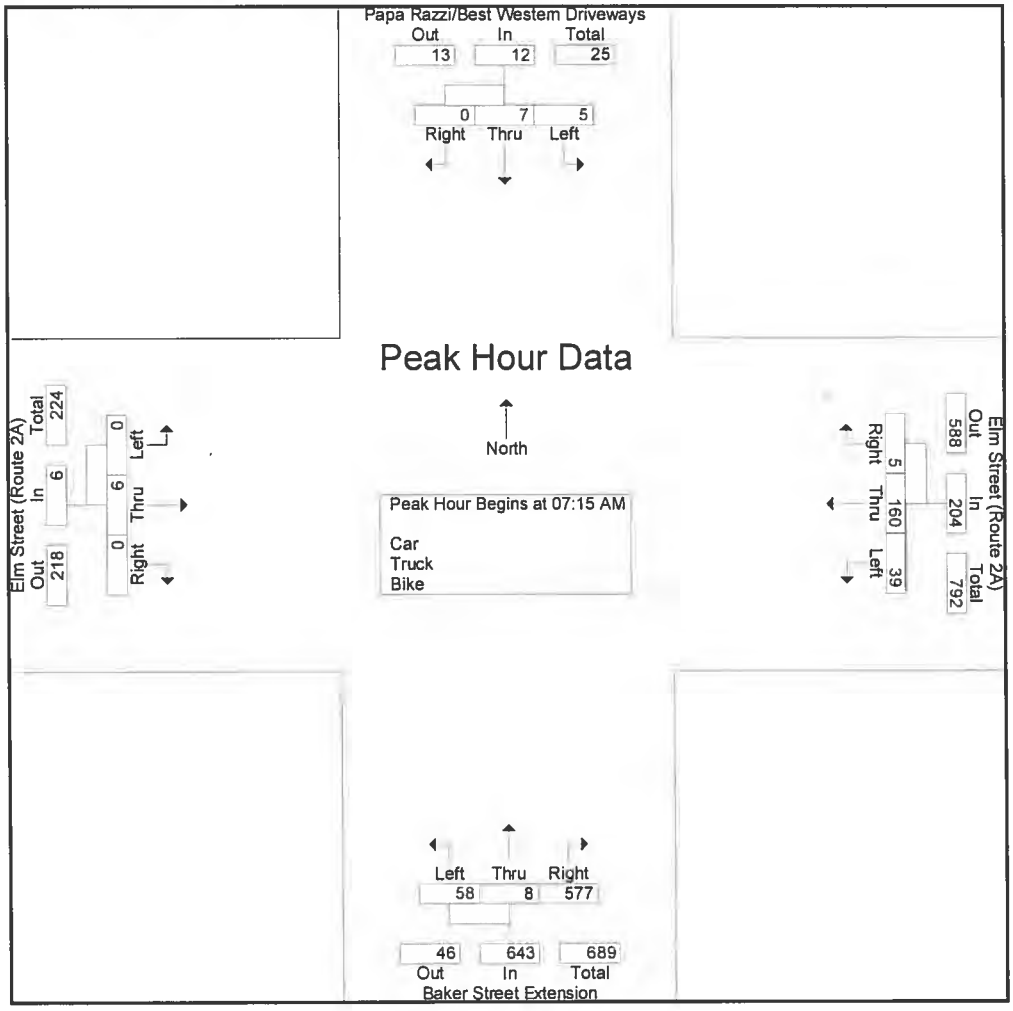
	Papa Razzi/Best Western Driveways From North				Elm Street (Route 2A) From East				Baker Street Extension From South				Elm Street (Route 2A) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	0	1	0	1	0	19	7	26	154	0	9	163	0	0	0	0	190
07:15 AM	0	3	4	7	1	31	4	36	163	2	9	174	0	3	0	3	220
07:30 AM	0	1	0	1	2	39	13	54	148	2	14	164	0	0	0	0	219
07:45 AM	0	2	1	3	0	43	11	54	143	2	18	163	0	1	0	1	221
Total	0	7	5	12	3	132	35	170	608	6	50	664	0	4	0	4	850
08:00 AM	0	1	0	1	2	47	11	60	123	2	17	142	0	2	0	2	205
08:15 AM	1	1	2	4	1	48	17	66	110	0	19	129	0	0	0	0	199
08:30 AM	1	3	0	4	0	61	13	74	80	1	16	97	0	0	0	0	175
08:45 AM	1	0	0	1	0	53	26	79	79	0	25	104	0	1	0	1	185
Total	3	5	2	10	3	209	67	279	392	3	77	472	0	3	0	3	764
04:00 PM	0	2	0	2	1	97	15	113	64	0	2	66	1	0	0	1	182
04:15 PM	1	1	0	2	2	113	17	132	63	5	2	70	0	0	0	0	204
04:30 PM	0	0	0	0	2	119	10	131	50	4	5	59	0	0	0	0	190
04:45 PM	0	1	0	1	5	106	12	123	59	6	0	65	0	1	0	1	190
Total	1	4	0	5	10	435	54	499	236	15	9	260	1	1	0	2	766
05:00 PM	0	0	0	0	9	101	15	125	40	8	4	52	1	0	0	1	178
05:15 PM	2	3	0	5	29	108	17	154	52	11	3	66	1	2	0	3	228
05:30 PM	0	0	0	0	15	101	17	133	39	11	1	51	4	0	0	4	188
05:45 PM	0	2	3	5	20	107	14	141	61	12	5	78	2	0	0	2	226
Total	2	5	3	10	73	417	63	553	192	42	13	247	8	2	0	10	820
Grand Total	6	21	10	37	89	1193	219	1501	1428	66	149	1643	9	10	0	19	3200
Apprch %	16.2	56.8	27		5.9	79.5	14.6		86.9	4	9.1		47.4	52.6	0		
Total %	0.2	0.7	0.3	1.2	2.8	37.3	6.8	46.9	44.6	2.1	4.7	51.3	0.3	0.3	0	0.6	
Car	6	21	10	37	88	1176	215	1479	1399	66	145	1610	9	9	0	18	3144
% Car	100	100	100	100	98.9	98.6	98.2	98.5	98	100	97.3	98	100	90	0	94.7	98.2
Truck	0	0	0	0	1	16	4	21	29	0	4	33	0	1	0	1	55
% Truck	0	0	0	0	1.1	1.3	1.8	1.4	2	0	2.7	2	0	10	0	5.3	1.7
Bike	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
% Bike	0	0	0	0	0	0.1	0	0.1	0	0	0	0	0	0	0	0	0

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

File Name : S12-079TM2
Site Code : 89573
Start Date : 12/13/2012
Page No : 2

	Papa Razzi/Best Western Driveways From North				Elm Street (Route 2A) From East				Baker Street Extension From South				Elm Street (Route 2A) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	**3**	**4**	**7**	1	31	4	36	**163**	**2**	9	**174**	0	**3**	0	**3**	220
07:30 AM	0	1	0	1	**2**	39	**13**	54	148	2	14	164	0	0	0	0	219
07:45 AM	0	2	1	3	0	43	11	54	143	2	**18**	163	0	1	0	1	**221**
08:00 AM	0	1	0	1	2	**47**	11	**60**	123	2	17	142	0	2	0	2	205
Total Volume	0	7	5	12	5	160	39	204	577	8	58	643	0	6	0	6	865
% App. Total	0	58.3	41.7		2.5	78.4	19.1		89.7	1.2	9		0	100	0		
PHF	.000	.583	.313	.429	.625	.851	.750	.850	.885	1.00	.806	.924	.000	.500	.000	.500	.979

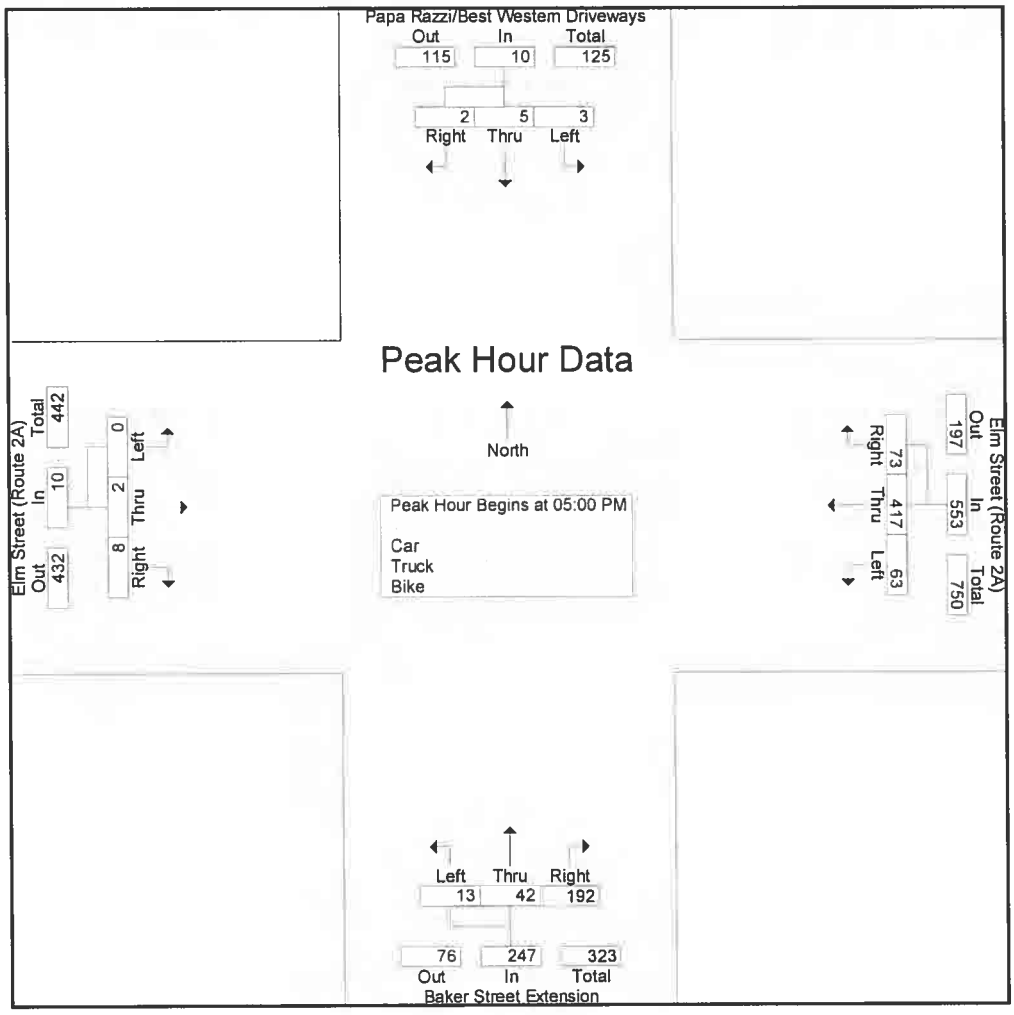


Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

File Name : S12-079TM2
Site Code : 89573
Start Date : 12/13/2012
Page No : 3

	Papa Razzi/Best Western Driveways From North				Elm Street (Route 2A) From East				Baker Street Extension From South				Elm Street (Route 2A) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	0	0	9	101	15	125	40	8	4	52	1	0	0	1	178
05:15 PM	**2**	**3**	0	**5**	**29**	**108**	**17**	**154**	52	11	3	66	1	**2**	0	3	**228**
05:30 PM	0	0	0	0	15	101	17	133	39	11	1	51	**4**	0	0	**4**	188
05:45 PM	0	2	**3**	5	20	107	14	141	**61**	**12**	**5**	**78**	2	0	0	2	226
Total Volume	2	5	3	10	73	417	63	553	192	42	13	247	8	2	0	10	820
% App. Total	20	50	30		13.2	75.4	11.4		77.7	17	5.3		80	20	0		
PHF	.250	.417	.250	.500	.629	.965	.926	.898	.787	.875	.650	.792	.500	.250	.000	.625	.899



Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2A (Elm St.) @ Baker Avenue Ext.
Counted by Miovision
S12-079 TMC # 2

File Name : S12-079TM2
Site Code : 89573
Start Date : 12/13/2012
Page No : 1

Groups Printed- Car

	Papa Razzi/Best Western Driveways From North				Elm Street (Route 2A) From East				Baker Street Extension From South				Elm Street (Route 2A) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	0	1	0	1	0	19	7	26	151	0	9	160	0	0	0	0	187
07:15 AM	0	3	4	7	1	31	3	35	159	2	8	169	0	3	0	3	214
07:30 AM	0	1	0	1	2	39	13	54	145	2	13	160	0	0	0	0	215
07:45 AM	0	2	1	3	0	42	11	53	143	2	18	163	0	1	0	1	220
Total	0	7	5	12	3	131	34	168	598	6	48	652	0	4	0	4	836
08:00 AM	0	1	0	1	1	47	11	59	121	2	17	140	0	1	0	1	201
08:15 AM	1	1	2	4	1	47	16	64	106	0	19	125	0	0	0	0	193
08:30 AM	1	3	0	4	0	60	13	73	76	1	14	91	0	0	0	0	168
08:45 AM	1	0	0	1	0	52	25	77	74	0	25	99	0	1	0	1	178
Total	3	5	2	10	2	206	65	273	377	3	75	455	0	2	0	2	740
04:00 PM	0	2	0	2	1	96	14	111	64	0	2	66	1	0	0	1	180
04:15 PM	1	1	0	2	2	113	17	132	60	5	2	67	0	0	0	0	201
04:30 PM	0	0	0	0	2	116	10	128	50	4	5	59	0	0	0	0	187
04:45 PM	0	1	0	1	5	103	12	120	59	6	0	65	0	1	0	1	187
Total	1	4	0	5	10	428	53	491	233	15	9	257	1	1	0	2	755
05:00 PM	0	0	0	0	9	101	15	125	40	8	4	52	1	0	0	1	178
05:15 PM	2	3	0	5	29	107	17	153	52	11	3	66	1	2	0	3	227
05:30 PM	0	0	0	0	15	99	17	131	39	11	1	51	4	0	0	4	186
05:45 PM	0	2	3	5	20	104	14	138	60	12	5	77	2	0	0	2	222
Total	2	5	3	10	73	411	63	547	191	42	13	246	8	2	0	10	813
Grand Total	6	21	10	37	88	1176	215	1479	1399	66	145	1610	9	9	0	18	3144
Apprch %	16.2	56.8	27		5.9	79.5	14.5		86.9	4.1	9		50	50	0		
Total %	0.2	0.7	0.3	1.2	2.8	37.4	6.8	47	44.5	2.1	4.6	51.2	0.3	0.3	0	0.6	

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2A (Elm St.) @ Baker Avenue Ext.
Counted by Miovision
S12-079 TMC # 2

File Name : S12-079TM2
Site Code : 89573
Start Date : 12/13/2012
Page No : 1

Groups Printed- Truck

	Papa Razzi/Best Western Driveways From North				Elm Street (Route 2A) From East				Baker Street Extension From South				Elm Street (Route 2A) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	3
07:15 AM	0	0	0	0	0	0	1	1	4	0	1	5	0	0	0	0	6
07:30 AM	0	0	0	0	0	0	0	0	3	0	1	4	0	0	0	0	4
07:45 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	1	1	2	10	0	2	12	0	0	0	0	14
08:00 AM	0	0	0	0	1	0	0	1	2	0	0	2	0	1	0	1	4
08:15 AM	0	0	0	0	0	1	1	2	4	0	0	4	0	0	0	0	6
08:30 AM	0	0	0	0	0	1	0	1	4	0	2	6	0	0	0	0	7
08:45 AM	0	0	0	0	0	1	1	2	5	0	0	5	0	0	0	0	7
Total	0	0	0	0	1	3	2	6	15	0	2	17	0	1	0	1	24
04:00 PM	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	2
04:15 PM	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	3
04:30 PM	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	3
04:45 PM	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	3
Total	0	0	0	0	0	7	1	8	3	0	0	3	0	0	0	0	11
05:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
05:45 PM	0	0	0	0	0	2	0	2	1	0	0	1	0	0	0	0	3
Total	0	0	0	0	0	5	0	5	1	0	0	1	0	0	0	0	6
Grand Total	0	0	0	0	1	16	4	21	29	0	4	33	0	1	0	1	55
Apprch %	0	0	0		4.8	76.2	19		87.9	0	12.1		0	100	0		
Total %	0	0	0	0	1.8	29.1	7.3	38.2	52.7	0	7.3	60	0	1.8	0	1.8	

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2A (Elm St.) @ Baker Avenue Ext.
Counted by Miovision
S12-079 TMC # 2

File Name : S12-079TM2
Site Code : 89573
Start Date : 12/13/2012

Groups Printed- Bike

	Papa Razzi/Best Western Driveways From North				Elm Street (Route 2A) From East				Baker Street Extension From South				Elm Street (Route 2A) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
05:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Apprch %	0	0	0		0	100	0		0	0	0		0	0	0		
Total %	0	0	0	0	0	100	0	100	0	0	0	0	0	0	0	0	

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2A (Elm St.) @ Baker Avenue Ext.
Counted by Miovision
S12-079 TMC # 2

File Name : S12-079TM2
Site Code : 89573
Start Date : 12/13/2012
Page No : 1

Groups Printed- People

	Papa Razzi/Best Western Driveways From North		Elm Street (Route 2A) From East		Baker Street Extension From South		Elm Street (Route 2A) From West		
Start Time	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Int. Total
07:30 AM	1	1	0	0	0	0	0	0	1
07:45 AM	1	1	0	0	0	0	0	0	1
Total	2	2	0	0	0	0	0	0	2
Grand Total	2	2	0	0	0	0	0	0	2
Apprch %	100		0		0		0		
Total %	100	100	0	0	0	0	0	0	

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2A (Elm St.) @ Baker Avenue Ext.
Counted by Miovision
S12-079 TMC # 2

File Name : S12-079TM2
Site Code : 89573
Start Date : 12/13/2012
Page No : 1

Groups Printed- Pedal Bike (Crosswalk)

	Papa Razzi/Best Western Driveways From North		Elm Street (Route 2A) From East		Baker Street Extension From South		Elm Street (Route 2A) From West		
Start Time	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Int. Total
Grand Total	0	0	0	0	0	0	0	0	0
Apprch %	0		0		0		0		
Total %									

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Main Street (Route 62)
Counted by Miovision
S12-079 TMC # 3

File Name : S12-079TM3
Site Code : 89574
Start Date : 12/13/2012
Page No : 1

Groups Printed- Car - Truck - Bike

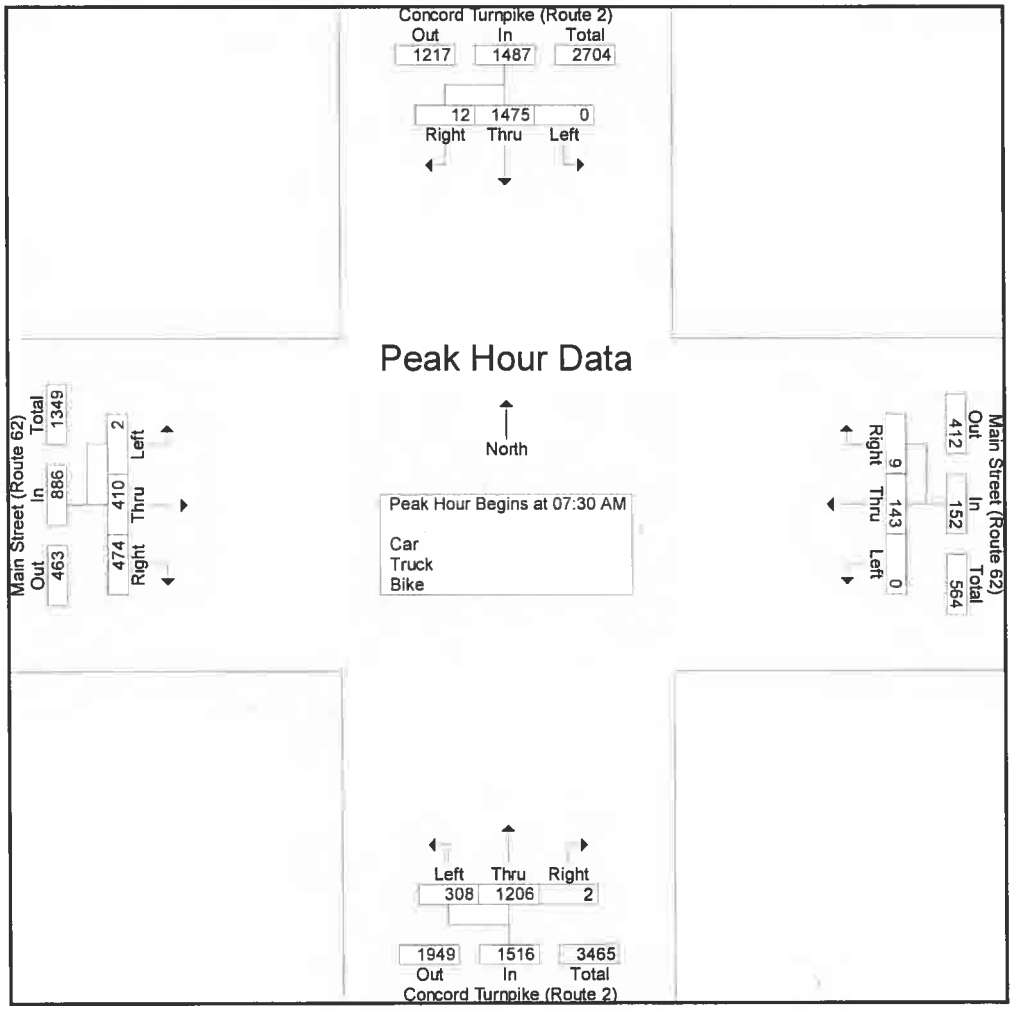
	Concord Turnpike (Route 2) From North				Main Street (Route 62) From East				Concord Turnpike (Route 2) From South				Main Street (Route 62) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	0	366	0	366	1	21	0	22	0	201	58	259	114	109	0	223	870
07:15 AM	0	336	0	336	8	22	1	31	0	242	70	312	152	108	1	261	940
07:30 AM	5	316	0	321	2	32	0	34	1	292	79	372	141	90	0	231	958
07:45 AM	4	356	0	360	1	38	0	39	1	336	99	436	117	120	0	237	1072
Total	9	1374	0	1383	12	113	1	126	2	1071	306	1379	524	427	1	952	3840
08:00 AM	1	389	0	390	3	32	0	35	0	270	58	328	107	113	1	221	974
08:15 AM	2	414	0	416	3	41	0	44	0	308	72	380	109	87	1	197	1037
08:30 AM	5	367	0	372	2	40	0	42	0	277	71	348	75	100	2	177	939
08:45 AM	3	363	0	366	1	58	0	59	0	308	83	391	105	103	0	208	1024
Total	11	1533	0	1544	9	171	0	180	0	1163	284	1447	396	403	4	803	3974
04:00 PM	0	247	0	247	6	86	2	94	18	340	132	490	78	39	3	120	951
04:15 PM	0	346	0	346	5	82	1	88	13	329	118	460	72	52	1	125	1019
04:30 PM	2	283	0	285	6	82	1	89	13	323	148	484	64	63	0	127	985
04:45 PM	0	324	0	324	2	74	2	78	10	314	95	419	64	55	1	120	941
Total	2	1200	0	1202	19	324	6	349	54	1306	493	1853	278	209	5	492	3896
05:00 PM	5	277	0	282	0	85	1	86	5	350	102	457	102	68	1	171	996
05:15 PM	2	363	0	365	1	73	1	75	6	299	106	411	84	72	0	156	1007
05:30 PM	3	300	0	303	2	82	0	84	0	309	138	447	90	54	4	148	982
05:45 PM	3	343	0	346	4	64	0	68	2	328	127	457	77	63	0	140	1011
Total	13	1283	0	1296	7	304	2	313	13	1286	473	1772	353	257	5	615	3996
Grand Total	35	5390	0	5425	47	912	9	968	69	4826	1556	6451	1551	1296	15	2862	15706
Apprch %	0.6	99.4	0		4.9	94.2	0.9		1.1	74.8	24.1		54.2	45.3	0.5		
Total %	0.2	34.3	0	34.5	0.3	5.8	0.1	6.2	0.4	30.7	9.9	41.1	9.9	8.3	0.1	18.2	
Car	33	5238	0	5271	46	898	8	952	68	4692	1519	6279	1502	1274	12	2788	15290
% Car	94.3	97.2	0	97.2	97.9	98.5	88.9	98.3	98.6	97.2	97.6	97.3	96.8	98.3	80	97.4	97.4
Truck	2	151	0	153	1	9	1	11	0	132	33	165	48	18	3	69	398
% Truck	5.7	2.8	0	2.8	2.1	1	11.1	1.1	0	2.7	2.1	2.6	3.1	1.4	20	2.4	2.5
Bike	0	1	0	1	0	5	0	5	1	2	4	7	1	4	0	5	18
% Bike	0	0	0	0	0	0.5	0	0.5	1.4	0	0.3	0.1	0.1	0.3	0	0.2	0.1

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

File Name : S12-079TM3
Site Code : 89574
Start Date : 12/13/2012
Page No : 2

	Concord Turnpike (Route 2) From North				Main Street (Route 62) From East				Concord Turnpike (Route 2) From South				Main Street (Route 62) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
.07:30 AM	**5**	316	0	321	2	32	0	34	**1**	292	79	372	**141**	90	0	231	958
07:45 AM	4	356	0	360	1	38	0	39	1	**336**	**99**	**436**	117	**120**	0	**237**	**1072**
08:00 AM	1	389	0	390	**3**	32	0	35	0	270	58	328	107	113	**1**	221	974
08:15 AM	2	**414**	0	**416**	3	**41**	0	**44**	0	308	72	380	109	87	1	197	1037
Total Volume	12	1475	0	1487	9	143	0	152	2	1206	308	1516	474	410	2	886	4041
% App. Total	0.8	99.2	0		5.9	94.1	0		0.1	79.6	20.3		53.5	46.3	0.2		
PHF	.600	.891	.000	.894	.750	.872	.000	.864	.500	.897	.778	.869	.840	.854	.500	.935	.942

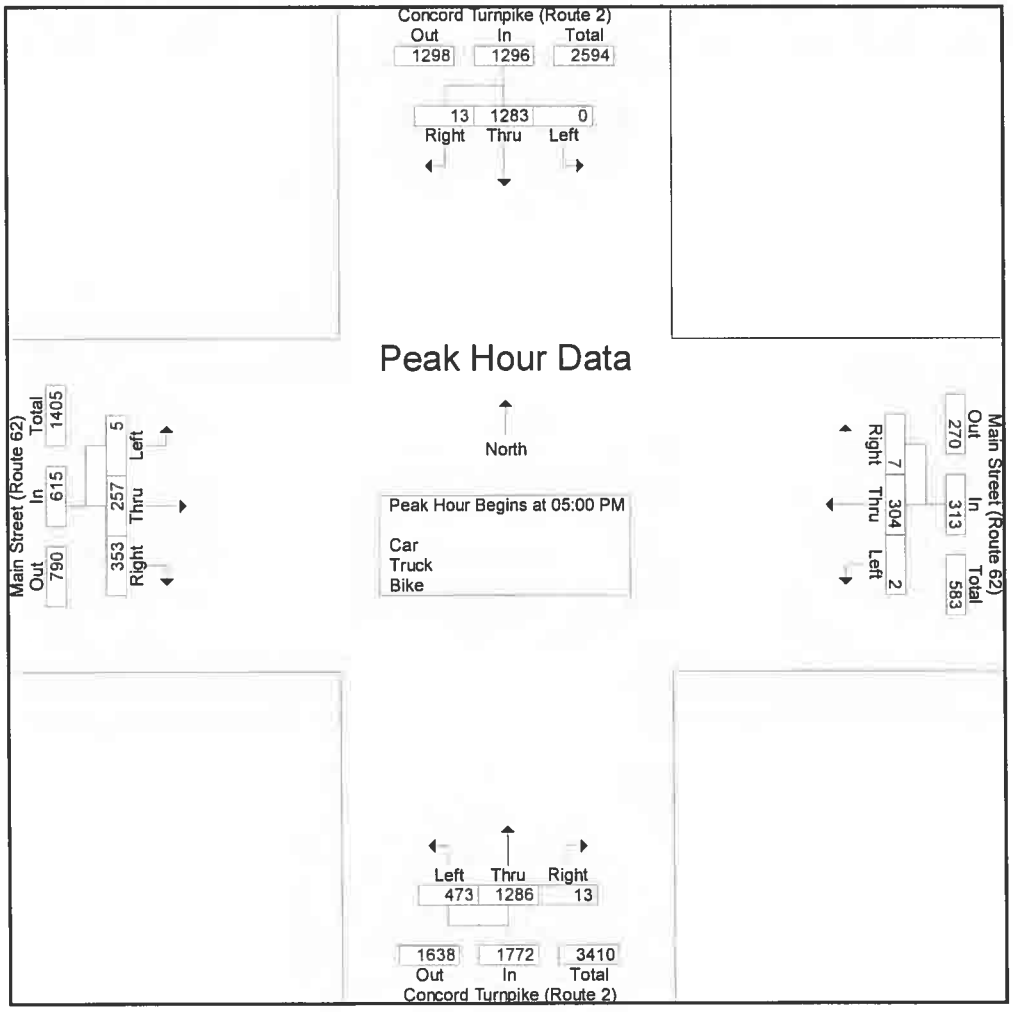


Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

File Name : S12-079TM3
Site Code : 89574
Start Date : 12/13/2012
Page No : 3

	Concord Turnpike (Route 2) From North				Main Street (Route 62) From East				Concord Turnpike (Route 2) From South				Main Street (Route 62) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	**5**	277	0	282	0	**85**	**1**	**86**	5	**350**	102	**457**	**102**	68	1	**171**	996
05:15 PM	2	**363**	0	**365**	1	73	1	75	**6**	299	106	411	84	**72**	0	156	1007
05:30 PM	3	300	0	303	2	82	0	84	0	309	**138**	447	90	54	**4**	148	982
05:45 PM	3	343	0	346	**4**	64	0	68	2	328	127	457	77	63	0	140	**1011**
Total Volume	13	1283	0	1296	7	304	2	313	13	1286	473	1772	353	257	5	615	3996
% App. Total	1	99	0		2.2	97.1	0.6		0.7	72.6	26.7		57.4	41.8	0.8		
PHF	.650	.884	.000	.888	.438	.894	.500	.910	.542	.919	.857	.969	.865	.892	.313	.899	.988



Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Main Street (Route 62)
Counted by Miovision
S12-079 TMC # 3

File Name : S12-079TM3
Site Code : 89574
Start Date : 12/13/2012
Page No : 1

Groups Printed- Car

	Concord Turnpike (Route 2) From North				Main Street (Route 62) From East				Concord Turnpike (Route 2) From South				Main Street (Route 62) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	0	353	0	353	1	21	0	22	0	198	57	255	109	104	0	213	843
07:15 AM	0	326	0	326	8	21	0	29	0	232	67	299	145	108	0	253	907
07:30 AM	4	302	0	306	2	30	0	32	0	286	75	361	139	89	0	228	927
07:45 AM	4	335	0	339	1	37	0	38	1	328	94	423	117	116	0	233	1033
Total	8	1316	0	1324	12	109	0	121	1	1044	293	1338	510	417	0	927	3710
08:00 AM	1	371	0	372	3	29	0	32	0	259	55	314	101	111	1	213	931
08:15 AM	2	401	0	403	3	41	0	44	0	291	70	361	106	83	0	189	997
08:30 AM	5	355	0	360	2	38	0	40	0	258	70	328	71	98	2	171	899
08:45 AM	3	347	0	350	1	58	0	59	0	289	82	371	97	102	0	199	979
Total	11	1474	0	1485	9	166	0	175	0	1097	277	1374	375	394	3	772	3806
04:00 PM	0	240	0	240	6	85	2	93	18	332	126	476	75	39	3	117	926
04:15 PM	0	340	0	340	5	82	1	88	13	327	116	456	71	51	1	123	1007
04:30 PM	2	279	0	281	6	81	1	88	13	315	147	475	61	63	0	124	968
04:45 PM	0	320	0	320	2	72	2	76	10	304	93	407	62	55	1	118	921
Total	2	1179	0	1181	19	320	6	345	54	1278	482	1814	269	208	5	482	3822
05:00 PM	4	272	0	276	0	84	1	85	5	346	100	451	101	66	1	168	980
05:15 PM	2	358	0	360	0	73	1	74	6	296	105	407	81	72	0	153	994
05:30 PM	3	297	0	300	2	82	0	84	0	307	135	442	90	54	3	147	973
05:45 PM	3	342	0	345	4	64	0	68	2	324	127	453	76	63	0	139	1005
Total	12	1269	0	1281	6	303	2	311	13	1273	467	1753	348	255	4	607	3952
Grand Total	33	5238	0	5271	46	898	8	952	68	4692	1519	6279	1502	1274	12	2788	15290
Apprch %	0.6	99.4	0		4.8	94.3	0.8		1.1	74.7	24.2		53.9	45.7	0.4		
Total %	0.2	34.3	0	34.5	0.3	5.9	0.1	6.2	0.4	30.7	9.9	41.1	9.8	8.3	0.1	18.2	

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Main Street (Route 62)
Counted by Miovision
S12-079 TMC # 3

File Name : S12-079TM3
Site Code : 89574
Start Date : 12/13/2012

Groups Printed- Truck

	Concord Turnpike (Route 2) From North				Main Street (Route 62) From East				Concord Turnpike (Route 2) From South				Main Street (Route 62) From West				
Start Time	Right	Thru	Left	App Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	0	13	0	13	0	0	0	0	0	3	1	4	5	5	0	10	27
07:15 AM	0	10	0	10	0	0	1	1	0	9	2	11	7	0	1	8	30
07:30 AM	1	14	0	15	0	1	0	1	0	6	3	9	2	1	0	3	28
07:45 AM	0	21	0	21	0	1	0	1	0	8	5	13	0	0	0	0	35
Total	1	58	0	59	0	2	1	3	0	26	11	37	14	6	1	21	120
08:00 AM	0	18	0	18	0	2	0	2	0	11	3	14	6	2	0	8	42
08:15 AM	0	13	0	13	0	0	0	0	0	17	2	19	3	4	1	8	40
08:30 AM	0	12	0	12	0	2	0	2	0	19	1	20	4	2	0	6	40
08:45 AM	0	16	0	16	0	0	0	0	0	19	0	19	8	1	0	9	44
Total	0	59	0	59	0	4	0	4	0	66	6	72	21	9	1	31	166
04:00 PM	0	7	0	7	0	1	0	1	0	8	6	14	2	0	0	2	24
04:15 PM	0	6	0	6	0	0	0	0	0	2	2	4	1	1	0	2	12
04:30 PM	0	4	0	4	0	0	0	0	0	8	1	9	3	0	0	3	16
04:45 PM	0	4	0	4	0	1	0	1	0	9	2	11	2	0	0	2	18
Total	0	21	0	21	0	2	0	2	0	27	11	38	8	1	0	9	70
05:00 PM	1	5	0	6	0	1	0	1	0	4	2	6	1	2	0	3	16
05:15 PM	0	4	0	4	1	0	0	1	0	3	1	4	3	0	0	3	12
05:30 PM	0	3	0	3	0	0	0	0	0	2	2	4	0	0	1	1	8
05:45 PM	0	1	0	1	0	0	0	0	0	4	0	4	1	0	0	1	6
Total	1	13	0	14	1	1	0	2	0	13	5	18	5	2	1	8	42
Grand Total	2	151	0	153	1	9	1	11	0	132	33	165	48	18	3	69	398
Apprch %	1.3	98.7	0		9.1	81.8	9.1		0	80	20		69.6	26.1	4.3		
Total %	0.5	37.9	0	38.4	0.3	2.3	0.3	2.8	0	33.2	8.3	41.5	12.1	4.5	0.8	17.3	

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Main Street (Route 62)
Counted by Miovision
S12-079 TMC # 3

File Name : S12-079TM3
Site Code : 89574
Start Date : 12/13/2012
Page No : 1

Groups Printed- Bike

	Concord Turnpike (Route 2) From North				Main Street (Route 62) From East				Concord Turnpike (Route 2) From South				Main Street (Route 62) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:15 AM	0	0	0	0	0	1	0	1	0	1	1	2	0	0	0	0	3
07:30 AM	0	0	0	0	0	1	0	1	1	0	1	2	0	0	0	0	3
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	4
Total	0	0	0	0	0	2	0	2	1	1	2	4	0	4	0	4	10
08:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
Total	0	0	0	0	0	1	0	1	0	0	1	1	0	0	0	0	2
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
04:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	1	0	1	0	1	0	1	0	0	0	0	2
Total	0	0	0	0	0	2	0	2	0	1	0	1	1	0	0	1	4
05:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
Total	0	1	0	1	0	0	0	0	0	0	1	1	0	0	0	0	2
Grand Total	0	1	0	1	0	5	0	5	1	2	4	7	1	4	0	5	18
Apprch %	0	100	0		0	100	0		14.3	28.6	57.1		20	80	0		
Total %	0	5.6	0	5.6	0	27.8	0	27.8	5.6	11.1	22.2	38.9	5.6	22.2	0	27.8	

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Main Street (Route 62)
Counted by Miovision
S12-079 TMC # 3

File Name : S12-079TM3
Site Code : 89574
Start Date : 12/13/2012
Page No : 1

Groups Printed- People

	Concord Turnpike (Route 2) From North		Main Street (Route 62) From East		Concord Turnpike (Route 2) From South		Main Street (Route 62) From West		
Start Time	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Int. Total
04:00 PM	1	1	0	0	0	0	0	0	1
Total	1	1	0	0	0	0	0	0	1
05:15 PM	1	1	0	0	0	0	0	0	1
Total	1	1	0	0	0	0	0	0	1
Grand Total	2	2	0	0	0	0	0	0	2
Apprch %	100		0		0		0		
Total %	100	100	0	0	0	0	0	0	

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Main Street (Route 62)
Counted by Miovision
S12-079 TMC # 3

File Name : S12-079TM3
Site Code : 89574
Start Date : 12/13/2012
Page No : 1

Groups Printed- Pedal Bike (Crosswalk)

	Concord Turnpike (Route 2) From North		Main Street (Route 62) From East		Concord Turnpike (Route 2) From South		Main Street (Route 62) From West		
Start Time	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Int. Total
Grand Total	0	0	0	0	0	0	0	0	0
Apprch %	0		0		0		0		
Total %									

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Old Road to Nine Acres Corner
Counted by Miovision
S12-079 TMC # 4

File Name : S12-079TM4R
Site Code : 90484
Start Date : 12/18/2012
Page No : 1

Groups Printed- Car - Truck - Bike

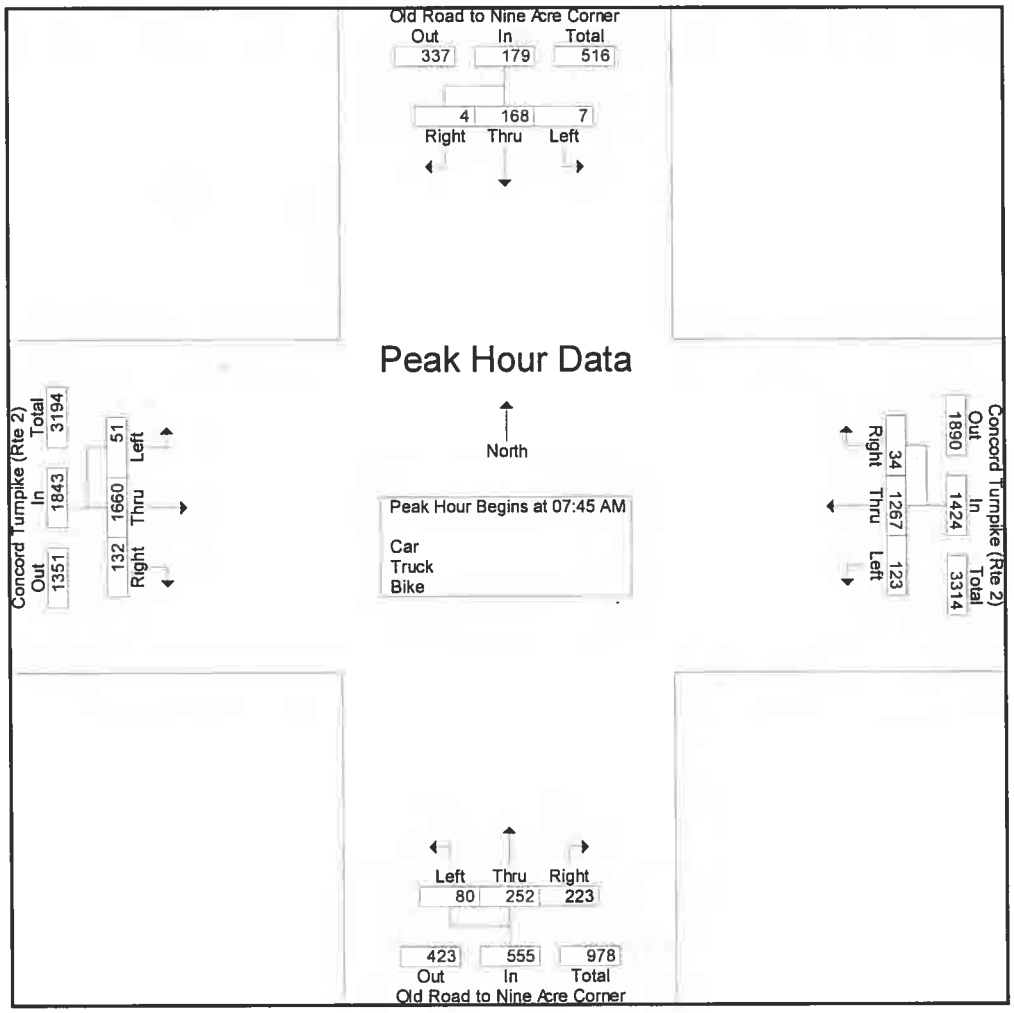
	Old Road to Nine Acre Corner From North				Concord Turnpike (Rte 2) From East				Old Road to Nine Acre Corner From South				Concord Turnpike (Rte 2) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	1	23	2	26	5	187	16	208	71	62	13	146	33	472	6	511	891
07:15 AM	0	33	2	35	7	228	30	265	63	57	12	132	29	414	10	453	885
07:30 AM	1	40	3	44	7	288	34	329	87	61	19	167	16	412	9	437	977
07:45 AM	0	66	0	66	10	324	28	362	75	71	23	169	29	392	15	436	1033
Total	2	162	7	171	29	1027	108	1164	296	251	67	614	107	1690	40	1837	3786
08:00 AM	1	45	0	46	5	286	36	327	49	72	19	140	24	390	10	424	937
08:15 AM	1	31	4	36	9	338	29	376	48	64	16	128	31	416	6	453	993
08:30 AM	2	26	3	31	10	319	30	359	51	45	22	118	48	462	20	530	1038
08:45 AM	2	38	0	40	16	335	28	379	40	55	19	114	32	444	22	498	1031
Total	6	140	7	153	40	1278	123	1441	188	236	76	500	135	1712	58	1905	3999
04:00 PM	7	43	12	62	10	474	36	520	32	35	27	94	18	314	6	338	1014
04:15 PM	3	47	4	54	9	446	45	500	32	29	32	93	17	311	10	338	985
04:30 PM	4	49	9	62	6	471	54	531	33	34	26	93	23	325	6	354	1040
04:45 PM	4	34	10	48	8	382	46	436	31	43	22	96	14	279	6	299	879
Total	18	173	35	226	33	1773	181	1987	128	141	107	376	72	1229	28	1329	3918
05:00 PM	1	52	9	62	8	379	52	439	27	38	15	80	20	369	10	399	980
05:15 PM	1	68	5	74	9	370	45	424	27	38	27	92	10	332	11	353	943
05:30 PM	2	41	3	46	9	423	67	499	19	31	19	69	32	405	9	446	1060
05:45 PM	4	47	5	56	7	385	62	454	21	20	11	52	12	327	8	347	909
Total	8	208	22	238	33	1557	226	1816	94	127	72	293	74	1433	38	1545	3892
Grand Total	34	683	71	788	135	5635	638	6408	706	755	322	1783	388	6064	164	6616	15595
Apprch %	4.3	86.7	9		2.1	87.9	10		39.6	42.3	18.1		5.9	91.7	2.5		
Total %	0.2	4.4	0.5	5.1	0.9	36.1	4.1	41.1	4.5	4.8	2.1	11.4	2.5	38.9	1.1	42.4	
Car	34	639	69	742	134	5498	628	6260	701	706	314	1721	382	5900	160	6442	15165
% Car	100	93.6	97.2	94.2	99.3	97.6	98.4	97.7	99.3	93.5	97.5	96.5	98.5	97.3	97.6	97.4	97.2
Truck	0	44	2	46	1	137	10	148	5	49	8	62	6	164	4	174	430
% Truck	0	6.4	2.8	5.8	0.7	2.4	1.6	2.3	0.7	6.5	2.5	3.5	1.5	2.7	2.4	2.6	2.8
Bike	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bike	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

File Name : S12-079TM4R
Site Code : 90484
Start Date : 12/18/2012
Page No : 2

	Old Road to Nine Acre Corner From North				Concord Turnpike (Rte 2) From East				Old Road to Nine Acre Corner From South				Concord Turnpike (Rte 2) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	**66**	0	**66**	**10**	324	28	362	**75**	71	**23**	**169**	29	392	15	436	1033
08:00 AM	1	45	0	46	5	286	**36**	327	49	**72**	19	140	24	390	10	424	937
08:15 AM	1	31	**4**	36	9	**338**	29	**376**	48	64	16	128	31	416	6	453	993
08:30 AM	**2**	26	3	31	10	319	30	359	51	45	22	118	**48**	**462**	**20**	**530**	**1038**
Total Volume	4	168	7	179	34	1267	123	1424	223	252	80	555	132	1660	51	1843	4001
% App. Total	2.2	93.9	3.9		2.4	89	8.6		40.2	45.4	14.4		7.2	90.1	2.8		
PHF	.500	.636	.438	.678	.850	.937	.854	.947	.743	.875	.870	.821	.688	.898	.638	.869	.964

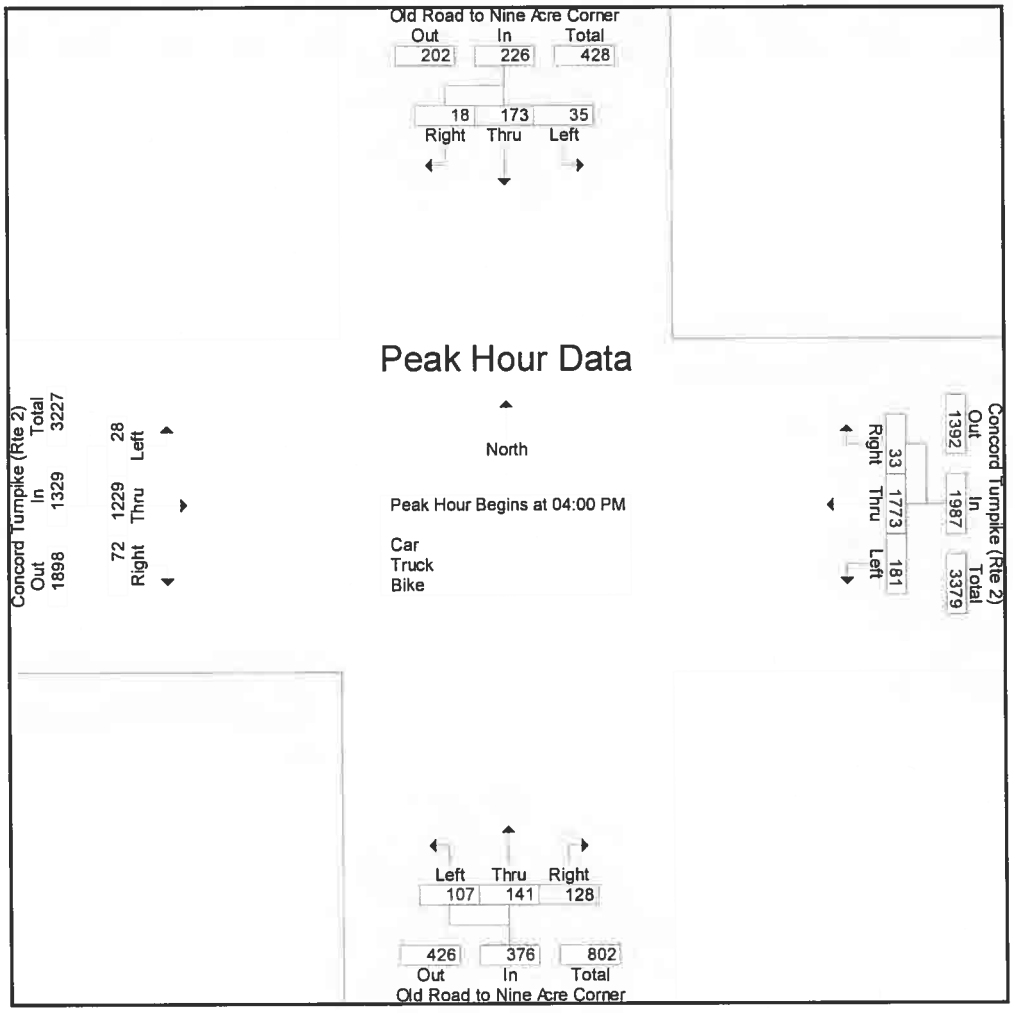


Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

File Name : S12-079TM4R
Site Code : 90484
Start Date : 12/18/2012
Page No : 3

	Old Road to Nine Acre Corner From North				Concord Turnpike (Rte 2) From East				Old Road to Nine Acre Corner From South				Concord Turnpike (Rte 2) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	**7**	43	**12**	**62**	**10**	**474**	36	520	32	35	27	94	18	314	6	338	1014
04:15 PM	3	47	4	54	9	446	45	500	32	29	**32**	93	17	311	**10**	338	985
04:30 PM	4	**49**	9	62	6	471	**54**	**531**	**33**	34	26	93	**23**	**325**	6	**354**	**1040**
04:45 PM	4	34	10	48	8	382	46	436	31	**43**	22	**96**	14	279	6	299	879
Total Volume	18	173	35	226	33	1773	181	1987	128	141	107	376	72	1229	28	1329	3918
% App. Total	8	76.5	15.5		1.7	89.2	9.1		34	37.5	28.5		5.4	92.5	2.1		
PHF	.643	.883	.729	.911	.825	.935	.838	.935	.970	.820	.836	.979	.783	.945	.700	.939	.942



Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Old Road to Nine Acres Corner
Counted by Miovision
S12-079 TMC # 4

File Name : S12-079TM4R
Site Code : 90484
Start Date : 12/18/2012
Page No : 1

Groups Printed- Car

	Old Road to Nine Acre Corner From North				Concord Turnpike (Rte 2) From East				Old Road to Nine Acre Corner From South				Concord Turnpike (Rte 2) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	1	21	2	24	5	178	16	199	70	58	12	140	33	467	6	506	869
07:15 AM	0	30	2	32	7	214	29	250	63	54	12	129	28	404	10	442	853
07:30 AM	1	37	3	41	7	279	33	319	86	58	19	163	16	398	9	423	946
07:45 AM	0	58	0	58	10	311	25	346	75	67	22	164	28	379	15	422	990
Total	2	146	7	155	29	982	103	1114	294	237	65	596	105	1648	40	1793	3658
08:00 AM	1	43	0	44	5	281	35	321	48	68	18	134	24	374	10	408	907
08:15 AM	1	28	4	33	9	332	28	369	48	60	16	124	31	391	6	428	954
08:30 AM	2	21	3	26	10	303	28	341	51	42	21	114	46	438	20	504	985
08:45 AM	2	37	0	39	16	322	27	365	39	48	19	106	32	431	18	481	991
Total	6	129	7	142	40	1238	118	1396	186	218	74	478	133	1634	54	1821	3837
04:00 PM	7	41	12	60	10	460	36	506	31	33	27	91	18	307	6	331	988
04:15 PM	3	43	4	50	9	440	45	494	32	27	32	91	17	304	10	331	966
04:30 PM	4	47	9	60	6	462	54	522	33	31	25	89	22	320	6	348	1019
04:45 PM	4	32	10	46	8	375	46	429	31	41	22	94	14	276	6	296	865
Total	18	163	35	216	33	1737	181	1951	127	132	106	365	71	1207	28	1306	3838
05:00 PM	1	50	7	58	8	371	52	431	27	36	15	78	20	364	10	394	961
05:15 PM	1	66	5	72	9	367	45	421	27	35	24	86	10	326	11	347	926
05:30 PM	2	40	3	45	8	420	67	495	19	30	19	68	32	401	9	442	1050
05:45 PM	4	45	5	54	7	383	62	452	21	18	11	50	11	320	8	339	895
Total	8	201	20	229	32	1541	226	1799	94	119	69	282	73	1411	38	1522	3832
Grand Total	34	639	69	742	134	5498	628	6260	701	706	314	1721	382	5900	160	6442	15165
Apprch %	4.6	86.1	9.3		2.1	87.8	10		40.7	41	18.2		5.9	91.6	2.5		
Total %	0.2	4.2	0.5	4.9	0.9	36.3	4.1	41.3	4.6	4.7	2.1	11.3	2.5	38.9	1.1	42.5	

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Old Road to Nine Acres Corner
Counted by Miovision
S12-079 TMC # 4

File Name : S12-079TM4R
Site Code : 90484
Start Date : 12/18/2012
Page No : 1

Groups Printed- Truck

	Old Road to Nine Acre Corner From North				Concord Turnpike (Rte 2) From East				Old Road to Nine Acre Corner From South				Concord Turnpike (Rte 2) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	0	2	0	2	0	9	0	9	1	4	1	6	0	5	0	5	22
07:15 AM	0	3	0	3	0	14	1	15	0	3	0	3	1	10	0	11	32
07:30 AM	0	3	0	3	0	9	1	10	1	3	0	4	0	14	0	14	31
07:45 AM	0	8	0	8	0	13	3	16	0	4	1	5	1	13	0	14	43
Total	0	16	0	16	0	45	5	50	2	14	2	18	2	42	0	44	128
08:00 AM	0	2	0	2	0	5	1	6	1	4	1	6	0	16	0	16	30
08:15 AM	0	3	0	3	0	6	1	7	0	4	0	4	0	25	0	25	39
08:30 AM	0	5	0	5	0	16	2	18	0	3	1	4	2	24	0	26	53
08:45 AM	0	1	0	1	0	13	1	14	1	7	0	8	0	13	4	17	40
Total	0	11	0	11	0	40	5	45	2	18	2	22	2	78	4	84	162
04:00 PM	0	2	0	2	0	14	0	14	1	2	0	3	0	7	0	7	26
04:15 PM	0	4	0	4	0	6	0	6	0	2	0	2	0	7	0	7	19
04:30 PM	0	2	0	2	0	9	0	9	0	3	1	4	1	5	0	6	21
04:45 PM	0	2	0	2	0	7	0	7	0	2	0	2	0	3	0	3	14
Total	0	10	0	10	0	36	0	36	1	9	1	11	1	22	0	23	80
05:00 PM	0	2	2	4	0	8	0	8	0	2	0	2	0	5	0	5	19
05:15 PM	0	2	0	2	0	3	0	3	0	3	3	6	0	6	0	6	17
05:30 PM	0	1	0	1	1	3	0	4	0	1	0	1	0	4	0	4	10
05:45 PM	0	2	0	2	0	2	0	2	0	2	0	2	1	7	0	8	14
Total	0	7	2	9	1	16	0	17	0	8	3	11	1	22	0	23	60
Grand Total	0	44	2	46	1	137	10	148	5	49	8	62	6	164	4	174	430
Apprch %	0	95.7	4.3		0.7	92.6	6.8		8.1	79	12.9		3.4	94.3	2.3		
Total %	0	10.2	0.5	10.7	0.2	31.9	2.3	34.4	1.2	11.4	1.9	14.4	1.4	38.1	0.9	40.5	

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Old Road to Nine Acres Corner
Counted by Miovision
S12-079 TMC # 4

File Name : S12-079TM4R
Site Code : 90484
Start Date : 12/18/2012
Page No : 1

Groups Printed- Bike

	Old Road to Nine Acre Corner From North				Concord Turnpike (Rte 2) From East				Old Road to Nine Acre Corner From South				Concord Turnpike (Rte 2) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0		
Total %																	

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Old Road to Nine Acres Corner
Counted by Miovision
S12-079 TMC # 4

File Name : S12-079TM4R
Site Code : 90484
Start Date : 12/18/2012
Page No : 1

Groups Printed- People

	Old Road to Nine Acre Corner From North		Concord Turnpike (Rte 2) From East		Old Road to Nine Acre Corner From South		Concord Turnpike (Rte 2) From West		
Start Time	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Int. Total
08:15 AM	0	0	1	1	0	0	0	0	1
Total	0	0	1	1	0	0	0	0	1
04:00 PM	0	0	1	1	0	0	0	0	1
Total	0	0	1	1	0	0	0	0	1
Grand Total	0	0	2	2	0	0	0	0	2
Apprch %	0		100		0		0		
Total %	0	0	100	100	0	0	0	0	

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Old Road to Nine Acres Corner
Counted by Miovision
S12-079 TMC # 4

File Name : S12-079TM4R
Site Code : 90484
Start Date : 12/18/2012
Page No : 1

Groups Printed- Pedal Bike (Crosswalk)

	Old Road to Nine Acre Corner From North		Concord Turnpike (Rte 2) From East		Old Road to Nine Acre Corner From South		Concord Turnpike (Rte 2) From West		
Start Time	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Int. Total
Grand Total	0	0	0	0	0	0	0	0	0
Apprch %	0		0		0		0		
Total %									

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Sudbury Road
Counted by Miovision
S12-079 TMC # 5

File Name : S12-079TM5
Site Code : 89576
Start Date : 12/13/2012
Page No : 1

Groups Printed- Car - Truck - Bike

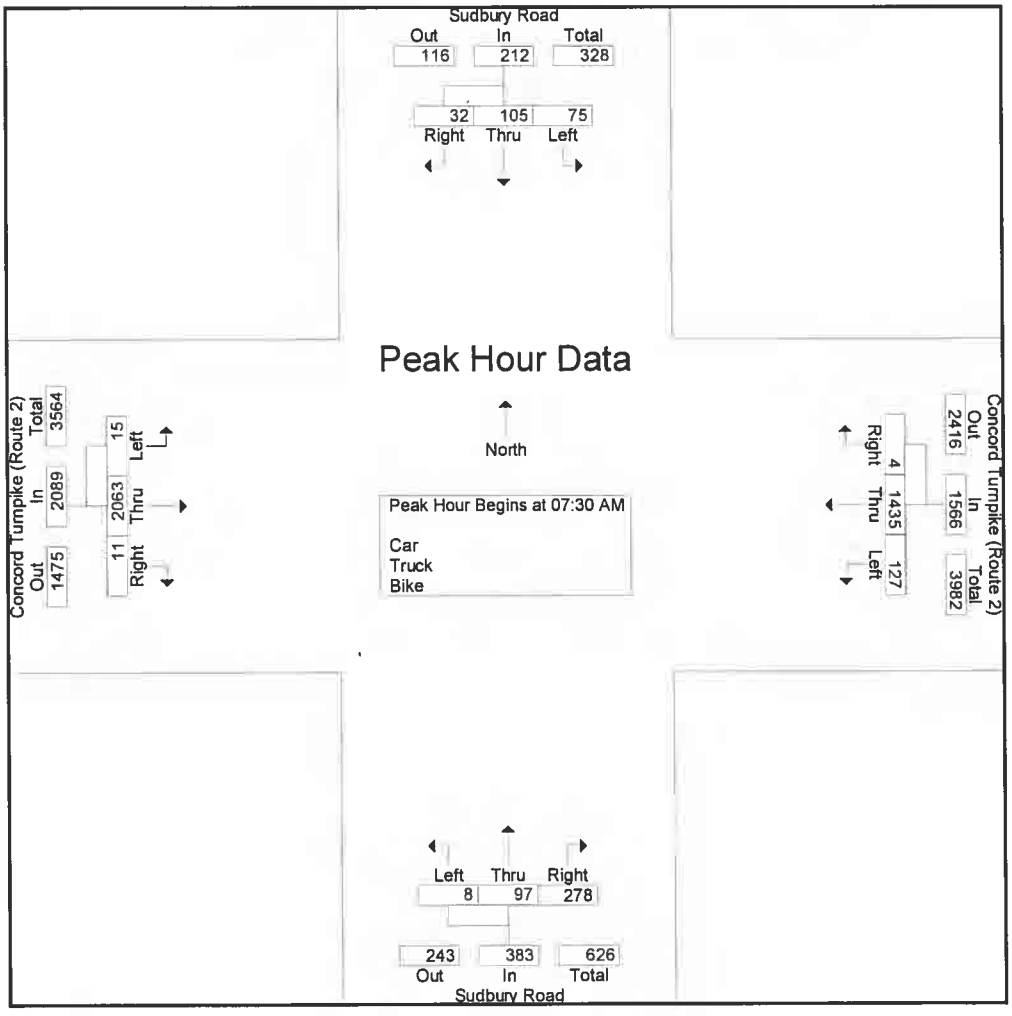
	Sudbury Road From North				Concord Turnpike (Route 2) From East				Sudbury Road From South				Concord Turnpike (Route 2) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	4	12	17	33	2	225	22	249	61	26	2	89	1	530	1	532	903
07:15 AM	8	16	24	48	1	288	29	318	82	21	1	104	0	511	3	514	984
07:30 AM	7	21	23	51	1	335	36	372	76	25	2	103	1	506	2	509	1035
07:45 AM	10	27	23	60	0	409	25	434	68	22	1	91	2	510	5	517	1102
Total	29	76	87	192	4	1257	112	1373	287	94	6	387	4	2057	11	2072	4024
08:00 AM	5	27	15	47	2	326	33	361	62	27	2	91	2	531	7	540	1039
08:15 AM	10	30	14	54	1	365	33	399	72	23	3	98	6	516	1	523	1074
08:30 AM	9	34	11	54	1	362	32	395	50	21	1	72	2	505	5	512	1033
08:45 AM	10	27	9	46	3	423	32	458	64	26	2	92	3	441	7	451	1047
Total	34	118	49	201	7	1476	130	1613	248	97	8	353	13	1993	20	2026	4193
04:00 PM	22	32	11	65	0	471	70	541	43	25	5	73	3	334	10	347	1026
04:15 PM	17	33	7	57	2	479	62	543	35	23	8	66	3	376	13	392	1058
04:30 PM	10	32	7	49	0	434	58	492	26	42	5	73	3	356	14	373	987
04:45 PM	5	41	8	54	4	463	82	549	20	25	0	45	2	406	16	424	1072
Total	54	138	33	225	6	1847	272	2125	124	115	18	257	11	1472	53	1536	4143
05:00 PM	7	38	14	59	3	444	76	523	35	32	0	67	3	352	13	368	1017
05:15 PM	7	30	6	43	2	517	81	600	42	30	2	74	5	432	10	447	1164
05:30 PM	8	39	14	61	4	489	78	571	20	24	4	48	4	407	12	423	1103
05:45 PM	14	32	5	51	3	495	82	580	25	19	3	47	3	419	12	434	1112
Total	36	139	39	214	12	1945	317	2274	122	105	9	236	15	1610	47	1672	4396
Grand Total	153	471	208	832	29	6525	831	7385	781	411	41	1233	43	7132	131	7306	16756
Apprch %	18.4	56.6	25		0.4	88.4	11.3		63.3	33.3	3.3		0.6	97.6	1.8		
Total %	0.9	2.8	1.2	5	0.2	38.9	5	44.1	4.7	2.5	0.2	7.4	0.3	42.6	0.8	43.6	
Car	148	460	203	811	28	6352	815	7195	762	404	40	1206	41	6937	121	7099	16311
% Car	96.7	97.7	97.6	97.5	96.6	97.3	98.1	97.4	97.6	98.3	97.6	97.8	95.3	97.3	92.4	97.2	97.3
Truck	5	10	5	20	1	171	16	188	19	5	1	25	2	193	10	205	438
% Truck	3.3	2.1	2.4	2.4	3.4	2.6	1.9	2.5	2.4	1.2	2.4	2	4.7	2.7	7.6	2.8	2.6
Bike	0	1	0	1	0	2	0	2	0	2	0	2	0	2	0	2	7
% Bike	0	0.2	0	0.1	0	0	0	0	0	0.5	0	0.2	0	0	0	0	0

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

File Name : S12-079TM5
Site Code : 89576
Start Date : 12/13/2012
Page No : 2

	Sudbury Road From North				Concord Turnpike (Route 2) From East				Sudbury Road From South				Concord Turnpike (Route 2) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	7	21	**23**	51	1	335	**36**	372	**76**	25	2	**103**	1	506	2	509	1035
07:45 AM	**10**	27	23	**60**	0	**409**	25	**434**	68	22	1	91	2	510	5	517	**1102**
08:00 AM	5	27	15	47	**2**	326	33	361	62	**27**	2	91	2	**531**	**7**	**540**	1039
08:15 AM	10	**30**	14	54	1	365	33	399	72	23	**3**	98	**6**	516	1	523	1074
Total Volume	32	105	75	212	4	1435	127	1566	278	97	8	383	11	2063	15	2089	4250
% App. Total	15.1	49.5	35.4		0.3	91.6	8.1		72.6	25.3	2.1		0.5	98.8	0.7		
PHF	.800	.875	.815	.883	.500	.877	.882	.902	.914	.898	.667	.930	.458	.971	.536	.967	.964

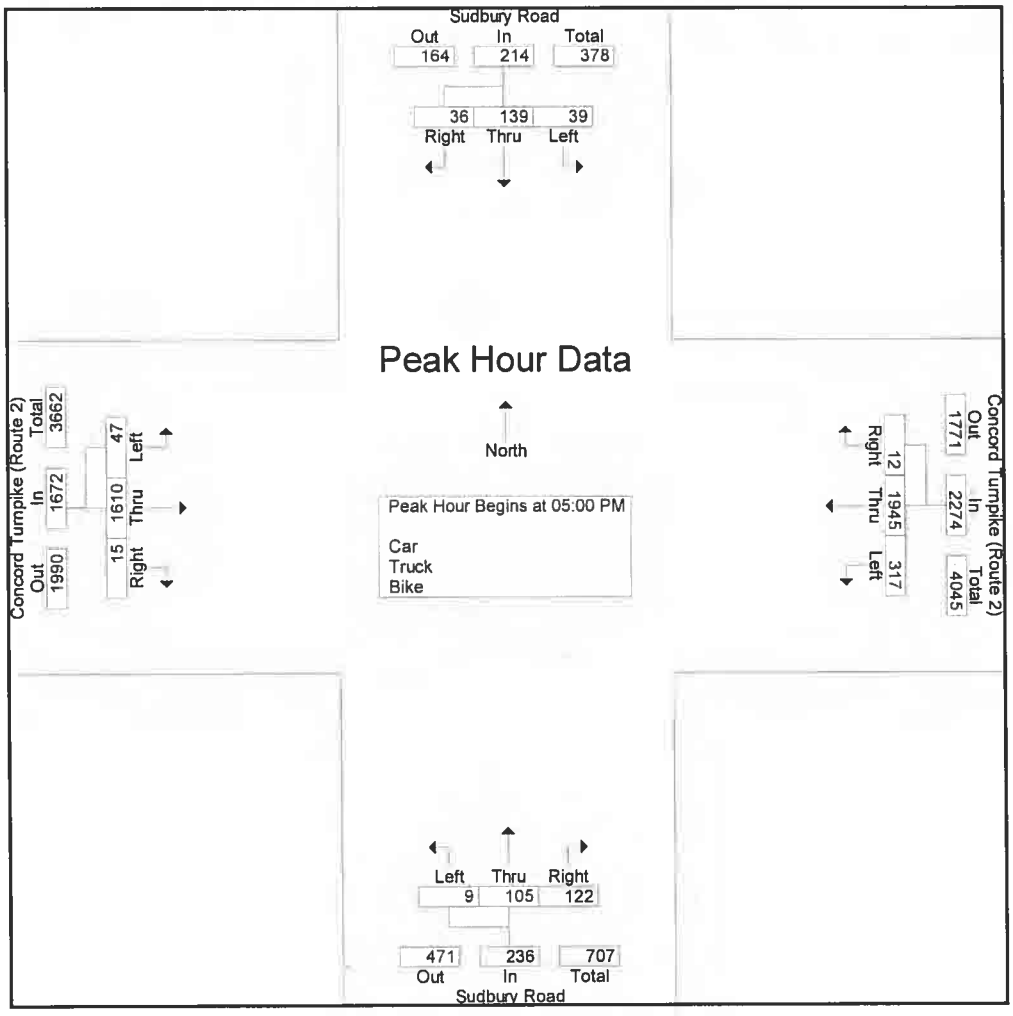


Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

File Name : S12-079TM5
Site Code : 89576
Start Date : 12/13/2012
Page No : 3

	Sudbury Road From North				Concord Turnpike (Route 2) From East				Sudbury Road From South				Concord Turnpike (Route 2) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	7	38	**14**	59	3	444	76	523	35	**32**	0	67	3	352	**13**	368	1017
05:15 PM	7	30	6	43	2	**517**	81	**600**	**42**	30	2	**74**	**5**	**432**	10	**447**	**1164**
05:30 PM	8	**39**	14	**61**	**4**	489	78	571	20	24	**4**	48	4	407	12	423	1103
05:45 PM	**14**	32	5	51	3	495	**82**	580	25	19	3	47	3	419	12	434	1112
Total Volume	36	139	39	214	12	1945	317	2274	122	105	9	236	15	1610	47	1672	4396
% App. Total	16.8	65	18.2		0.5	85.5	13.9		51.7	44.5	3.8		0.9	96.3	2.8		
PHF	.643	.891	.696	.877	.750	.941	.966	.948	.726	.820	.563	.797	.750	.932	.904	.935	.944



Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Sudbury Road
Counted by Miovision
S12-079 TMC # 5

File Name : S12-079TM5
Site Code : 89576
Start Date : 12/13/2012
Page No : 1

Groups Printed- Car

	Sudbury Road From North				Concord Turnpike (Route 2) From East				Sudbury Road From South				Concord Turnpike (Route 2) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	4	12	17	33	2	222	21	245	58	26	2	86	1	512	1	514	878
07:15 AM	7	14	23	44	1	276	28	305	80	21	1	102	0	498	2	500	951
07:30 AM	7	19	23	49	1	327	36	364	76	25	2	103	1	492	2	495	1011
07:45 AM	10	25	22	57	0	396	24	420	68	21	1	90	2	491	4	497	1064
Total	28	70	85	183	4	1221	109	1334	282	93	6	381	4	1993	9	2006	3904
08:00 AM	5	26	14	45	2	315	32	349	62	24	2	88	2	515	4	521	1003
08:15 AM	10	30	14	54	1	343	31	375	72	22	3	97	4	492	1	497	1023
08:30 AM	9	32	10	51	1	343	30	374	48	21	1	70	2	491	5	498	993
08:45 AM	8	27	8	43	2	402	31	435	55	26	2	83	3	419	6	428	989
Total	32	115	46	193	6	1403	124	1533	237	93	8	338	11	1917	16	1944	4008
04:00 PM	21	31	11	63	0	458	70	528	41	25	5	71	3	320	10	333	995
04:15 PM	17	32	7	56	2	472	60	534	34	23	8	65	3	370	12	385	1040
04:30 PM	10	32	7	49	0	424	58	482	26	42	5	73	3	347	12	362	966
04:45 PM	4	41	8	53	4	450	80	534	20	24	0	44	2	400	16	418	1049
Total	52	136	33	221	6	1804	268	2078	121	114	18	253	11	1437	50	1498	4050
05:00 PM	7	38	14	59	3	436	76	515	35	32	0	67	3	344	13	360	1001
05:15 PM	7	30	6	43	2	511	79	592	42	30	2	74	5	426	9	440	1149
05:30 PM	8	39	14	61	4	486	78	568	20	23	3	46	4	403	12	419	1094
05:45 PM	14	32	5	51	3	491	81	575	25	19	3	47	3	417	12	432	1105
Total	36	139	39	214	12	1924	314	2250	122	104	8	234	15	1590	46	1651	4349
Grand Total	148	460	203	811	28	6352	815	7195	762	404	40	1206	41	6937	121	7099	16311
Apprch %	18.2	56.7	25		0.4	88.3	11.3		63.2	33.5	3.3		0.6	97.7	1.7		
Total %	0.9	2.8	1.2	5	0.2	38.9	5	44.1	4.7	2.5	0.2	7.4	0.3	42.5	0.7	43.5	

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Sudbury Road
Counted by Miovision
S12-079 TMC # 5

File Name : S12-079TM5
Site Code : 89576
Start Date : 12/13/2012
Page No : 1

Groups Printed- Truck

	Sudbury Road From North				Concord Turnpike (Route 2) From East				Sudbury Road From South				Concord Turnpike (Route 2) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	0	0	0	0	0	3	1	4	3	0	0	3	0	18	0	18	25
07:15 AM	1	2	1	4	0	12	1	13	2	0	0	2	0	13	1	14	33
07:30 AM	0	2	0	2	0	8	0	8	0	0	0	0	0	14	0	14	24
07:45 AM	0	2	1	3	0	13	1	14	0	0	0	0	0	19	1	20	37
Total	1	6	2	9	0	36	3	39	5	0	0	5	0	64	2	66	119
08:00 AM	0	1	1	2	0	11	1	12	0	2	0	2	0	16	3	19	35
08:15 AM	0	0	0	0	0	22	2	24	0	1	0	1	2	24	0	26	51
08:30 AM	0	2	1	3	0	19	2	21	2	0	0	2	0	14	0	14	40
08:45 AM	2	0	1	3	1	21	1	23	9	0	0	9	0	22	1	23	58
Total	2	3	3	8	1	73	6	80	11	3	0	14	2	76	4	82	184
04:00 PM	1	1	0	2	0	13	0	13	2	0	0	2	0	13	0	13	30
04:15 PM	0	0	0	0	0	7	2	9	1	0	0	1	0	6	1	7	17
04:30 PM	0	0	0	0	0	10	0	10	0	0	0	0	0	9	2	11	21
04:45 PM	1	0	0	1	0	12	2	14	0	1	0	1	0	5	0	5	21
Total	2	1	0	3	0	42	4	46	3	1	0	4	0	33	3	36	89
05:00 PM	0	0	0	0	0	8	0	8	0	0	0	0	0	8	0	8	16
05:15 PM	0	0	0	0	0	6	2	8	0	0	0	0	0	6	1	7	15
05:30 PM	0	0	0	0	0	2	0	2	0	1	1	2	0	4	0	4	8
05:45 PM	0	0	0	0	0	4	1	5	0	0	0	0	0	2	0	2	7
Total	0	0	0	0	0	20	3	23	0	1	1	2	0	20	1	21	46
Grand Total	5	10	5	20	1	171	16	188	19	5	1	25	2	193	10	205	438
Apprch %	25	50	25		0.5	91	8.5		76	20	4		1	94.1	4.9		
Total %	1.1	2.3	1.1	4.6	0.2	39	3.7	42.9	4.3	1.1	0.2	5.7	0.5	44.1	2.3	46.8	

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Sudbury Road
Counted by Miovision
S12-079 TMC # 5

File Name : S12-079TM5
Site Code : 89576
Start Date : 12/13/2012
Page No : 1

Groups Printed- Bike

	Sudbury Road From North				Concord Turnpike (Route 2) From East				Sudbury Road From South				Concord Turnpike (Route 2) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
04:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
Total	0	1	0	1	0	1	0	1	0	0	0	0	0	2	0	2	4
05:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Grand Total	0	1	0	1	0	2	0	2	0	2	0	2	0	2	0	2	7
Apprch %	0	100	0		0	100	0		0	100	0		0	100	0		
Total %	0	14.3	0	14.3	0	28.6	0	28.6	0	28.6	0	28.6	0	28.6	0	28.6	

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Sudbury Road
Counted by Miovision
S12-079 TMC # 5

File Name : S12-079TM5
Site Code : 89576
Start Date : 12/13/2012

Groups Printed- People

	Sudbury Road From North		Concord Turnpike (Route 2) From East		Sudbury Road From South		Concord Turnpike (Route 2) From West		
Start Time	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Int. Total
08:45 AM	0	0	0	0	0	0	1	1	1
Total	0	0	0	0	0	0	1	1	1
04:45 PM	0	0	0	0	0	0	1	1	1
Total	0	0	0	0	0	0	1	1	1
05:00 PM	0	0	0	0	0	0	1	1	1
Total	0	0	0	0	0	0	1	1	1
Grand Total	0	0	0	0	0	0	3	3	3
Apprch %	0		0		0		100		
Total %	0	0	0	0	0	0	100	100	

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Sudbury Road
Counted by Miovision
S12-079 TMC # 5

File Name : S12-079TM5
Site Code : 89576
Start Date : 12/13/2012
Page No : 1

Groups Printed- Pedal Bike (Crosswalk)

	Sudbury Road From North		Concord Turnpike (Route 2) From East		Sudbury Road From South		Concord Turnpike (Route 2) From West		
Start Time	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Int. Total
Grand Total	0	0	0	0	0	0	0	0	0
Apprch %	0		0		0		0		
Total %									

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Walden Street (Route 126)
Counted by Miovision
S12-079 TMC # 6

File Name : S12-079TM6
Site Code : 89577
Start Date : 12/13/2012
Page No : 1

Groups Printed- Car - Truck - Bike

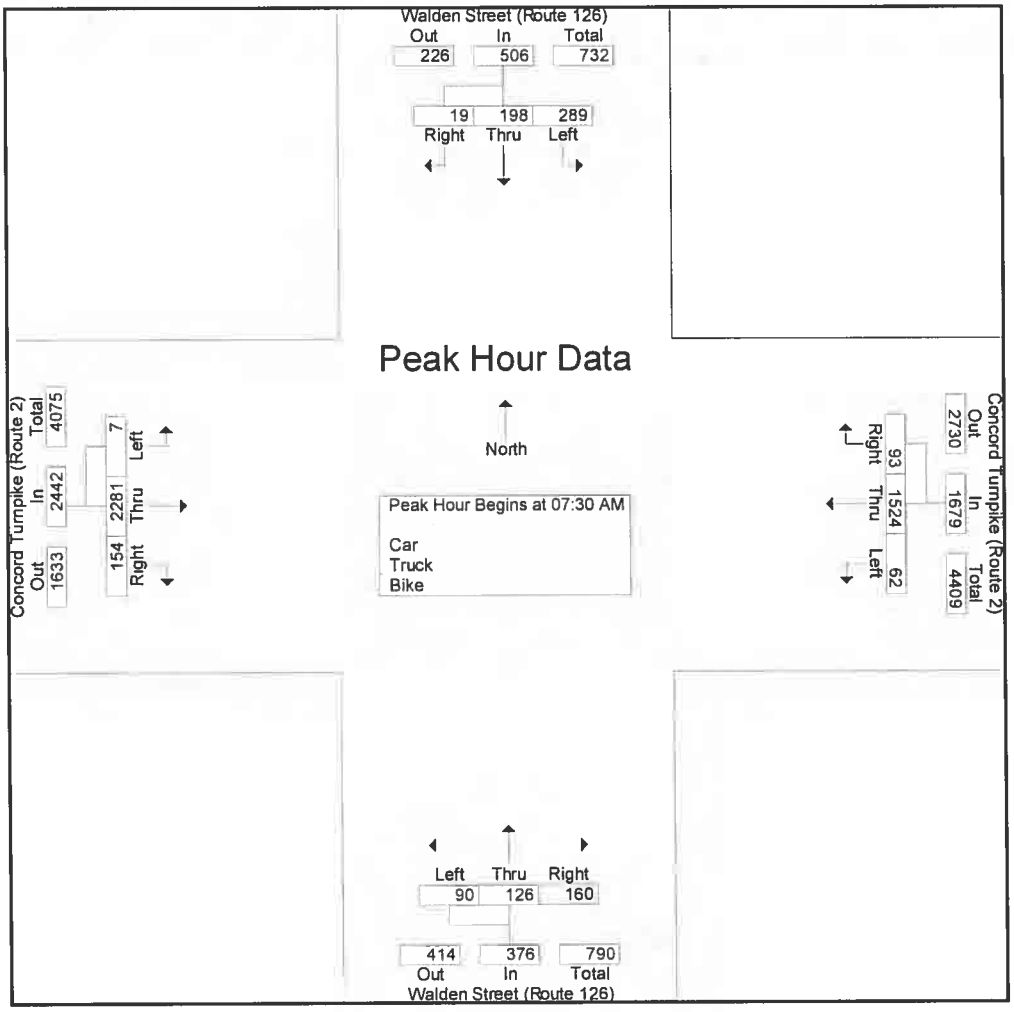
	Walden Street (Route 126) From North				Concord Turnpike (Route 2) From East				Walden Street (Route 126) From South				Concord Turnpike (Route 2) From West				
Start Time	Right	Thru	Left	App Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	14	25	91	130	33	258	14	305	20	14	9	43	13	567	3	583	1061
07:15 AM	14	39	87	140	46	307	10	363	21	20	9	50	27	588	5	620	1173
07:30 AM	8	37	88	133	23	383	17	423	35	25	14	74	31	579	1	611	1241
07:45 AM	0	53	68	121	19	400	17	436	38	37	26	101	43	596	3	642	1300
Total	36	154	334	524	121	1348	58	1527	114	96	58	268	114	2330	12	2456	4775
08:00 AM	6	55	75	136	21	352	17	390	47	38	22	107	42	540	2	584	1217
08:15 AM	5	53	58	116	30	389	11	430	40	26	28	94	38	566	1	605	1245
08:30 AM	2	41	63	106	28	402	19	449	53	28	23	104	37	538	2	577	1236
08:45 AM	8	45	49	102	23	410	12	445	39	47	28	114	31	479	0	510	1171
Total	21	194	245	460	102	1553	59	1714	179	139	101	419	148	2123	5	2276	4869
04:00 PM	4	30	30	64	44	524	28	596	7	39	28	74	22	340	24	386	1120
04:15 PM	8	38	23	69	38	528	24	590	10	43	37	90	21	369	13	403	1152
04:30 PM	7	21	28	56	30	475	26	531	13	44	28	85	20	344	13	377	1049
04:45 PM	5	26	23	54	62	501	21	584	14	55	27	96	26	356	10	392	1126
Total	24	115	104	243	174	2028	99	2301	44	181	120	345	89	1409	60	1558	4447
05:00 PM	7	29	14	50	58	569	18	645	10	46	24	80	21	395	9	425	1200
05:15 PM	5	24	22	51	50	547	28	625	4	52	31	87	35	403	9	447	1210
05:30 PM	11	28	18	57	52	554	33	639	14	42	26	82	24	430	12	466	1244
05:45 PM	4	20	22	46	56	568	32	656	5	33	24	62	29	419	3	451	1215
Total	27	101	76	204	216	2238	111	2565	33	173	105	311	109	1647	33	1789	4869
Grand Total	108	564	759	1431	613	7167	327	8107	370	589	384	1343	460	7509	110	8079	18960
Apprch %	7.5	39.4	53		7.6	88.4	4		27.6	43.9	28.6		5.7	92.9	1.4		
Total %	0.6	3	4	7.5	3.2	37.8	1.7	42.8	2	3.1	2	7.1	2.4	39.6	0.6	42.6	
Car	96	558	747	1401	596	6988	319	7903	364	582	373	1319	448	7318	103	7869	18492
% Car	88.9	98.9	98.4	97.9	97.2	97.5	97.6	97.5	98.4	98.8	97.1	98.2	97.4	97.5	93.6	97.4	97.5
Truck	12	5	12	29	17	177	8	202	6	7	11	24	12	190	7	209	464
% Truck	11.1	0.9	1.6	2	2.8	2.5	2.4	2.5	1.6	1.2	2.9	1.8	2.6	2.5	6.4	2.6	2.4
Bike	0	1	0	1	0	2	0	2	0	0	0	0	0	1	0	1	4
% Bike	0	0.2	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

File Name : S12-079TM6
Site Code : 89577
Start Date : 12/13/2012
Page No : 2

	Walden Street (Route 126) From North				Concord Turnpike (Route 2) From East				Walden Street (Route 126) From South				Concord Turnpike (Route 2) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**8**	37	**88**	133	23	383	**17**	423	35	25	14	74	31	579	1	611	1241
07:45 AM	0	53	68	121	19	**400**	17	**436**	38	37	26	101	**43**	**596**	**3**	**642**	**1300**
08:00 AM	6	**55**	75	**136**	21	352	17	390	**47**	**38**	22	**107**	42	540	2	584	1217
08:15 AM	5	53	58	116	**30**	389	11	430	40	26	**28**	94	38	566	1	605	1245
Total Volume	19	198	289	506	93	1524	62	1679	160	126	90	376	154	2281	7	2442	5003
% App. Total	3.8	39.1	57.1		5.5	90.8	3.7		42.6	33.5	23.9		6.3	93.4	0.3		
PHF	.594	.900	.821	.930	.775	.953	.912	.963	.851	.829	.804	.879	.895	.957	.583	.951	.962

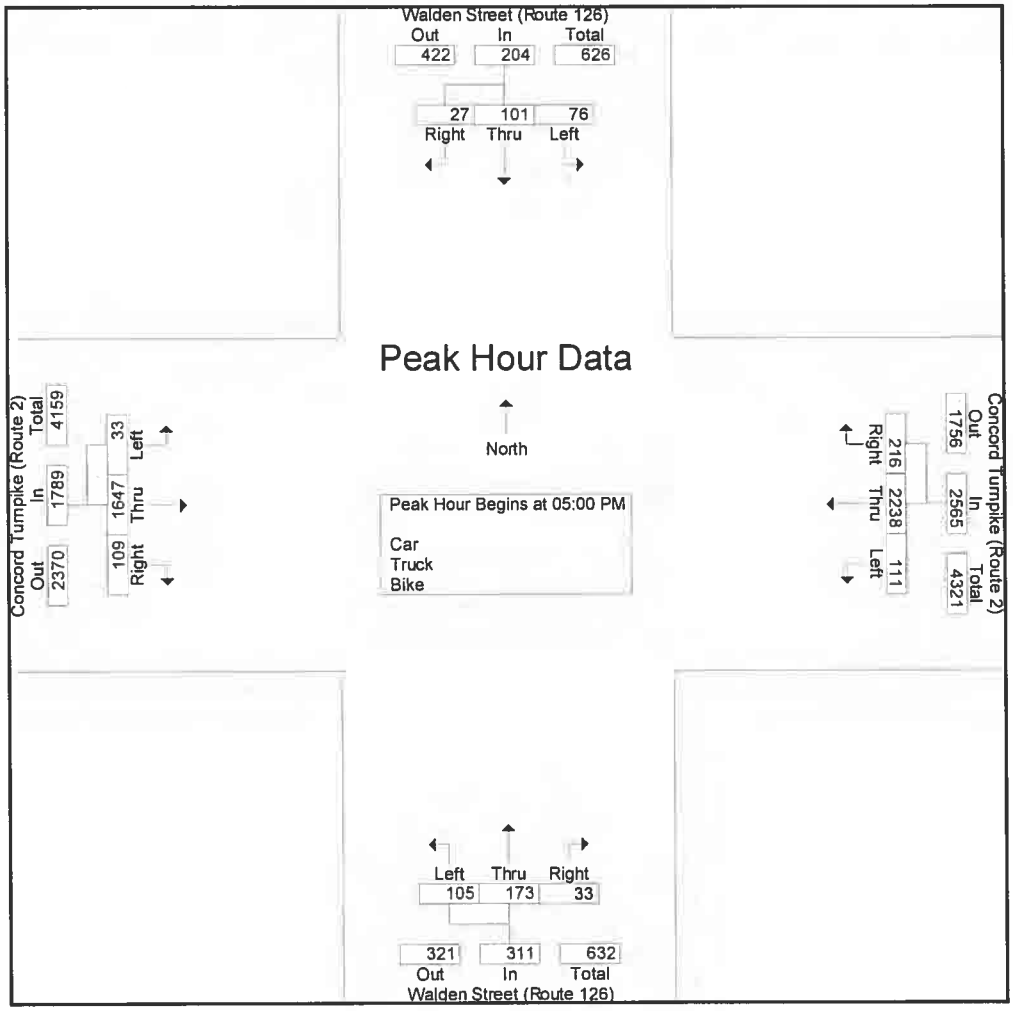


Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

File Name : S12-079TM6
Site Code : 89577
Start Date : 12/13/2012
Page No : 3

	Walden Street (Route 126) From North				Concord Turnpike (Route 2) From East				Walden Street (Route 126) From South				Concord Turnpike (Route 2) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	7	**29**	14	50	**58**	**569**	18	645	10	46	24	80	21	395	9	425	1200
05:15 PM	5	24	**22**	51	50	547	28	625	4	**52**	**31**	**87**	**35**	403	9	447	1210
05:30 PM	**11**	28	18	**57**	52	554	**33**	639	**14**	42	26	82	24	**430**	**12**	**466**	**1244**
05:45 PM	4	20	22	46	56	568	32	**656**	5	33	24	62	29	419	3	451	1215
Total Volume	27	101	76	204	216	2238	111	2565	33	173	105	311	109	1647	33	1789	4869
% App. Total	13.2	49.5	37.3		8.4	87.3	4.3		10.6	55.6	33.8		6.1	92.1	1.8		
PHF	.614	.871	.864	.895	.931	.983	.841	.978	.589	.832	.847	.894	.779	.958	.688	.960	.978



Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Walden Street (Route 126)
Counted by Miovision
S12-079 TMC # 6

File Name : S12-079TM6
Site Code : 89577
Start Date : 12/13/2012
Page No : 1

Groups Printed- Car

	Walden Street (Route 126) From North				Concord Turnpike (Route 2) From East				Walden Street (Route 126) From South				Concord Turnpike (Route 2) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int Total
07:00 AM	13	25	89	127	31	254	13	298	20	14	9	43	13	548	2	563	1031
07:15 AM	12	39	87	138	45	295	9	349	21	19	9	49	27	565	5	597	1133
07:30 AM	8	35	87	130	22	374	17	413	34	24	13	71	31	565	1	597	1211
07:45 AM	0	53	67	120	19	387	17	423	38	36	25	99	40	580	3	623	1265
Total	33	152	330	515	117	1310	56	1483	113	93	56	262	111	2258	11	2380	4640
08:00 AM	1	55	75	131	21	337	14	372	47	37	22	106	41	526	2	569	1178
08:15 AM	5	53	57	115	28	368	10	406	38	26	26	90	34	549	1	584	1195
08:30 AM	2	39	63	104	22	382	18	422	52	28	21	101	37	517	2	556	1183
08:45 AM	7	45	47	99	23	396	11	430	38	47	23	108	30	466	0	496	1133
Total	15	192	242	449	94	1483	53	1630	175	138	92	405	142	2058	5	2205	4689
04:00 PM	3	29	29	61	42	515	28	585	7	38	28	73	20	326	22	368	1087
04:15 PM	8	37	20	65	37	516	24	577	10	42	37	89	20	365	11	396	1127
04:30 PM	6	21	28	55	30	460	26	516	13	44	28	85	20	335	12	367	1023
04:45 PM	5	26	22	53	62	490	21	573	14	54	27	95	26	350	10	386	1107
Total	22	113	99	234	171	1981	99	2251	44	178	120	342	86	1376	55	1517	4344
05:00 PM	7	29	14	50	58	560	18	636	9	46	24	79	21	387	9	417	1182
05:15 PM	4	24	22	50	49	541	28	618	4	52	31	87	35	397	9	441	1196
05:30 PM	11	28	18	57	52	550	33	635	14	42	26	82	24	424	12	460	1234
05:45 PM	4	20	22	46	55	563	32	650	5	33	24	62	29	418	2	449	1207
Total	26	101	76	203	214	2214	111	2539	32	173	105	310	109	1626	32	1767	4819
Grand Total	96	558	747	1401	596	6988	319	7903	364	582	373	1319	448	7318	103	7869	18492
Apprch %	6.9	39.8	53.3		7.5	88.4	4		27.6	44.1	28.3		5.7	93	1.3		
Total %	0.5	3	4	7.6	3.2	37.8	1.7	42.7	2	3.1	2	7.1	2.4	39.6	0.6	42.6	

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Walden Street (Route 126)
Counted by Miovision
S12-079 TMC # 6

File Name : S12-079TM6
Site Code : 89577
Start Date : 12/13/2012
Page No : 1

Groups Printed- Truck

	Walden Street (Route 126) From North				Concord Turnpike (Route 2) From East				Walden Street (Route 126) From South				Concord Turnpike (Route 2) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	1	0	2	3	2	4	1	7	0	0	0	0	0	19	1	20	30
07:15 AM	2	0	0	2	1	12	1	14	0	1	0	1	0	23	0	23	40
07:30 AM	0	1	1	2	1	9	0	10	1	1	1	3	0	14	0	14	29
07:45 AM	0	0	1	1	0	13	0	13	0	1	1	2	3	16	0	19	35
Total	3	1	4	8	4	38	2	44	1	3	2	6	3	72	1	76	134
08:00 AM	5	0	0	5	0	15	3	18	0	1	0	1	1	14	0	15	39
08:15 AM	0	0	1	1	2	21	1	24	2	0	2	4	4	17	0	21	50
08:30 AM	0	2	0	2	6	20	1	27	1	0	2	3	0	21	0	21	53
08:45 AM	1	0	2	3	0	14	1	15	1	0	5	6	1	13	0	14	38
Total	6	2	3	11	8	70	6	84	4	1	9	14	6	65	0	71	180
04:00 PM	1	1	1	3	2	9	0	11	0	1	0	1	2	13	2	17	32
04:15 PM	0	1	3	4	1	12	0	13	0	1	0	1	1	4	2	7	25
04:30 PM	1	0	0	1	0	15	0	15	0	0	0	0	0	9	1	10	26
04:45 PM	0	0	1	1	0	10	0	10	0	1	0	1	0	6	0	6	18
Total	2	2	5	9	3	46	0	49	0	3	0	3	3	32	5	40	101
05:00 PM	0	0	0	0	0	9	0	9	1	0	0	1	0	8	0	8	18
05:15 PM	1	0	0	1	1	6	0	7	0	0	0	0	0	6	0	6	14
05:30 PM	0	0	0	0	0	3	0	3	0	0	0	0	0	6	0	6	9
05:45 PM	0	0	0	0	1	5	0	6	0	0	0	0	0	1	1	2	8
Total	1	0	0	1	2	23	0	25	1	0	0	1	0	21	1	22	49
Grand Total	12	5	12	29	17	177	8	202	6	7	11	24	12	190	7	209	464
Apprch %	41.4	17.2	41.4		8.4	87.6	4		25	29.2	45.8		5.7	90.9	3.3		
Total %	2.6	1.1	2.6	6.2	3.7	38.1	1.7	43.5	1.3	1.5	2.4	5.2	2.6	40.9	1.5	45	

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Walden Street (Route 126)
Counted by Miovision
S12-079 TMC # 6

File Name : S12-079TM6
Site Code : 89577
Start Date : 12/13/2012
Page No : 1

Groups Printed- Bike

	Walden Street (Route 126) From North				Concord Turnpike (Route 2) From East				Walden Street (Route 126) From South				Concord Turnpike (Route 2) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:30 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
04:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
05:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Grand Total	0	1	0	1	0	2	0	2	0	0	0	0	0	1	0	1	4
Apprch %	0	100	0		0	100	0		0	0	0		0	100	0		
Total %	0	25	0	25	0	50	0	50	0	0	0	0	0	25	0	25	

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Walden Street (Route 126)
Counted by Miovision
S12-079 TMC # 6

File Name : S12-079TM6
Site Code : 89577
Start Date : 12/13/2012
Page No : 1

Groups Printed- People

	Walden Street (Route 126) From North		Concord Turnpike (Route 2) From East		Walden Street (Route 126) From South		Concord Turnpike (Route 2) From West		
Start Time	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Int. Total
07:45 AM	0	0	0	0	0	0	2	2	2
Total	0	0	0	0	0	0	2	2	2
Grand Total	0	0	0	0	0	0	2	2	2
Apprch %	0		0		0		100		
Total %	0	0	0	0	0	0	100	100	

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Concord
Route 2 @ Walden Street (Route 126)
Counted by Miovision
S12-079 TMC # 6

File Name : S12-079TM6
Site Code : 89577
Start Date : 12/13/2012
Page No : 1

Groups Printed- Pedal Bike (Crosswalk)

	Walden Street (Route 126) From North		Concord Turnpike (Route 2) From East		Walden Street (Route 126) From South		Concord Turnpike (Route 2) From West		
Start Time	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Int. Total
Grand Total	0	0	0	0	0	0	0	0	0
Apprch %	0		0		0		0		
Total %									

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Lincoln
Route 2 @ Bedford Road
Counted by Miovision
S12-079 TMC # 7

File Name : S12-079TM7
Site Code : 89578
Start Date : 12/13/2012
Page No : 1

Groups Printed- Car - Truck - Bike

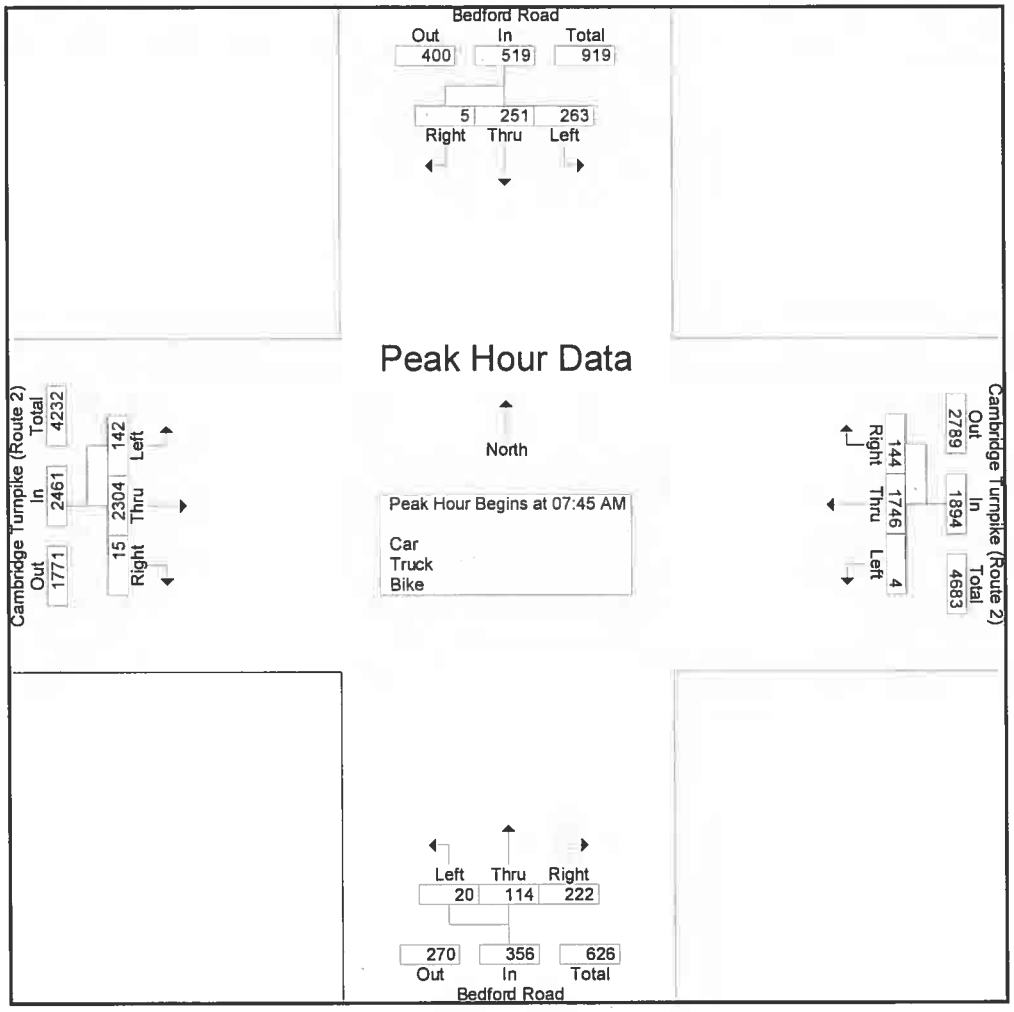
	Bedford Road From North				Cambridge Turnpike (Route 2) From East				Bedford Road From South				Cambridge Turnpike (Route 2) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	0	32	74	106	6	299	0	305	53	22	2	77	2	679	27	708	1196
07:15 AM	2	44	64	110	14	360	0	374	47	18	4	69	5	637	33	675	1228
07:30 AM	2	63	61	126	24	401	3	428	60	29	4	93	3	570	25	598	1245
07:45 AM	0	78	65	143	33	456	1	490	59	29	6	94	3	555	42	600	1327
Total	4	217	264	485	77	1516	4	1597	219	98	16	333	13	2441	127	2581	4996
08:00 AM	1	66	69	136	38	399	1	438	53	25	4	82	4	574	31	609	1265
08:15 AM	1	52	64	117	26	458	1	485	56	25	7	88	4	589	37	630	1320
08:30 AM	3	55	65	123	47	433	1	481	54	35	3	92	4	586	32	622	1318
08:45 AM	0	37	69	106	25	447	0	472	49	22	8	79	1	597	34	632	1289
Total	5	210	267	482	136	1737	3	1876	212	107	22	341	13	2346	134	2493	5192
04:00 PM	0	73	37	110	33	582	0	615	30	18	8	56	3	335	31	369	1150
04:15 PM	0	77	42	119	24	639	1	664	22	21	13	56	8	367	49	424	1263
04:30 PM	1	82	49	132	24	642	0	666	18	33	13	64	3	396	53	452	1314
04:45 PM	2	90	47	139	27	589	1	617	17	34	8	59	6	354	40	400	1215
Total	3	322	175	500	108	2452	2	2562	87	106	42	235	20	1452	173	1645	4942
05:00 PM	0	77	41	118	26	561	6	593	18	27	4	49	3	390	39	432	1192
05:15 PM	0	84	50	134	36	594	0	630	30	21	10	61	3	400	45	448	1273
05:30 PM	1	88	40	129	25	596	0	621	19	28	9	56	6	418	47	471	1277
05:45 PM	2	78	30	110	42	549	2	593	13	20	9	42	4	423	58	485	1230
Total	3	327	161	491	129	2300	8	2437	80	96	32	208	16	1631	189	1836	4972
Grand Total	15	1076	867	1958	450	8005	17	8472	598	407	112	1117	62	7870	623	8555	20102
Apprch %	0.8	55	44.3		5.3	94.5	0.2		53.5	36.4	10		0.7	92	7.3		
Total %	0.1	5.4	4.3	9.7	2.2	39.8	0.1	42.1	3	2	0.6	5.6	0.3	39.2	3.1	42.6	
Car	14	1060	863	1937	447	7831	15	8293	594	396	106	1096	60	7692	616	8368	19694
% Car	93.3	98.5	99.5	98.9	99.3	97.8	88.2	97.9	99.3	97.3	94.6	98.1	96.8	97.7	98.9	97.8	98
Truck	1	16	3	20	2	173	2	177	4	6	6	16	2	177	7	186	399
% Truck	6.7	1.5	0.3	1	0.4	2.2	11.8	2.1	0.7	1.5	5.4	1.4	3.2	2.2	1.1	2.2	2
Bike	0	0	1	1	1	1	0	2	0	5	0	5	0	1	0	1	9
% Bike	0	0	0.1	0.1	0.2	0	0	0	0	1.2	0	0.4	0	0	0	0	0

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

File Name : S12-079TM7
Site Code : 89578
Start Date : 12/13/2012
Page No : 2

	Bedford Road From North				Cambridge Turnpike (Route 2) From East				Bedford Road From South				Cambridge Turnpike (Route 2) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	**78**	65	**143**	33	456	**1**	**490**	**59**	29	6	**94**	3	555	**42**	600	**1327**
08:00 AM	1	66	**69**	136	38	399	1	438	53	25	4	82	**4**	574	31	609	1265
08:15 AM	1	52	64	117	26	**458**	1	485	56	25	**7**	88	4	**589**	37	**630**	1320
08:30 AM	**3**	55	65	123	**47**	433	1	481	54	**35**	3	92	4	586	32	622	1318
Total Volume	5	251	263	519	144	1746	4	1894	222	114	20	356	15	2304	142	2461	5230
% App. Total	1	48.4	50.7		7.6	92.2	0.2		62.4	32	5.6		0.6	93.6	5.8		
PHF	.417	.804	.953	.907	.766	.953	1.00	.966	.941	.814	.714	.947	.938	.978	.845	.977	.985

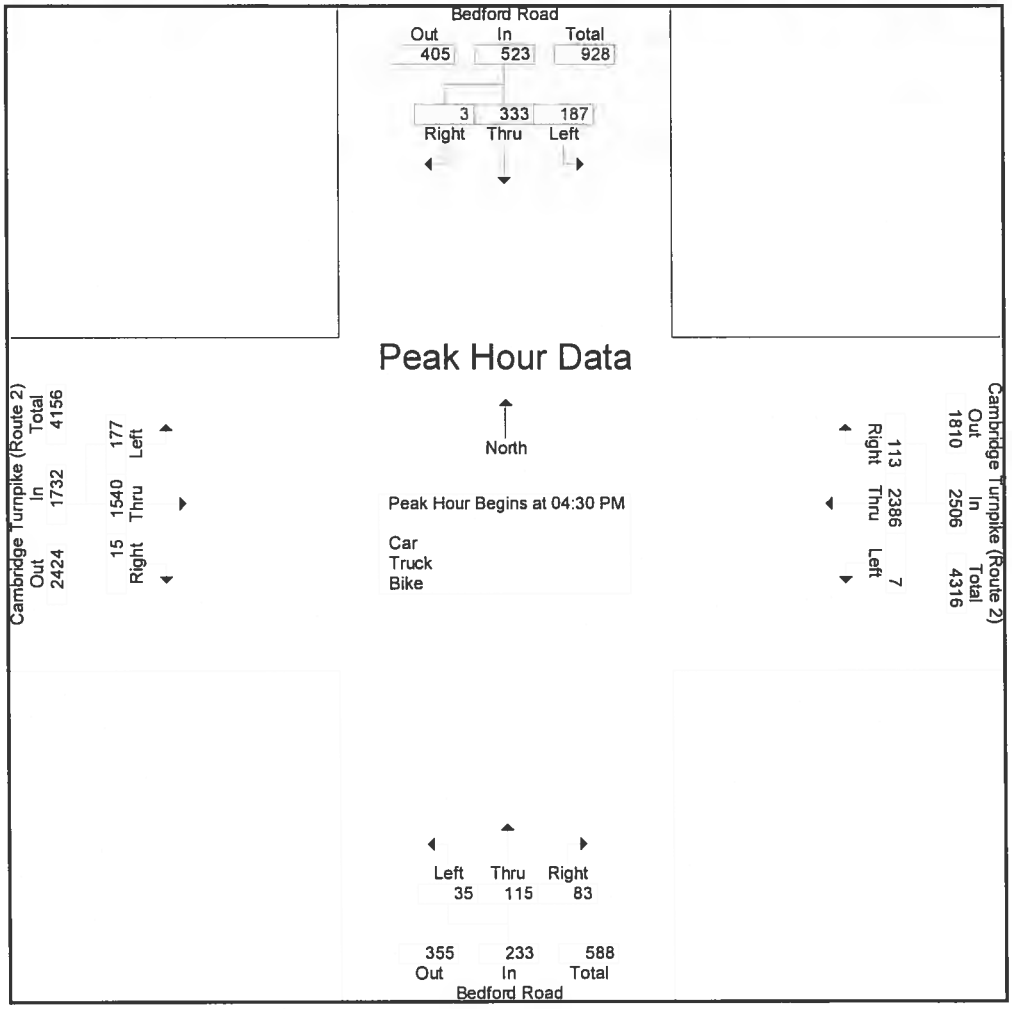


Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

File Name : S12-079TM7
Site Code : 89578
Start Date : 12/13/2012
Page No : 3

	Bedford Road From North				Cambridge Turnpike (Route 2) From East				Bedford Road From South				Cambridge Turnpike (Route 2) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	1	82	49	132	24	**642**	0	**666**	18	33	**13**	**64**	3	396	**53**	**452**	**1314**
04:45 PM	**2**	**90**	47	**139**	27	589	1	617	17	**34**	8	59	**6**	354	40	400	1215
05:00 PM	0	77	41	118	26	561	**6**	593	18	27	4	49	3	390	39	432	1192
05:15 PM	0	84	**50**	134	**36**	594	0	630	**30**	21	10	61	3	**400**	45	448	1273
Total Volume	3	333	187	523	113	2386	7	2506	83	115	35	233	15	1540	177	1732	4994
% App. Total	0.6	63.7	35.8		4.5	95.2	0.3		35.6	49.4	15		0.9	88.9	10.2		
PHF	.375	.925	.935	.941	.785	.929	.292	.941	.692	.846	.673	.910	.625	.963	.835	.958	.950



Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Lincoln
Route 2 @ Bedford Road
Counted by Miovision
S12-079 TMC # 7

File Name : S12-079TM7
Site Code : 89578
Start Date : 12/13/2012

Groups Printed- Car

	Bedford Road From North				Cambridge Turnpike (Route 2) From East				Bedford Road From South				Cambridge Turnpike (Route 2) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	0	32	73	105	6	292	0	298	52	22	2	76	2	665	27	694	1173
07:15 AM	2	44	64	110	14	349	0	363	47	17	3	67	4	616	33	653	1193
07:30 AM	2	60	61	123	24	392	2	418	60	26	4	90	3	555	24	582	1213
07:45 AM	0	73	65	138	33	438	1	472	57	28	6	91	3	546	39	588	1289
Total	4	209	263	476	77	1471	3	1551	216	93	15	324	12	2382	123	2517	4868
08:00 AM	0	65	69	134	38	379	1	418	53	25	4	82	4	558	31	593	1227
08:15 AM	1	49	63	113	26	439	1	466	56	25	7	88	3	573	36	612	1279
08:30 AM	3	54	64	121	47	414	1	462	54	35	3	92	4	575	32	611	1286
08:45 AM	0	36	69	105	24	426	0	450	49	22	8	79	1	578	33	612	1246
Total	4	204	265	473	135	1658	3	1796	212	107	22	341	12	2284	132	2428	5038
04:00 PM	0	73	37	110	32	576	0	608	30	17	7	54	3	323	31	357	1129
04:15 PM	0	77	41	118	24	623	1	648	22	20	12	54	8	354	49	411	1231
04:30 PM	1	81	49	131	24	635	0	659	17	31	11	59	3	390	53	446	1295
04:45 PM	2	89	47	138	27	582	0	609	17	34	7	58	6	348	39	393	1198
Total	3	320	174	497	107	2416	1	2524	86	102	37	225	20	1415	172	1607	4853
05:00 PM	0	77	41	118	25	557	6	588	18	25	4	47	3	381	39	423	1176
05:15 PM	0	84	50	134	36	590	0	626	30	21	10	61	3	396	45	444	1265
05:30 PM	1	88	40	129	25	592	0	617	19	28	9	56	6	413	47	466	1268
05:45 PM	2	78	30	110	42	547	2	591	13	20	9	42	4	421	58	483	1226
Total	3	327	161	491	128	2286	8	2422	80	94	32	206	16	1611	189	1816	4935
Grand Total	14	1060	863	1937	447	7831	15	8293	594	396	106	1096	60	7692	616	8368	19694
Apprch %	0.7	54.7	44.6		5.4	94.4	0.2		54.2	36.1	9.7		0.7	91.9	7.4		
Total %	0.1	5.4	4.4	9.8	2.3	39.8	0.1	42.1	3	2	0.5	5.6	0.3	39.1	3.1	42.5	

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Lincoln
Route 2 @ Bedford Road
Counted by Miovision
S12-079 TMC # 7

File Name : S12-079TM7
Site Code : 89578
Start Date : 12/13/2012
Page No : 1

Groups Printed- Truck

	Bedford Road From North				Cambridge Turnpike (Route 2) From East				Bedford Road From South				Cambridge Turnpike (Route 2) From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	0	0	0	0	0	7	0	7	1	0	0	1	0	14	0	14	22
07:15 AM	0	0	0	0	0	11	0	11	0	1	1	2	1	21	0	22	35
07:30 AM	0	3	0	3	0	9	1	10	0	2	0	2	0	15	1	16	31
07:45 AM	0	5	0	5	0	18	0	18	2	0	0	2	0	9	3	12	37
Total	0	8	0	8	0	45	1	46	3	3	1	7	1	59	4	64	125
08:00 AM	1	1	0	2	0	20	0	20	0	0	0	0	0	16	0	16	38
08:15 AM	0	3	1	4	0	18	0	18	0	0	0	0	1	16	1	18	40
08:30 AM	0	1	1	2	0	19	0	19	0	0	0	0	0	11	0	11	32
08:45 AM	0	1	0	1	1	21	0	22	0	0	0	0	0	19	1	20	43
Total	1	6	2	9	1	78	0	79	0	0	0	0	1	62	2	65	153
04:00 PM	0	0	0	0	1	6	0	7	0	1	1	2	0	11	0	11	20
04:15 PM	0	0	1	1	0	16	0	16	0	1	1	2	0	13	0	13	32
04:30 PM	0	1	0	1	0	7	0	7	1	0	2	3	0	6	0	6	17
04:45 PM	0	1	0	1	0	7	1	8	0	0	1	1	0	6	1	7	17
Total	0	2	1	3	1	36	1	38	1	2	5	8	0	36	1	37	86
05:00 PM	0	0	0	0	0	4	0	4	0	1	0	1	0	9	0	9	14
05:15 PM	0	0	0	0	0	4	0	4	0	0	0	0	0	4	0	4	8
05:30 PM	0	0	0	0	0	4	0	4	0	0	0	0	0	5	0	5	9
05:45 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	2	4
Total	0	0	0	0	0	14	0	14	0	1	0	1	0	20	0	20	35
Grand Total	1	16	3	20	2	173	2	177	4	6	6	16	2	177	7	186	399
Apprch %	5	80	15		1.1	97.7	1.1		25	37.5	37.5		1.1	95.2	3.8	.	
Total %	0.3	4	0.8	5	0.5	43.4	0.5	44.4	1	1.5	1.5	4	0.5	44.4	1.8	46.6	

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Lincoln
Route 2 @ Bedford Road
Counted by Miovision
S12-079 TMC # 7

File Name : S12-079TM7
Site Code : 89578
Start Date : 12/13/2012

Groups Printed- Bike

	Bedford Road From North				Cambridge Turnpike (Route 2) From East				Bedford Road From South				Cambridge Turnpike (Route 2) From West				
Start Time	Right	Thru	Left	App Total	Right	Thru	Left	App Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	0	0	1	1	0	0	0	0	0	2	0	2	0	0	0	0	3
08:15 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
04:30 PM	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
Total	0	0	0	0	0	0	0	0	0	2	0	2	0	1	0	1	3
05:00 PM	0	0	0	0	1	0	0	1	0	1	0	1	0	0	0	0	2
Total	0	0	0	0	1	0	0	1	0	1	0	1	0	0	0	0	2
Grand Total	0	0	1	1	1	1	0	2	0	5	0	5	0	1	0	1	9
Apprch %	0	0	100		50	50	0		0	100	0		0	100	0		
Total %	0	0	11.1	11.1	11.1	11.1	0	22.2	0	55.6	0	55.6	0	11.1	0	11.1	

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

Lincoln
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File Name : S12-079TM7
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Page No : 1

Groups Printed- People

	Bedford Road From North		Cambridge Turnpike (Route 2) From East		Bedford Road From South		Cambridge Turnpike (Route 2) From West		
Start Time	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Int. Total
Grand Total	0	0	0	0	0	0	0	0	0
Apprch %	0		0		0		0		
Total %									

Massachusetts Department of Transportation-Highway Division

Statewide Traffic Data Collection

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File Name : S12-079TM7
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Groups Printed- Pedal Bike (Crosswalk)

	Bedford Road From North		Cambridge Turnpike (Route 2) From East		Bedford Road From South		Cambridge Turnpike (Route 2) From West		
Start Time	Peds	App. Total	Peds	App. Total	Peds	App. Total	Peds	App. Total	Int. Total
Grand Total	0	0	0	0	0	0	0	0	0
Apprch %	0		0		0		0		
Total %									

Transportation Data Management System

Volume Count Report

LOCATION INFO	
Location ID	403
Type	SPOT
Fnct'l Class	3
Located On	ELM STREET
EAST OF	REFORMATORY CIRCLE
Direction	2-WAY
Community	CONCORD
MPO ID	
HPMS ID	
Agency	MHD

COUNT DATA INFO	
Count Status	Accepted
Start Date	Thu 12/13/2012
End Date	Fri 12/14/2012
Start Time	12:00:00 AM
End Time	12:00:00 AM
Direction	
Notes	
Count Source	000000040334
Filename	D1205001.prn
Weather	
Study	
Speed Limit	
Description	
Sensor Type	
Owner	wjt

INTERVAL:60-MIN	
Time	Hourly Count
0:00-1:00	335
1:00-2:00	114
2:00-3:00	83
3:00-4:00	115
4:00-5:00	261
5:00-6:00	1,244
6:00-7:00	2,829
7:00-8:00	3,404
8:00-9:00	3,485
9:00-10:00	3,341
10:00-11:00	2,709
11:00-12:00	2,615
12:00-13:00	2,725
13:00-14:00	2,713
14:00-15:00	3,209
15:00-16:00	3,366
16:00-17:00	3,345
17:00-18:00	3,345
18:00-19:00	3,237
19:00-20:00	2,256
20:00-21:00	1,680
21:00-22:00	1,328
22:00-23:00	1,065
23:00-24:00	648
Total	49,452
AADT	46,485
AM Peak	08:00-09:00 3,485
PM Peak	15:00-16:00 3,366

Transportation Data Management System

Volume Count Report

LOCATION INFO	
Location ID	403_EB
Type	SPOT
Fnct'l Class	3
Located On	ELM STREET
EAST OF	REFORMATORY CIRCLE
Direction	EB
Community	CONCORD
MPO ID	
HPMS ID	
Agency	MHD

COUNT DATA INFO	
Count Status	Accepted
Start Date	Thu 12/13/2012
End Date	Fri 12/14/2012
Start Time	12:00:00 AM
End Time	12:00:00 AM
Direction	
Notes	
Count Source	000000040334
Filename	D1205001.prn
Weather	
Study	
Speed Limit	
Description	
Sensor Type	
Owner	wjt

INTERVAL:60-MIN	
Time	Hourly Count
0:00-1:00	62
1:00-2:00	31
2:00-3:00	44
3:00-4:00	71
4:00-5:00	212
5:00-6:00	1,064
6:00-7:00	2,250
7:00-8:00	2,248
8:00-9:00	2,036
9:00-10:00	2,041
10:00-11:00	1,531
11:00-12:00	1,434
12:00-13:00	1,373
13:00-14:00	1,339
14:00-15:00	1,438
15:00-16:00	1,444
16:00-17:00	1,387
17:00-18:00	1,470
18:00-19:00	1,197
19:00-20:00	809
20:00-21:00	570
21:00-22:00	427
22:00-23:00	326
23:00-24:00	185
Total	24,989
AADT	24,989
AM Peak	06:00-07:00 2,250
PM Peak	17:00-18:00 1,470

Transportation Data Management System

Volume Count Report

LOCATION INFO	
Location ID	403_WB
Type	SPOT
Fnct'l Class	3
Located On	ELM STREET
EAST OF	REFORMATORY CIRCLE
Direction	WB
Community	CONCORD
MPO ID	
HPMS ID	
Agency	MHD

COUNT DATA INFO	
Count Status	Accepted
Start Date	Thu 12/13/2012
End Date	Fri 12/14/2012
Start Time	12:00:00 AM
End Time	12:00:00 AM
Direction	
Notes	
Count Source	000000040334
Filename	D1205001.prn
Weather	
Study	
Speed Limit	
Description	
Sensor Type	
Owner	wjt

INTERVAL:60-MIN	
Time	Hourly Count
0:00-1:00	273
1:00-2:00	83
2:00-3:00	39
3:00-4:00	44
4:00-5:00	49
5:00-6:00	180
6:00-7:00	579
7:00-8:00	1,156
8:00-9:00	1,449
9:00-10:00	1,300
10:00-11:00	1,178
11:00-12:00	1,181
12:00-13:00	1,352
13:00-14:00	1,374
14:00-15:00	1,771
15:00-16:00	1,922
16:00-17:00	1,958
17:00-18:00	1,875
18:00-19:00	2,040
19:00-20:00	1,447
20:00-21:00	1,110
21:00-22:00	901
22:00-23:00	739
23:00-24:00	463
Total	24,463
AADT	24,463
AM Peak	08:00-09:00 1,449
PM Peak	18:00-19:00 2,040

Transportation Data Management System

Volume Count Report

LOCATION INFO	
Location ID	4950
Type	SPOT
Fnct'l Class	3
Located On	CONCORD TURNPIKE
WEST OF	WALDEN STREET
Direction	2-WAY
Community	CONCORD
MPO ID	
HPMS ID	
Agency	MHD

COUNT DATA INFO	
Count Status	Accepted
Start Date	Thu 9/13/2012
End Date	Fri 9/14/2012
Start Time	12:00:00 AM
End Time	12:00:00 AM
Direction	2-WAY
Notes	
Count Source	
Filename	
Weather	
Study	
Speed Limit	
Description	
Sensor Type	
Owner	wjt

INTERVAL:60-MIN	
Time	Hourly Count
0:00-1:00	349
1:00-2:00	131
2:00-3:00	92
3:00-4:00	110
4:00-5:00	298
5:00-6:00	1,301
6:00-7:00	3,377
7:00-8:00	3,606
8:00-9:00	3,882
9:00-10:00	3,643
10:00-11:00	2,622
11:00-12:00	2,463
12:00-13:00	2,599
13:00-14:00	2,581
14:00-15:00	3,127
15:00-16:00	2,359
16:00-17:00	2,522
17:00-18:00	3,731
18:00-19:00	3,769
19:00-20:00	2,683
20:00-21:00	1,948
21:00-22:00	1,457
22:00-23:00	1,129
23:00-24:00	755
Total	50,534
AADT	44,975
AM Peak	08:00-09:00 3,882
PM Peak	18:00-19:00 3,769

Transportation Data Management System

Volume Count Report

LOCATION INFO	
Location ID	4950_EB
Type	SPOT
Fnct'l Class	3
Located On	CONCORD TURNPIKE
WEST OF	WALDEN STREET
Direction	EB
Community	CONCORD
MPO ID	
HPMS ID	
Agency	MHD

COUNT DATA INFO	
Count Status	Accepted
Start Date	Thu 9/13/2012
End Date	Fri 9/14/2012
Start Time	12:00:00 AM
End Time	12:00:00 AM
Direction	
Notes	
Count Source	
Filename	
Weather	
Study	
Speed Limit	
Description	
Sensor Type	
Owner	wjt

INTERVAL:60-MIN	
Time	Hourly Count
0:00-1:00	92
1:00-2:00	39
2:00-3:00	43
3:00-4:00	74
4:00-5:00	225
5:00-6:00	1,008
6:00-7:00	2,460
7:00-8:00	2,159
8:00-9:00	2,247
9:00-10:00	2,166
10:00-11:00	1,510
11:00-12:00	1,301
12:00-13:00	1,334
13:00-14:00	1,309
14:00-15:00	1,417
15:00-16:00	1,461
16:00-17:00	1,888
17:00-18:00	1,856
18:00-19:00	1,488
19:00-20:00	990
20:00-21:00	688
21:00-22:00	500
22:00-23:00	362
23:00-24:00	185
Total	26,802
AADT	23,854
AM Peak	06:00-07:00 2,460
PM Peak	16:00-17:00 1,888

Transportation Data Management System

Volume Count Report

LOCATION INFO	
Location ID	4950_WB
Type	SPOT
Fnct'l Class	3
Located On	CONCORD TURNPIKE
WEST OF	WALDEN STREET
Direction	WB
Community	CONCORD
MPO ID	
HPMS ID	
Agency	MHD

COUNT DATA INFO	
Count Status	Accepted
Start Date	Thu 9/13/2012
End Date	Fri 9/14/2012
Start Time	12:00:00 AM
End Time	12:00:00 AM
Direction	
Notes	
Count Source	
Filename	
Weather	
Study	
Speed Limit	
Description	
Sensor Type	
Owner	wjt

INTERVAL:60-MIN	
Time	Hourly Count
0:00-1:00	257
1:00-2:00	92
2:00-3:00	49
3:00-4:00	36
4:00-5:00	73
5:00-6:00	293
6:00-7:00	917
7:00-8:00	1,447
8:00-9:00	1,635
9:00-10:00	1,477
10:00-11:00	1,112
11:00-12:00	1,162
12:00-13:00	1,265
13:00-14:00	1,272
14:00-15:00	1,710
15:00-16:00	898
16:00-17:00	634
17:00-18:00	1,875
18:00-19:00	2,281
19:00-20:00	1,693
20:00-21:00	1,260
21:00-22:00	957
22:00-23:00	767
23:00-24:00	570
Total	23,732
AADT	21,121
AM Peak	08:00-09:00 1,635
PM Peak	18:00-19:00 2,281

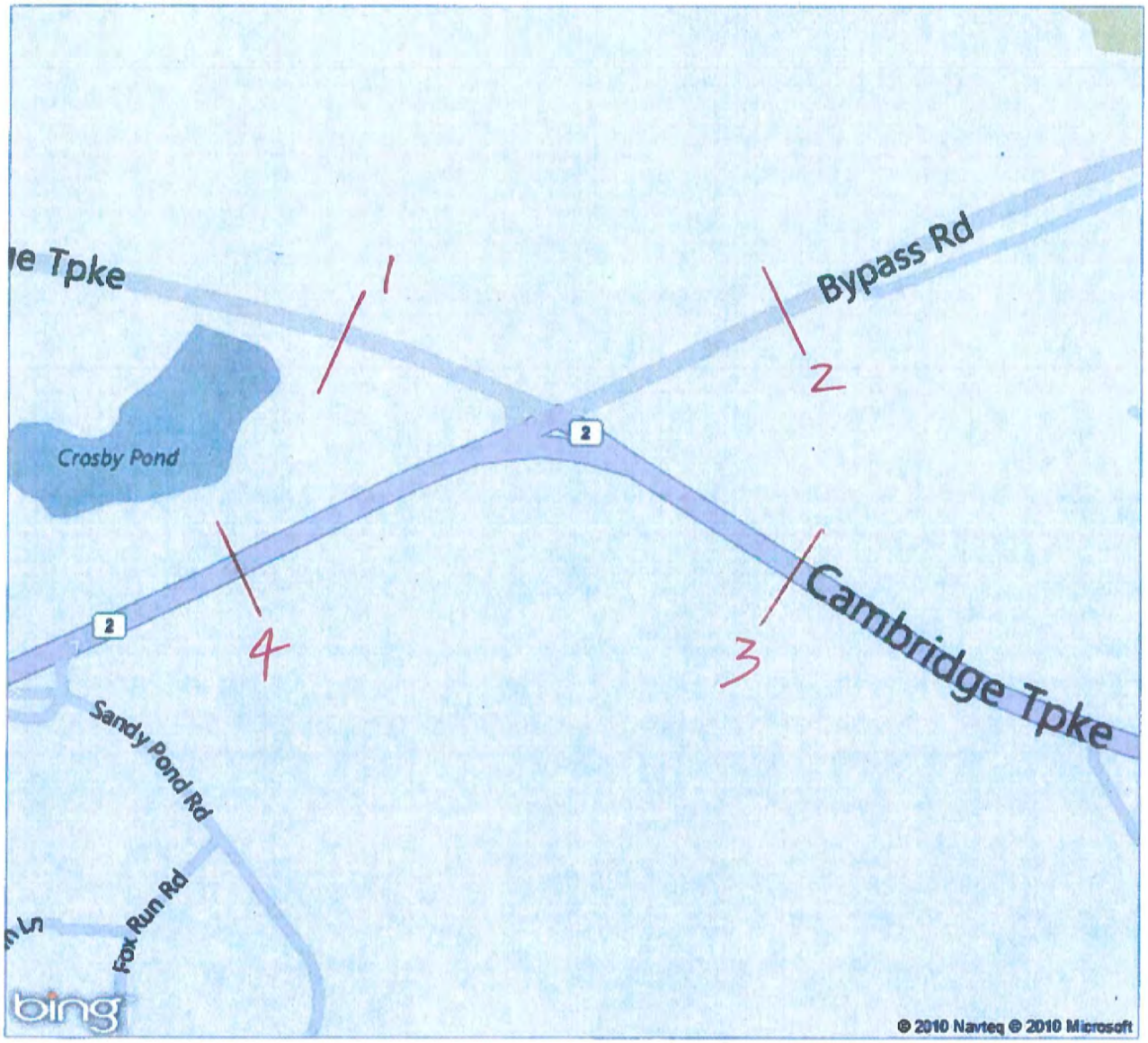
Bing Maps

My Notes

TDC PROJECT #
S10-044
CONCORD

ATR LOCATIONS

N



Mass Highway Department
WEEKLY SUMMARY FOR LANE 1
Starting: 8/9/2010

STA. 1 EB

Site Reference: 000000000748
Site ID: 000000000103
Location: CAMBRIDGE TURNPIKE W. OF BYPASS RD.
Direction: EAST

File: 103.prn
City: CONCORD
County: VOL E.B.

TIME	MON 9	TUE 10	WED 11	THU	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		14	4			9			9	18
02:00		1	2			1			1	3
03:00		1	3			2			2	4
04:00		5	8			6			6	13
05:00		9	11			10			10	20
06:00		43	46			44			44	89
07:00		175	173			174			174	348
08:00		309	325			317			317	634
09:00		306	304			305			305	610
10:00		244	239			241			241	483
11:00		150	164			157			157	314
12:00	117	162	158			145			145	437
13:00	130	170				150			150	300
14:00	144	153				148			148	297
15:00	147	119				133			133	266
16:00	156	193				174			174	349
17:00	162	185				173			173	347
18:00	162	174				168			168	336
19:00	161	160				160			160	321
20:00	76	99				87			87	175
21:00	56	65				60			60	121
22:00	62	53				57			57	115
23:00	36	41				38			38	77
24:00	18	14				16			16	32
TOTALS	1427	2845	1437	0	0	2775	0	0	2775	5709
% AVG WKDY	51.4	102.5	51.7							
% AVG WEEK	51.4	102.5	51.7							
AM Times	12:00	08:00	08:00			08:00			08:00	
AM Peaks	117	309	325			317			317	
PM Times	17:00	16:00				16:00			16:00	
PM Peaks	162	193				174			174	

US EB 2775
WB 2803
COMB AWD 5578
FAC .90(.98)
COMB ADT 4,900

Mass Highway Department
WEEKLY SUMMARY FOR LANE 1
Starting: 8/9/2010

STA. 1 WB

Site Reference: 000000000469
Site ID: 000000000104
Location: CAMBRIDGE TURNPIKE W. OF BYPASS RD.
Direction: WEST

File: 104.prn
City: CONCORD
County: VOL W.B.

TIME	MON 9	TUE 10	WED 11	THU	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		20	23			21			21	43
02:00		6	7			6			6	13
03:00		2	3			2			2	5
04:00		2	2			2			2	4
05:00		1	11			6			6	12
06:00		9	9			9			9	18
07:00		52	45			48			48	97
08:00		115	113			114			114	228
09:00		171	176			173			173	347
10:00		139	129			134			134	268
11:00		118	115			116			116	233
12:00	118	150	138			135			135	406
13:00	135	142				138			138	277
14:00	135	153				144			144	288
15:00	161	175				168			168	336
16:00	238	245				241			241	483
17:00	261	304				282			282	565
18:00	299	312				305			305	611
19:00	252	285				268			268	537
20:00	163	169				166			166	332
21:00	107	122				114			114	229
22:00	95	94				94			94	189
23:00	66	81				73			73	147
24:00	31	57				44			44	88
TOTALS	2061	2924	771	0	0	2803	0	0	2803	5756
% AVG WKDY	73.5	104.3	27.5							
% AVG WEEK	73.5	104.3	27.5							
AM Times	12:00	09:00	09:00			09:00			09:00	
AM Peaks	118	171	176			173			173	
PM Times	18:00	18:00				18:00			18:00	
PM Peaks	299	312				305			305	

Mass Highway Department
WEEKLY SUMMARY FOR LANE 1
Starting: 8/9/2010

STA. 2 EB

Site Reference: 000000000580
Site ID: 000000000203
Location: BYPASS RD. E. OF RTE. 2
Direction: EAST

File: 203.prn
City: CONCORD
County: VOL E.B.

TIME	MON 9	TUE 10	WED 11	THU	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		6	10			8			8	16
02:00		9	4			6			6	13
03:00		5	3			4			4	8
04:00		8	12			10			10	20
05:00		26	28			27			27	54
06:00		108	104			106			106	212
07:00		298	289			293			293	587
08:00		392	372			382			382	764
09:00		422	471			446			446	893
10:00		326	334			330			330	660
11:00		287	330			308			308	617
12:00	217	288				252			252	505
13:00	194	232				213			213	426
14:00	222	199				210			210	421
15:00	199	247				223			223	446
16:00	226	234				230			230	460
17:00	202	236				219			219	438
18:00	242	278				260			260	520
19:00	193	205				199			199	398
20:00	120	152				136			136	272
21:00	84	88				86			86	172
22:00	51	62				56			56	113
23:00	44	37				40			40	81
24:00	15	20				17			17	35
TOTALS	2009	4165	1957	0	0	4061	0	0	4061	8131
% AVG WKDY	49.4	102.5	48.1							
% AVG WEEK	49.4	102.5	48.1							
AM Times	12:00	09:00	09:00			09:00			09:00	
AM Peaks	217	422	471			446			446	
PM Times	18:00	18:00				18:00			18:00	
PM Peaks	242	278				260			260	

US

EB 4061
WB 4835
COMB AWD 8896
FAC .90 (.98)
COMB ADT 7,800

Mass Highway Department
WEEKLY SUMMARY FOR LANE 1
Starting: 8/9/2010

STA. 2 WB

Site Reference: 000000000591
Site ID: 000000000204
Location: BYPASS RD. E. OF RTE. 2
Direction: WEST

File: 204.prn
City: CONCORD
County: VOL W.B.

TIME	MON 9	TUE 10	WED 11	THU	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		12	28			20			20	40
02:00		11	8			9			9	19
03:00		10	6			8			8	16
04:00		13	6			9			9	19
05:00		8	6			7			7	14
06:00		47	48			47			47	95
07:00		134	124			129			129	258
08:00		281	253			267			267	534
09:00		344	355			349			349	699
10:00		257	241			249			249	498
11:00		209	202			205			205	411
12:00	210	220				215			215	430
13:00	217	286				251			251	503
14:00	259	257				258			258	516
15:00	317	333				325			325	650
16:00	394	402				398			398	796
17:00	477	526				501			501	1003
18:00	591	545				568			568	1136
19:00	354	410				382			382	764
20:00	239	256				247			247	495
21:00	140	194				167			167	334
22:00	115	112				113			113	227
23:00	59	91				75			75	150
24:00	34	38				36			36	72
TOTALS	3406	4996	1277	0	0	4835	0	0	4835	9679
% AVG WKDY	70.4	103.3	26.4							
% AVG WEEK	70.4	103.3	26.4							
AM Times	12:00	09:00	09:00			09:00			09:00	
AM Peaks	210	344	355			349			349	
PM Times	18:00	18:00				18:00			18:00	
PM Peaks	591	545				568			568	

Mass Highway Department
WEEKLY SUMMARY FOR LANE 1
Starting: 8/9/2010

STA. 3 EB

Site Reference: 000000000899
Site ID: 000000000303
Location: RTE. 2 E. OF BYPASS RD.
Direction: EAST

File: 303.prn
City: CONCORD
County: VOL E.B.

TIME	MON 9	TUE 10	WED 11	THU	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		104	82			93			93	186
02:00		42	45			43			43	87
03:00		52	48			50			50	100
04:00		73	72			72			72	145
05:00		197	196			196			196	393
06:00		796	823			809			809	1619
07:00		2108	2039			2073			2073	4147
08:00		2448	2424			2436			2436	4872
09:00		2193	2286			2239			2239	4479
10:00		1447	1498			1472			1472	2945
11:00	1367	1341	1367			1358			1358	4075
12:00	1150	1327				1238			1238	2477
13:00	1171	1232				1201			1201	2403
14:00	1118	1197				1157			1157	2315
15:00	1224	1239				1231			1231	2463
16:00	1286	1417				1351			1351	2703
17:00	1368	1421				1394			1394	2789
18:00	1470	1640				1555			1555	3110
19:00	1325	1431				1378			1378	2756
20:00	872	969				920			920	1841
21:00	629	723				676			676	1352
22:00	502	556				529			529	1058
23:00	322	375				348			348	697
24:00	199	196				197			197	395
TOTALS	14003	24524	10880	0	0	24016	0	0	24016	49407
% AVG WKDY	58.3	102.1	45.3							
% AVG WEEK	58.3	102.1	45.3							
AM Times	11:00	08:00	08:00			08:00			08:00	
AM Peaks	1367	2448	2424			2436			2436	
PM Times	18:00	18:00				18:00			18:00	
PM Peaks	1470	1640				1555			1555	

42

EB 24016
WB 23311
COMB AWD 47327
FAC .90 (.97)
COMB ADT 41,300

8 900
12 am 7 pm

Mass Highway Department
WEEKLY SUMMARY FOR LANE 1
Starting: 8/9/2010

STA. 3 WB

Site Reference: 000000000461
Site ID: 000000000304
Location: RTE. 2 E. OF BYPASS RD.
Direction: WEST

File: 304.prn
City: CONCORD
County: VOL W.B.

TIME	MON 9	TUE 10	WED 11	THU	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		192	209			200			200	401
02:00		82	92			87			87	174
03:00		46	37			41			41	83
04:00		32	39			35			35	71
05:00		56	67			61			61	123
06:00		282	304			293			293	586
07:00		784	752			768			768	1536
08:00		1367	1341			1354			1354	2708
09:00		1514	1537			1525			1525	3051
10:00		1246	1310			1278			1278	2556
11:00	1042	1064	1098			1068			1068	3204
12:00	1056	1105				1080			1080	2161
13:00	1044	1176				1110			1110	2220
14:00	1135	1181				1158			1158	2316
15:00	1338	1460				1399			1399	2798
16:00	1823	1999				1911			1911	3822
17:00	1974	2057				2015			2015	4031
18:00	2102	2114				2108			2108	4216
19:00	1874	1961				1917			1917	3835
20:00	1275	1302				1288			1288	2577
21:00	842	972				907			907	1814
22:00	764	827				795			795	1591
23:00	525	651				588			588	1176
24:00	263	387				325			325	650
TOTALS	17057	23857	6786	0	0	23311	0	0	23311	47700
% AVG WKDY	73.1	102.3	29.1							
% AVG WEEK	73.1	102.3	29.1							
AM Times	12:00	09:00	09:00			09:00			09:00	
AM Peaks	1056	1514	1537			1525			1525	
PM Times	18:00	18:00				18:00			18:00	
PM Peaks	2102	2114				2108			2108	

8:00 – 3pm

3pm – 7pm

Mass Highway Department
WEEKLY SUMMARY FOR LANE 1
Starting: 8/9/2010

STA. 4 EB

Site Reference: 000000000686
Site ID: 000000000403
Location: RTE. 2 W. OF CAMBRIDGE TURNPIKE
Direction: EAST

File: 403.prn
City: CONCORD
County: VOL E.B.

TIME	MON 9	TUE 10	WED 11	THU	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		102	86			94			94	188
02:00		50	48			49			49	98
03:00		54	50			52			52	104
04:00		79	76			77			77	155
05:00		218	223			220			220	441
06:00		862	892			877			877	1754
07:00		2248	2174			2211			2211	4422
08:00		2530	2474			2502			2502	5004
09:00		2290	2351			2320			2320	4641
10:00		1548	1620			1584			1584	3168
11:00	1377	1453	1535			1455			1455	4365
12:00	1246	1479	1415			1380			1380	4140
13:00	1272	1306				1289			1289	2578
14:00	1211	1262				1236			1236	2473
15:00	1269	1337				1303			1303	2606
16:00	1341	1459				1400			1400	2800
17:00	1412	1471				1441			1441	2883
18:00	1544	1733				1638			1638	3277
19:00	1346	1475				1410			1410	2821
20:00	907	1017				962			962	1924
21:00	654	751				702			702	1405
22:00	493	568				530			530	1061
23:00	337	360				348			348	697
24:00	194	214				204			204	408
TOTALS	14603	25866	12944	0	0	25284	0	0	25284	53413
% AVG WKDY	57.7	102.3	51.1							
% AVG WEEK	57.7	102.3	51.1							
AM Times	11:00	08:00	08:00			08:00			08:00	
AM Peaks	1377	2530	2474			2502			2502	
PM Times	18:00	18:00				18:00			18:00	
PM Peaks	1544	1733				1638			1638	

U2

EB 25284
WB 25143
COMB AWD 50427
FAC .90(.97)
COMB ADT 44,000

Mass Highway Department
WEEKLY SUMMARY FOR LANE 1
Starting: 8/9/2010

STA. 4 WB

Site Reference: 000000000681
Site ID: 000000000404
Location: RTE. 2 W. OF CAMBRIDGE TURNPIKE
Direction: WEST

File: 404.prn
City: CONCORD
County: VOL W.B.

TIME	MON 9	TUE 10	WED 11	THU	FRI	WKDAY AVG	SAT	SUN	WEEK AVG	TOTAL
01:00		185	218			201			201	403
02:00		91	101			96			96	192
03:00		52	40			46			46	92
04:00		47	42			44			44	89
05:00		63	70			66			66	133
06:00		282	307			294			294	589
07:00		845	795			820			820	1640
08:00		1453	1446			1449			1449	2899
09:00		1612	1664			1638			1638	3276
10:00		1422	1452			1437			1437	2874
11:00	1073	1185	1198			1152			1152	3456
12:00	1143	1199	1185			1175			1175	3527
13:00	1135	1309				1222			1222	2444
14:00	1264	1295				1279			1279	2559
15:00	1497	1632				1564			1564	3129
16:00	1977	2103				2040			2040	4080
17:00	2170	2230				2200			2200	4400
18:00	2309	2319				2314			2314	4628
19:00	2004	2077				2040			2040	4081
20:00	1370	1422				1396			1396	2792
21:00	855	1028				941			941	1883
22:00	774	846				810			810	1620
23:00	533	662				597			597	1195
24:00	270	374				322			322	644
TOTALS	18374	25733	8518	0	0	25143	0	0	25143	52625
% AVG WKDY	73	102.3	33.8							
% AVG WEEK	73	102.3	33.8							
AM Times	12:00	09:00	09:00			09:00			09:00	
AM Peaks	1143	1612	1664			1638			1638	
PM Times	18:00	18:00				18:00			18:00	
PM Peaks	2309	2319				2314			2314	

THE COMMONWEALTH OF MASSACHUSETTS
MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

MEMORANDUM

TO: Gautam Sen, Project Management

FROM: Stephen R. Greene, Supervisor, Statewide Traffic Data Collection Section

DATE: November 29, 2010

RE: Special Counts: Concord/Lincoln, Route 2 (TDC Project #S10-064)

The attached traffic data for Route 2 in Lincoln is being furnished in response to your request.

The information package includes automatic traffic recorder (ATR) data for one location by hour and direction of travel gathered from November 16-22, 2010.

If there are any questions please contact me at 617-973-7327.

Attachments

Mass Highway Department
WEEKLY SUMMARY FOR LANE 1
Starting: 11/15/2010

STA. 1 EB

Site Reference: 100640000547
Site ID: 000000000103
Location: RTE. 2 EAST OF BYPASS RD.
Direction: EAST

File: 103-B.prn
City: LINCOLN/CONCORD
County: VOL E.B.

TIME	MON 22	TUE 16	WED 17	THU 18	FRI 19	WKDAY AVG	SAT 20	SUN 21	WEEK AVG	TOTAL
01:00	82	72	81	101	99	87	191	185	115	811
02:00	47	41	37	52	63	48	91	100	61	431
03:00	46	55	48	49	55	50	48	47	49	348
04:00	61	70	105	65	84	77	56	48	69	489
05:00	238	199	213	216	196	212	95	53	172	1210
06:00	877	810	789	830	769	815	247	102	632	4424
07:00	2277	2252	2209	2311	2189	2247	524	225	1712	11987
08:00	2588	2606	2565	2607	2560	2585	751	353	2004	14030
09:00	2372	2555	2441	2585	2336	2457	1076	535	1985	13900
10:00	1810	1900	2242	1909	1688	1909	1106	936	1655	11591
11:00	1393	1363	1420	1405	1418	1399	1459	1008	1352	9466
12:00	1288	1229	1289	1370	1286	1292	1314	1219	1285	8995
13:00	1215	1229	1188	1271	1318	1244	1426	1382	1289	9029
14:00	1148	1193	1203	1337	1255	1227	1368	1424	1275	8928
15:00	1321	1292	1269	1338	1393	1322	1476	1313	1343	9402
16:00	1301	1349	1338	1286	1493	1353	1533	1485	1397	9785
17:00	1389	1489	1530	1555	1586	1509	1525	1358	1490	10432
18:00	1546	1672	1743	1798	1821	1716	1559	1050	1598	11189
19:00	1265	1321	1399	1475	1607	1413	1241	821	1304	9129
20:00	802	798	809	933	971	862	779	725	831	5817
21:00	584	569	645	673	587	611	535	626	602	4219
22:00	444	443	479	610	464	488	533	462	490	3435
23:00	282	270	329	414	485	356	556	337	381	2673
24:00	205	185	216	249	291	229	380	162	241	1688
TOTALS	24581	24962	25587	26439	26014	25508	19869	15956	23332	163408
% AVG WKDY	96.3	97.8	100.3	103.6	101.9		77.8	62.5		
% AVG WEEK	105.3	106.9	109.6	113.3	111.4		85.1	68.3		
AM Times	08:00	08:00	08:00	08:00	08:00	08:00	11:00	12:00	08:00	
AM Peaks	2588	2606	2565	2607	2560	2585	1459	1219	2004	
PM Times	18:00	18:00	18:00	18:00	18:00	18:00	18:00	16:00	18:00	
PM Peaks	1546	1672	1743	1798	1821	1716	1559	1485	1598	

42

EB 25508
WB 24349
COMB AWD 49857
FAC .97(.97)
COMB ADT 46,900

Mass Highway Department
WEEKLY SUMMARY FOR LANE 1
Starting: 11/15/2010

STA. 1 WB

Site Reference: 100640000564
Site ID: 000000000104
Location: RTE. 2 EAST OF BYPASS RD.
Direction: WEST

File: 104-B.prn
City: LINCOLN/CONCORD
County: VOL W.B.

TIME	MON 22	TUE 16	WED 17	THU 18	FRI 19	WKDAY AVG	SAT 20	SUN 21	WEEK AVG	TOTAL
01:00	143	156	171	187	233	178	357	366	230	1613
02:00	61	74	87	76	96	78	150	187	104	731
03:00	37	23	43	50	69	44	96	127	63	445
04:00	40	30	33	41	46	38	57	60	43	307
05:00	84	59	71	63	70	69	68	53	66	468
06:00	244	217	190	231	215	219	127	59	183	1283
07:00	806	727	737	811	861	788	330	166	634	4438
08:00	1418	1478	1399	1544	1457	1459	610	449	1193	8355
09:00	1635	1649	1527	1649	1519	1595	828	578	1340	9385
10:00	1189	1250	1306	1267	1282	1258	1079	743	1159	8116
11:00	1041	993	1012	1085	1085	1043	1214	1008	1062	7438
12:00	1058	933	1001	1053	1026	1014	1195	1116	1054	7382
13:00	1135	1128	1077	1253	1239	1166	1238	1239	1187	8309
14:00	1235	1159	1157	1226	1320	1219	1334	1316	1249	8747
15:00	1478	1520	1532	1551	1694	1555	1288	1236	1471	10299
16:00	1947	1876	1915	2000	2050	1957	1398	1333	1788	12519
17:00	2120	2096	2081	2199	2183	2135	1446	1168	1899	13293
18:00	2147	2063	2039	2136	2136	2104	1366	1084	1853	12971
19:00	1958	1882	1952	2173	2007	1994	1164	880	1716	12016
20:00	1344	1338	1322	1469	1246	1343	830	850	1199	8399
21:00	919	1026	1042	1146	838	994	736	768	925	6475
22:00	727	817	1054	1033	859	898	689	530	815	5709
23:00	513	579	831	931	872	745	849	379	707	4954
24:00	265	427	429	481	682	456	742	229	465	3255
TOTALS	23544	23500	24008	25655	25085	24349	19191	15924	22405	156907
% AVG WKDY	96.6	96.5	98.5	105.3	103		78.8	65.3		
% AVG WEEK	105	104.8	107.1	114.5	111.9		85.6	71		
AM Times	09:00	09:00	09:00	09:00	09:00	09:00	11:00	12:00	09:00	
AM Peaks	1635	1649	1527	1649	1519	1595	1214	1116	1340	
PM Times	18:00	17:00	17:00	17:00	17:00	17:00	17:00	16:00	17:00	
PM Peaks	2147	2096	2081	2199	2183	2135	1446	1333	1899	

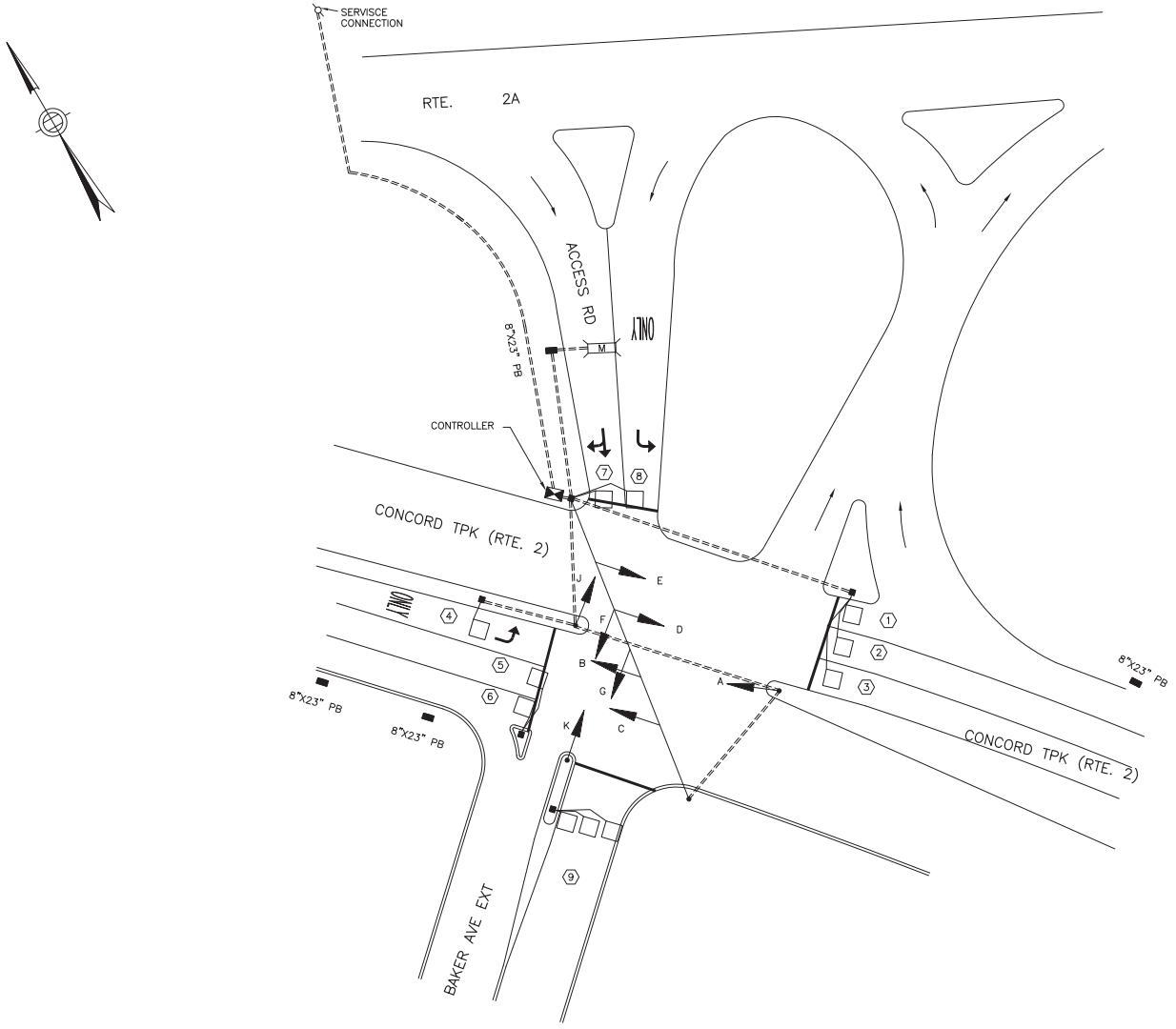
Appendix B: Existing Signal-Timing Information

CONCORD

RTE. 2 AT BAKER AVE EXT & ACCESS RD TO RT 2A

STATE	SIGNAL ID NO.	REVISION NO.	SHEET NO.	TOTAL SHEETS
MASS	0892	01	2	

TRAFFIC SIGNAL PLAN



LEGEND

	SIGNAL CONTROLLER
	VEHICULAR SIGNAL
	OPTICALLY PROGRAMMED VEHICULAR SIGNAL
	FIRE PRE-EMPTION RECEIVER
	FIRE PRE-EMPTION STROBE LIGHT
	PEDESTRIAN SIGNAL
	PEDESTRIAN PUSH BUTTON
	PULL BOX

APPROVED BY:

STATE TRAFFIC ENGINEER **Date**

0892P0101.DWG

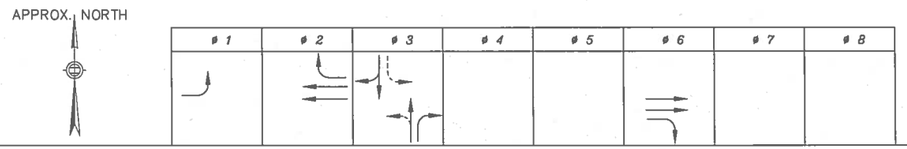
CONCORD
RTE. 2 AT BAKER AVE EXT & ACCESS RD TO RT 2A

STATE	SIGNAL ID NO.	REVISION NO.	SHEET NO.	TOTAL SHEETS
MASS	0892	01	3	

TRAFFIC SIGNAL DATA

THIS IS BAKER AVE which is 0892

APPROX. NORTH



SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (COORDINATED)

STREET	DIRECTION	HOUSINGS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	FLASH MODE
CONCORD TPK (RTE. 2)	EB	A	GL	YL	RL	RL	RL	RL	RL	RL	RL							RL	RL	RL							FRL
CONCORD TPK (RTE. 2)	EB	B	R	R	R	R	R	R	R	R	R							GV	Y	R							FY
CONCORD TPK (RTE. 2)	EB	C	R	R	R	R	R	R	R	R	R							G	Y	R							FY
CONCORD TPK (RTE. 2)	WB	D	R	R	R	GV	Y	R	R	R	R							R	R	R							FY
CONCORD TPK (RTE. 2)	WB	E	R	R	R	G	Y	R	R	R	R							R	R	R							FY
BAKER AVE. EXT.	NB	F,G	R	R	R	R	R	R	G	Y	R							R	R	R							FR
ACCESS RD TO RT 2A	SB	J,K	R	R	R	R	R	R	G	Y	R							R	R	R							FR
TIMING IN SECONDS																											
MINIMUM GREEN (INITIAL)			6			20			6									20									EMERGENCY ONLY
PASSAGE TIME (VECHICLE)			3			3	2		3									3									
MAXIMUM 1			20			50			20									50									
MAXIMUM 2			45			60			45									60									
YELLOW CLEARANCE				4			5	4		4									5	4							
RED CLEARANCE					1			2			2	1								2							
WALK (W)																											
PEDESTRIAN CLEARANCE																											
RECALL				OFF			SOFT			OFF									SOFT								
MEMORY				NON-LOCKING			NON-LOCKING			LOCKING									NON-LOCKING								

MAJOR ITEMS REQUIRED

QUANTITY	ITEM
1	CONTROLLER TYPE 8DW, CAB. & FDN.
1	SERVICE CONNECTION OVERHEAD
1	SPANWIRE ASSEMBLY W/TETHER, POLES, & FDN.
3	10' SIGNAL POLE, BASE, & FDN.
6	1 WAY 3 SECTION SIGNAL HEAD, 12" LENS
1	2 WAY 3 SECTION SIGNAL HEAD, 12" LENS
6	LOOP DETECTOR AMPLIFIER
11	ROADWAY LOOP DETECTOR
4	8"x23" PULL BOX
4	12"x12" PULL BOX
	Necessary duct, cable, labor, miscellaneous
	material and equipment to complete the installation.

NOTES:

SEQUENCE AND TIMING NOTES:

NEMA DUAL RING PHASING NOTES:

1. PHASES ASSOCIATED BY A SOLID LINE SHALL NOT OPERATE CONCURRENTLY.
2. PHASES ASSOCIATED BY A DASHED LINE MAY OPERATE CONCURRENTLY.
3. THROUGH MOVEMENTS MAY INCLUDE RIGHT TURNS.
4. IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT SHALL NOT CHANGE DURING THE CHANGE INTERVAL(S) UNLESS OTHERWISE NOTED.

LOOP DETECTOR NOTES:

1. SEE LOOP DETECTOR DETAIL SHEET FROM DESIGN DOCUMENT FOR SPLICE PATTERN AND OTHER INFORMATION.
2. DELAY AND EXTENSION TIMES ARE IN SECONDS.
3. DELAY TIME SHALL BE EFFECTIVE ONLY DURING THE RED PORTION OF THE PHASE THAT IS CALLED BY THE DETECTOR.

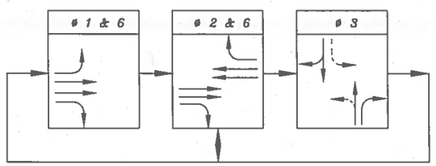
COORDINATION DATA

(ALL ENTRIES IN SECONDS)

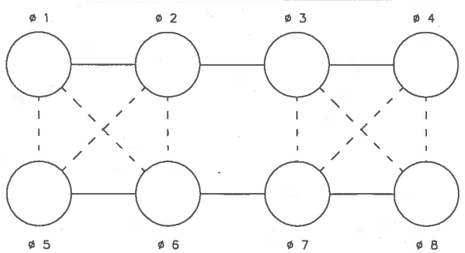
CYCLE	TIME PERIOD	OFFSET	CYCLE LENGTH
CYCLE 1	6:30-9:30 AM	99	110
CYCLE 2	15:30-19:00 PM	53	120
CYCLE 3			
CYCLE 4			

SPLIT	ø1	ø2	ø3	ø4	ø5	ø6	ø7	ø8
SPLIT 1	43	42	25			85		
SPLIT 2	24	61	35			85		
SPLIT 3								
SPLIT 4								

PREFERENTIAL PHASING SEQUENCE



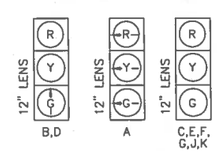
NEMA DUAL RING PHASING NOTES:



LOOP DETECTOR DATA

DETECTOR NUMBER	NUMBER OF SEGMENTS	LOOP SIZE	NUM. OF TURNS	ø CALLED	ø EXT.	MODE PULSE PRESENCE	DELAY TIME	EXT. TIME
1	1	6'x6'		$Ø_2$	$Ø_2$	PRESENCE	–	–
2	1	6'x6'		$Ø_2$	$Ø_2$	PRESENCE	–	–
3	1	6'x6'		$Ø_2$	$Ø_2$	PRESENCE	–	–
4	1	6'x6'		$Ø_1$	$Ø_1$	PRESENCE	–	–
5	1	6'x6'		$Ø_6$	$Ø_6$	PRESENCE	–	–
6	1	6'x6'		$Ø_6$	$Ø_6$	PRESENCE	–	–
7	1	6'x6'		$Ø_3$	$Ø_3$	PRESENCE	–	–
8	1	6'x6'		$Ø_3$	$Ø_3$	PRESENCE	–	–
9	3	6'x6'		$Ø_3$	$Ø_3$	PRESENCE	–	–

SIGNAL IDENTIFICATION



TIMING LAYOUT REVISED 10/19/10

CONTROLLER MAKE & MODEL:	TCT LMD 8000
UTILITY POLE No.	NET+T 62
METER No.	43 346 266
EMERGENCY PRE-EMPTION (TYPE):	NONE

APPROVED BY:

STATE TRAFFIC ENGINEER Date

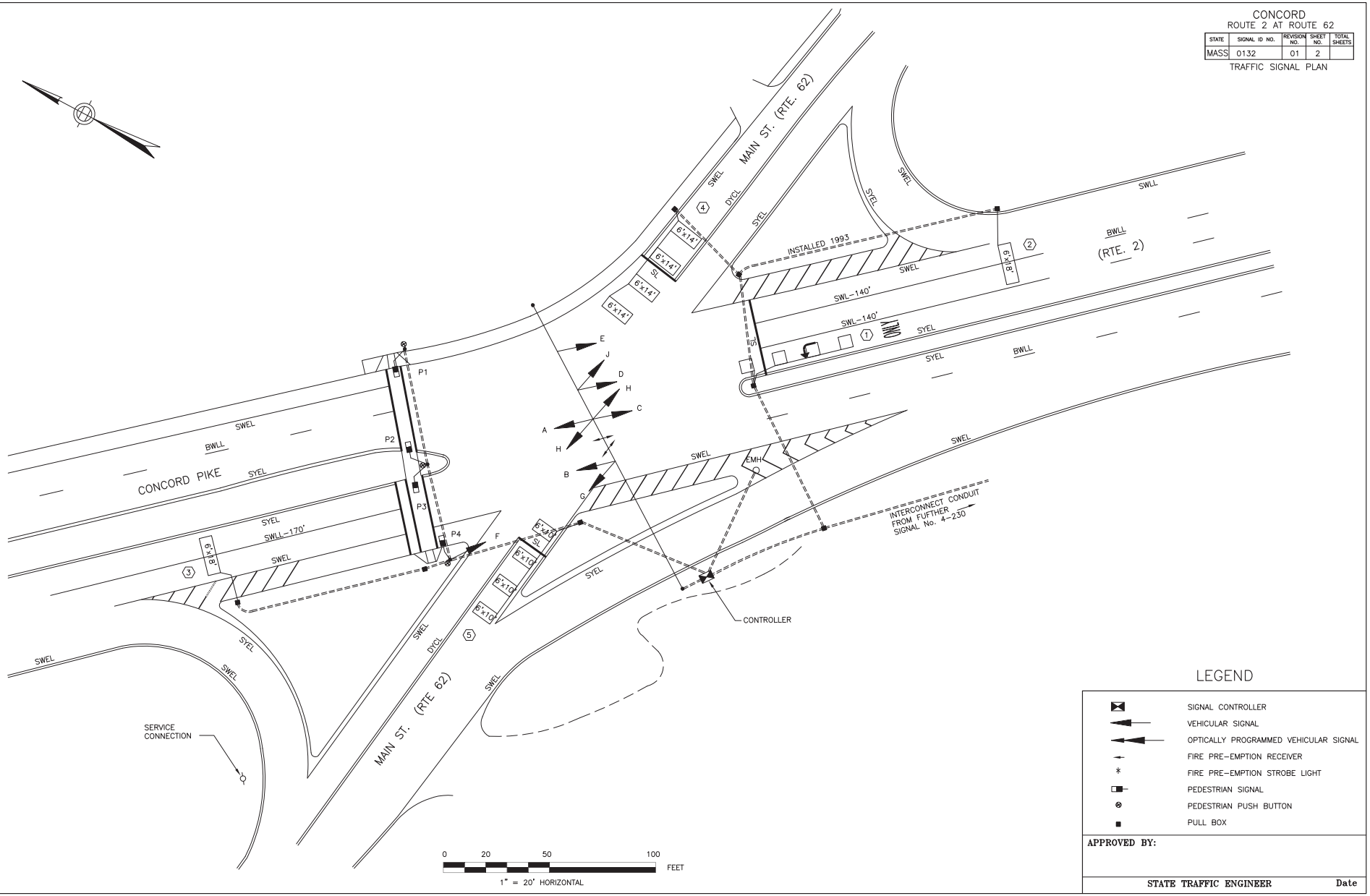
0892D01.DWG

IN DIRECTORY AS 0892D02

CONCORD
ROUTE 2 AT ROUTE 62

STATE	SIGNAL ID NO.	REVISION NO.	SHEET NO.	TOTAL SHEETS
MASS	0132	01	2	

TRAFFIC SIGNAL PLAN



LEGEND

- SIGNAL CONTROLLER
- VEHICULAR SIGNAL
- OPTICALLY PROGRAMMED VEHICULAR SIGNAL
- FIRE PRE-EMPTION RECEIVER
- FIRE PRE-EMPTION STROBE LIGHT
- PEDESTRIAN SIGNAL
- PEDESTRIAN PUSH BUTTON
- PULL BOX

APPROVED BY:

STATE TRAFFIC ENGINEER Date

0132P0101.DWG

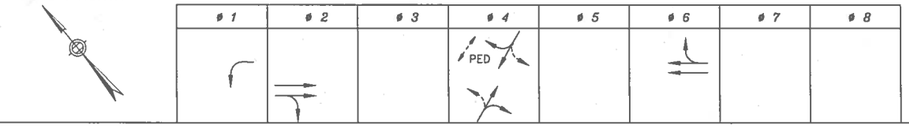
CONCORD
ROUTE 2 AT ROUTE 62

STATE	SIGNAL ID NO.	REVISION NO.	SHEET NO.	TOTAL SHEETS
MASS	0132	01	3	

TRAFFIC SIGNAL DATA

THIS IS MAIN ST
WHERE IS 0132

APPROX. NORTH



SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (COORDINATED)

STREET	DIRECTION	HOUSINGS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	FLASH OUTS
CONCORD TPK (RTE. 2)	EB	E	R	R	R	G	Y	R				R	R	R				R	R	R							FY
CONCORD TPK (RTE. 2)	EB	D	R	R	R	GV	Y	R				R	R	R				R	R	R							FY
CONCORD TPK (RTE. 2)	WB	C,F	GL	YL	RL	RL	RL	RL				RL	RL	RL				RL	RL	RL							FRL
CONCORD TPK (RTE. 2)	WB	A	R	R	R	R	R	R				R	R	R				GV	Y	R							FY
CONCORD TPK (RTE. 2)	WB	B	R	R	R	R	R	R				R	R	R				G	Y	R							FY
MAIN STREET (RTE. 62)	NB	G,H	R	R	R	R	R	R				G	Y	R				R	R	R							FR
MAIN STREET (RTE. 62)	SB	J,K	R	R	R	R	R	R				G	Y	R				R	R	R							FR
PEDESTRIAN	ALL	ALL	DW	DW	DW	DW	DW	DW				W	FDW	DW				DW	DW	DW							OFF
TIMING IN SECONDS																											
MINIMUM GREEN (INITIAL)			6			20						10						20									EMERGENCY ONLY
PASSAGE TIME (VEHICLES)			3			2						2	3					2									
MAXIMUM 1			30			60						30						60									
MAXIMUM 2			25	30		60						30						60									
YELLOW CLEARANCE				4			4	5					4						4	5							
RED CLEARANCE					1			2						1						2							
WALK (W)												8															
PEDESTRIAN CLEARANCE													21														
RECALL			EXT			SOFT						OFF						SOFT									
MEMORY			NON–LOCKING			NON–LOCKING						NON–LOCKING						NON–LOCKING									

MAJOR ITEMS REQUIRED

QUANTITY	ITEM
1	CONTROLLER TYPE BDW, CAB.& FDN.
1	SERVICE CONNECTION, TYPE OVERHEAD
1	SPANWIRE ASSEMBLY BASE & FDN.
2	8' SIGNAL POLE, BASE, & FDN.
1	10' SIGNAL POLE, BASE, & FDN.
2	1 WAY, 3 SECTION, SIGNAL HOUSING (12" LENS)
1	2 WAY, 3 SECTION, SIGNAL HOUSING (12" LENS)
2	3 WAY, 3 SECTION, SIGNAL HOUSING (12" LENS)
4	PEDESTRIAN HOUSING (TYPE INCANDESCENT)
3	PEDESTRIAN PUSH BUTTON, SIGN & SADDLES
2	DUAL CHANNEL LOOP DETECTOR AMPLIFIER
2	DUAL CHANNEL OPTICOM RECEIVERS
2	DUAL CHANNEL OPTICOM PHASE SELECTOR
14	ROADWAY LOOP DETECTOR
8	12" X 12" PULL BOX
	Necessary duct, cable, labor, miscellaneous
	material and equipment to complete the installation.

NOTES:

SEQUENCE AND TIMING NOTES:

1. FLASHING OPERATION PER M.U.T.C.D. SECTION 4B–18.
2. IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN EN EFFECT DURING THE NEXT CALLED PHASE. THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT WILL NOT CHANGE DURING THE CLEARANCE INTERVAL.

NEMA DUAL RING PHASING NOTES:

1. PHASES ASSOCIATED BY A SOLID LINE SHALL NOT OPERATE CONCURRENTLY.
2. PHASES ASSOCIATED BY A DASHED LINE MAY OPERATE CONCURRENTLY.
3. THROUGH MOVEMENTS MAY INCLUDE RIGHT TURNS.
4. IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT SHALL NOT CHANGE DURING THE CHANGE INTERVAL(S) UNLESS OTHERWISE NOTED.

LOOP DETECTOR NOTES:

1. SEE LOOP DETECTOR DETAIL SHEET FROM DESIGN DOCUMENT FOR SPLICE PATTERN AND OTHER INFORMATION.
2. DELAY AND EXTENSION TIMES ARE IN SECONDS.
3. DELAY TIME SHALL BE EFFECTIVE ONLY DURING THE RED PORTION OF THE PHASE THAT IS CALLED BY THE DETECTOR.
4. SOME LOOP DETECTORS WERE NOT VISIBLE DURING THE SIGNAL INVENTORY.

COORDINATION DATA NOTES:

1. MAX. 2 IN OPERATION DURING COORDINATION.
2. ø2 "CALL NON–ACTUATED" DURING COORDINATION.

EMERGENCY PRE–EMPTION DATA NOTES:

1. * = SEE SEQUENCE AND TIMING CHART FOR VALUES.

COORDINATION DATA
(ALL ENTRIES IN SECONDS)

CYCLE	TIME PERIOD	OFFSET	CYCLE LENGTH	YIELD POINT	RELEASE HOLD	GUARANTEED GREEN
CYCLE 1	0630–0930 MON–FRI	95	110			
CYCLE 2	1530–1900 MON–FRI	24	120			
FULLY ACTUATED	ALL OTHER TIMES					
FLASH						

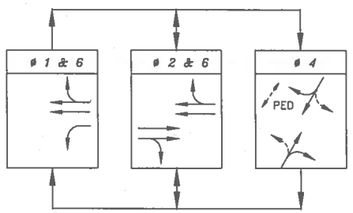
111
21C

SPLIT	ø1	ø2	ø3	ø4	ø5	ø6	ø7	ø8
SPLIT 1	21	58		31		79		
SPLIT 2	31	61		28		92		
SPLIT 3	41	51						
SPLIT 4								

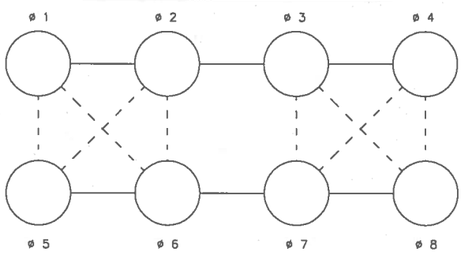
LOOP DETECTOR DATA

DETECTOR NUMBER	NUMBER OF SEGMENTS	LOOP SIZE	NUM. OF TURNS	ø CALLED	ø EXT.	MODE PULSE PRESENCE	DELAY TIME	EXT. TIME
1	4	6'x6'	–	$Ø_1$	$Ø_1$	PRESENCE	–	–
2	1	6'x18'	3	$Ø_6$	$Ø_6$	PRESENCE	–	–
3	1	6'x18'	3	$Ø_2$	$Ø_2$	PRESENCE	–	–
4	4	6'x14'	–	$Ø_4$	$Ø_4$	PRESENCE	–	–
5	4	6'x10'	–	$Ø_4$	$Ø_4$	PRESENCE	–	–

PREFERENTIAL PHASING SEQUENCE



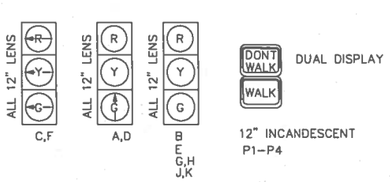
NEMA DUAL RING PHASING NOTES:



EMERGENCY PRE–EMPTION DATA

APPROACH	PHASE	TIME (SEC)
RTE. 2 EB	$Ø_2$	*
RTE. 2 WB LT	$Ø_6$	*
RTE. 62	$Ø_4$	*

SIGNAL IDENTIFICATION



TIMING LAYOUT REVISED 10/19/10

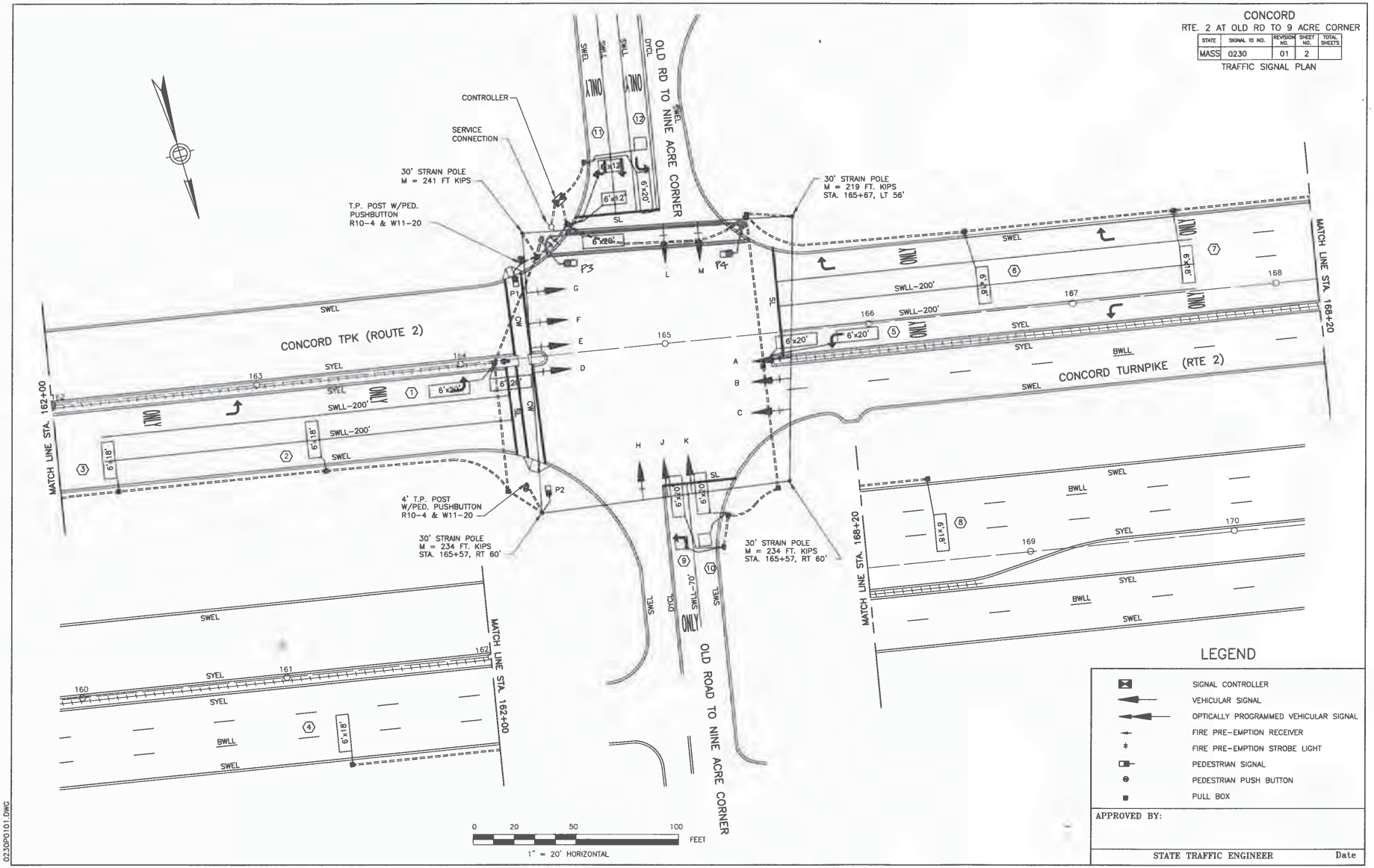
CONTROLLER MANUFACTURER & MODEL:	ECONOLITE ECT LMD 8000
UTILITY POLE No.	CMLD 84 NET+T 33
METER No.	30 015 501
EMERGENCY PRE–EMPTION (TYPE):	OPTICOM

APPROVED BY:

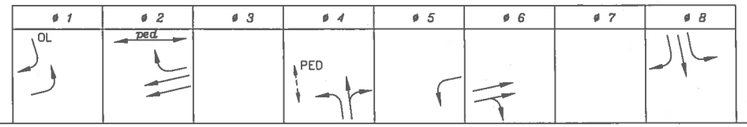
STATE TRAFFIC ENGINEER Date

0132D01.DWG

IN DIRECTORY AS 0132D02


CONCORD
RTE. 2 AT OLD RD TO 9 ACRE CORNER
STATE | SIGNAL ID NO. | REVISION NO. | SHEET NO. | TOTAL SHEETS
MASS | 0230 | 01 | 2 |
TRAFFIC SIGNAL PLAN
CONTROLLER
SERVICE CONNECTION
30' STRAIN POLE M = 241 FT KIPS
T.P. POST W/PED. PUSHBUTTON R10-4 & W11-20
30' STRAIN POLE M = 219 FT. KIPS STA. 165+67, LT 56'
OLD RD TO NINE ACRE CORNER
CONCORD TPK (ROUTE 2)
CONCORD TURNPIKE (RTE 2)
MATCH LINE STA. 162+00
MATCH LINE STA. 168+20
4' T.P. POST W/PED. PUSHBUTTON R10-4 & W11-20
30' STRAIN POLE M = 234 FT. KIPS STA. 165+57, RT 60'
OLD ROAD TO NINE ACRE CORNER
SWEL
SYEL
BWLL
SWLL-200'
SWLL-70'
ONLY
0 20 50 100 FEET
1" = 20' HORIZONTAL
LEGEND
SIGNAL CONTROLLER
VEHICULAR SIGNAL
OPTICALLY PROGRAMMED VEHICULAR SIGNAL
FIRE PRE-EMPTION RECEIVER
FIRE PRE-EMPTION STROBE LIGHT
PEDESTRIAN SIGNAL
PEDESTRIAN PUSH BUTTON
PULL BOX
APPROVED BY:
STATE TRAFFIC ENGINEER
Date
0230PO101.DWG

APPROX. NORTH



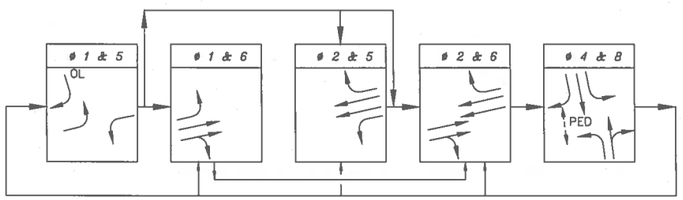
SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (COORDINATED)

STREET	DIRECTION	HOUSINGS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	FLASH OPER.
CONCORD TPK (ROUTE 2)	EB	A	RL	RL	RL	RL	RL	RL				RL	RL	RL	GL	YL	RL	RL	RL	RL				RL	RL	RL	FRL
CONCORD TPK (ROUTE 2)	EB	B,C	R	R	R	GV	Y	R				R	R	R	R	R	R	R	R	R				R	R	R	FY
CONCORD TPK (ROUTE 2)	EB	D	R	R	R	G	Y	R				R	R	R	R	R	R	R	R	R				R	R	R	FY
CONCORD TPK (ROUTE 2)	WB	E	GL	YL	RL	RL	RL	RL				RL	RL	RL	RL	RL	RL	RL	RL	RL				RL	RL	RL	FRL
CONCORD TPK (ROUTE 2)	WB	F	R	R	R	R	R	R				R	R	R	R	R	R	R	R	R				R	R	R	FY
CONCORD TPK (ROUTE 2)	WB	G	R	R	R	R	R	R				R	R	R	R	R	R	GV	Y	R				G	Y	R	FY
OLD RD TO NINE ACRE COR.	NB	J,K	R	R	R	R	R	R				R	R	R	R	R	R	G	Y	R				R	R	R	FR
OLD RD TO NINE ACRE COR.	SB	L,M	R	R	R	R	R	R				G	Y	R	R	R	R	R	R	R				R	R	R	FR
OLD RD TO NINE ACRE COR.	NB	H	GRA	YRA	R	R	R	R				R	R	R	R	R	R	G	Y	R				R	R	R	FR
PEDESTRIAN	N–S	P1–P2	DW	DW	DW	W	FDW	DW				W/FDW	DW	DW	DW	DW	DW	DW	DW	DW				DW	DW	DW	OUT

TIMING IN SECONDS

																								EMERGENCY ONLY
MINIMUM GREEN (INITIAL)	6			20						2			6			20					6			
PASSAGE TIME (VEHICLE)	3			2						3			3			2					2			
MAXIMUM 1	15			60						20			10			60					20			
MAXIMUM 2	20			60						30			15			60					30			
YELLOW CLEARANCE		4			5						4			4			5					4		
RED CLEARANCE			1			2						1			1			2						1
WALK (W)				8						8														
PEDESTRIAN CLEARANCE					12	26					20													
RECALL	OFF			SOFT						OFF			OFF			SOFT					OFF		
MEMORY	NON–LOCKING			NON–LOCKING						NON–LOCKING			NON–LOCKING			NON–LOCKING					NON–LOCKING		

PREFERENTIAL PHASING SEQUENCE

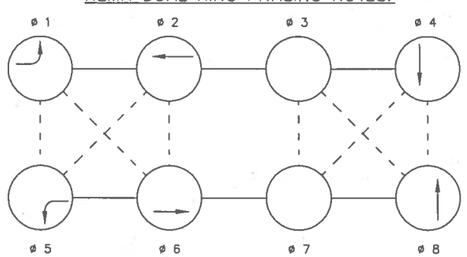


COORDINATION DATA
(ALL ENTRIES IN SECONDS)

CYCLE	TIME PERIOD	OFFSET	CYCLE LENGTH	YIELD POINT	RELEASE HOLD	GUARANTEED GREEN
CYCLE 1	0630–0980 MON–FRI	0	110			
CYCLE 2	1530–1900 MON–FRI	0	120			
FULLY ACTUATED	ALL OTHER TIMES					
FLASH						

SPLIT	ø1	ø2	ø3	ø4	ø5	ø6	ø7	ø8
SPLIT 1	18	67		25	16	69		25
SPLIT 2	23	65		32	23	65		32
SPLIT 3								
SPLIT 4								

NEMA DUAL RING PHASING NOTES:



0230D02.DWG

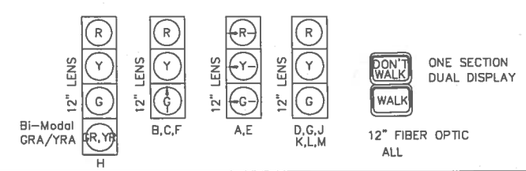
MAJOR ITEMS REQUIRED

QUANTITY	ITEM
1	CONTROLLER TYPE 8DW, CAB. & FDN.
1	SERVICE CONNECTION (MODIFIED)
4	SPANWIRE ASSEMBLY W/TETHER, POLES(30'), & FDN.
1	8' SIGNAL POLE, BASE, & FDN.
2	4' POLE, BASE, & FDN.
12	1 WAY 3 SECTION SIGNAL HEAD, 12" LENS
2	PEDESTRIAN HOUSING, FIBER OPTIC
3	PEDESTRIAN PUSH BUTTON, SIGN & SADDLES
6	DUAL CHANNEL LOOP DETECTOR AMPLIFIER
19	ROADWAY LOOP DETECTOR
16	12" x 12" PULL BOX
/1\	1. SIGNAL HEAD H REVISED TO 4–LENS
	BI–MODAL FOR OVERLAP PHASE
	Necessary duct, cable, labor, miscellaneous
	material and equipment to complete the installation.

LOOP DETECTOR DATA

DETECTOR NUMBER	NUMBER OF SEGMENTS	LOOP SIZE	NUM. OF TURNS	ø CALLED	ø EXT.	MODE PULSE PRESENCE	DELAY TIME	EXT. TIME
1	2	6'x20'	3	$Ø_1$	$Ø_1$	PRESENCE	–	–
2	1	6'x18'	3	$Ø_6$	$Ø_6$	PULSE	–	–
3	1	6'x18'	3	$Ø_6$	$Ø_6$	PULSE	–	–
4	1	6'x18'	3	$Ø_6$	$Ø_6$	PULSE	–	–
5	2	6'x20'	3	$Ø_5$	$Ø_5$	PRESENCE	–	–
6	1	6'x18'	3	$Ø_2$	$Ø_2$	PULSE	–	–
7	1	6'x18'	3	$Ø_2$	$Ø_2$	PULSE	–	–
8	1	6'x18'	3	$Ø_2$	$Ø_2$	PULSE	–	–
9	1 1	6'X6' 6'X20'	3	$Ø_4$	$Ø_4$	PRESENCE	–	–
10	1 1	6'X6' 6'X20'	3	$Ø_4$	$Ø_4$	PRESENCE	–	–
11	2 1	6'X12' 6'X20'	3	$Ø_8$	$Ø_8$	PRESENCE	–	–
12	1 1	6'X6' 6'X20'	3	$Ø_8$	$Ø_8$	PRESENCE	–	–

SIGNAL IDENTIFICATION



CONCORD
RTE. 2 AT OLD RD TO 9 ACRE CORNER

STATE	SIGNAL ID NO.	REVISION NO.	SHEET NO.	TOTAL SHEETS
MASS	0230	01	3	

TRAFFIC SIGNAL DATA

THIS IS OLD ROAD WHICH IS 0230

NOTES:

SEQUENCE AND TIMING NOTES:

1. FLASHING OPERATION PER M.U.T.C.D. SECTION 4B–18.
2. DW NORMAL DISPLAY W/FDW ON PUSHBUTTON ACTUATION ONLY ø4 & ø8 ARE DUAL ENTRY.

NEMA DUAL RING PHASING NOTES:

1. PHASES ASSOCIATED BY A SOLID LINE SHALL NOT OPERATE CONCURRENTLY.
2. PHASES ASSOCIATED BY A DASHED LINE MAY OPERATE CONCURRENTLY.
3. THROUGH MOVEMENTS MAY INCLUDE RIGHT TURNS.
4. IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT SHALL NOT CHANGE DURING THE CHANGE INTERVAL(S) UNLESS OTHERWISE NOTED.

LOOP DETECTOR NOTES:

1. SEE LOOP DETECTOR DETAIL SHEET FROM DESIGN DOCUMENT FOR SPLICE PATTERN AND OTHER INFORMATION.
2. DELAY AND EXTENSION TIMES ARE IN SECONDS.
3. DELAY TIME SHALL BE EFFECTIVE ONLY DURING THE RED PORTION OF THE PHASE THAT IS CALLED BY THE DETECTOR.

COODINATION DATA NOTES:

1. MAX. 2 IN OPERATION DURING COORDINATION.
2. ø2 & ø6 "CALL NON ACTUATED" DURING COORDINATION.

PREFERENTIAL PHASING SEQUENCE NOTES:

1. IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT WILL NOT CHANGE DURING THE CLEARANCE INTERVAL.
2. THE RIGHT OF WAY MAY BE ASSIGNED TO ANY PHASE, OR ANY COMBINATION OF NON–CONFLICTING PHASES.
3. IF CALLS EXIST ON ALL PHASE, THE ASSIGNMENT OF RIGHT OF WAY SHALL BE IN ACCORDANCE WITH PREFERENTIAL PHASE SEQUENCE.

SIGNAL IDENTIFICATION NOTES:

1. ALL SIGNAL HEADS SHALL HAVE 5" BACKPLATES.

SIGNAL REVISION NOTES:

/1\ SIGNAL HEAD H REVISED TO 4–LENS BI–MODAL FOR OVERLAP PHASE ADDED JUNE 2010.

TIMING LAYOUT REVISED 12/19/10

CONTROLLER MAKE & MODEL:	TCT LMD 8000
UTILITY POLE No.	NET+T 8
METER No.	49 585 905
EMERGENCY PRE–EMPTION (TYPE):	NONE

APPROVED BY:

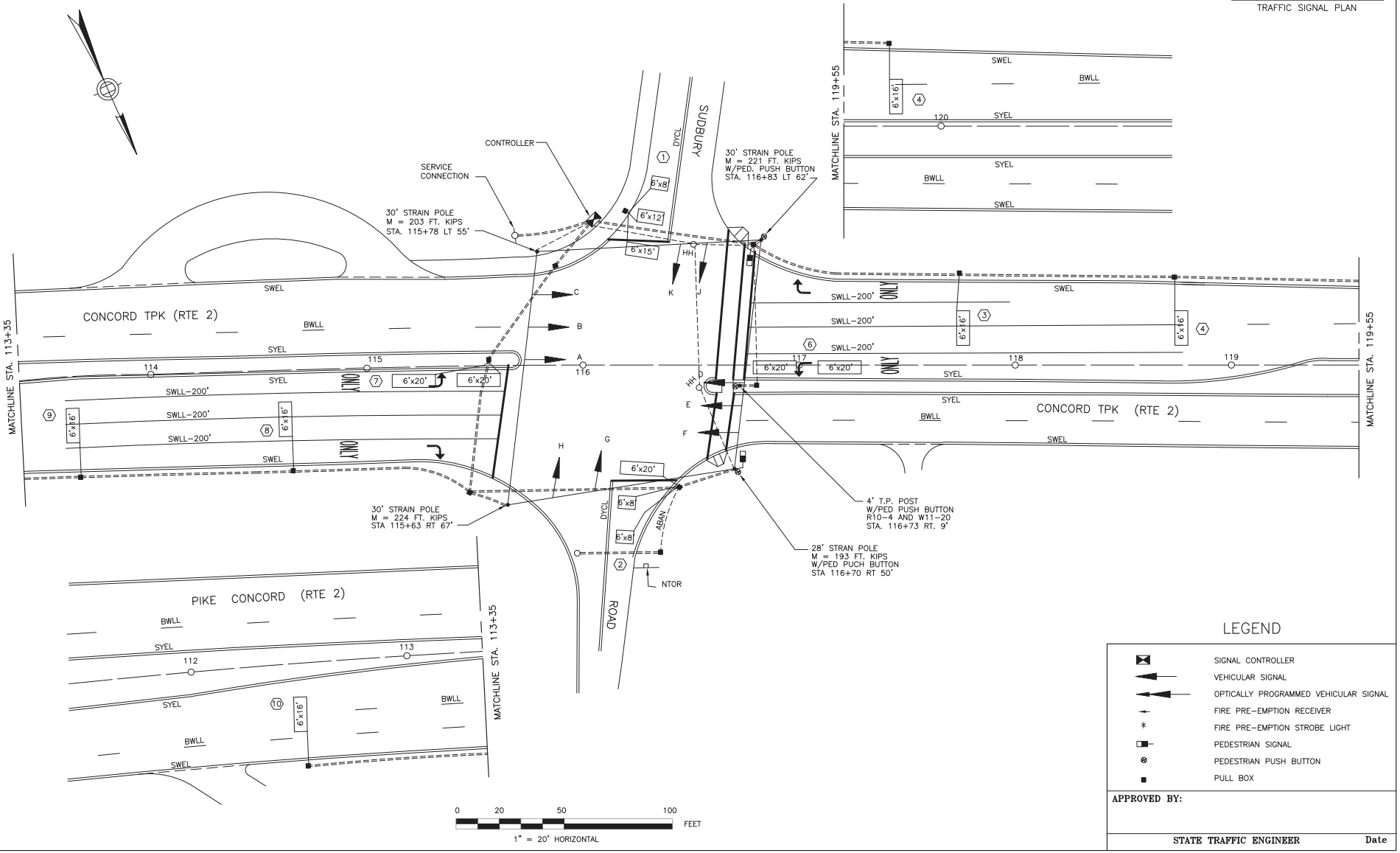
STATE TRAFFIC ENGINEER Date

In Directory as 0230D03

CONCORD
ROUTE 2 AT SUDBURY RD

STATE	SIGNAL ID NO.	REVISION NO.	SHEET NO.	TOTAL SHEETS
MASS	0131	01	2	

TRAFFIC SIGNAL PLAN



0 20 50 100 FEET

1" = 20' HORIZONTAL

LEGEND

- SIGNAL CONTROLLER
- VEHICULAR SIGNAL
- OPTICALLY PROGRAMMED VEHICULAR SIGNAL
- FIRE PRE-EMPTION RECEIVER
- FIRE PRE-EMPTION STROBE LIGHT
- PEDESTRIAN SIGNAL
- PEDESTRIAN PUSH BUTTON
- PULL BOX

APPROVED BY:

STATE TRAFFIC ENGINEER Date

0131P0101.DWG

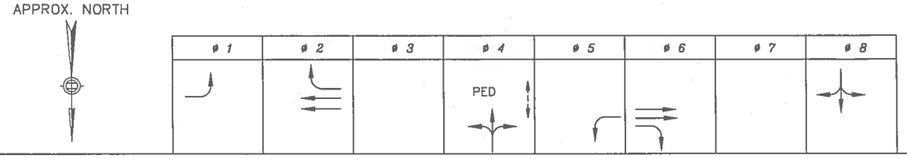
CONCORD
ROUTE 2 AT SUDBURY RD

STATE	SIGNAL ID NO.	REVISION NO.	SHEET NO.	TOTAL SHEETS
MASS	0131	01	3	

TRAFFIC SIGNAL DATA

THIS IS SUDBURY WHICH IS 0131

APPROX. NORTH



SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (COORDINATED)

STREET	DIRECTION	HOUSINGS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	FLASH OPER.
CONCORD TPK (RTE. 2)	EB	A	RL	RL	RL	RL	RL	RL				RL	RL	RL	GL	YL	RL	RL	RL	RL				RL	RL	RL	FRL
CONCORD TPK (RTE. 2)	EB	B	R	R	R	GV	Y	R				R	R	R	R	R	R	R	R	R				R	R	R	FY
CONCORD TPK (RTE. 2)	EB	C	R	R	R	G	Y	R				R	R	R	R	R	R	R	R	R				R	R	R	FY
CONCORD TPK (RTE. 2)	WB	D	GL	YL	RL	RL	RL	RL				RL	RL	RL	RL	RL	RL	RL	RL	RL				RL	RL	RL	FRL
CONCORD TPK (RTE. 2)	WB	E	R	R	R	R	R	R				R	R	R	R	R	R	GV	Y	R				R	R	R	FY
CONCORD TPK (RTE. 2)	WB	F	R	R	R	R	R	R				R	R	R	R	R	R	G	Y	R				R	R	R	FY
SUDBURY RD.	NB	G,H	R	R	R	R	R	R				R	R	R	R	R	R	R	R	R				G	Y	R	FR
SUDBURY RD.	SB	J,K	R	R	R	R	R	R				G	Y	R	R	R	R	R	R	R				R	R	R	FR
PEDESTRIAN	N–S	ALL	DW	DW	DW	DW	DW	DW				W/FDW	DW	DW	DW	DW	DW	DW	DW	DW				DW	DW	DW	OFF

TIMING IN SECONDS

																										EMERGENCY ONLY
MINIMUM GREEN (INITIAL)	6			20						6			6			20						6			
PASSAGE TIME (VEHICLE)	3			2						3			3			2						3			
MAXIMUM 1	20			60						20			15			60						20			
MAXIMUM 2	25	28		60						30			15			60						30			
YELLOW CLEARANCE		4			5						4			4			5							4		
RED CLEARANCE			1			2						1			1			2							1	
WALK (W)										7																
PEDESTRIAN CLEARANCE											18															
RECALL				SOFT														SOFT								
MEMORY	NON–LOCK			NON–LOCK						NON–LOCK			NON–LOCK			NON–LOCK						NON–LOCK			

MAJOR ITEMS REQUIRED

QUANTITY	ITEM
1	CONTROLLER TYPE 8DW, CAB. & FDN.
1	SERVICE CONNECTION OVERHEAD
1	SPANWIRE ASSEMBLY W/TETHER, POLES(30'), & FDN.
1	4' POLE, BASE, & FDN.
10	1 WAY, 3 SECTION SIGNAL HEAD, 12" LENS
2	PEDESTRIAN HOUSING, FIBER OPTIC
3	PEDESTRIAN PUSH BUTTON, SIGN & SADDLES
5	DUAL CHANNEL LOOP DETECTOR AMPLIFIER
16	ROADWAY LOOP DETECTOR
13	12" x 12" PULL BOXES
	Necessary duct, cable, labor, miscellaneous
	material and equipment to complete the installation.

NOTES:

SEQUENCE AND TIMING NOTES:

1. FLASHING OPERATION PER M.U.T.C.D. SECTION 4B–18.
2. DW NORMAL DISPLAY W/FDW UPON PUSHBUTTON ACTUATION ONLY ø4 & ø8 DUAL ENTRY.

NEMA DUAL RING PHASING NOTES.

1. PHASES ASSOCIATED BY A SOLID LINE SHALL NOT OPERATE CONCURRENTLY.
2. PHASES ASSOCIATED BY A DASHED LINE MAY OPERATE CONCURRENTLY.
3. THROUGH MOVEMENTS MAY INCLUDE RIGHT TURNS.
4. IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT SHALL NOT CHANGE DURING THE CHANGE INTERVAL(S) UNLESS OTHERWISE NOTED.

LOOP DETECTOR NOTES:

1. SEE LOOP DETECTOR DETAIL SHEET FROM DESIGN DOCUMENT FOR SPLICE PATTERN AND OTHER INFORMATION.
2. DELAY AND EXTENSION TIMES ARE IN SECONDS
3. DELAY TIME SHALL BE EFFECTIVE ONLY DURING THE RED PORTION OF THE PHASE THAT IS CALLED BY THE DETECTOR.
4. LOOP DETECTORS NOT VISIBLE AT TIME OF SIGNAL INVENTORY.

SIGNAL IDENTIFICATION NOTES:

1. ALL SIGNAL HEADS HAVE 5" BACKPLATES.

PREFERENTIAL PHASE SEQUENCE NOTE:

1. IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS REMAIN IN EFFECT DURING THE NEXT CALLED PHASE. THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT WILL NOT CHANGE DURING THE CLEARANCE INTERVAL.
2. THE RIGHT OF WAY BE ASSIGNED ANY PHASE OR ANY COMBINATION OF NON–CONFLICTING PHASES.
3. IF CAUSE EXIST ON ALL PHASES. THE ASSIGNMENT OF RIGHT OF WAY SHALL BE IN ACCORDANCE WITH THE PREFERENTIAL PHASE SEQUENCE.

COORDINATION DATA NOTES:

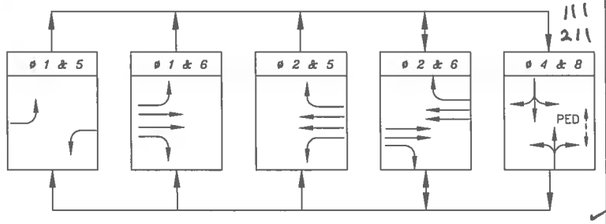
1. MAX. 2 IN OPERATION DURING COORDINATION.
2. ø2 & ø6 "CALL NON–ACTUATED" DURING COORDINATION.

COORDINATION DATA
(ALL ENTRIES IN SECONDS)

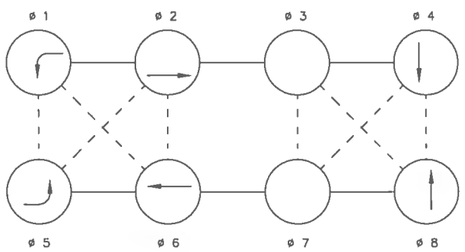
CYCLE	TIME PERIOD	OFFSET	CYCLE LENGTH	YIELD POINT	RELEASE HOLD	GUARANTEED GREEN
CYCLE 1	0630–0930 MON–FRI	62	110			✓
CYCLE 2	1530–1900 MON–FRI	58	120			✓
FULLY ACTUATED	ALL OTHER TIMES					
FLASH						

SPLIT	ø1	ø2	ø3	ø4	ø5	ø6	ø7	ø8
SPLIT 1	16	72		22	16	72		22
SPLIT 2	30	61		29	20	71		29
SPLIT 3	33	58						
SPLIT 4								

PREFERENTIAL PHASING SEQUENCE



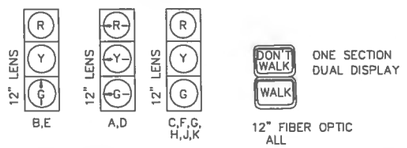
NEMA DUAL RING PHASING NOTES:



LOOP DETECTOR DATA

DETECTOR NUMBER	NUMBER OF SEGMENTS	LOOP SIZE	NUM. OF TURNS	ø CALLED	ø EXT.	MODE PULSE PRESENCE	DELAY TIME	EXT. TIME
1	1 1 1	6'x12' 6'x15' 6'x8'	3	$Ø_8$	$Ø_8$	PRESENCE	–	–
2	1 2	6'x20' 6'x8'	3	$Ø_4$	$Ø_4$	PRESENCE	–	–
3	1	6'x16'	3	$Ø_2$	$Ø_2$	PRESENCE	–	–
4	1	6'x16'	3	$Ø_2$	$Ø_2$	PRESENCE	–	–
5	1	6'x16'	3	$Ø_2$	$Ø_2$	PRESENCE	–	–
6	2	6'X20'	3	$Ø_5$	$Ø_5$	PRESENCE	–	–
7	2	6'X20'	3	$Ø_1$	$Ø_1$	PRESENCE	–	–
8	1	6'x16'	3	$Ø_6$	$Ø_6$	PRESENCE	–	–
9	1	6'x16'	3	$Ø_6$	$Ø_6$	PRESENCE	–	–
10	1	6'x16'	3	$Ø_6$	$Ø_6$	PRESENCE	–	–

SIGNAL IDENTIFICATION



TIMING PLAN REVISED 10/19/10

CONTROLLER MAKE & MODEL:	TCT LMD 8000
UTILITY POLE No.	GMLP 45
METER No.	78 572 316
EMERGENCY PRE–EMPTION (TYPE):	NONE

APPROVED BY:

STATE TRAFFIC ENGINEER **Date**

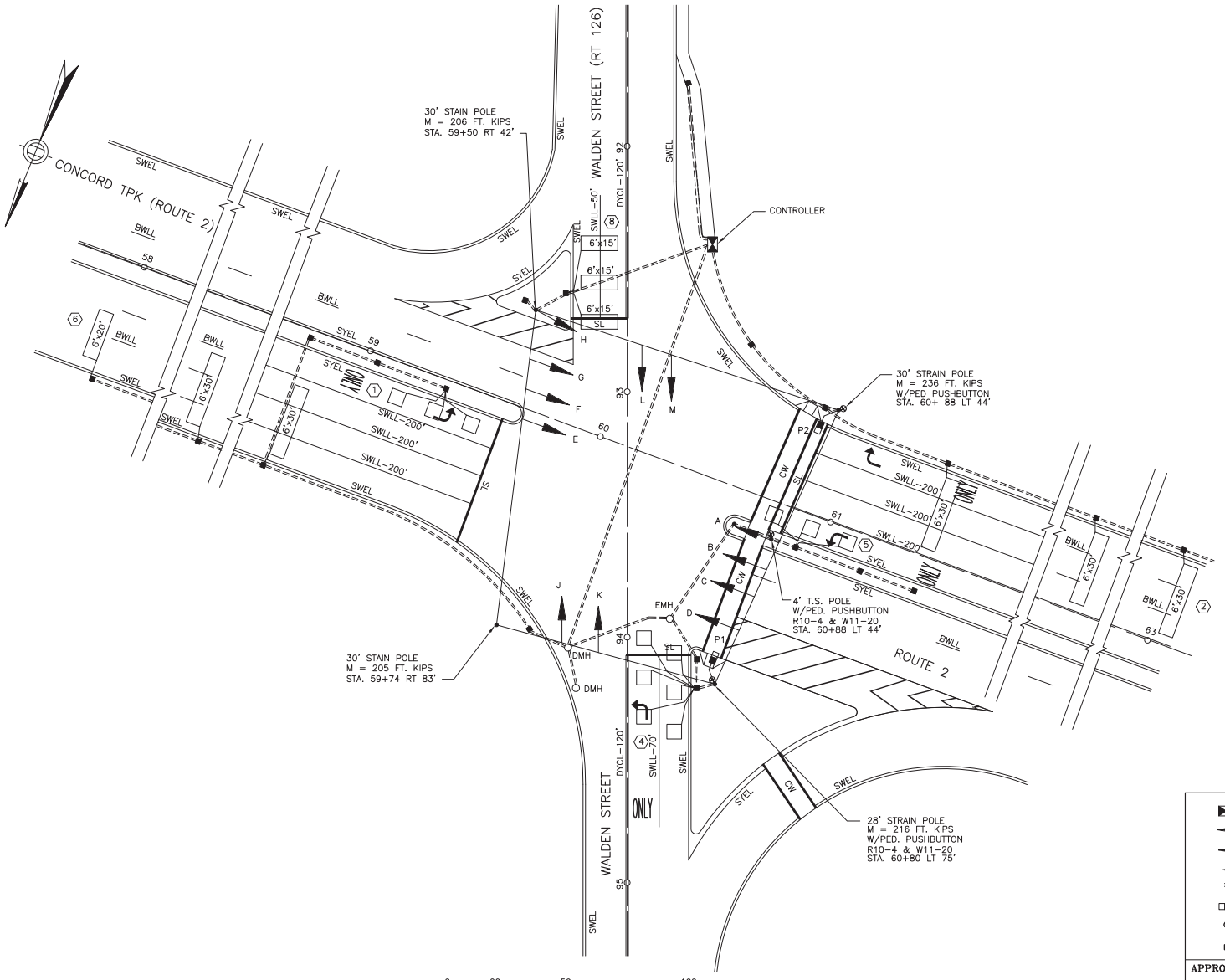
0131D01.DWG

LISTED IN DIRECTORY AS 0130D02.PDF WRONG NAME

CONCORD
RTE. 2 AT WALDEN ST. (RTE. 126)

STATE	SIGNAL ID NO.	REVISION NO.	SHEET NO.	TOTAL SHEETS
MASS	0130	01	2	

TRAFFIC SIGNAL PLAN



0 20 50 100 FEET

1" = 20' HORIZONTAL

LEGEND

- SIGNAL CONTROLLER
- VEHICULAR SIGNAL
- OPTICALLY PROGRAMMED VEHICULAR SIGNAL
- FIRE PRE-EMPTION RECEIVER
- FIRE PRE-EMPTION STROBE LIGHT
- PEDESTRIAN SIGNAL
- PEDESTRIAN PUSH BUTTON
- PULL BOX

APPROVED BY:

STATE TRAFFIC ENGINEER Date

0130P0101.DWG

CONCORD

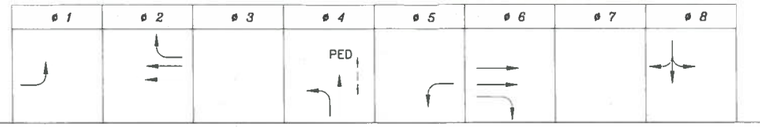
RTE. 2 AT WALDEN ST. (RTE. 126)

STATE	SIGNAL ID NO	REVISION NO	SHEET NO	TOTAL SHEETS
MASS	0130	01	3	

TRAFFIC SIGNAL DATA

THIS IS WALDEN WHICH IS 0130

APPROX. NORTH



SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (COORDINATED)

STREET	DIRECTION	HOUSINGS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	FLASH OPER.
CONCORD TPK (RTE. 2)	WB–LT	A	GL	YL	RL	RL	RL	RL				RL	RL	RL	RL	RL	RL	RL	RL	RL				RL	RL	RL	FRL
CONCORD TPK (RTE. 2)	WB	B,C	R	R	R	R	R	R				R	R	R	R	R	R	GV	Y	R				R	R	R	FY
CONCORD TPK (RTE. 2)	WB	D	R	R	R	R	R	R				R	R	R	R	R	R	G	Y	R				R	R	R	FY
CONCORD TPK (RTE. 2)	EB–LT	E	RL	RL	RL	RL	RL	RL				RL	RL	RL	GL	YL	RL	RL	RL	RL				RL	RL	RL	FRL
CONCORD TPK (RTE. 2)	EB	F,G	R	R	R	GV	Y	R				R	R	R	R	R	R	R	R	R				R	R	R	FY
CONCORD TPK (RTE. 2)	EB	H	R	R	R	G	Y	R				R	R	R	R	R	R	R	R	R				R	R	R	FY
WALDEN ST (ROUTE 126)	NB	J,K	R	R	R	R	R	R				R	R	R	R	R	R	R	R	R				G	Y	R	FR
WALDEN ST.	SB	L,M	R	R	R	R	R	R				G	Y	R	R	R	R	R	R	R				R	R	R	FR
PEDESTRIAN	N–S	ALL	DW	DW	DW	DW	DW	DW				W/FDW	DW	DW	DW	DW	DW	DW	DW	DW				DW	DW	DW	OFF
MINIMUM GREEN (INITIAL)			6			20						6			6			20						6			EMERGENCY OVLP
PASSAGE TIME (VECHICLE)			3			2						3			3			2						3			
MAXIMUM 1			15			86	70					20	15		15			86	70					20	18		
MAXIMUM 2			15			90	100					20			15			90	100					18	20		
YELLOW CLEARANCE				4			4						4			4			4						4		
RED CLEARANCE					1			2						1			1			2							1	
WALK (W)								1				6															
PEDESTRIAN CLEARANCE													18														
RECALL				NONE			EXT						NONE			NONE			EXT						NONE		
MEMORY				NON–LOCKING			LOCKING						NON–LOCKING			NON–LOCKING			LOCKING						NON–LOCKING		

MAJOR ITEMS REQUIRED

QUANTITY	ITEM
1	CONTROLLER TYPE BDW, CAB. & FDN.
1	SERVICE CONNECTION OVERHEAD
4	SPANWIRE ASSEMBLY W/TETHER, POLES, & FDN.
1	4' POLE, BASE, & FDN.
12	1 WAY 3 SECTION SIGNAL HEAD, 12" LENS
2	PEDESTRIAN HOUSING, FIBER OPTIC
3	PEDESTRIAN PUSH BUTTON, SIGN & SADDLES
5	DUAL CHANNEL LOOP DETECTOR AMPLIFIER
18	ROADWAY LOOP DETECTOR
20	12" x 12" PULL BOX
	Necessary duct, cable, labor, miscellaneous
	material and equipment to complete the installation.

NOTES:

SEQUENCE AND TIMING NOTES:

1. FLASHING OPERATION PER M.U.T.C.D. SECTION 4B–18.

NEMA DUAL RING PHASING NOTES:

1. PHASES ASSOCIATED BY A SOLID LINE SHALL NOT OPERATE CONCURRENTLY.
2. PHASES ASSOCIATED BY A DASHED LINE MAY OPERATE CONCURRENTLY.
3. THROUGH MOVEMENTS MAY INCLUDE RIGHT TURNS.
4. IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT SHALL NOT CHANGE DURING THE CHANGE INTERVAL(S) UNLESS OTHERWISE NOTED.

LOOP DETECTOR NOTES:

1. SEE LOOP DETECTOR DETAIL SHEET FROM DESIGN DOCUMENT FOR SPLICE PATTERN AND OTHER INFORMATION.
2. DELAY AND EXTENSION TIMES ARE IN SECONDS.
3. DELAY TIME SHALL BE EFFECTIVE ONLY DURING THE RED PORTION OF THE PHASE THAT IS CALLED BY THE DETECTOR.

PREFERENTIAL PHASE SEQUENCE NOTE:

1. IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT WILL NOT CHANGE DURING THE CLEARANCE INTERVAL.
2. THE RIGHT OF WAY MAY BE ASSIGNED TO ANY PHASE, OR ANY COMBINATION OF NON–CONFLICTING PHASES.
3. IF CALLS EXIST ON ALL PHASES, THE ASSIGNMENT OF RIGHT OF WAY SHALL BE IN ACCORDANCE WITH THE PREFERENTIAL PHASE SEQUENCE.

SIGNAL IDENTIFICATION DATA NOTES:

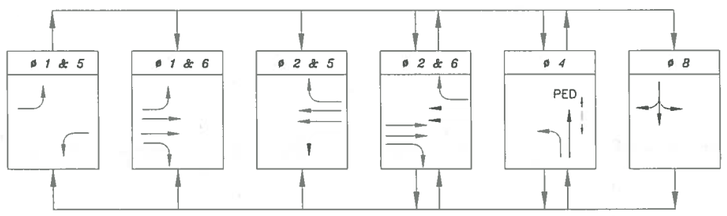
1. ALL SIGNAL HEADS SHALL HAVE 5' BACKPLATES.

M–F 15:00 – 19:00
PHASE FUNCTION #1
ON PHASES 1, 2, 6, 8
EQUALS MAX 2

LOOP DETECTOR DATA

DETECTOR NUMBER	NUMBER OF SEGMENTS	LOOP SIZE	NUM. OF TURNS	ø CALLED	ø EXT.	MODE PULSE PRESENCE	DELAY TIME	EXT. TIME
1	3	6'x6'	3	ø1	ø1	PRESENCE	–	–
2	3	6'x30'	3	ø2	ø2	PRESENCE	–	–
3	6	6'x6'	3	ø4	ø4	PRESENCE	–	–
4						PRESENCE	–	–
5	3	6'x6'	3	ø5	ø5	PRESENCE	–	–
6	2 3	6'x30' 6'x20'	3	ø6	ø6	PRESENCE	–	–
7						PRESENCE	–	–
8	3	6'x15'	3	ø8	ø8	PRESENCE	–	–

PREFERENTIAL PHASING SEQUENCE

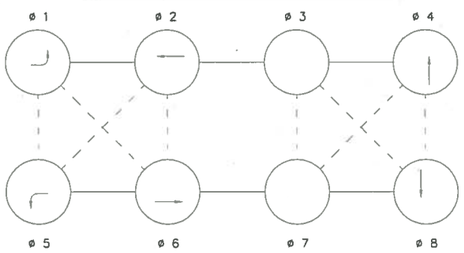


COORDINATION DATA
(ALL ENTRIES IN SECONDS)

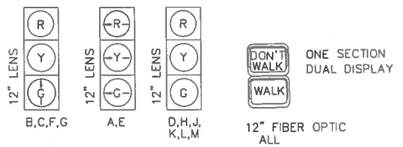
CYCLE	TIME PERIOD	OFFSET	CYCLE LENGTH
CYCLE 1	0630–0930 MON–FRI	165	120
CYCLE 2	1530–1900 MON–FRI	125	52
FULLY ACTUATED	ALL TIMES		
FLASH			

SPLIT	ø1	ø2	ø3	ø4	ø5	ø6	ø7	ø8
SPLIT 1	160			118	160			142
SPLIT 2	55			40	50			
SPLIT 3								
SPLIT 4								

NEMA DUAL RING PHASING NOTES:



SIGNAL IDENTIFICATION



CONTROLLER MAKE & MODEL:	TCT LMD 8000
UTILITY POLE No.	58 CMLP
METER No.	65 404 742
EMERGENCY PRE–EMPTION (TYPE):	NONE

APPROVED BY:

STATE TRAFFIC ENGINEER **Date**

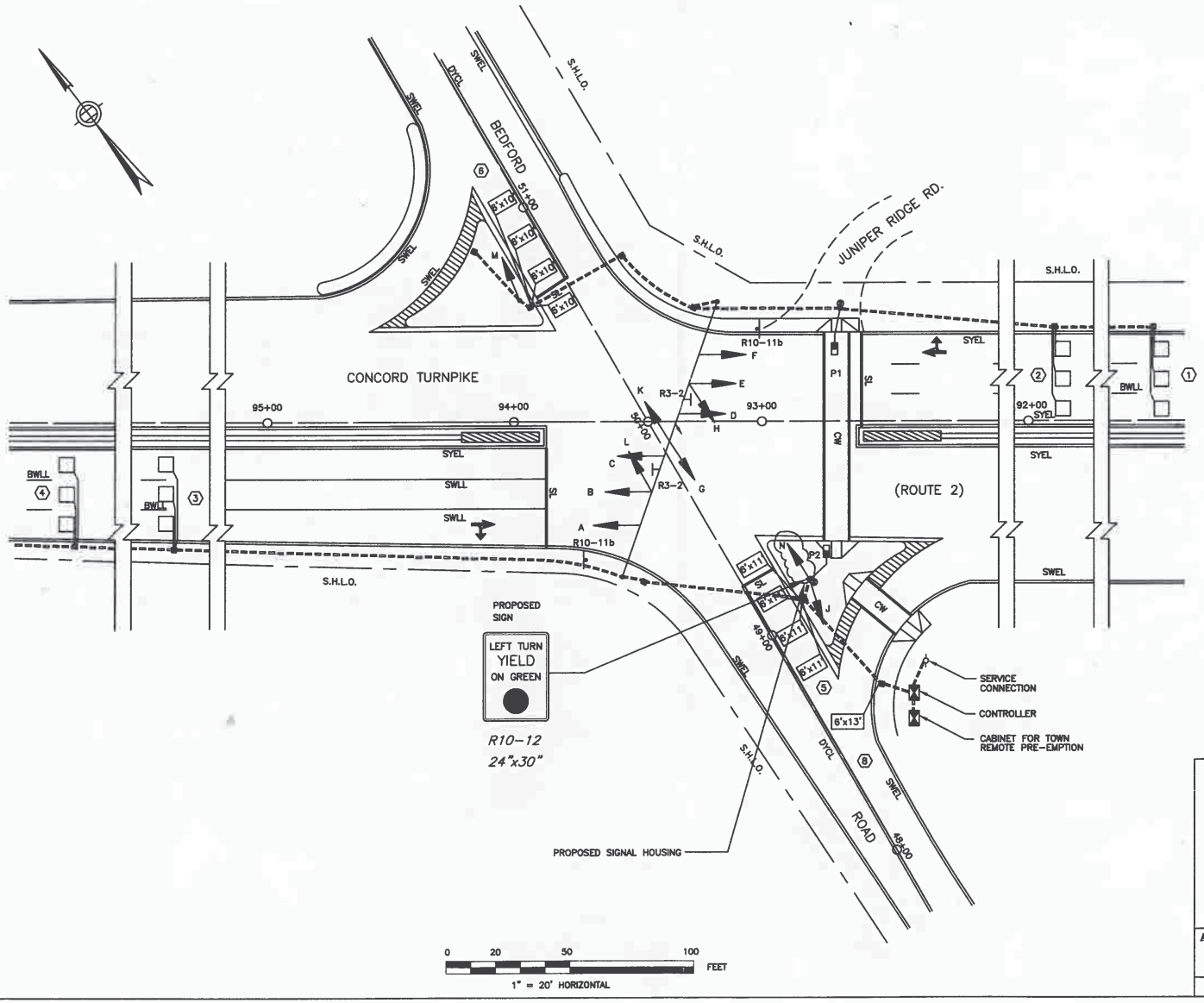
0130001.DWG

LISTED AS 013001 IN DIRECTORY

LINCOLN
RTE. 2 AT BEDFORD ST.

STATE	SIGNAL ID NO.	REVISION NO.	SHEET NO.	TOTAL SHEETS
MASS	0175	01	2	

TRAFFIC SIGNAL PLAN



LEGEND

- SIGNAL CONTROLLER
- VEHICULAR SIGNAL
- OPTICALLY PROGRAMMED VEHICULAR SIGNAL
- FIRE PRE-EMPTION RECEIVER
- FIRE PRE-EMPTION STROBE LIGHT
- PEDESTRIAN SIGNAL
- PEDESTRIAN PUSH BUTTON
- PULL BOX

APPROVED BY:

STATE TRAFFIC ENGINEER Date

0175P0101.DWG

LINCOLN
RTE. 2 AT BEDFORD ST.

STATE	SIGNAL ID NO.	REVISION NO.	SHEET NO.	TOTAL SHEETS
MASS	0175	03	3	

TRAFFIC SIGNAL DATA

THIS IS BEDFORD ST WHICH IS 0175

APPROX. NORTH

SB SBLT SB NB

ø1	ø2	ø3 **	ø4	ø5	ø6	ø7	ø8	PED	PRE-EMPTION
								PED	

SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (ISOLATED)

STREET	DIRECTION	HOUSINGS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	FLASH CODE
RTE. 2	EB	A,B				R	R	R				R	R	R					G	Y	R			R	R	R	R	R	R	R	R	R	FY
RTE. 2	EB	C				R	R	R				R	R	R					GV	Y	R			R	R	R	R	R	R	R	R	R	FY
RTE. 2	WB	D				GV	Y	R				R	R	R					R	R	R			R	R	R	R	R	R	R	R	R	FY
RTE. 2	WB	E,F				G	Y	R				R	R	R					R	R	R			R	R	R	R	R	R	R	R	R	FY
BEDFORD ST.	NB	G,H,J				R	R	R				R	R	R					R	R	R			G	Y	R	R	R	R	G	Y	R	FR
BEDFORD ST.	SB	K,L,M				R	R	R	G	Y	R	G	Y	R					R	R	R			R	R	R	R	R	R	R	R	R	FR
BEDFORD ST.	SB	N				R	R	R	G/YL	YL	R	G/YL	YL	R					R	R	R			G	Y	R	R	R	R	R	R	R	FR
PEDESTRIAN	ALL	ALL				DW	DW	DW				DW	DW	DW					DW	DW	DW			DW	DW	DW	W	FDW	DW	DW	DW	DW	OFF
TIMING IN SECONDS																																	
MINIMUM GREEN (INITIAL)						25			4			4	10						25					5									EMERGENCY ONLY
PASSAGE TIME (VEHICLE)						7			3			2							7					2									
MAXIMUM 1						75			6			6	15						75					15									
MAXIMUM 2						85	90		6			6	15						85	90				15									
YELLOW CLEARANCE							4			4			4							4					4								
RED CLEARANCE								3			3			3							3					3							
WALK (W)																											7						
PEDESTRIAN CLEARANCE																												18	1				
PRE-EMPTION																														*	4	2	
RECALL						ON						OFF							OFF					OFF			OFF						
MEMORY						LOCKING						NON-LOCKING							LOCKING					NON-LOCKING			LOCKING						

75 90 15 15 25 90

MAJOR ITEMS REQUIRED

QUANTITY	ITEM
1	CONTROLLER TYPE 6DW, CAB. & FDN.
1	SERVICE CONNECTION OVERHEAD
1	SPANWIRE ASSEMBLY W/TETHER, POLES, & FDN.
2	10' SIGNAL POLE, BASE, & FDN.
1	8' SIGNAL POLE, BASE, & FDN.
6	1 WAY 3 SECTION SIGNAL HEAD, 12" LENS
3	2 WAY 3 SECTION SIGNAL HEAD, 12" LENS
2	PEDESTRIAN HOUSING, FIBER OPTIC
2	PEDESTRIAN PUSH BUTTON, SIGN & SADDLES
4	DUAL CHANNEL LOOP DETECTOR AMPLIFIER
21	ROADWAY LOOP DETECTOR
1	DUAL OPTICOM RECEIVERS
1	FIRE PRE-EMPTION PHASE SELECTOR
1	ELTEC TIMER
9	12" x 12" PULL BOX
1	PRE-EMPTION CABINET
1	5 SECTION SIGNAL HEAD, 12" LENS
	Necessary duct, cable, labor, miscellaneous material and equipment to complete the installation.

NOTES:

SEQUENCE AND TIMING NOTES:

1. * = VARIES IN RESPONSE TO THE EMERGENCY VEHICLE CALL.
2. ** = IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE. THE SIGNAL INDICATIONS FOR THAT NEXT MOVEMENT WILL NOT CHANGE DURING THE CLEARANCE INTERVAL.
3. MAX. 2 6:30 AM – 9:30 AM ONLY MON–FRI.
4. FLASHING OPERATION PER M.U.T.C.D. SECTION 4B–18.

NEMA DUAL RING PHASING NOTES:

1. PHASES ASSOCIATED BY A SOLID LINE SHALL NOT OPERATE CONCURRENTLY.
2. PHASES ASSOCIATED BY A DASHED LINE MAY OPERATE CONCURRENTLY.
3. THROUGH MOVEMENTS MAY INCLUDE RIGHT TURNS.
4. IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT SHALL NOT CHANGE DURING THE CHANGE INTERVAL(S) UNLESS OTHERWISE NOTED.

LOOP DETECTOR NOTES:

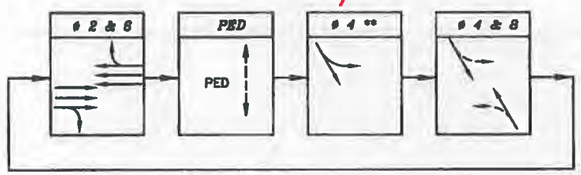
1. SEE LOOP DETECTOR DETAIL SHEET FROM DESIGN DOCUMENT FOR SPLICE PATTERN AND OTHER INFORMATION.
2. DELAY AND EXTENSION TIMES ARE IN SECONDS.
3. DELAY TIME SHALL BE EFFECTIVE ONLY DURING THE RED PORTION OF THE PHASE THAT IS CALLED BY THE DETECTOR.

EMERGENCY PRE–EMPTION DATA NOTE:

1. SEE SEQUENCE AND TIMING CHART FOR VALUES.

PREFERENTIAL PHASING SEQUENCE

ø3

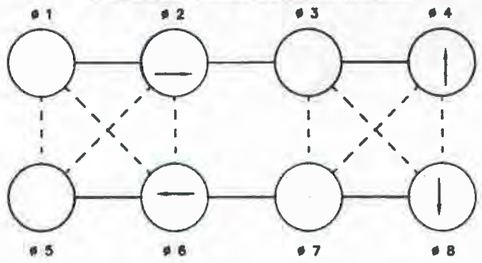


MAX II M-F
06:00 – 09:30
15:30 – 19:00

LOOP DETECTOR DATA

DETECTOR NUMBER	NUMBER OF SEGMENTS	LOOP SIZE	NUM. OF TURNS	ø CALLED	ø EXT.	MODE PULSE PRESENCE	DELAY TIME	EXT. TIME
1	3	6'x6'		ø6	ø6	PRESENCE	–	–
2	3	6'x6'		ø6	ø6	PRESENCE	–	–
3	3	6'x6'		ø2	ø2	PRESENCE	–	–
4	3	6'x6'		ø2	ø2	PRESENCE	–	–
5	4	6'x11'		ø8	ø8	PRESENCE	–	–
6	4	6'x10'		ø4	ø4	PRESENCE	–	–
7		–	–	ø8	ø8	–	–	–
8	1	6'x13'		ø8	ø8	PRESENCE	–	–

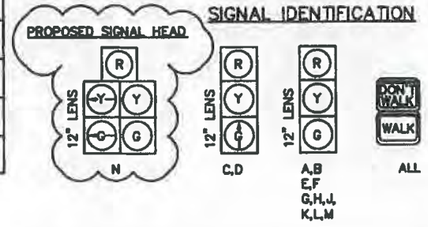
NEMA DUAL RING PHASING NOTES:



EMERGENCY PRE–EMPTION DATA

APPROACH	PHASE	TIME (SEC)
BEDFORD RD. NB	ø8	SEE NOTE

SIGNAL IDENTIFICATION



CONTROLLER MAKE & MODEL: TCT LMD 6000
UTILITY POLE No. NET+T 38
METER No. 75 387 522
EMERGENCY PRE–EMPTION (TYPE): OPTICOM 2 CHANNEL

REVISION NO. 02 DATE: 06/2007
INSERT BY:
FILE NAME: 0175002.DWG

APPROVED BY:

STATE TRAFFIC ENGINEER Date

Appendix C: Crash Rate Worksheets and Collision Diagrams

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Concord COUNT DA 12/13/2012

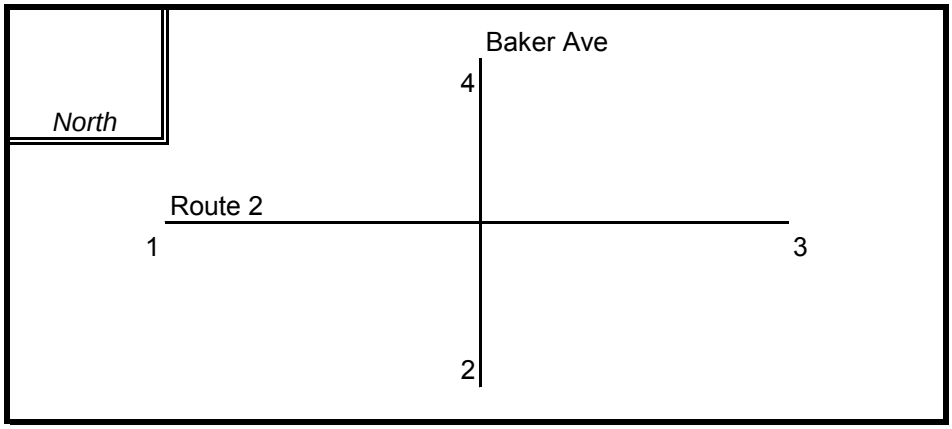
DISTRICT : 4 UNSIGNALIZED : SIGNALIZED : **yes**

~ INTERSECTION DATA ~

MAJOR STREET : Route 2

MINOR STREET(S) : Baker Ave

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	**1**	**2**	**3**	**4**	**5**	**Total Peak Hourly Approach Volume**
DIRECTION :	EB	NB	WB	SB		
PEAK HOURLY VOLUMES (AM/PM) :	1,470	322	1,261	86		**3,139**

" K " FACTOR : **0.090**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **34,878**

TOTAL # OF CRASHES : 49

OF YEARS : 5

AVERAGE # OF CRASHES PER YEAR (**A**) : **9.80**

CRASH RATE CALCULATION : **0.77**

RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments :

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Concord COUNT DA 12/13/2012

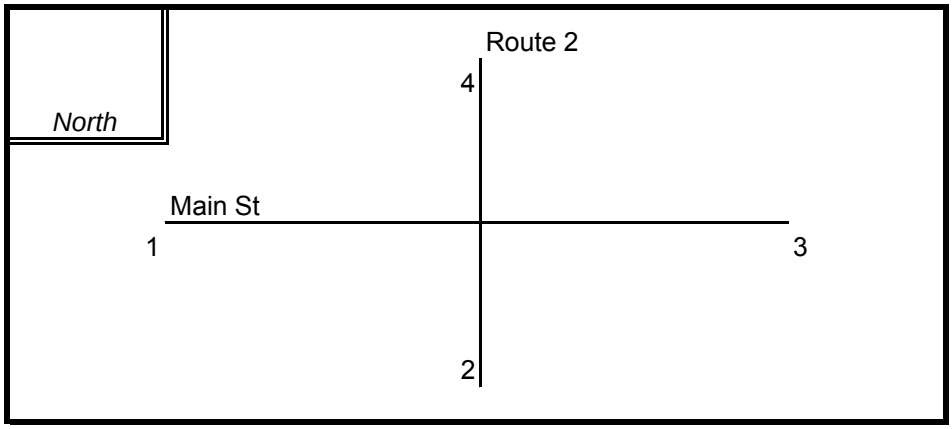
DISTRICT : 4 UNSIGNALIZED : SIGNALIZED : **yes**

~ INTERSECTION DATA ~

MAJOR STREET : Route 2

MINOR STREET(S) : Main Street

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	**1**	**2**	**3**	**4**	**5**	**Total Peak Hourly Approach Volume**
DIRECTION :	EB	NB	WB	SB		
PEAK HOURLY VOLUMES (AM/PM) :	615	1,772	313	1,296		**3,996**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **44,400**

TOTAL # OF CRASHES : 124 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **24.80**

CRASH RATE CALCULATION : **1.53** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments :

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Concord COUNT DA 12/13/2012

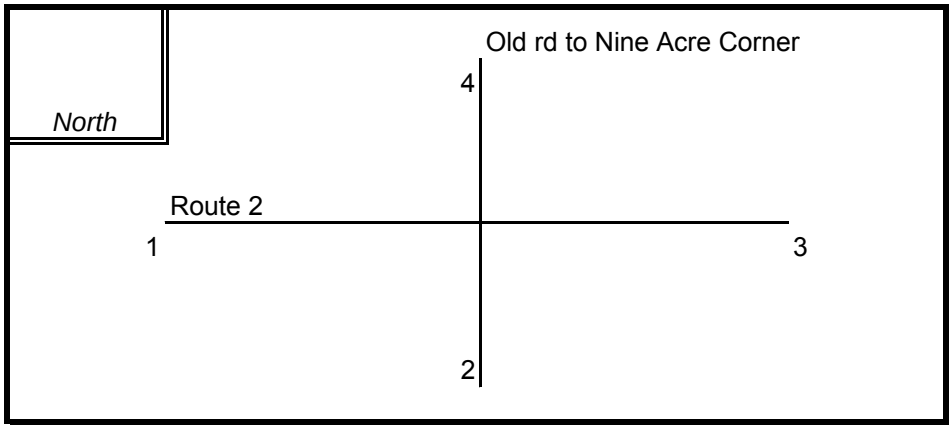
DISTRICT : 4 UNSIGNALIZED : SIGNALIZED : yes

~ INTERSECTION DATA ~

MAJOR STREET : Route 2

MINOR STREET(S) : Old Rd to Nine Acre Corner

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	NB	WB	SB		
PEAK HOURLY VOLUMES (AM/PM) :	1,329	376	1,987	226		3,918

" K " FACTOR : **0.090**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **43,533**

TOTAL # OF CRASHES : 33

OF YEARS : 5

AVERAGE # OF CRASHES PER YEAR (**A**) : **6.60**

CRASH RATE CALCULATION : **0.42**

RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments :

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Concord COUNT DA 12/13/2012

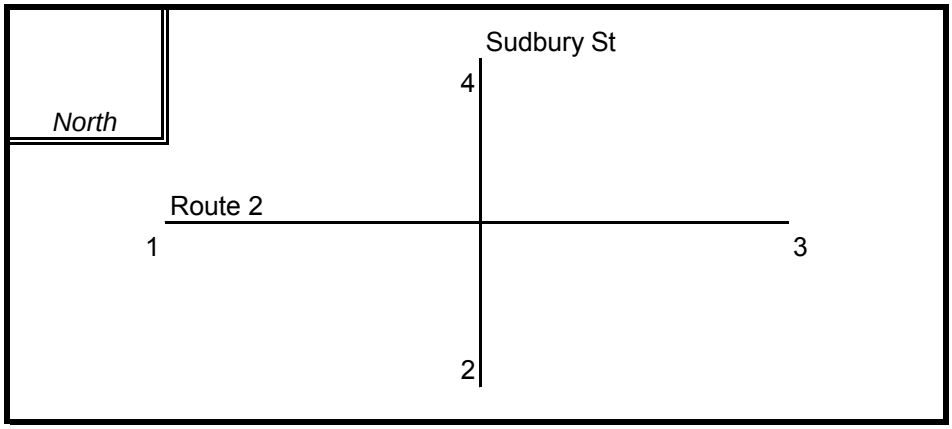
DISTRICT : 4 UNSIGNALIZED : SIGNALIZED : **yes**

~ INTERSECTION DATA ~

MAJOR STREET : Route 2

MINOR STREET(S) : Sudbury St

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	**1**	**2**	**3**	**4**	**5**	**Total Peak Hourly Approach Volume**
DIRECTION :	EB	NB	WB	SB		
PEAK HOURLY VOLUMES (AM/PM) :	1,672	236	2,274	214		**4,396**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **48,844**

TOTAL # OF CRASHES : 54 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **10.80**

CRASH RATE CALCULATION : **0.61** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments :

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Concord COUNT DA 12/13/2012

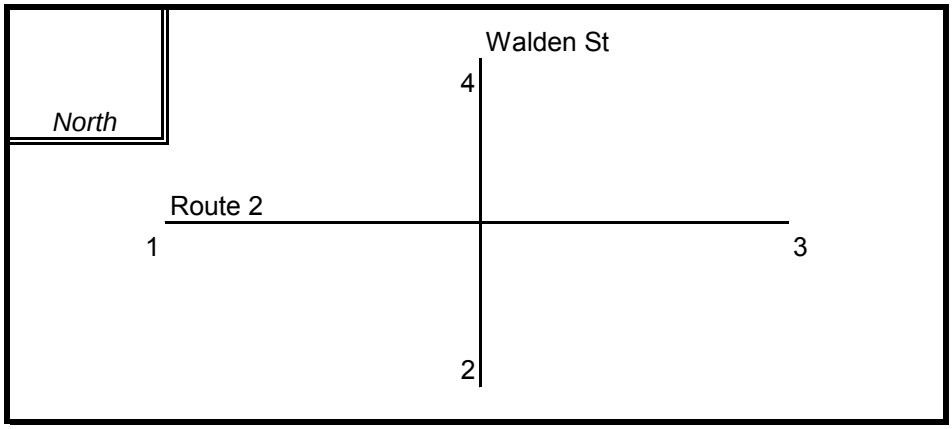
DISTRICT : 4 UNSIGNALIZED : SIGNALIZED : **yes**

~ INTERSECTION DATA ~

MAJOR STREET : Route 2

MINOR STREET(S) : Walden St

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	**1**	**2**	**3**	**4**	**5**	**Total Peak Hourly Approach Volume**
DIRECTION :	EB	NB	WB	SB		
PEAK HOURLY VOLUMES (AM/PM) :	1,789	311	2,565	204		**4,869**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **54,100**

TOTAL # OF CRASHES : 90 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **18.00**

CRASH RATE CALCULATION : **0.91** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments :

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Lincoln COUNT DA 12/13/2012

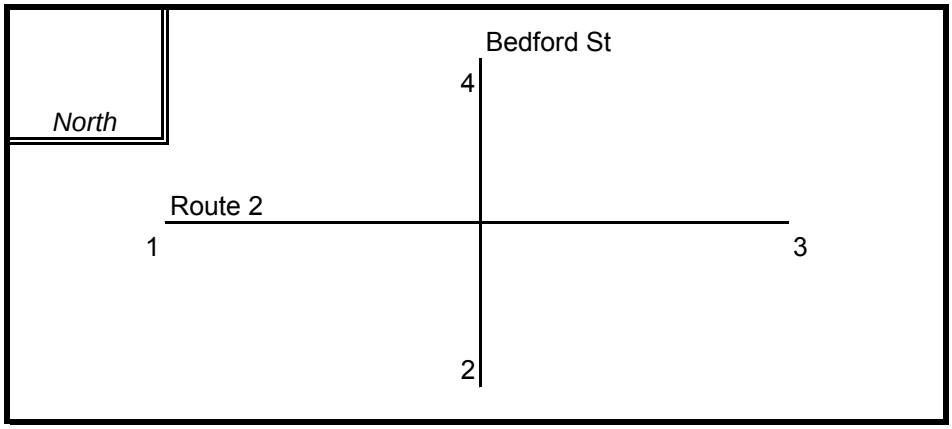
DISTRICT : 4 UNSIGNALIZED : SIGNALIZED : **yes**

~ INTERSECTION DATA ~

MAJOR STREET : Route 2

MINOR STREET(S) : Bedford St

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	**1**	**2**	**3**	**4**	**5**	**Total Peak Hourly Approach Volume**
DIRECTION :	EB	NB	WB	SB		
PEAK HOURLY VOLUMES (AM/PM) :	1,732	233	2,506	523		**4,994**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **55,489**

TOTAL # OF CRASHES : 86 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **17.20**

CRASH RATE CALCULATION : **0.85** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments :

Project Title & Date:

COLLISION DIAGRAM

CITY/TOWN : Concord

DATE PREPARED : 3/21/2013

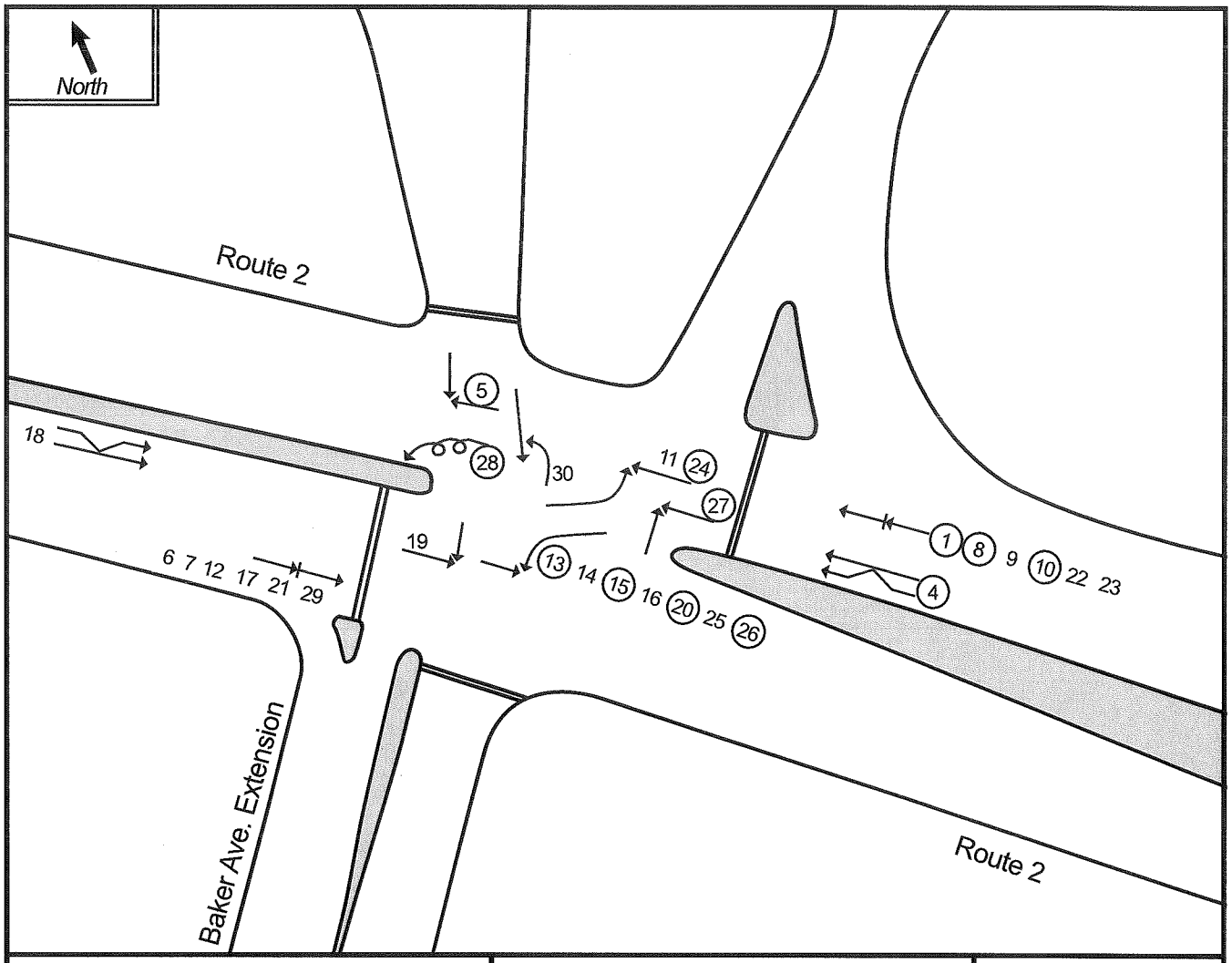
REGION : District 4

PREPARED BY : Seth Asante

ROADWAY NAMES : Route 2 (Concord Turnpike) and Baker Avenue Extension

TIME PERIOD ANALYZED : 2006 – 2010

SOURCE OF CRASH REPORTS : MassDOT Registry of Motor Vehicles



SYMBOLS	TYPES OF CRASH	SEVERITY
Moving Vehicle	Head On	Injury Accident
Backing Vehicle	Angle	
Non-Involved Vehicle	Turning Move	
Pedestiran	Rear End	Fatal Accident
Parked Vehicle	Sideswipe	
Fixed Object	Out of Control	
Bicycle		
Animal		

Crash ID	Crash Number	Crash Date	Crash Time	Crash Severity	Manner Collision	Road Surface	Ambient Light	Weather Condition	non_motori	bk_ped
1	2050563	09-May-2006	1:00:00 PM	Non-fatal injury	Rear-end	Wet	Daylight	Rain		
2	2108671	13-Oct-2006	1:20:00 PM	Fatal injury	Angle	Dry	Daylight	Clear/Clear		
3	2178106	03-Mar-2007	8:43:00 AM	Non-fatal injury	Sideswipe, opposite dir	Wet	Daylight	Clear		
4	2114828	24-Feb-2006	1:05:00 PM	Non-fatal injury	Angle	Dry	Daylight	Clear/Clear		
5	2114913	16-Jul-2006	3:12:00 PM	Non-fatal injury	Angle	Dry	Daylight	Clear/Clear		
6	2211657	14-May-2007	1:42:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Clear		
7	2217530	25-Jul-2007	1:02:00 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear		
8	2256532	31-Oct-2007	12:00:00 AM	Non-fatal injury	Rear-end	Dry	Dark - roadway not lig	Clear		
9	2409067	03-Dec-2008	7:45:00 PM	Property damage only (n	Rear-end	Dry	Dark - lighted roadwa	Cloudy		
10	2489190	10-Jun-2009	5:40:00 PM	Non-fatal injury	Rear-end	Dry	Daylight	Cloudy		
11	2217563	08-Aug-2007	3:50:00 PM	Property damage only (n	Angle	Dry	Daylight	Not Reported		
12	2229132	12-Aug-2007	5:25:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Clear		
13	2241997	24-Aug-2007	12:30:00 PM	Non-fatal injury	Angle	Dry	Daylight	Clear		
14	2262882	29-Nov-2007	9:05:00 AM	Property damage only (n	Angle	Dry	Daylight	Clear		
15	2304764	03-Apr-2008	12:00:00 PM	Non-fatal injury	Angle	Dry	Daylight	Clear		
16	2310243	31-Mar-2008	6:20:00 PM	Property damage only (n	Angle	Dry	Daylight	Clear		
17	2323417	23-Jan-2008	3:26:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Not Reported		
18	2323430	27-Feb-2008	2:47:00 PM	Property damage only (n	Single vehicle crash	Dry	Daylight	Cloudy		
19	2349230	02-May-2008	8:20:00 AM	Property damage only (n	Angle	Dry	Daylight	Clear		
20	2360381	12-Aug-2008	8:57:00 AM	Non-fatal injury	Angle	Dry	Daylight	Clear		
21	2370840	08-Sep-2008	9:05:00 AM	Property damage only (n	Rear-end	Dry	Daylight	Clear		
22	2392220	06-Nov-2008	1:22:00 PM	Property damage only (n	Rear-end	Wet	Daylight	Rain		
23	2416556	31-Dec-2008	5:42:00 PM	Property damage only (n	Rear-end	Snow	Dark - lighted roadwa	Snow		
24	2418948	27-Dec-2008	6:40:00 PM	Non-fatal injury	Angle	Wet	Daylight	Cloudy		
25	2469861	19-May-2009	8:15:00 AM	Non-fatal injury	Head-on	Dry	Daylight	Clear		
26	2628960	27-Jul-2010	3:15:00 PM	Non-fatal injury	Angle	Dry	Daylight	Clear		
27	2656539	13-Oct-2010	12:30:00 PM	Non-fatal injury	Angle	Dry	Daylight	Clear		
28	2652016	10-Oct-2010	1:45:00 AM	Non-fatal injury	Single vehicle crash	Dry	Dark - roadway not lig	Clear		
29	2634766	03-Aug-2010	2:31:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Clear		
30	2653145	12-Oct-2010	8:41:00 AM	Property damage only (n	Angle	Dry	Daylight	Cloudy		
	2014785	01-Feb-2006	10:55:00 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear/Clear		
	2231638	01-Dec-2006	3:00:00 AM	Property damage only (n	Rear-end	Dry	Daylight	Clear		
	2168172	27-Aug-2006	1:50:00 AM	Property damage only (n	Angle	Wet	Daylight	Rain		
	2297987	10-Jul-2007	9:20:00 AM	Property damage only (n	Rear-end	Dry	Daylight	Clear		
	2300351	25-Jun-2007	5:00:00 AM	Property damage only (n	Angle	Dry	Daylight	Clear		
	2221291	21-Aug-2007	4:18:00 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear		
	2460464	24-Jul-2008	8:17:00 AM	Property damage only (n	Rear-end	Wet	Daylight	Rain		
	2355646	04-Aug-2008	11:20:00 AM	Property damage only (n	Rear-end	Dry	Daylight	Clear		

Crash ID	Crash Number	Crash Date	Crash Time	Crash Severity	Manner Collision	Road Surface	Ambient Light	Weather Condition	non_motori	bk_ped
	2513614	18-Aug-2009	9:35:00 AM	Property damage only (n	Sideswipe, opposite dir	Dry	Daylight	Clear		
	2492099	25-Jun-2009	5:12:00 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear		
	2501274	20-Jul-2009	1:52:00 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear		
	2501292	26-Jul-2009	7:01:00 AM	Property damage only (n	Rear-end	Dry	Daylight	Clear		
	2501314	28-Jul-2009	3:10:00 PM	Non-fatal injury	Head-on	Dry	Daylight	Clear		
	2518647	31-Aug-2009	8:55:00 AM	Property damage only (n	Rear-end	Dry	Daylight	Clear		
	2518653	03-Sep-2009	6:10:00 PM	Non-fatal injury	Rear-end	Dry	Dusk	Clear		
	2597611	10-Sep-2009	8:50:00 AM	Property damage only (n	Angle	Dry	Daylight	Clear		
	2537562	17-Nov-2009	4:03:00 PM	Property damage only (n	Angle	Dry	Dusk	Clear		
	2569727	01-Mar-2010	4:25:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Cloudy		
	2576828	15-Mar-2010	10:11:00 AM	Non-fatal injury	Rear-end	Wet	Daylight	Rain		

COLLISION DIAGRAM

CITY/TOWN : Concord

DATE PREPARED : 3/21/2013

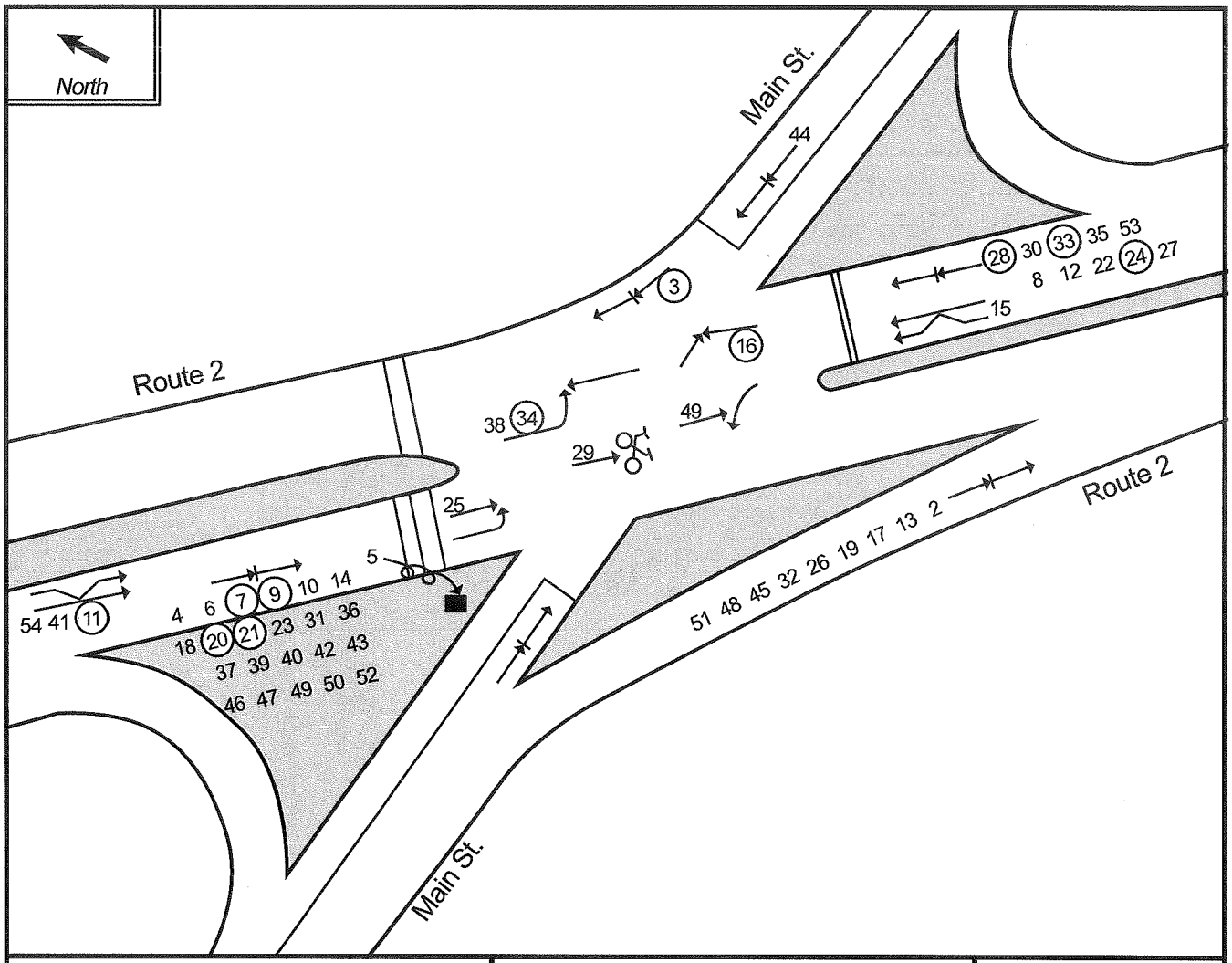
REGION : District 4

PREPARED BY : Seth Asante

ROADWAY NAMES : Route 2 (Concord Turnpike) and Main Street

TIME PERIOD ANALYZED : 2006 – 2010

SOURCE OF CRASH REPORTS : MassDOT Registry of Motor Vehicles



SYMBOLS	TYPES OF CRASH	SEVERITY
Moving Vehicle	Head On	Injury Accident
Backing Vehicle	Angle	
Non-Involved Vehicle	Turning Move	
Pedestiran	Rear End	Fatal Accident
Parked Vehicle	Sideswipe	
Fixed Object	Out of Control	
Bicycle		
Animal		

Crash Diagram ID	Crash Number	Crash Date	Crash Time	Crash Several	Manner Collision	Road Surface	Ambient Light	Weather Condition
1	2014736	12-Feb-2006	12:40:00 PM	Property damage only (nc	Single vehicle crash	Snow	Daylight	Snow/Snow
2	2050572	11-May-2006	11:35:00 AM	Property damage only (nc	Rear-end	Dry	Daylight	Cloudy/Cloudy
3	2050599	20-May-2006	9:30:00 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear/Clear
4	2059900	08-Jun-2006	5:00:00 PM	Property damage only (nc	Rear-end	Wet	Daylight	Rain/Cloudy
5	2059928	12-Jun-2006	9:10:00 PM	Property damage only (nc	Single vehicle crash	Dry	Dark - roadway not lighted	Clear
6	2114767	07-Jun-2006	7:34:00 PM	Property damage only (nc	Rear-end	Wet	Dusk	Rain
7	2115129	08-Sep-2006	9:25:00 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear/Clear
8	2115340	29-Sep-2006	9:50:00 PM	Property damage only (nc	Rear-end	Dry	Dark - lighted roadway	Clear/Clear
9	2115430	20-Oct-2006	4:40:00 PM	Non-fatal injury	Rear-end	Wet	Daylight	Rain/Rain
10	2217512	19-Jul-2007	9:00:00 AM	Property damage only (nc	Rear-end	Dry	Daylight	Clear
11	2310248	13-Apr-2008	11:00:00 AM	Non-fatal injury	Angle	Wet	Daylight	Rain
12	2316360	27-Apr-2008	4:58:00 PM	Property damage only (nc	Rear-end	Dry	Daylight	Clear
13	2323450	14-May-2008	6:10:00 AM	Property damage only (nc	Rear-end	Dry	Dawn	Clear
14	2382602	25-Sep-2008	4:38:00 PM	Property damage only (nc	Rear-end	Dry	Daylight	Clear
15	2242299	28-Mar-2007	12:15:00 PM	Not Reported	Sideswipe, same directio	Dry	Daylight	Clear
16	2242318	14-Apr-2007	1:26:00 PM	Non-fatal injury	Angle	Dry	Daylight	Clear
17	2221964	19-Jun-2007	4:10:00 PM	Property damage only (nc	Rear-end	Dry	Daylight	Clear
17	2470074	18-Mar-2009	3:36:00 PM	Property damage only (nc	Rear-end	Dry	Daylight	Clear
18	2471141	18-May-2009	8:20:00 AM	Property damage only (nc	Rear-end	Dry	Daylight	Not Reported
19	2482383	04-Jun-2009	3:26:00 PM	Property damage only (nc	Rear-end	Dry	Daylight	Clear
20	2228533	21-Aug-2007	9:54:00 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
21	2241211	05-Feb-2007	12:45:00 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear/Clear
22	2261041	03-Dec-2007	11:52:00 AM	Property damage only (nc	Rear-end	Wet	Daylight	Snow
23	2271203	08-Jan-2008	11:15:00 AM	Property damage only (nc	Rear-end	Dry	Daylight	Clear
24	2277196	28-Jan-2008	3:09:00 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
25	2277206	02-Feb-2008	9:00:00 PM	Property damage only (nc	Angle	Dry	Dark - lighted roadway	Clear
26	2311818	16-Apr-2008	4:31:00 PM	Property damage only (nc	Rear-end	Dry	Daylight	Clear
27	2322741	27-Apr-2008	4:58:00 PM	Property damage only (nc	Rear-end	Dry	Daylight	Clear
28	2336365	22-May-2008	9:11:00 AM	Non-fatal injury	Rear-end	Dry	Daylight	Cloudy
29	2353138	30-May-2008	8:26:00 PM	Property damage only (nc	Angle	Dry	Dark - lighted roadway	Clear
30	2353283	25-Jul-2008	2:40:00 PM	Property damage only (nc	Rear-end	Dry	Daylight	Clear
31	2353288	26-Jul-2008	1:29:00 PM	Property damage only (nc	Rear-end	Dry	Daylight	Clear
32	2394844	31-Oct-2008	11:20:00 AM	Property damage only (nc	Rear-end	Dry	Daylight	Clear
33	2398478	04-Nov-2008	9:25:00 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
34	2421910	16-Jan-2009	2:26:00 PM	Non-fatal injury	Angle	Dry	Daylight	Clear
35	2448678	29-Mar-2009	9:52:00 PM	Property damage only (nc	Rear-end	Wet	Dark - lighted roadway	Cloudy/Rain
36	2063236	09-Jan-2006	12:00:00 AM	Non-fatal injury	Rear-end	Dry	Daylight	Cloudy
36	2456831	13-Apr-2009	2:00:00 PM	Property damage only (nc	Rear-end	Dry	Daylight	Clear
37	2135499	18-Jan-2006	5:50:00 AM	Non-fatal injury	Rear-end	Wet	Dark - roadway not lighted	Rain
38	2027114	18-Apr-2006	12:57:00 PM	Property damage only (nc	Angle	Dry	Daylight	Clear

Crash Diagram ID	Crash Number	Crash Date	Crash Time	Crash Several	Manner Collision	Road Surface	Ambient Light	Weather Condition
39	2085987	11-Jun-2006	11:00:00 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
40	2243136	11-Dec-2006	12:40:00 PM	Property damage only (nc	Rear-end	Water (standing, r	Daylight	Rain
41	2125999	13-Dec-2006	5:24:00 PM	Property damage only (nc	Sideswipe, same directio	Wet	Dark - lighted roadway	Rain/Cloudy
42	2085103	06-Sep-2006	7:21:00 AM	Property damage only (nc	Rear-end	Dry	Daylight	Cloudy
43	2620466	25-Jun-2010	9:15:00 AM	Property damage only (nc	Rear-end	Dry	Daylight	Clear
44	2671000	18-Nov-2010	2:23:00 PM	Property damage only (nc	Rear-end	Dry	Daylight	Clear
45	2644629	06-Sep-2010	11:27:00 AM	Property damage only (nc	Rear-end	Dry	Daylight	Clear
46	2638319	30-Aug-2010	8:20:00 AM	Property damage only (nc	Rear-end	Dry	Daylight	Clear
47	2600092	19-May-2010	3:45:00 PM	Property damage only (nc	Rear-end	Wet	Daylight	Rain
48	2576833	04-Mar-2010	7:38:00 AM	Property damage only (nc	Rear-end	Dry	Daylight	Cloudy
49	2639291	14-Aug-2010	2:00:00 PM	Property damage only (nc	Rear-end	Dry	Daylight	Clear
50	2657757	26-Sep-2010	7:30:00 PM	Property damage only (nc	Rear-end	Dry	Dark - lighted roadway	Clear
51	2568344	04-Feb-2010	7:30:00 PM	Property damage only (nc	Rear-end	Dry	Dark - roadway not lighted	Clear
52	2568346	15-Feb-2010	8:05:00 PM	Property damage only (nc	Rear-end	Dry	Dark - lighted roadway	Clear
53	2657957	02-Nov-2010	6:55:00 PM	Property damage only (nc	Rear-end	Dry	Dark - roadway not lighted	Clear
54	2580638	19-Mar-2010	9:24:00 AM	Property damage only (nc	Angle	Dry	Daylight	Clear
	2101796	01-Jan-2006	6:19:00 PM	Non-fatal injury	Sideswipe, same directio	Wet	Dark - roadway not lighted	Clear
	2207833	16-Feb-2006	10:00:00 AM	Non-fatal injury	Rear-end	Wet	Daylight	Cloudy
	2139803	31-Mar-2006	5:30:00 AM	Property damage only (nc	Rear-end	Dry	Dusk	Clear
	2147772	03-May-2006	3:10:00 AM	Property damage only (nc	Sideswipe, same directio	Wet	Daylight	Rain
	2126457	05-Jun-2006	10:00:00 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
	2236212	26-Dec-2006	11:20:00 AM	Property damage only (nc	Rear-end	Wet	Daylight	Cloudy
	2159991	31-Jul-2006	1:22:00 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
	2198697	25-Aug-2006	3:30:00 AM	Non-fatal injury	Head-on	Wet	Daylight	Not Reported
	2169750	03-Sep-2006	3:30:00 AM	Property damage only (nc	Rear-end	Wet	Daylight	Rain
	2229640	29-Sep-2006	6:55:00 AM	Unknown	Rear-end	Dry	Daylight	Cloudy
	2178857	19-Oct-2006	11:40:00 AM	Property damage only (nc	Angle	Dry	Daylight	Clear
	2180587	27-Oct-2006	3:45:00 AM	Property damage only (nc	Single vehicle crash	Dry	Dark - unknown roadway lighti	Clear/Clear
	2172825	06-Nov-2006	11:30:00 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
	2193069	27-Nov-2006	10:00:00 AM	Non-fatal injury	Not reported	Dry	Daylight	Clear
	2342069	26-Jun-2007	7:15:00 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
	2222230	17-Jul-2007	10:10:00 PM	Property damage only (nc	Rear-end	Dry	Dark - lighted roadway	Clear
	2353167	20-Nov-2007	12:00:00 PM	Property damage only (nc	Angle	Wet	Daylight	Snow
	2269963	03-Jan-2007	6:10:00 AM	Non-fatal injury	Rear-end	Dry	Dark - unknown roadway lighti	Clear
	2165046	16-Mar-2007	5:39:00 PM	Property damage only (nc	Rear-end	Snow	Dusk	Snow
	2295474	24-Mar-2007	9:00:00 AM	Non-fatal injury	Not reported	Dry	Daylight	Clear
	2309143	06-Apr-2007	11:30:00 AM	Property damage only (nc	Rear-end	Dry	Daylight	Clear
	2178349	10-Apr-2007	5:09:00 PM	Property damage only (nc	Rear-end	Dry	Daylight	Clear
	2216215	08-Aug-2007	6:52:00 AM	Property damage only (nc	Rear-end	Wet	Daylight	Rain
	2380793	04-Sep-2007	7:10:00 AM	Property damage only (nc	Rear-end	Dry	Daylight	Clear

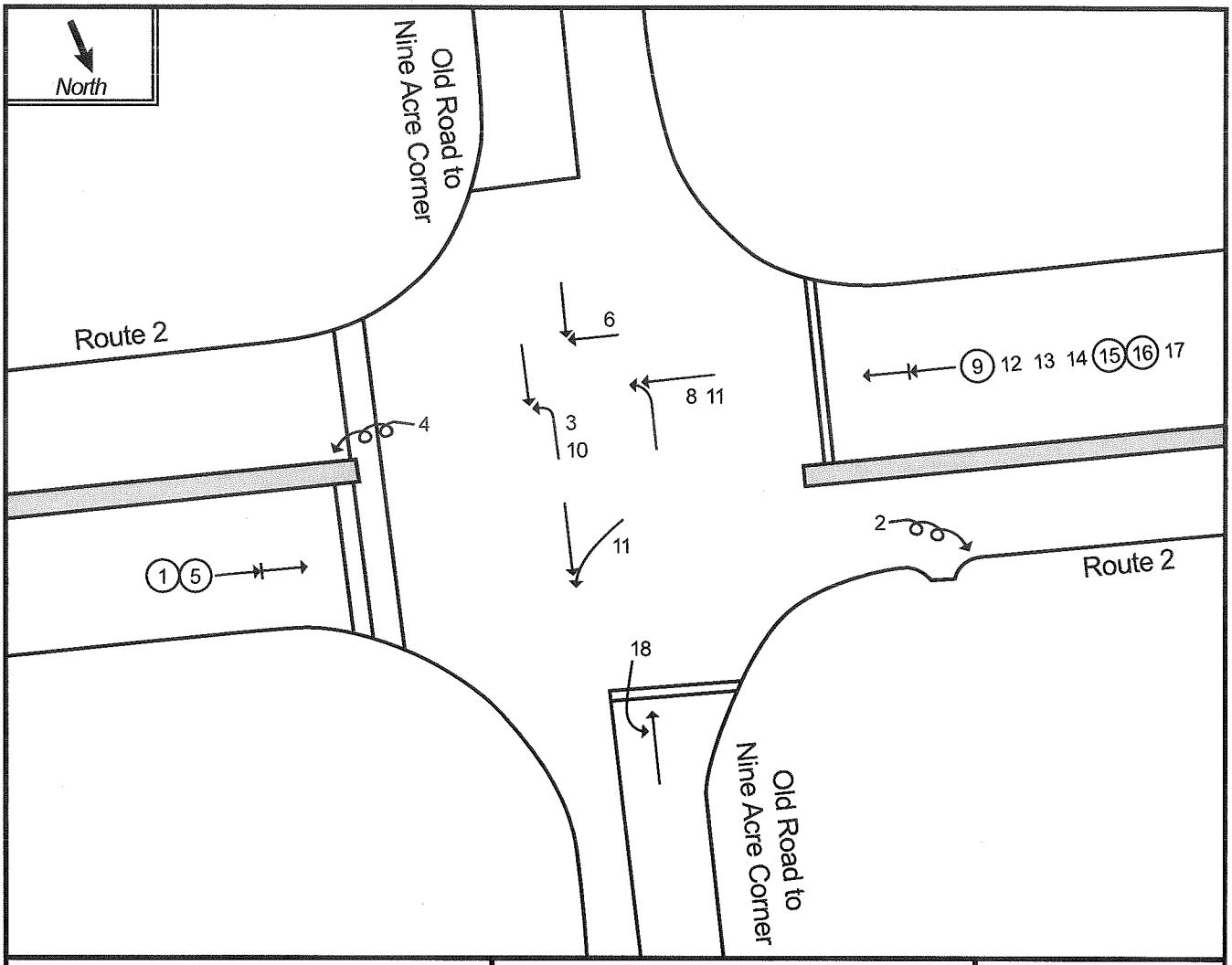
Crash Diagram ID	Crash Number	Crash Date	Crash Time	Crash Several	Manner Collision	Road Surface	Ambient Light	Weather Condition
	2229629	11-Sep-2007	7:06:00 PM	Property damage only (nc	Rear-end	Wet	Dusk	Cloudy/Rain
	2235849	15-Sep-2007	12:45:00 PM	Property damage only (nc	Rear-end	Wet	Daylight	Clear
	2256486	27-Oct-2007	11:55:00 AM	Property damage only (nc	Rear-end	Wet	Daylight	Cloudy/Rain
	2501974	11-Sep-2008	5:30:00 PM	Property damage only (nc	Rear-end	Dry	Daylight	Clear
	2476679	06-Feb-2008	10:30:00 AM	Non-fatal injury	Rear-end	Wet	Daylight	Rain
	2446691	16-Mar-2008	11:30:00 AM	Property damage only (nc	Rear-end	Dry	Daylight	Clear
	2305521	28-Mar-2008	4:45:00 PM	Property damage only (nc	Rear-end	Wet	Daylight	Rain
	2488223	01-Apr-2008	3:20:00 AM	Property damage only (nc	Not reported	Wet	Daylight	Cloudy
	2457763	12-Apr-2008	4:10:00 AM	Property damage only (nc	Rear-end	Wet	Daylight	Rain
	2310249	17-Apr-2008	8:29:00 AM	Property damage only (nc	Rear-end	Dry	Daylight	Clear
	2461051	18-Jul-2008	8:20:00 AM	Property damage only (nc	Sideswipe, same directio	Dry	Daylight	Clear
	2500287	06-Aug-2008	10:00:00 AM	Property damage only (nc	Rear-end	Wet	Daylight	Rain
	2482343	23-Aug-2008	3:30:00 AM	Property damage only (nc	Rear-to-rear	Dry	Daylight	Clear
	2504304	16-Sep-2008	1:30:00 PM	Not Reported	Rear-end	Dry	Daylight	Clear
	2439149	18-Nov-2008	6:30:00 AM	Non-fatal injury	Rear-end	Dry	Dark - lighted roadway	Clear
	2437856	11-Dec-2008	12:00:00 PM	Property damage only (nc	Rear-end	Wet	Daylight	Cloudy
	2554579	23-Feb-2009	10:50:00 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
	2460299	07-Apr-2009	10:31:00 AM	Non-fatal injury	Rear-end	Wet	Daylight	Cloudy/Rain
	2492268	21-Jun-2009	12:30:00 PM	Non-fatal injury	Rear-end	Wet	Daylight	Cloudy/Rain
	2492298	24-Jun-2009	8:10:00 PM	Property damage only (nc	Rear-end	Dry	Daylight	Clear
	2494549	25-Jun-2009	4:50:00 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
	2492142	07-Jul-2009	2:23:00 PM	Property damage only (nc	Single vehicle crash	Wet	Daylight	Rain
	2599615	01-Aug-2009	5:00:00 PM	Property damage only (nc	Angle	Dry	Daylight	Clear
	2579031	16-Sep-2009	7:15:00 AM	Not Reported	Not reported	Dry	Daylight	Clear
	2581136	16-Sep-2009	7:45:00 AM	Property damage only (nc	Sideswipe, same directio	Dry	Dark - unknown roadway lighti	Clear
	2518709	27-Sep-2009	8:55:00 AM	Non-fatal injury	Angle	Wet	Daylight	Rain
	2536546	10-Nov-2009	1:16:00 PM	Non-fatal injury	Sideswipe, same directio	Dry	Daylight	Clear
	2538075	20-Nov-2009	5:10:00 PM	Property damage only (nc	Rear-end	Dry	Dark - roadway not lighted	Clear
	2542690	23-Nov-2009	10:50:00 AM	Non-fatal injury	Angle	Dry	Daylight	Clear
	2543647	25-Nov-2009	9:31:00 AM	Property damage only (nc	Rear-end	Dry	Daylight	Cloudy
	2541483	27-Nov-2009	11:30:00 AM	Property damage only (nc	Angle	Wet	Daylight	Rain
	2547172	10-Dec-2009	6:41:00 AM	Not Reported	Single vehicle crash	Wet	Dawn	Not Reported
	2550355	21-Dec-2009	8:45:00 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
	2550812	21-Dec-2009	9:43:00 AM	Property damage only (nc	Rear-end	Ice	Daylight	Cloudy
	2550810	22-Dec-2009	8:55:00 AM	Property damage only (nc	Rear-end	Ice	Daylight	Cloudy
	2550351	22-Dec-2009	12:59:00 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
	2573562	04-Mar-2010	5:36:00 PM	Property damage only (nc	Rear-end	Wet	Dusk	Cloudy
	2556539	15-Jan-2010	6:45:00 PM	Property damage only (nc	Rear-end	Wet	Dark - roadway not lighted	Cloudy
	2559640	17-Jan-2010	11:33:00 AM	Property damage only (nc	Rear-end	Dry	Daylight	Not Reported
	2592088	17-Apr-2010	1:17:00 AM	Non-fatal injury	Sideswipe, same directio	Wet	Dark - roadway not lighted	Rain

Crash Diagram ID	Crash Number	Crash Date	Crash Time	Crash Several	Manner Collision	Road Surface	Ambient Light	Weather Condition
	2643941	07-Jul-2010	6:18:00 AM	Property damage only (nc	Rear-end	Dry	Daylight	Clear
	2647161	01-Oct-2010	6:40:00 PM	Property damage only (nc	Rear-end	Wet	Dark - roadway not lighted	Rain
	2764352	07-Oct-2010	4:00:00 PM	Property damage only (nc	Rear-end	Dry	Daylight	Clear
	2659137	05-Nov-2010	11:13:00 AM	Property damage only (nc	Angle	Wet	Daylight	Cloudy

MassDOT
Massachusetts Department of Transportation
Highway Division

COLLISION DIAGRAM

CITY/TOWN : Concord
DATE PREPARED : 3/21/2013
REGION : District 4
PREPARED BY : Seth Asante
ROADWAY NAMES : Route 2 (Concord Turnpike) and Old Road to Nine Acre Corner
TIME PERIOD ANALYZED : 2006 - 2010
SOURCE OF CRASH REPORTS : MassDOT Registry of Motor Vehicles



SYMBOLS	TYPES OF CRASH	SEVERITY
Moving Vehicle	Head On	Injury Accident
Backing Vehicle	Angle	
Non-Involved Vehicle	Turning Move	
Pedestiran	Rear End	Fatal Accident
Parked Vehicle	Sideswipe	
Fixed Object	Out of Control	
Bicycle		
Animal		

Crash Diagram ID	Crash Number	Crash Date	Crash Time	Crash Severity	Manner Collision	Road Surface	Ambient Light	Weather Condition	Non Motorist	Bike Ped
1	2050555	05-May-2006	3:30:00 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear/Clear		
2	2459860	02-Mar-2009	12:00:00 AM	Property damage only (n	Single vehicle crash	Snow	Dark - roadway not lighte	Snow		
3	2178181	14-Mar-2007	9:57:00 AM	Property damage only (n	Sideswipe, opposite directi	Dry	Daylight	Clear		
4	2258158	13-Nov-2007	10:38:00 PM	Property damage only (n	Single vehicle crash	Dry	Dark - roadway not lighte	Clear		
5	2266277	12-Dec-2007	4:50:00 PM	Non-fatal injury	Rear-end	Dry	Dusk	Clear		
6	2286018	25-Feb-2008	4:20:00 PM	Property damage only (n	Angle	Dry	Daylight	Clear		
7	2329915	22-May-2008	4:47:00 PM	Non-fatal injury	Angle	Dry	Daylight	Clear		
8	2409203	11-Nov-2008	9:15:00 PM	Property damage only (n	Angle	Dry	Dark - roadway not lighte	Clear		
9	2220488	11-Jul-2007	7:43:00 AM	Property damage only (n	Rear-end	Dry	Daylight	Cloudy		
10	2567140	12-Feb-2010	7:58:00 AM	Property damage only (n	Angle	Dry	Daylight	Clear		
11	2346426	21-May-2007	3:25:00 PM	Property damage only (n	Angle	Dry	Daylight	Clear		
12	2029092	26-Apr-2006	4:11:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Clear		
13	2132205	21-Dec-2006	3:47:00 PM	Property damage only (n	Rear-end	Dry	Dusk	Cloudy		
14	2201778	27-Dec-2006	5:00:00 AM	Property damage only (n	Rear-end	Dry	Dark - lighted roadway	Clear		
15	2344303	23-Jun-2007	3:15:00 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear		
16	2416658	29-Apr-2008	3:45:00 PM	Non-fatal injury	Rear-end	Other	Daylight	Cloudy		
17	2492110	29-May-2009	2:28:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Cloudy		
18	2598255	04-Apr-2010	9:28:00 PM	Property damage only (n	Sideswipe, opposite directi	Dry	Dark - lighted roadway	Clear		
	2007011	07-Mar-2006	1:25:00 PM	Property damage only (n	Angle	Dry	Daylight	Clear		
	2131661	25-Aug-2006	7:15:00 AM	Property damage only (n	Angle	Wet	Daylight	Rain		
	2203244	12-Oct-2006	9:00:00 AM	Not Reported	Angle	Dry	Daylight	Clear		
	2112079	08-Nov-2006	2:51:00 PM	Property damage only (n	Rear-end	Wet	Daylight	Rain		
	2189674	21-Nov-2006	6:45:00 PM	Not Reported	Angle	Dry	Dark - lighted roadway	Clear		
	2312840	01-Mar-2007	6:30:00 AM	Property damage only (n	Rear-end	Dry	Dawn	Clear		
	2261043	05-Dec-2007	7:07:00 AM	Property damage only (n	Single vehicle crash	Dry	Daylight	Clear		
	2423287	18-Apr-2008	1:30:00 AM	Property damage only (n	Single vehicle crash	Dry	Daylight	Clear	P2:Pedestrian	ped
	2459831	22-Feb-2009	10:20:00 AM	Property damage only (n	Rear-end	Dry	Daylight	Clear		
	2532418	27-Oct-2009	11:42:00 AM	Property damage only (n	Angle	Dry	Daylight	Clear		
	2553468	16-Dec-2009	12:00:00 AM	Fatal injury	Single vehicle crash	Dry	Dark - roadway not lighte	Clear	P1:Pedestrian	ped
	2549767	23-Dec-2009	5:14:00 PM	Non-fatal injury	Rear-end	Dry	Dark - lighted roadway	Clear		
	2592074	17-Mar-2010	3:00:00 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear		
	2603209	20-May-2010	9:00:00 AM	Property damage only (n	Rear-end	Dry	Daylight	Clear		
	2670887	24-Oct-2010	4:29:00 AM	Property damage only (n	Single vehicle crash	Dry	Dark - roadway not lighte	Cloudy		

COLLISION DIAGRAM

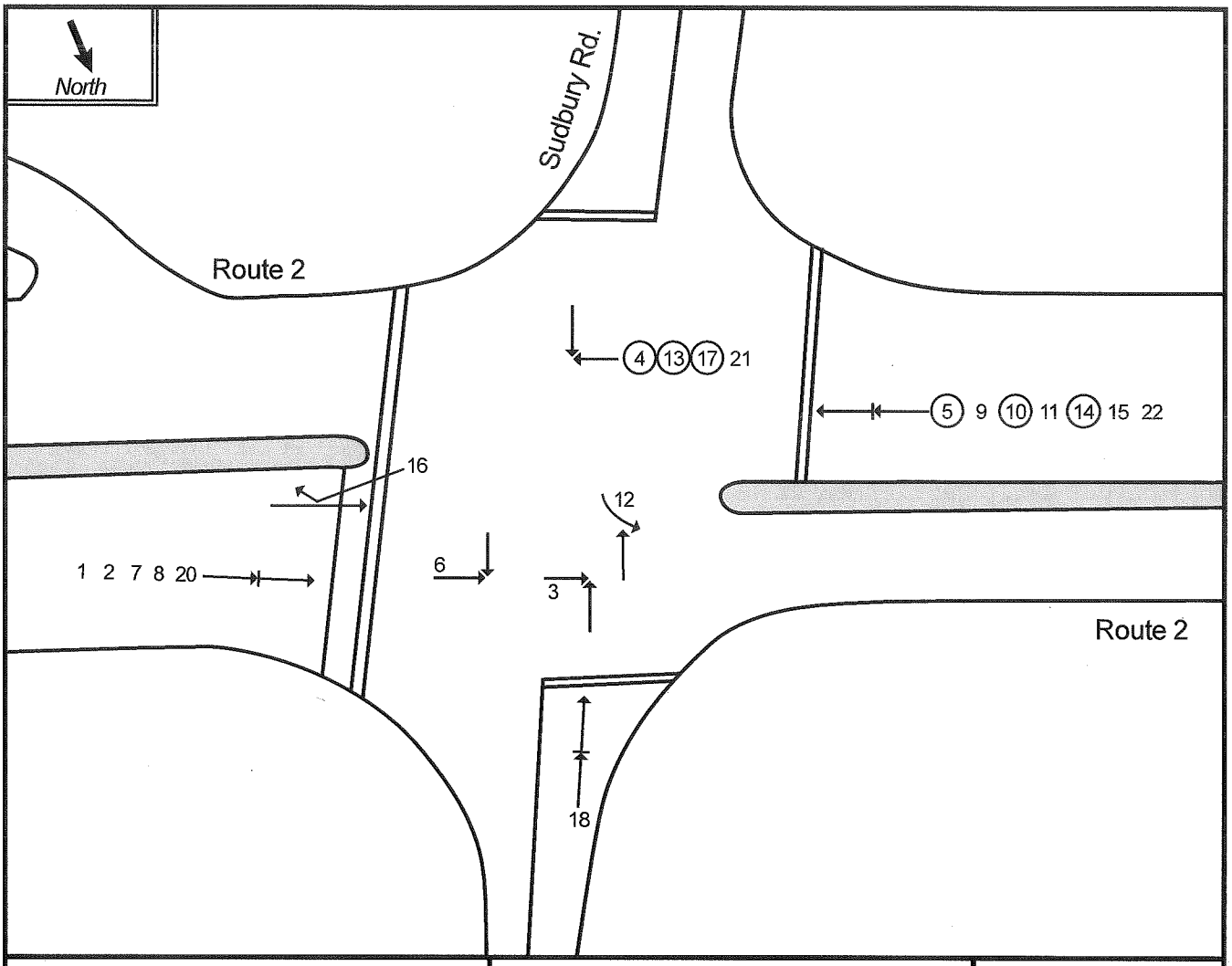
CITY/TOWN: Concord | DATE PREPARED: 3/21/2013

REGION: District 4 | PREPARED BY: Seth Asante

ROADWAY NAMES: Route 2 (Concord Turnpike) and Sudbury Road

TIME PERIOD ANALYZED: 2006 – 2010

SOURCE OF CRASH REPORTS: MassDOT Registry of Motor Vehicles



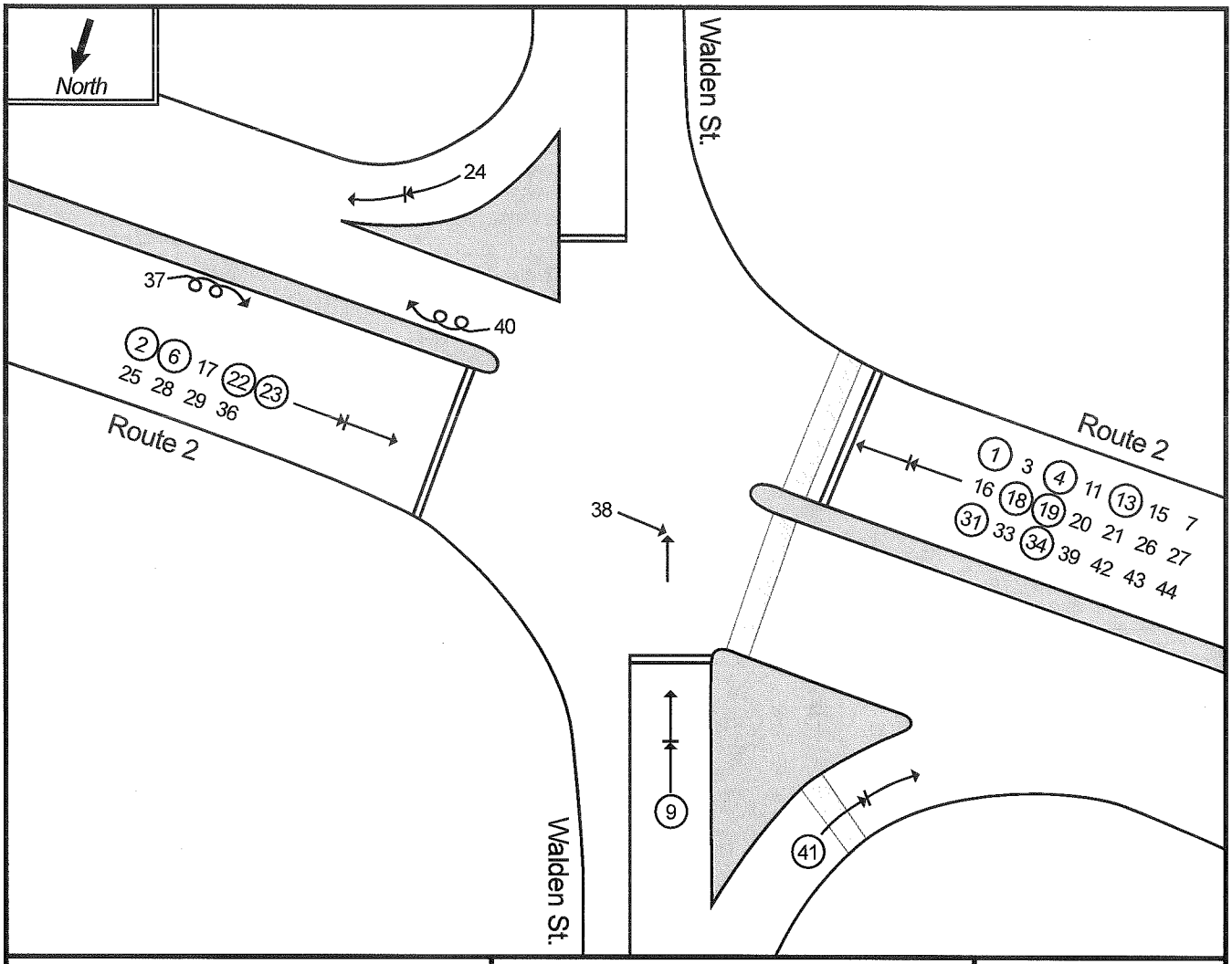
SYMBOLS	TYPES OF CRASH	SEVERITY
Moving Vehicle	Head On	Injury Accident
Backing Vehicle	Angle	
Non-Involved Vehicle	Turning Move	
Pedestiran	Rear End	Fatal Accident
Parked Vehicle	Sideswipe	
Fixed Object	Out of Control	
Bicycle		
Animal		

Crash Diagram ID	Crash Number	Crash Date	Crash_Time	Crash Severity	Manner Collision	Road Surface	Ambient Light	Weather Condition
1	2237102	06-Oct-2007	1:30:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Clear
2	2318277	03-May-2008	1:35:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Not Reported
3	2324467	27-Aug-2007	12:45:00 PM	Property damage only (n	Angle	Dry	Daylight	Clear
4	2327996	17-Aug-2007	7:30:00 AM	Non-fatal injury	Angle	Dry	Daylight	Clear
5	2331218	07-Jun-2008	11:35:00 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
6	2336402	12-Jun-2008	12:14:00 PM	Property damage only (n	Angle	Dry	Daylight	Clear
7	2394817	12-Nov-2008	10:40:00 AM	Property damage only (n	Rear-end	Dry	Daylight	Clear
8	2467855	10-May-2009	3:29:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Not Reported
9	2344364	11-Jul-2008	8:00:00 AM	Property damage only (n	Rear-end	Dry	Daylight	Clear
10	2454076	31-Mar-2009	10:45:00 AM	Non-fatal injury	Rear-end	Dry	Daylight	Not Reported
11	2360726	01-Feb-2008	4:46:00 PM	Property damage only (n	Rear-end	Wet	Dusk	Cloudy/Rain
12	2389721	18-Oct-2008	10:26:00 PM	Property damage only (n	Sideswipe, opposite d	Dry	Dark - roadway not lighted	Clear
13	2608598	20-May-2010	9:50:00 AM	Non-fatal injury	Angle	Dry	Daylight	Clear
14	2590401	07-Apr-2010	11:40:00 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
15	2627125	03-Aug-2010	4:30:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Clear
16	2590392	29-Mar-2010	8:52:00 PM	Property damage only (n	Sideswipe, opposite d	Wet	Daylight	Rain
17	2592087	15-Apr-2010	7:18:00 PM	Non-fatal injury	Head-on	Dry	Dark - roadway not lighted	Clear
18	2598443	11-May-2010	9:23:00 AM	Property damage only (n	Rear-end	Dry	Daylight	Clear
20	2561796	31-Jan-2010	3:05:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Clear
21	2619149	30-Jun-2010	7:41:00 PM	Property damage only (n	Angle	Dry	Dusk	Clear
22	2612111	14-Jun-2010	7:05:00 AM	Property damage only (n	Rear-end	Dry	Daylight	Clear
	2101711	17-Jan-2006	7:20:00 AM	Property damage only (n	Rear-end	Dry	Daylight	Clear
	2050505	02-May-2006	10:12:00 AM	Property damage only (n	Rear-end	Wet	Daylight	Rain/Rain
	2050564	09-May-2006	6:15:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Rain/Cloudy
	2180502	16-Aug-2006	2:30:00 PM	Property damage only (n	Angle	Dry	Daylight	Clear/Clear
	2104838	25-Oct-2006	3:40:00 AM	Property damage only (n	Single vehicle crash	Dry	Dark - roadway not lighted	Clear
	2222566	19-Jul-2007	5:38:00 PM	Non-fatal injury	Single vehicle crash	Wet	Daylight	Rain
	2156012	09-Feb-2007	5:40:00 PM	Property damage only (n	Rear-end	Dry	Dark - lighted roadway	Clear/Clear
	2177810	17-Feb-2007	8:23:00 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
	2321597	21-Mar-2007	8:20:00 AM	Not Reported	Rear-end	Dry	Daylight	Clear
	2179076	11-Apr-2007	12:31:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Clear
	2217526	24-Jul-2007	4:56:00 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
	2235746	03-Sep-2007	3:20:00 PM	Non-fatal injury	Single vehicle crash	Dry	Daylight	Clear
	2387058	23-Sep-2007	4:30:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Clear
	2256432	15-Oct-2007	5:54:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Clear
	2343021	07-Feb-2008	7:34:00 AM	Property damage only (n	Rear-end	Wet	Daylight	Cloudy
	2329942	29-May-2008	4:51:00 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
	2340825	19-Jun-2008	2:22:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Clear
	2513517	24-Jun-2008	6:00:00 AM	Property damage only (n	Not reported	Wet	Daylight	Rain
	2349559	23-Jul-2008	4:32:00 PM	Property damage only (n	Rear-end	Wet	Daylight	Rain
	2357677	10-Aug-2008	9:30:00 PM	Non-fatal injury	Single vehicle crash	Wet	Dark - roadway not lighted	Rain
	2368294	13-Aug-2008	8:01:00 AM	Property damage only (n	Rear-end	Dry	Daylight	Clear
	2495404	02-Dec-2008	10:00:00 AM	Not Reported	Rear-end	Dry	Daylight	Clear

Crash Diagram ID	Crash Number	Crash Date	Crash_Time	Crash Severity	Manner Collision	Road Surface	Ambient Light	Weather Condition
	2480746	29-Dec-2008	4:20:00 PM	Property damage only (n	Rear-end	Dry	Dusk	Cloudy
	2634657	11-Aug-2009	11:45:00 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
	2460051	20-Feb-2009	5:35:00 PM	Property damage only (n	Rear-end	Dry	Dark - roadway not lighted	Not Reported
	2457376	18-Apr-2009	2:05:00 AM	Non-fatal injury	Single vehicle crash	Dry	Dark - roadway not lighted	Clear
	2492158	18-Jun-2009	7:10:00 AM	Property damage only (n	Rear-end	Dry	Daylight	Cloudy
	2643198	25-Jun-2009	4:15:00 AM	Property damage only (n	Rear-end	Dry	Daylight	Clear
	2632795	27-Aug-2009	12:40:00 PM	Unknown	Rear-end	Dry	Daylight	Clear
	2513586	04-Sep-2009	3:22:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Clear
	2523876	26-Sep-2009	4:57:00 PM	Non-fatal injury	Rear-end	Dry	Daylight	Cloudy
	2593213	23-Apr-2010	9:38:00 AM	Property damage only (n	Rear-end	Dry	Daylight	Clear
	2554551	02-Jan-2010	5:43:00 AM	Non-fatal injury	Single vehicle crash	Snow	Dark - roadway not lighted	Snow

COLLISION DIAGRAM

CITY/TOWN : Concord
DATE PREPARED : 3/21/2013
REGION : District 4
PREPARED BY : Seth Asante
ROADWAY NAMES : Route 2 (Concord Turnpike) and Waldon Street
TIME PERIOD ANALYZED : 2006 - 2010
SOURCE OF CRASH REPORTS : MassDOT Registry of Motor Vehicles



SYMBOLS	TYPES OF CRASH	SEVERITY
Moving Vehicle	Head On	Injury Accident
Backing Vehicle	Angle	
Non-Involved Vehicle	Turning Move	Fatal Accident
Pedestiran	Rear End	
Parked Vehicle	Sideswipe	
Fixed Object	Out of Control	
Bicycle		
Animal		

Rte2@WaldenSt

Crash Diagram ID	Crash Number	Crash Date	Crash Time	Crash Severity	Manner Collision	Road Surface	Ambient Light	Weather Condition
1	2014593	07-Mar-2006	4:35 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear/Clear
2	2014796	28-Jan-2006	6:26 AM	Non-fatal injury	Rear-end	Dry	Dawn	Clear/Clear
3	2050633	01-Jun-2006	8:40 AM	Property damage only (r	Rear-end	Dry	Daylight	Clear/Clear
4	2059847	18-Apr-2006	5:00 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
6	2115399	14-Oct-2006	5:25 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear/Clear
7	2155996	07-Feb-2007	3:15 PM	Property damage only (r	Rear-end	Dry	Daylight	Clear/Clear
8	2180586	19-Oct-2006	6:09 AM	Property damage only (r	Angle	Dry	Dawn	Clear/Clear
9	2217524	22-Jul-2007	3:45 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
11	2217537	27-Jul-2007	6:05 PM	Property damage only (r	Rear-end	Dry	Daylight	Clear
13	2220449	30-Jun-2007	2:23 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
14	2254285	14-Apr-2007	5:15 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
15	2256536	01-Nov-2007	10:18 PM	Property damage only (r	Angle	Dry	Dark - roadway not lighted	Clear
16	2266287	17-Dec-2007	6:15 PM	Property damage only (r	Rear-end	Dry	Dark - roadway not lighted	Clear
17	2280802	06-Feb-2008	6:47 AM	Property damage only (r	Rear-end	Wet	Dark - roadway not lighted	Rain
18	2311797	11-Apr-2008	3:35 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
19	2311816	15-Apr-2008	5:43 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
20	2320270	10-May-2008	3:13 PM	Property damage only (r	Rear-end	Dry	Daylight	Clear
21	2332548	17-May-2008	11:38 AM	Property damage only (r	Rear-end	Dry	Daylight	Clear
22	2336515	21-Jun-2008	8:25 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
23	2389693	09-Sep-2008	5:28 PM	Non-fatal injury	Rear-end	Wet	Daylight	Cloudy
24	2392200	03-Nov-2008	10:50 AM	Property damage only (r	Rear-end	Dry	Daylight	Cloudy
25	2421927	23-Jan-2009	7:08 AM	Property damage only (r	Rear-end	Dry	Daylight	Not Reported
26	2471533	30-May-2009	3:49 PM	Property damage only (r	Rear-end	Dry	Daylight	Not Reported
27	2155877	30-Jan-2007	8:58 AM	Property damage only (r	Rear-end	Dry	Daylight	Clear
28	2264265	11-Dec-2007	9:56 AM	Property damage only (r	Rear-end	Dry	Daylight	Clear
29	2304336	22-Mar-2008	9:50 AM	Property damage only (r	Angle	Dry	Daylight	Clear
31	2422630	08-Jan-2009	4:05 PM	Non-fatal injury	Rear-end	Dry	Daylight	Cloudy
33	2459531	05-Feb-2009	6:10 PM	Property damage only (r	Rear-end	Dry	Dark - roadway not lighted	Clear
34	2469039	21-May-2009	3:53 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
36	2427076	13-Jan-2009	9:00 AM	Property damage only (r	Rear-end	Dry	Daylight	Not Reported
37	2285494	19-Feb-2008	6:24 AM	Property damage only (r	Single vehicl	Dry	Dawn	Clear
38	2293659	29-Feb-2008	9:59 AM	Property damage only (r	Angle	Dry	Daylight	Clear
39	2298140	18-Mar-2008	4:40 PM	Non-fatal injury	Rear-end	Dry	Daylight	Cloudy

Rte2@WaldenSt

Crash Diagram ID	Crash Number	Crash Date	Crash Time	Crash Severity	Manner Collision	Road Surface	Ambient Light	Weather Condition
41	2645447	22-Sep-2010	2:20 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
42	2590385	23-Mar-2010	7:15 PM	Property damage only (r	Rear-end	Wet	Dark - roadway not lighted	Rain
43	2609019	13-Jun-2010	3:24 PM	Property damage only (r	Rear-end	Dry	Daylight	Cloudy
44	2610578	18-Jun-2010	6:00 PM	Property damage only (r	Rear-end	Dry	Daylight	Clear
	2073654	28-Jun-2006	1:45 PM	Property damage only (r	Rear-end	Wet	Daylight	Cloudy
	2066953	29-Jun-2006	4:20 PM	Not Reported	Rear-end	Wet	Daylight	Cloudy
	2062281	18-Feb-2006	10:30 AM	Property damage only (r	Rear-end	Dry	Daylight	Clear
	2110872	06-Mar-2006	6:40 PM	Property damage only (r	Rear-end	Dry	Dark - roadway not lighted	Clear
	2099796	21-Apr-2006	3:00 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
	2141610	16-May-2006	5:45 AM	Property damage only (r	Sideswipe, s	Wet	Dawn	Rain
	2042604	31-May-2006	1:59 AM	Property damage only (r	Single vehicl	Dry	Dark - lighted roadway	Clear
	2067093	02-Jun-2006	12:30 PM	Property damage only (r	Rear-end	Wet	Daylight	Cloudy
	2128530	04-Jun-2006	6:15 PM	Property damage only (r	Rear-end	Wet	Daylight	Rain
	2126007	13-Dec-2006	7:57 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
	2064401	13-Jul-2006	7:25 AM	Unknown	Rear-end	Wet	Daylight	Rain
	2103005	14-Jul-2006	6:45 AM	Non-fatal injury	Not reporte	Dry	Daylight	Clear
	2146194	16-Jul-2006	6:00 PM	Property damage only (r	Rear-end	Dry	Dusk	Clear
	2203578	10-Oct-2006	5:25 AM	Property damage only (r	Rear-end	Dry	Daylight	Clear
	2219036	12-Oct-2006	3:30 AM	Property damage only (r	Angle	Dry	Daylight	Clear
	2177051	17-Oct-2006	10:32 AM	Property damage only (r	Rear-end	Dry	Daylight	Cloudy
	2206135	09-Nov-2006	7:20 AM	Property damage only (r	Rear-end	Wet	Daylight	Rain
	2232190	16-Nov-2006	9:25 AM	Property damage only (r	Rear-end	Dry	Daylight	Cloudy
	2124855	25-Jun-2006	10:25 AM	Not Reported	Sideswipe, s	Dry	Daylight	Cloudy
	2358361	27-Jun-2007	12:00 PM	Not Reported	Rear-end	Dry	Daylight	Clear
	2363443	13-Jul-2007	1:30 PM	Property damage only (r	Rear-end	Dry	Daylight	Clear
	2287175	18-Mar-2007	10:00 AM	Property damage only (r	Rear-end	Dry	Dark - unknown roadway lightir	Clear
	2177658	17-Apr-2007	2:01 PM	Property damage only (r	Rear-end	Wet	Daylight	Rain
	2317305	26-Apr-2007	2:45 PM	Property damage only (r	Rear-end	Dry	Daylight	Clear
	2357086	09-May-2007	9:50 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
	2342868	08-Jun-2007	2:40 PM	Property damage only (r	Rear-end	Dry	Daylight	Clear
	2333094	12-Aug-2007	12:30 PM	Property damage only (r	Sideswipe, s	Dry	Daylight	Clear
	2384474	14-Dec-2007	9:00 AM	Unknown	Not reporte	Dry	Not reported	Not Reported
	2318913	27-Dec-2007	12:06 PM	Non-fatal injury	Not reporte	Not report	Not reported	Not Reported

Rte2@WaldenSt

Crash Diagram ID	Crash Number	Crash Date	Crash Time	Crash Severity	Manner Collision	Road Surface	Ambient Light	Weather Condition
	2381010	05-Oct-2008	8:14 AM	Property damage only (r	Single vehicl	Dry	Daylight	Clear
	2524379	26-Jan-2008	1:00 AM	Property damage only (r	Rear-end	Dry	Daylight	Clear
	2483292	07-Feb-2008	2:30 AM	Not Reported	Rear-end	Snow	Daylight	Cloudy
	2417694	16-Mar-2008	12:30 PM	Property damage only (r	Sideswipe, c	Dry	Daylight	Clear
	2507223	25-Mar-2008	3:00 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
	2425893	09-Apr-2008	5:00 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
	2468598	03-May-2008	5:30 AM	Property damage only (r	Rear-end	Dry	Daylight	Clear
	2455677	24-Jul-2008	2:30 PM	Non-fatal injury	Rear-end	Wet	Daylight	Rain
	2513070	28-Jul-2008	4:15 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
	2493305	30-Jul-2008	6:55 PM	Property damage only (r	Rear-end	Dry	Daylight	Clear
	2500791	21-Sep-2008	8:00 AM	Property damage only (r	Sideswipe, s	Wet	Dark - unknown roadway lightir	Rain
	2500476	21-Sep-2008	12:10 PM	Property damage only (r	Sideswipe, s	Dry	Daylight	Clear
	2486289	09-Oct-2008	9:00 AM	Property damage only (r	Sideswipe, s	Dry	Daylight	Clear
	2442732	21-Nov-2008	11:20 AM	Not Reported	Rear-end	Dry	Daylight	Clear
	2490473	26-Nov-2008	3:10 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
	2472590	22-Dec-2008	8:00 AM	Property damage only (r	Single vehicl	Wet	Dawn	Sleet, hail (fre
	2492253	01-Jul-2009	6:47 PM	Property damage only (r	Rear-end	Wet	Daylight	Cloudy
	2573580	20-Sep-2009	2:15 AM	Property damage only (r	Rear-end	Dry	Daylight	Clear
	2518702	23-Sep-2009	7:47 AM	Property damage only (r	Rear-end	Dry	Daylight	Clear
	2657505	28-Sep-2009	4:07 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
	2523887	30-Sep-2009	10:51 AM	Property damage only (r	Rear-end	Dry	Daylight	Clear
	2528193	08-Oct-2009	4:10 PM	Non-fatal injury	Rear-end	Dry	Daylight	Cloudy
	2620477	20-Jul-2010	8:31 PM	Property damage only (r	Rear-end	Dry	Dusk	Clear
	2662892	12-Nov-2010	4:45 PM	Property damage only (r	Single vehicl	Dry	Dusk	Clear

COLLISION DIAGRAM

CITY/TOWN : Lincoln

DATE PREPARED : 3/21/2013

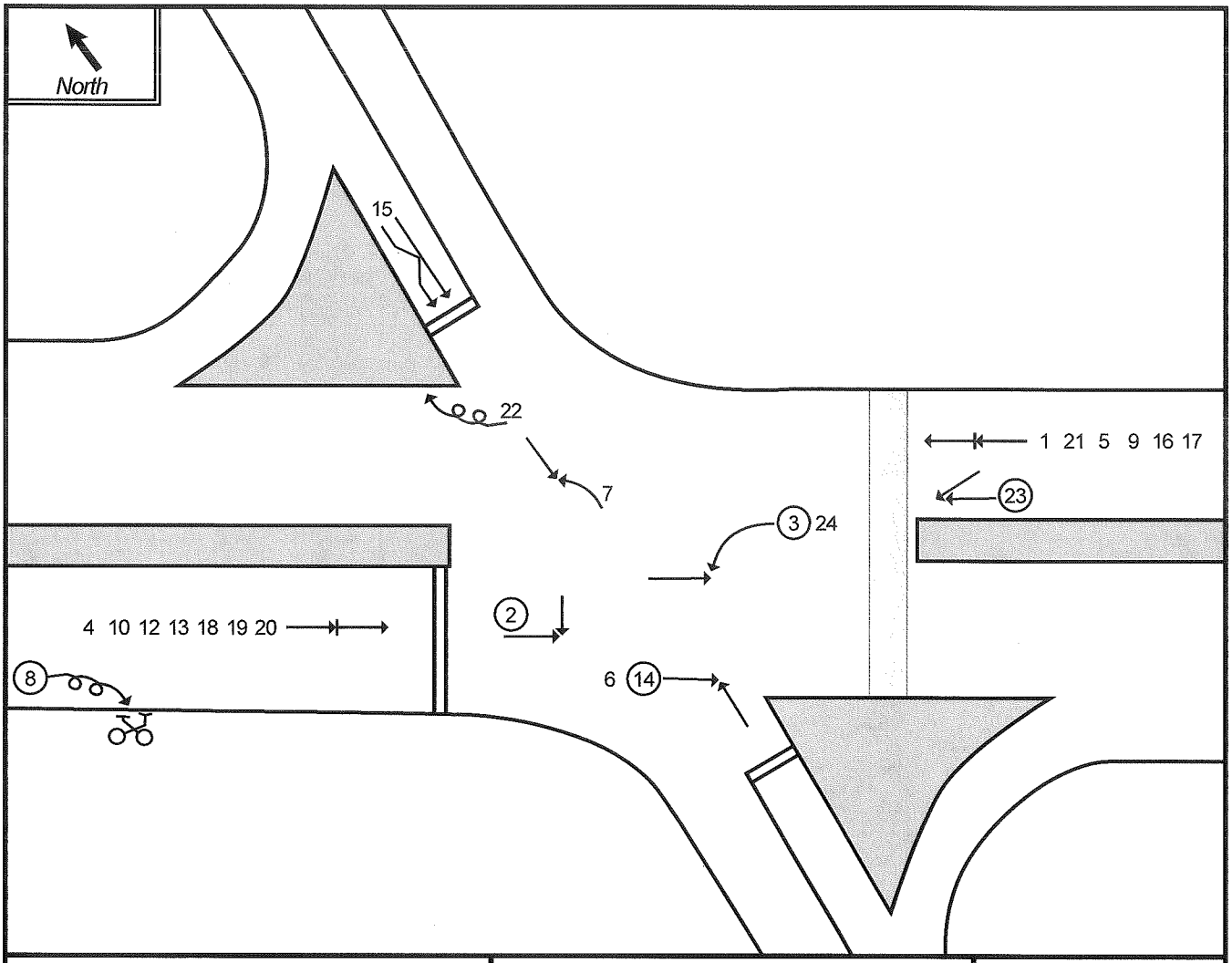
REGION : District 4

PREPARED BY : Seth Asante

ROADWAY NAMES : Route 2 (Cambridge Turnpike) and Bedford Road

TIME PERIOD ANALYZED : 2006 - 2010

SOURCE OF CRASH REPORTS : MassDOT Registry of Motor Vehicles



SYMBOLS	TYPES OF CRASH	SEVERITY
Moving Vehicle	Head On	Injury Accident
Backing Vehicle	Angle	
Non-Involved Vehicle	Turning Move	
Pedestiran	Rear End	Fatal Accident
Parked Vehicle	Sideswipe	
Fixed Object	Out of Control	
Bicycle		
Animal		

Rte2@BedfordRd

Crash Diagram ID	Crash Number	Crash Date	Crash Time	Crash Severity	Manner Collision	Road Surface	Ambient Light	Weather Condition
1	2014702	17-Feb-2006	2:25:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Clear/Clear
2	2050628	31-May-2006	7:40:00 PM	Non-fatal injury	Angle	Dry	Daylight	Clear/Cloudy
3	2087699	13-Jun-2006	2:30:00 PM	Non-fatal injury	Angle	Dry	Daylight	Clear/Clear
4	2114851	01-Mar-2006	12:30:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Clear/Clear
5	2114869	14-Jul-2006	5:51:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Clear/Clear
7	2329938	29-May-2008	4:40:00 PM	Property damage only (n	Angle	Dry	Daylight	Clear
8	2360433	18-Aug-2008	6:15:00 PM	Non-fatal injury	Single vehicle crash	Dry	Daylight	Clear
9	2409212	15-Nov-2008	3:27:00 PM	Property damage only (n	Rear-end	Wet	Daylight	Cloudy
10	2459995	03-Mar-2009	6:30:00 PM	Property damage only (n	Rear-end	Dry	Dark - roadway not lighte	Not Reported
11	2177732	13-Feb-2007	6:51:00 AM	Property damage only (n	Angle	Dry	Daylight	Clear
12	2148141	08-Jan-2007	2:10:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Clear/Clear
13	2239730	05-Apr-2007	11:00:00 PM	Property damage only (n	Angle	Dry	Dark - roadway not lighte	Not Reported
14	2267414	01-Jan-2008	3:03:00 AM	Non-fatal injury	Angle	Dry	Dark - lighted roadway	Not Reported
15	2327999	15-Apr-2008	6:39:00 PM	Property damage only (n	Sideswipe, same direction	Dry	Daylight	Clear
16	2338362	28-Jun-2008	10:42:00 AM	Property damage only (n	Rear-end	Dry	Daylight	Clear
17	2370759	12-Sep-2008	6:31:00 AM	Property damage only (n	Rear-end	Dry	Daylight	Clear
18	2467845	03-May-2009	4:20:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Clear
19	2471536	30-May-2009	4:45:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Clear
20	2197565	30-May-2007	7:05:00 AM	Property damage only (n	Rear-end	Dry	Daylight	Clear
21	2590443	14-Apr-2010	2:35:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Clear
22	2665758	21-Nov-2010	2:42:00 AM	Property damage only (n	Single vehicle crash	Dry	Dark - lighted roadway	Clear
23	2605476	23-May-2010	7:35:00 PM	Non-fatal injury	Angle	Dry	Dusk	Clear
24	2636351	31-Jul-2010	10:15:00 PM	Not Reported	Angle	Dry	Dark - lighted roadway	Clear
	2094564	01-Mar-2006	12:25:00 PM	Not Reported	Rear-end	Dry	Daylight	Clear
	2110734	01-Jul-2006	10:30:00 AM	Non-fatal injury	Angle	Dry	Daylight	Clear
	2061682	18-Jul-2006	5:56:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Clear
	2130920	26-Jul-2006	8:35:00 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
	2074707	17-Aug-2006	12:00:00 PM	Non-fatal injury	Rear-end	Dry	Dark - lighted roadway	Clear/Clear
	2242396	21-Nov-2006	8:20:00 AM	Property damage only (n	Rear-to-rear	Dry	Daylight	Clear
	2275863	04-Jan-2007	8:10:00 AM	Non-fatal injury	Sideswipe, same direction	Dry	Daylight	Cloudy
	2177739	14-Feb-2007	9:48:00 AM	Property damage only (n	Single vehicle crash	Snow	Daylight	Snow
	2177821	19-Feb-2007	8:07:00 AM	Property damage only (n	Sideswipe, same direction	Dry	Daylight	Clear
	2271901	05-Mar-2007	3:05:00 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
	2178120	08-Mar-2007	8:50:00 AM	Property damage only (n	Rear-end	Dry	Daylight	Clear
	2266681	06-Apr-2007	8:30:00 AM	Property damage only (n	Angle	Dry	Daylight	Clear
	2191128	22-May-2007	4:02:00 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
	2221948	05-Jun-2007	5:12:00 AM	Property damage only (n	Rear-end	Dry	Dawn	Clear
	2220315	12-Jun-2007	5:42:00 PM	Property damage only (n	Single vehicle crash	Dry	Daylight	Clear
	2225846	05-Aug-2007	1:19:00 PM	Non-fatal injury	Single vehicle crash	Dry	Daylight	Clear
	2259484	23-Oct-2007	7:48:00 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
	2259490	29-Oct-2007	9:35:00 AM	Property damage only (n	Rear-end	Dry	Daylight	Clear

Rte2@BedfordRd

Crash Diagram ID	Crash Number	Crash Date	Crash Time	Crash Severity	Manner Collision	Road Surface	Ambient Light	Weather Condition
	2256584	06-Nov-2007	8:22:00 AM	Property damage only (n	Rear-end	Wet	Daylight	Rain
	2348550	04-Dec-2007	6:00:00 PM	Property damage only (n	Rear-end	Dry	Dark - roadway not lighte	Clear
	2388388	19-Dec-2007	9:20:00 AM	Property damage only (n	Rear-end	Ice	Daylight	Cloudy
	2309202	28-Dec-2007	8:20:00 AM	Property damage only (n	Not reported	Not reporte	Not reported	Not Reported
	2274549	29-Dec-2007	3:32:00 PM	Property damage only (n	Angle	Wet	Daylight	Cloudy
	2333741	12-Jun-2008	7:10:00 PM	Property damage only (n	Rear-end	Dry	Dusk	Clear
	2334716	15-Jun-2008	1:30:00 PM	Not Reported	Single vehicle crash	Wet	Dark - lighted roadway	Rain
	2329892	14-May-2008	2:45:00 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
	2457355	21-May-2008	12:00:00 AM	Property damage only (n	Rear-end	Not reporte	Dusk	Cloudy
	2331213	04-Jun-2008	2:50:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Clear
	2407709	10-Jan-2008	8:10:00 AM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
	2306839	04-Apr-2008	3:20:00 PM	Property damage only (n	Rear-end	Wet	Daylight	Rain
	2439817	09-Apr-2008	7:45:00 AM	Property damage only (n	Rear-end	Dry	Daylight	Clear
	2441267	29-Apr-2008	5:00:00 AM	Property damage only (n	Rear-end	Wet	Daylight	Cloudy
	2346857	12-Jul-2008	7:51:00 PM	Non-fatal injury	Single vehicle crash	Dry	Dusk	Clear
	2494151	26-Aug-2008	7:30:00 AM	Non-fatal injury	Not reported	Dry	Daylight	Clear
	2369131	12-Sep-2008	7:20:00 AM	Property damage only (n	Rear-end	Dry	Daylight	Clear
	2382350	29-Sep-2008	8:47:00 AM	Property damage only (n	Rear-end	Wet	Daylight	Clear
	2439636	17-Dec-2008	7:10:00 AM	Property damage only (n	Not reported	Dry	Dark - lighted roadway	Clear
	2451506	27-Jan-2009	5:56:00 PM	Property damage only (n	Rear-end	Dry	Dark - roadway not lighte	Not Reported
	2459817	21-Feb-2009	11:20:00 AM	Property damage only (n	Rear-end	Dry	Daylight	Clear
	2544396	06-Dec-2009	8:07:00 AM	Non-fatal injury	Rear-end	Wet	Daylight	Snow
	2424657	01-Jan-2009	8:07:00 PM	Property damage only (n	Angle	Wet	Dark - lighted roadway	Clear
	2417819	07-Jan-2009	11:05:00 AM	Not Reported	Rear-end	Slush	Daylight	Sleet, hail (fre
	2549760	14-Dec-2009	2:45:00 AM	Non-fatal injury	Single vehicle crash	Snow	Dark - roadway not lighte	Snow
	2546737	14-Dec-2009	12:14:00 PM	Property damage only (n	Sideswipe, same direction	Dry	Daylight	Clear
	2552640	31-Dec-2009	2:00:00 PM	Non-fatal injury	Head-on	Snow	Daylight	Snow
	2587839	03-Mar-2009	8:40:00 AM	Property damage only (n	Rear-end	Dry	Daylight	Clear
	2471525	28-May-2009	8:35:00 PM	Property damage only (n	Single vehicle crash	Wet	Dark - roadway not lighte	Not Reported
	2475484	31-May-2009	5:56:00 PM	Property damage only (n	Rear-end	Wet	Daylight	Cloudy
	2475485	31-May-2009	6:00:00 PM	Property damage only (n	Rear-end	Wet	Daylight	Cloudy
	2545292	26-Jun-2009	6:00:00 AM	Property damage only (n	Rear-end	Wet	Daylight	Rain
	2501263	29-Jun-2009	2:20:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Cloudy
	2488439	09-Jul-2009	10:18:00 AM	Non-fatal injury	Angle	Dry	Daylight	Clear
	2532416	24-Oct-2009	12:42:00 PM	Non-fatal injury	Single vehicle crash	Water (stan	Daylight	Rain
	2534893	02-Nov-2009	7:16:00 AM	Property damage only (n	Angle	Dry	Daylight	Cloudy
	2576614	13-Mar-2010	9:16:00 PM	Non-fatal injury	Single vehicle crash	Wet	Dark - roadway not lighte	Rain
	2590405	14-Apr-2010	5:08:00 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
	2611923	28-May-2010	11:10:00 AM	Non-fatal injury	Single vehicle crash	Dry	Daylight	Clear
	2609366	03-Jun-2010	7:17:00 PM	Property damage only (n	Angle	Dry	Daylight	Clear
	2612121	15-Jun-2010	1:39:00 PM	Property damage only (n	Rear-end	Dry	Daylight	Clear/Clear

Crash Diagram ID	Crash Number	Crash Date	Crash Time	Crash Severity	Manner Collision	Road Surface	Ambient Light	Weather Condition
	2610575	17-Jun-2010	2:15:00 PM	Non-fatal injury	Angle	Dry	Daylight	Clear
	2613959	27-Jun-2010	2:55:00 PM	Property damage only (n	Angle	Dry	Daylight	Clear
	2630920	05-Aug-2010	2:30:00 PM	Non-fatal injury	Rear-end	Dry	Daylight	Clear
	2663590	12-Nov-2010	3:03:00 PM	Property damage only (n	Single vehicle crash	Dry	Daylight	Clear

Appendix $: Level of Service Analyses

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	510	1550	305	0	1200	70	70	25	15	5	110	0
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	50	0	0	25	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	188.1	184.5	184.5	0.0	184.5	184.5	190.0	186.3	186.3	186.3	186.3	190.0
Lanes	1	2	1	0	2	1	0	1	1	1	1	0
Cap, veh/h	572	2768	1059	0	1415	602	150	44	230	106	271	0
Arrive On Green	0.32	0.75	0.00	0.00	0.38	0.00	0.15	0.15	0.15	0.15	0.15	0.00
Sat Flow, veh/h	1792	3689	1411	0	3689	1568	625	305	1583	1359	1863	0
Grp Volume(v), veh/h	537	1632	0	0	1263	0	100	0	16	5	116	0
Grp Sat Flow(s),veh/h/ln	1792	1845	1411	0	1845	1568	930	0	1583	1359	1863	0
Q Serve(g_s), s	30.7	20.9	0.0	0.0	33.8	0.0	6.4	0.0	0.9	0.4	6.0	0.0
Cycle Q Clear(g_c), s	30.7	20.9	0.0	0.0	33.8	0.0	12.4	0.0	0.9	12.8	6.0	0.0
Prop In Lane	1.00		1.00	0.00		1.00	0.74		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	572	2768	1059	0	1415	602	195	0	230	106	271	0
V/C Ratio(X)	0.94	0.59	0.00	0.00	0.89	0.00	0.51	0.00	0.07	0.05	0.43	0.00
Avail Cap(c_a), veh/h	646	2768	1059	0	1415	602	256	0	301	166	354	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.9	5.9	0.0	0.0	30.4	0.0	45.6	0.0	38.9	50.0	41.0	0.0
Incr Delay (d2), s/veh	20.5	0.9	0.0	0.0	8.9	0.0	2.1	0.0	0.1	0.2	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	5.7	0.0	0.0	20.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	16.5	9.8	0.0	0.0	20.8	0.0	2.7	0.0	0.4	0.1	2.9	0.0
Lane Grp Delay (d), s/veh	55.4	12.6	0.0	0.0	60.2	0.0	47.7	0.0	39.0	50.2	42.1	0.0
Lane Grp LOS	E	B			E		D		D	D	D	
Approach Vol, veh/h		2169			1263			116			121	
Approach Delay, s/veh		23.1			60.2			46.5			42.4	
Approach LOS		C			E			D			D	

Timer												
Assigned Phs	1	6			2			4			8	
Phs Duration (G+Y+Rc), s	38.6	85.0			46.4			20.3			20.3	
Change Period (Y+Rc), s	5.0	6.0			6.0			5.0			5.0	
Max Green Setting (Gmax), s	38.0	79.0			36.0			20.0			20.0	
Max Q Clear Time (g_c+I1), s	32.7	22.9			35.8			14.4			14.8	
Green Ext Time (p_c), s	0.9	40.1			0.2			0.6			0.5	

Intersection Summary	
HCM 2010 Ctrl Delay	37.3
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	15	410	485	0	145	15	0	1600	15	310	1230	5
Number	7	4	14	3	8	18	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	50	0	0	25	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	190.0	186.3	186.3	190.0	186.3	190.0	0.0	184.5	184.5	184.5	184.5	184.5
Lanes	0	1	1	0	1	0	0	2	1	1	2	1
Cap, veh/h	41	412	360	0	377	39	0	1442	613	399	2448	1041
Arrive On Green	0.23	0.23	0.00	0.00	0.23	0.23	0.00	0.39	0.00	0.23	0.66	0.00
Sat Flow, veh/h	32	1814	1583	0	1657	173	0	3689	1568	1757	3689	1568
Grp Volume(v), veh/h	448	0	0	0	0	169	0	1684	0	326	1295	0
Grp Sat Flow(s),veh/h/ln	1846	0	1583	0	0	1831	0	1845	1568	1757	1845	1568
Q Serve(g_s), s	12.3	0.0	0.0	0.0	0.0	8.6	0.0	43.0	0.0	19.4	20.0	0.0
Cycle Q Clear(g_c), s	25.0	0.0	0.0	0.0	0.0	8.6	0.0	43.0	0.0	19.4	20.0	0.0
Prop In Lane	0.04		1.00	0.00		0.09	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	453	0	360	0	0	416	0	1442	613	399	2448	1041
V/C Ratio(X)	0.99	0.00	0.00	0.00	0.00	0.41	0.00	1.17	0.00	0.82	0.53	0.00
Avail Cap(c_a), veh/h	453	0	360	0	0	416	0	1442	613	399	2448	1041
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00	0.53	0.53	0.00
Uniform Delay (d), s/veh	43.2	0.0	0.0	0.0	0.0	36.2	0.0	33.5	0.0	40.3	9.6	0.0
Incr Delay (d2), s/veh	39.0	0.0	0.0	0.0	0.0	0.6	0.0	83.3	0.0	9.6	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	124.8	0.0	0.0	1.6	0.0
%ile Back of Q (50%), veh/ln	17.6	0.0	0.0	0.0	0.0	4.1	0.0	60.7	0.0	9.5	8.4	0.0
Lane Grp Delay (d), s/veh	82.2	0.0	0.0	0.0	0.0	36.8	0.0	241.6	0.0	49.9	11.6	0.0
Lane Grp LOS	F					D		F		D	B	
Approach Vol, veh/h		448			169			1684			1621	
Approach Delay, s/veh		82.2			36.8			241.6			19.3	
Approach LOS		F			D			F			B	

Timer												
Assigned Phs		4			8			6		5	2	
Phs Duration (G+Y+Rc), s		30.0			30.0			50.0		30.0	80.0	
Change Period (Y+Rc), s		5.0			5.0			7.0		5.0	7.0	
Max Green Setting (Gmax), s		25.0			25.0			43.0		25.0	73.0	
Max Q Clear Time (g_c+I1), s		27.0			10.6			45.0		21.4	22.0	
Green Ext Time (p_c), s		0.0			3.3			0.0		0.3	26.1	

Intersection Summary		
HCM 2010 Ctrl Delay	122.7	
HCM 2010 LOS	F	

Notes

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	55	1800	135	125	1415	35	100	255	250	20	170	20
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	50	0	0	25	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	182.7	182.7	182.7	179.2	179.2	190.0
Lanes	1	2	1	1	2	0	1	1	1	1	1	0
Cap, veh/h	82	2130	905	161	2296	0	163	342	431	107	295	35
Arrive On Green	0.09	1.00	0.00	0.09	0.62	0.00	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1774	3725	1583	1774	3725	0	1152	1827	1545	835	1574	185
Grp Volume(v), veh/h	58	1895	0	132	1489	0	105	268	263	21	0	200
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	0	1152	1827	1545	835	0	1759
Q Serve(g_s), s	3.4	0.0	0.0	7.8	27.2	0.0	8.9	14.9	15.8	2.6	0.0	11.1
Cycle Q Clear(g_c), s	3.4	0.0	0.0	7.8	27.2	0.0	20.0	14.9	15.8	17.5	0.0	11.1
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.10
Lane Grp Cap(c), veh/h	82	2130	905	161	2296	0	163	342	431	107	0	330
V/C Ratio(X)	0.71	0.89	0.00	0.82	0.65	0.00	0.64	0.78	0.61	0.20	0.00	0.61
Avail Cap(c_a), veh/h	183	2130	905	216	2296	0	163	342	431	107	0	330
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.00	0.55	0.55	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	47.7	0.0	0.0	47.6	13.1	0.0	49.3	41.3	33.5	49.6	0.0	39.7
Incr Delay (d2), s/veh	1.0	0.6	0.0	9.7	0.8	0.0	8.3	11.2	2.5	0.9	0.0	3.2
Initial Q Delay(d3),s/veh	0.0	35.9	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	1.5	10.8	0.0	3.9	12.0	0.0	3.2	7.8	6.2	0.6	0.0	5.2
Lane Grp Delay (d), s/veh	48.7	36.5	0.0	57.4	16.3	0.0	57.6	52.5	36.0	50.5	0.0	42.9
Lane Grp LOS	D	D		E	B		E	D	D	D		D
Approach Vol, veh/h		1953			1621			636			221	
Approach Delay, s/veh		36.9			19.6			46.5			43.6	
Approach LOS		D			B			D			D	

Timer												
Assigned Phs	1	6		5	2			4			8	
Phs Duration (G+Y+Rc), s	9.9	67.0		14.7	71.8			25.0			25.0	
Change Period (Y+Rc), s	5.0	6.0		5.0	6.0			5.0			5.0	
Max Green Setting (Gmax), s	11.0	61.0		13.0	63.0			20.0			20.0	
Max Q Clear Time (g_c+I1), s	5.4	2.0		9.8	29.2			22.0			19.5	
Green Ext Time (p_c), s	0.0	49.3		0.1	30.3			0.0			0.2	

Intersection Summary	
HCM 2010 Ctrl Delay	32.3
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	15	2200	15	130	1530	5	10	100	280	75	105	35
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	50	0	0	25	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	184.5	184.5	184.5	184.5	184.5	184.5	190.0	186.3	190.0	190.0	186.3	190.0
Lanes	1	2	1	1	2	1	0	1	0	0	1	0
Cap, veh/h	37	2041	867	165	2309	981	39	88	235	78	84	22
Arrive On Green	0.02	0.55	0.55	0.09	0.63	0.63	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1757	3689	1568	1757	3689	1568	19	462	1232	165	438	116
Grp Volume(v), veh/h	16	2292	16	135	1594	5	406	0	0	223	0	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	1568	1712	0	0	720	0	0
Q Serve(g_s), s	0.9	58.0	0.5	7.9	29.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.9	58.0	0.5	7.9	29.8	0.1	20.0	0.0	0.0	20.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.02		0.72	0.35		0.16
Lane Grp Cap(c), veh/h	37	2041	867	165	2309	981	362	0	0	184	0	0
V/C Ratio(X)	0.43	1.12	0.02	0.82	0.69	0.01	1.12	0.00	0.00	1.21	0.00	0.00
Avail Cap(c_a), veh/h	168	2041	867	251	2309	981	362	0	0	184	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.16	0.16	0.16	0.69	0.69	0.69	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	50.7	23.4	10.6	46.6	12.9	7.4	43.6	0.0	0.0	43.4	0.0	0.0
Incr Delay (d2), s/veh	1.3	56.6	0.0	8.4	1.2	0.0	84.6	0.0	0.0	135.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	88.2	0.0	0.0	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.4	65.1	0.2	3.9	13.2	0.0	18.3	0.0	0.0	11.9	0.0	0.0
Lane Grp Delay (d), s/veh	51.9	168.2	10.6	55.0	16.8	7.4	128.2	0.0	0.0	179.2	0.0	0.0
Lane Grp LOS	D	F	B	E	B	A	F			F		
Approach Vol, veh/h		2324			1734			406			223	
Approach Delay, s/veh		166.3			19.8			128.2			179.2	
Approach LOS		F			B			F			F	

Timer												
Assigned Phs	1	6		5	2			4			8	
Phs Duration (G+Y+Rc), s	7.2	65.0		14.8	72.6			25.0			25.0	
Change Period (Y+Rc), s	5.0	7.0		5.0	7.0			5.0			5.0	
Max Green Setting (Gmax), s	10.0	58.0		15.0	63.0			20.0			20.0	
Max Q Clear Time (g_c+I1), s	2.9	60.0		9.9	31.8			22.0			22.0	
Green Ext Time (p_c), s	0.0	0.0		0.1	29.8			0.0			0.0	

Intersection Summary												
HCM 2010 Ctrl Delay			109.4									
HCM 2010 LOS			F									

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	2400	155	65	1555	100	90	130	160	290	200	20
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	50	0	0	25	0	0	0	0	10	10	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	184.5	184.5	184.5	184.5	184.5	184.5	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	2	1	1	2	1	1	1	1	1	1	1
Cap, veh/h	28	2485	1056	92	2620	1114	187	197	167	187	197	167
Arrive On Green	0.02	0.67	0.67	0.05	0.71	0.71	0.11	0.11	0.00	0.11	0.11	0.00
Sat Flow, veh/h	1757	3689	1568	1757	3689	1568	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	11	2526	163	68	1637	105	95	137	0	305	211	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	1568	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.6	64.0	3.6	3.6	22.0	2.0	4.8	6.7	0.0	10.0	10.0	0.0
Cycle Q Clear(g_c), s	0.6	64.0	3.6	3.6	22.0	2.0	4.8	6.7	0.0	10.0	10.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	28	2485	1056	92	2620	1114	187	197	167	187	197	167
V/C Ratio(X)	0.39	1.02	0.15	0.74	0.62	0.09	0.51	0.70	0.00	1.63	1.07	0.00
Avail Cap(c_a), veh/h	185	2485	1056	185	2620	1114	243	255	217	187	197	167
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	46.3	15.5	5.7	44.4	7.2	4.3	40.2	41.0	0.0	42.5	42.5	0.0
Incr Delay (d2), s/veh	8.7	22.3	0.1	10.7	0.5	0.0	2.1	5.6	0.0	306.3	85.1	0.0
Initial Q Delay(d3),s/veh	0.0	72.4	0.0	0.0	1.7	0.0	0.0	0.0	0.0	192.3	183.2	0.0
%ile Back of Q (50%), veh/ln	0.3	56.9	1.2	1.9	8.5	0.6	2.2	3.5	0.0	30.3	19.3	0.0
Lane Grp Delay (d), s/veh	55.1	110.3	5.7	55.1	9.4	4.3	42.3	46.6	0.0	541.2	310.8	0.0
Lane Grp LOS	E	F	A	E	A	A	D	D		F	F	
Approach Vol, veh/h		2700			1810			232			516	
Approach Delay, s/veh		103.7			10.8			44.8			447.0	
Approach LOS		F			B			D			F	

Timer												
Assigned Phs	1	6		5	2			4			8	
Phs Duration (G+Y+Rc), s	6.5	70.0		10.0	73.5			15.0			15.0	
Change Period (Y+Rc), s	5.0	6.0		5.0	6.0			5.0			5.0	
Max Green Setting (Gmax), s	10.0	64.0		10.0	64.0			13.0			10.0	
Max Q Clear Time (g_c+I1), s	2.6	66.0		5.6	24.0			8.7			12.0	
Green Ext Time (p_c), s	0.0	0.0		0.0	38.9			1.3			0.0	

Intersection Summary												
HCM 2010 Ctrl Delay			102.8									
HCM 2010 LOS			F									

Notes

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	20	115	225	265	255	5	0	2750	15	0	1800	150
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	50	0	0	25	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	190.0	188.1	188.1	190.0	188.1	188.1	0.0	186.3	186.3	0.0	186.3	186.3
Lanes	0	1	1	0	1	1	0	2	1	0	2	1
Cap, veh/h	59	264	262	153	107	262	0	2666	1133	0	2666	1133
Arrive On Green	0.16	0.16	0.00	0.16	0.16	0.00	0.00	0.72	0.72	0.00	0.72	0.72
Sat Flow, veh/h	140	1611	1599	647	653	1599	0	3725	1583	0	3725	1583
Grp Volume(v), veh/h	137	0	0	530	0	0	0	2806	15	0	1837	153
Grp Sat Flow(s),veh/h/ln	1752	0	1599	1300	0	1599	0	1863	1583	0	1863	1583
Q Serve(g_s), s	0.0	0.0	0.0	0.1	0.0	0.0	0.0	83.0	0.3	0.0	32.1	3.5
Cycle Q Clear(g_c), s	7.6	0.0	0.0	19.0	0.0	0.0	0.0	83.0	0.3	0.0	32.1	3.5
Prop In Lane	0.15		1.00	0.51		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	322	0	262	260	0	262	0	2666	1133	0	2666	1133
V/C Ratio(X)	0.42	0.00	0.00	2.04	0.00	0.00	0.00	1.05	0.01	0.00	0.69	0.14
Avail Cap(c_a), veh/h	322	0	262	260	0	262	0	2666	1133	0	2666	1133
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	43.7	0.0	0.0	51.0	0.0	0.0	0.0	16.5	4.7	0.0	9.3	5.2
Incr Delay (d2), s/veh	0.9	0.0	0.0	481.4	0.0	0.0	0.0	33.3	0.0	0.0	0.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	67.5	0.0	0.0	2.0	0.0
%ile Back of Q (50%), veh/ln	3.8	0.0	0.0	34.7	0.0	0.0	0.0	68.4	0.1	0.0	13.0	1.1
Lane Grp Delay (d), s/veh	44.6	0.0	0.0	532.3	0.0	0.0	0.0	117.3	4.7	0.0	12.1	5.2
Lane Grp LOS	D			F				F	A		B	A
Approach Vol, veh/h		137			530			2821			1990	
Approach Delay, s/veh		44.6			532.3			116.7			11.5	
Approach LOS		D			F			F			B	

Timer												
Assigned Phs		8		7	4			6			2	
Phs Duration (G+Y+Rc), s		26.0		0.0	26.0			90.0			90.0	
Change Period (Y+Rc), s		7.0		7.0	7.0			7.0			7.0	
Max Green Setting (Gmax), s		8.0		4.0	19.0			83.0			83.0	
Max Q Clear Time (g_c+I1), s		9.6		0.0	21.0			85.0			34.1	
Green Ext Time (p_c), s		0.0		0.0	0.0			0.0			48.2	

Intersection Summary		
HCM 2010 Ctrl Delay	116.9	
HCM 2010 LOS	F	

Notes

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	190	1315	55	0	1540	45	210	55	60	15	115	5
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	20	0	0	40	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	184.5	184.5	184.5	0.0	184.5	184.5	190.0	186.3	186.3	186.3	186.3	190.0
Lanes	1	2	1	0	2	1	0	1	1	1	1	0
Cap, veh/h	228	2439	1037	0	1809	769	260	54	393	60	440	18
Arrive On Green	0.13	0.66	0.00	0.00	0.49	0.00	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1757	3689	1568	0	3689	1568	833	218	1583	1265	1776	73
Grp Volume(v), veh/h	200	1384	0	0	1621	0	279	0	63	16	0	126
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	0	1845	1568	1051	0	1583	1265	0	1850
Q Serve(g_s), s	13.5	24.6	0.0	0.0	48.3	0.0	23.3	0.0	3.8	0.0	0.0	6.7
Cycle Q Clear(g_c), s	13.5	24.6	0.0	0.0	48.3	0.0	30.0	0.0	3.8	30.0	0.0	6.7
Prop In Lane	1.00		1.00	0.00		1.00	0.79		1.00	1.00		0.04
Lane Grp Cap(c), veh/h	228	2439	1037	0	1809	769	314	0	393	60	0	459
V/C Ratio(X)	0.88	0.57	0.00	0.00	0.90	0.00	0.89	0.00	0.16	0.27	0.00	0.27
Avail Cap(c_a), veh/h	276	2439	1037	0	1809	769	314	0	393	60	0	459
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.67	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	51.7	11.1	0.0	0.0	28.0	0.0	49.6	0.0	35.6	60.5	0.0	36.7
Incr Delay (d2), s/veh	22.9	1.0	0.0	0.0	5.2	0.0	25.2	0.0	0.2	2.4	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	1.1	0.0	0.0	33.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (95%), veh/ln	12.0	15.7	0.0	0.0	37.4	0.0	16.4	0.0	2.8	1.0	0.0	5.7
Lane Grp Delay (d), s/veh	74.7	13.2	0.0	0.0	67.2	0.0	74.8	0.0	35.8	62.9	0.0	37.0
Lane Grp LOS	E	B			E		E		D	E		D
Approach Vol, veh/h		1584			1621			342			142	
Approach Delay, s/veh		21.0			67.2			67.6			40.0	
Approach LOS		C			E			E			D	

Timer												
Assigned Phs	1	6			2			8			4	
Phs Duration (G+Y+Rc), s	20.7	86.0			65.3			35.0			35.0	
Change Period (Y+Rc), s	5.0	6.0			6.0			5.0			5.0	
Max Green Setting (Gmax), s	19.0	80.0			55.0			30.0			30.0	
Max Q Clear Time (g_c+I1), s	15.5	26.6			50.3			32.0			32.0	
Green Ext Time (p_c), s	0.2	40.3			4.5			0.0			0.0	

Intersection Summary	
HCM 2010 Ctrl Delay	46.3
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	5	260	355	5	305	10	0	1375	15	475	1570	15
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	20	0	0	50	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	190.0	186.3	186.3	190.0	184.5	190.0	0.0	184.5	184.5	184.5	184.5	184.5
Lanes	0	1	1	0	1	0	0	2	1	1	2	1
Cap, veh/h	33	353	303	32	338	11	0	1660	706	381	2613	1111
Arrive On Green	0.19	0.19	0.00	0.19	0.19	0.19	0.00	0.45	0.00	0.22	0.71	0.00
Sat Flow, veh/h	10	1840	1583	9	1764	56	0	3689	1568	1757	3689	1568
Grp Volume(v), veh/h	270	0	0	326	0	0	0	1403	0	485	1602	0
Grp Sat Flow(s),veh/h/ln	1850	0	1583	1829	0	0	0	1845	1568	1757	1845	1568
Q Serve(g_s), s	0.0	0.0	0.0	4.6	0.0	0.0	0.0	40.5	0.0	26.0	26.9	0.0
Cycle Q Clear(g_c), s	16.5	0.0	0.0	21.0	0.0	0.0	0.0	40.5	0.0	26.0	26.9	0.0
Prop In Lane	0.02		1.00	0.02		0.03	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	385	0	303	381	0	0	0	1660	706	381	2613	1111
V/C Ratio(X)	0.70	0.00	0.00	0.86	0.00	0.00	0.00	0.85	0.00	1.27	0.61	0.00
Avail Cap(c_a), veh/h	385	0	303	381	0	0	0	1660	706	381	2613	1111
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.77	0.00	0.18	0.18	0.00
Uniform Delay (d), s/veh	45.9	0.0	0.0	47.7	0.0	0.0	0.0	29.3	0.0	47.0	9.0	0.0
Incr Delay (d2), s/veh	5.6	0.0	0.0	17.1	0.0	0.0	0.0	4.3	0.0	127.3	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.7	0.0	0.0	6.8	0.0
%ile Back of Q (95%), veh/ln	13.2	0.0	0.0	17.3	0.0	0.0	0.0	26.5	0.0	32.7	14.8	0.0
Lane Grp Delay (d), s/veh	51.4	0.0	0.0	64.8	0.0	0.0	0.0	40.3	0.0	174.3	16.0	0.0
Lane Grp LOS	D			E				D		F	B	
Approach Vol, veh/h		270			326			1403			2087	
Approach Delay, s/veh		51.4			64.8			40.3			52.8	
Approach LOS		D			E			D			D	

Timer												
Assigned Phs		8			4			2		1	6	
Phs Duration (G+Y+Rc), s		28.0			28.0			61.0		31.0	92.0	
Change Period (Y+Rc), s		5.0			5.0			7.0		5.0	7.0	
Max Green Setting (Gmax), s		23.0			23.0			54.0		26.0	85.0	
Max Q Clear Time (g_c+I1), s		18.5			23.0			42.5		28.0	28.9	
Green Ext Time (p_c), s		1.5			0.0			10.6		0.0	41.8	

Intersection Summary												
HCM 2010 Ctrl Delay			49.4									
HCM 2010 LOS			D									

Notes

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	30	1630	75	185	1930	35	110	145	130	35	175	20
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	25	0	0	50	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	182.7	182.7	182.7	179.2	179.2	190.0
Lanes	1	2	1	1	2	0	1	1	1	1	1	0
Cap, veh/h	59	1866	793	226	2217	0	201	411	547	222	356	40
Arrive On Green	0.07	1.00	0.00	0.13	0.60	0.00	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1774	3725	1583	1774	3725	0	1145	1827	1553	1042	1582	179
Grp Volume(v), veh/h	32	1734	0	197	2053	0	117	154	138	37	0	207
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	0	1145	1827	1553	1042	0	1760
Q Serve(g_s), s	2.0	0.0	0.0	12.6	57.5	0.0	11.6	8.3	7.3	3.6	0.0	12.0
Cycle Q Clear(g_c), s	2.0	0.0	0.0	12.6	57.5	0.0	23.5	8.3	7.3	11.9	0.0	12.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.10
Lane Grp Cap(c), veh/h	59	1866	793	226	2217	0	201	411	547	222	0	396
V/C Ratio(X)	0.54	0.93	0.00	0.87	0.93	0.00	0.58	0.37	0.25	0.17	0.00	0.52
Avail Cap(c_a), veh/h	276	1866	793	276	2217	0	211	426	560	231	0	410
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.36	0.36	0.00	0.09	0.09	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	53.2	0.0	0.0	49.6	21.1	0.0	49.8	38.0	26.7	43.0	0.0	39.4
Incr Delay (d2), s/veh	2.8	4.0	0.0	2.6	0.9	0.0	3.7	0.6	0.2	0.3	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	18.2	0.0	0.0	47.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (95%), veh/ln	1.7	6.6	0.0	7.0	41.4	0.0	6.4	6.9	5.0	1.8	0.0	9.1
Lane Grp Delay (d), s/veh	55.9	22.3	0.0	52.1	70.0	0.0	53.4	38.6	26.9	43.4	0.0	40.5
Lane Grp LOS	E	C		D	E		D	D	C	D		D
Approach Vol, veh/h		1766			2250			409			244	
Approach Delay, s/veh		22.9			68.4			38.9			41.0	
Approach LOS		C			E			D			D	

Timer												
Assigned Phs	5	2		1	6			8			4	
Phs Duration (G+Y+Rc), s	8.9	65.0		19.8	75.9			31.0			31.0	
Change Period (Y+Rc), s	5.0	7.0		5.0	7.0			5.0			5.0	
Max Green Setting (Gmax), s	18.0	58.0		18.0	58.0			27.0			27.0	
Max Q Clear Time (g_c+I1), s	4.0	2.0		14.6	59.5			25.5			14.0	
Green Ext Time (p_c), s	0.0	51.0		0.2	0.0			0.5			2.4	

Intersection Summary	
HCM 2010 Ctrl Delay	47.2
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	50	1735	15	320	2100	15	10	105	125	40	140	40
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	20	0	0	50	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	184.5	184.5	184.5	184.5	184.5	184.5	190.0	186.3	190.0	190.0	186.3	190.0
Lanes	1	2	1	1	2	1	0	1	0	0	1	0
Cap, veh/h	74	1688	717	365	2300	977	38	150	169	69	185	49
Arrive On Green	0.04	0.46	0.46	0.21	0.62	0.62	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1757	3689	1568	1757	3689	1568	33	785	885	171	968	255
Grp Volume(v), veh/h	53	1846	16	340	2234	16	256	0	0	235	0	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	1568	1704	0	0	1394	0	0
Q Serve(g_s), s	3.5	54.0	0.7	22.4	68.3	0.5	0.0	0.0	0.0	3.0	0.0	0.0
Cycle Q Clear(g_c), s	3.5	54.0	0.7	22.4	68.3	0.5	16.9	0.0	0.0	19.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.04		0.52	0.18		0.18
Lane Grp Cap(c), veh/h	74	1688	717	365	2300	977	357	0	0	302	0	0
V/C Ratio(X)	0.72	1.09	0.02	0.93	0.97	0.02	0.72	0.00	0.00	0.78	0.00	0.00
Avail Cap(c_a), veh/h	223	1688	717	372	2300	977	378	0	0	322	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.31	0.31	0.31	0.25	0.25	0.25	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	55.9	32.0	17.5	45.9	21.2	8.5	45.5	0.0	0.0	46.1	0.0	0.0
Incr Delay (d2), s/veh	4.1	45.7	0.0	10.9	4.9	0.0	6.0	0.0	0.0	10.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	42.7	0.0	0.0	65.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (95%), veh/ln	2.9	53.4	0.5	13.7	55.2	0.3	12.6	0.0	0.0	12.5	0.0	0.0
Lane Grp Delay (d), s/veh	60.0	120.4	17.6	56.8	91.6	8.5	51.5	0.0	0.0	56.9	0.0	0.0
Lane Grp LOS	E	F	B	E	F	A	D			E		
Approach Vol, veh/h		1915			2590			256			235	
Approach Delay, s/veh		117.9			86.5			51.5			56.9	
Approach LOS		F			F			D			E	

Timer												
Assigned Phs	5	2		1	6			8			4	
Phs Duration (G+Y+Rc), s	9.9	61.0		29.5	80.6			27.5			27.5	
Change Period (Y+Rc), s	5.0	7.0		5.0	7.0			5.0			5.0	
Max Green Setting (Gmax), s	15.0	54.0		25.0	64.0			24.0			24.0	
Max Q Clear Time (g_c+I1), s	5.5	56.0		24.4	70.3			18.9			21.9	
Green Ext Time (p_c), s	0.1	0.0		0.1	0.0			1.4			0.7	

Intersection Summary	
HCM 2010 Ctrl Delay	95.3
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	35	1750	110	115	2300	220	105	175	35	80	105	30
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	25	0	0	50	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	184.5	184.5	184.5	184.5	184.5	184.5	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	2	1	1	2	1	1	1	1	1	1	1
Cap, veh/h	59	2533	1077	134	2692	1144	133	214	182	80	214	182
Arrive On Green	0.03	0.69	0.69	0.08	0.73	0.73	0.11	0.11	0.00	0.11	0.11	0.00
Sat Flow, veh/h	1757	3689	1568	1757	3689	1568	1281	1863	1583	1200	1863	1583
Grp Volume(v), veh/h	36	1786	112	117	2347	224	107	179	0	82	107	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	1568	1281	1863	1583	1200	1863	1583
Q Serve(g_s), s	2.6	38.5	3.2	8.6	61.9	5.9	7.9	12.3	0.0	2.7	7.1	0.0
Cycle Q Clear(g_c), s	2.6	38.5	3.2	8.6	61.9	5.9	15.0	12.3	0.0	15.0	7.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	59	2533	1077	134	2692	1144	133	214	182	80	214	182
V/C Ratio(X)	0.61	0.71	0.10	0.87	0.87	0.20	0.81	0.84	0.00	1.03	0.50	0.00
Avail Cap(c_a), veh/h	134	2650	1126	134	2692	1144	133	214	182	80	214	182
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	62.4	12.5	6.9	59.8	13.1	5.6	62.5	56.7	0.0	65.0	54.4	0.0
Incr Delay (d2), s/veh	9.9	0.8	0.0	42.0	3.4	0.1	29.3	24.4	0.0	109.2	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	2.4	0.0	0.0	19.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (95%), veh/ln	2.5	23.0	1.9	9.3	40.9	3.5	8.2	11.8	0.0	8.9	6.2	0.0
Lane Grp Delay (d), s/veh	72.3	15.7	7.0	101.8	36.0	5.7	91.8	81.2	0.0	174.2	56.2	0.0
Lane Grp LOS	E	B	A	F	D	A	F	F		F	E	
Approach Vol, veh/h		1934			2688			286			189	
Approach Delay, s/veh		16.2			36.3			85.2			107.4	
Approach LOS		B			D			F			F	

Timer												
Assigned Phs	5	2		1	6			8			4	
Phs Duration (G+Y+Rc), s	9.4	95.8		15.0	101.5			20.0			20.0	
Change Period (Y+Rc), s	5.0	6.0		5.0	6.0			5.0			5.0	
Max Green Setting (Gmax), s	10.0	94.0		10.0	94.0			15.0			15.0	
Max Q Clear Time (g_c+I1), s	4.6	40.5		10.6	63.9			17.0			17.0	
Green Ext Time (p_c), s	0.0	49.4		0.0	29.5			0.0			0.0	

Intersection Summary	
HCM 2010 Ctrl Delay	34.1
HCM 2010 LOS	C

Notes

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	35	115	85	190	335	5	0	1600	200	0	2500	120
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	25	0	0	50	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	190.0	188.1	188.1	190.0	188.1	188.1	0.0	186.3	186.3	0.0	186.3	186.3
Lanes	0	1	1	0	1	1	0	2	1	0	2	1
Cap, veh/h	81	242	306	134	176	306	0	2577	1095	0	2577	1095
Arrive On Green	0.19	0.19	0.00	0.19	0.19	0.00	0.00	0.69	0.69	0.00	0.69	0.69
Sat Flow, veh/h	230	1261	1599	487	920	1599	0	3725	1583	0	3725	1583
Grp Volume(v), veh/h	158	0	0	553	0	0	0	1684	211	0	2632	126
Grp Sat Flow(s),veh/h/ln	1491	0	1599	1407	0	1599	0	1863	1583	0	1863	1583
Q Serve(g_s), s	0.0	0.0	0.0	0.1	0.0	0.0	0.0	30.5	5.7	0.0	83.0	3.2
Cycle Q Clear(g_c), s	10.1	0.0	0.0	23.0	0.0	0.0	0.0	30.5	5.7	0.0	83.0	3.2
Prop In Lane	0.23		1.00	0.36		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	323	0	306	310	0	306	0	2577	1095	0	2577	1095
V/C Ratio(X)	0.49	0.00	0.00	1.78	0.00	0.00	0.00	0.65	0.19	0.00	1.02	0.12
Avail Cap(c_a), veh/h	323	0	306	310	0	306	0	2577	1095	0	2577	1095
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	42.9	0.0	0.0	50.7	0.0	0.0	0.0	10.4	6.6	0.0	18.5	6.2
Incr Delay (d2), s/veh	0.4	0.0	0.0	364.2	0.0	0.0	0.0	1.3	0.4	0.0	23.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	69.9	0.0
%ile Back of Q (95%), veh/ln	7.8	0.0	0.0	50.3	0.0	0.0	0.0	18.9	3.8	0.0	77.0	2.0
Lane Grp Delay (d), s/veh	43.4	0.0	0.0	414.9	0.0	0.0	0.0	13.7	7.0	0.0	111.7	6.4
Lane Grp LOS	D			F				B	A		F	A
Approach Vol, veh/h		158			553			1895			2758	
Approach Delay, s/veh		43.4			414.9			12.9			106.9	
Approach LOS		D			F			B			F	

Timer												
Assigned Phs		8		7	4			6			2	
Phs Duration (G+Y+Rc), s		30.0		0.0	30.0			90.0			90.0	
Change Period (Y+Rc), s		7.0		7.0	7.0			7.0			7.0	
Max Green Setting (Gmax), s		8.0		8.0	23.0			83.0			83.0	
Max Q Clear Time (g_c+I1), s		12.1		0.0	25.0			32.5			85.0	
Green Ext Time (p_c), s		0.0		0.0	0.0			44.8			0.0	

Intersection Summary												
HCM 2010 Ctrl Delay			103.6									
HCM 2010 LOS			F									

Notes

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	510	1550	305	0	1200	70	70	25	15	5	110	0
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	50	0	0	25	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	188.1	184.5	184.5	0.0	184.5	184.5	190.0	186.3	186.3	186.3	186.3	190.0
Lanes	1	2	1	0	2	1	0	1	1	1	1	0
Cap, veh/h	562	2817	1197	0	1493	635	139	41	216	89	254	0
Arrive On Green	0.31	0.76	0.00	0.00	0.40	0.00	0.14	0.14	0.14	0.14	0.14	0.00
Sat Flow, veh/h	1792	3689	1568	0	3689	1568	602	299	1583	1367	1863	0
Grp Volume(v), veh/h	537	1632	0	0	1263	0	100	0	16	5	116	0
Grp Sat Flow(s),veh/h/ln	1792	1845	1568	0	1845	1568	901	0	1583	1367	1863	0
Q Serve(g_s), s	32.3	20.6	0.0	0.0	34.1	0.0	6.8	0.0	1.0	0.4	6.3	0.0
Cycle Q Clear(g_c), s	32.3	20.6	0.0	0.0	34.1	0.0	13.1	0.0	1.0	13.5	6.3	0.0
Prop In Lane	1.00		1.00	0.00		1.00	0.74		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	562	2817	1197	0	1493	635	180	0	216	89	254	0
V/C Ratio(X)	0.96	0.58	0.00	0.00	0.85	0.00	0.56	0.00	0.07	0.06	0.46	0.00
Avail Cap(c_a), veh/h	570	2817	1197	0	1493	635	180	0	216	89	254	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	37.0	5.5	0.0	0.0	29.6	0.0	48.7	0.0	41.4	53.3	43.7	0.0
Incr Delay (d2), s/veh	26.9	0.9	0.0	0.0	6.1	0.0	3.8	0.0	0.1	0.3	1.3	0.0
Initial Q Delay(d3),s/veh	0.0	5.4	0.0	0.0	13.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (95%), veh/ln	25.4	13.6	0.0	0.0	25.7	0.0	5.3	0.0	0.7	0.3	5.6	0.0
Lane Grp Delay (d), s/veh	63.9	11.8	0.0	0.0	48.8	0.0	52.4	0.0	41.6	53.5	45.0	0.0
Lane Grp LOS	E	B			D		D		D	D	D	
Approach Vol, veh/h		2169			1263			116			121	
Approach Delay, s/veh		24.7			48.8			50.9			45.4	
Approach LOS		C			D			D			D	

Timer												
Assigned Phs	1	6			2			4			8	
Phs Duration (G+Y+Rc), s	39.5	90.0			50.5			20.0			20.0	
Change Period (Y+Rc), s	5.0	6.0			6.0			5.0			5.0	
Max Green Setting (Gmax), s	35.0	84.0			44.0			15.0			15.0	
Max Q Clear Time (g_c+I1), s	34.3	22.6			36.1			15.1			15.5	
Green Ext Time (p_c), s	0.2	42.6			7.4			0.0			0.0	

Intersection Summary												
HCM 2010 Ctrl Delay			34.5									
HCM 2010 LOS			C									

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	15	410	485	0	145	15	0	1600	15	310	1230	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	50	0	0	25	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	190.0	186.3	186.3	190.0	186.3	190.0	0.0	184.5	184.5	184.5	184.5	184.5
Lanes	0	1	1	0	1	0	0	2	1	1	2	1
Cap, veh/h	41	396	345	0	362	38	0	1778	755	256	2482	1055
Arrive On Green	0.22	0.22	0.00	0.00	0.22	0.22	0.00	0.48	0.00	0.15	0.67	0.00
Sat Flow, veh/h	32	1815	1583	0	1657	173	0	3689	1568	1757	3689	1568
Grp Volume(v), veh/h	448	0	0	0	0	169	0	1684	0	326	1295	0
Grp Sat Flow(s),veh/h/ln	1847	0	1583	0	0	1831	0	1845	1568	1757	1845	1568
Q Serve(g_s), s	11.8	0.0	0.0	0.0	0.0	8.7	0.0	47.9	0.0	16.0	19.5	0.0
Cycle Q Clear(g_c), s	24.0	0.0	0.0	0.0	0.0	8.7	0.0	47.9	0.0	16.0	19.5	0.0
Prop In Lane	0.04		1.00	0.00		0.09	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	437	0	345	0	0	399	0	1778	755	256	2482	1055
V/C Ratio(X)	1.03	0.00	0.00	0.00	0.00	0.42	0.00	0.95	0.00	1.28	0.52	0.00
Avail Cap(c_a), veh/h	437	0	345	0	0	399	0	1778	755	256	2482	1055
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00	0.56	0.56	0.00
Uniform Delay (d), s/veh	43.9	0.0	0.0	0.0	0.0	37.0	0.0	27.2	0.0	47.0	9.1	0.0
Incr Delay (d2), s/veh	49.7	0.0	0.0	0.0	0.0	0.7	0.0	12.1	0.0	140.4	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	77.6	0.0	0.0	1.5	0.0
%ile Back of Q (95%), veh/ln	25.8	0.0	0.0	0.0	0.0	7.5	0.0	50.7	0.0	24.6	11.4	0.0
Lane Grp Delay (d), s/veh	93.6	0.0	0.0	0.0	0.0	37.7	0.0	116.8	0.0	187.4	11.1	0.0
Lane Grp LOS	F					D		F		F	B	
Approach Vol, veh/h		448			169			1684			1621	
Approach Delay, s/veh		93.6			37.7			116.8			46.5	
Approach LOS		F			D			F			D	

Timer												
Assigned Phs		4			8			2		1	6	
Phs Duration (G+Y+Rc), s		29.0			29.0			60.0		21.0	81.0	
Change Period (Y+Rc), s		5.0			5.0			7.0		5.0	7.0	
Max Green Setting (Gmax), s		24.0			24.0			53.0		16.0	74.0	
Max Q Clear Time (g_c+I1), s		26.0			10.7			49.9		18.0	21.5	
Green Ext Time (p_c), s		0.0			3.2			2.9		0.0	26.5	

Intersection Summary		
HCM 2010 Ctrl Delay	81.7	
HCM 2010 LOS	F	

Notes
User approved pedestrian interval to be less than phase max green.

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	55	1800	135	125	1415	35	100	255	250	20	170	20
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	20	0	0	10	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	182.7	182.7	182.7	179.2	179.2	190.0
Lanes	1	2	1	1	2	0	1	1	1	1	1	0
Cap, veh/h	80	2170	922	159	2336	0	157	333	421	103	287	34
Arrive On Green	0.06	0.77	0.00	0.09	0.63	0.00	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1774	3725	1583	1774	3725	0	1184	1827	1545	899	1574	185
Grp Volume(v), veh/h	58	1895	0	132	1489	0	105	268	263	21	0	200
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	0	1184	1827	1545	899	0	1759
Q Serve(g_s), s	3.5	38.9	0.0	8.0	27.3	0.0	8.5	15.4	16.4	2.5	0.0	11.5
Cycle Q Clear(g_c), s	3.5	38.9	0.0	8.0	27.3	0.0	20.0	15.4	16.4	18.0	0.0	11.5
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.10
Lane Grp Cap(c), veh/h	80	2170	922	159	2336	0	157	333	421	103	0	320
V/C Ratio(X)	0.72	0.87	0.00	0.83	0.64	0.00	0.67	0.81	0.63	0.20	0.00	0.62
Avail Cap(c_a), veh/h	113	2170	922	161	2336	0	157	333	421	103	0	320
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.25	0.25	0.00	0.55	0.55	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	50.9	9.5	0.0	49.2	12.7	0.0	51.2	43.1	35.1	51.7	0.0	41.5
Incr Delay (d2), s/veh	3.3	1.4	0.0	17.6	0.7	0.0	10.5	13.5	2.9	1.0	0.0	3.8
Initial Q Delay(d3),s/veh	0.0	4.8	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (95%), veh/ln	2.7	14.9	0.0	6.9	15.4	0.0	6.1	13.0	10.7	1.1	0.0	9.2
Lane Grp Delay (d), s/veh	54.3	15.8	0.0	66.7	13.8	0.0	61.7	56.6	38.0	52.6	0.0	45.2
Lane Grp LOS	D	B		E	B		E	E	D	D		D
Approach Vol, veh/h		1953			1621			636			221	
Approach Delay, s/veh		16.9			18.1			49.7			45.9	
Approach LOS		B			B			D			D	

Timer												
Assigned Phs	5	2		1	6			8			4	
Phs Duration (G+Y+Rc), s	10.0	70.0		14.9	74.9			25.0			25.0	
Change Period (Y+Rc), s	5.0	6.0		5.0	6.0			5.0			5.0	
Max Green Setting (Gmax), s	7.0	64.0		10.0	67.0			20.0			20.0	
Max Q Clear Time (g_c+I1), s	5.5	40.9		10.0	29.3			22.0			20.0	
Green Ext Time (p_c), s	0.0	21.4		0.0	33.5			0.0			0.0	

Intersection Summary	
HCM 2010 Ctrl Delay	23.5
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	15	2200	15	130	1530	5	10	100	280	75	105	35
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	50	0	0	25	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	184.5	184.5	184.5	184.5	184.5	184.5	190.0	186.3	190.0	190.0	186.3	190.0
Lanes	1	2	1	1	2	1	0	1	0	0	1	0
Cap, veh/h	37	2113	898	160	2371	1007	37	84	224	74	77	21
Arrive On Green	0.02	0.57	0.57	0.09	0.64	0.64	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1757	3689	1568	1757	3689	1568	19	462	1232	166	424	113
Grp Volume(v), veh/h	16	2292	16	135	1594	5	406	0	0	223	0	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	1568	1713	0	0	703	0	0
Q Serve(g_s), s	1.0	63.0	0.5	8.3	29.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.0	63.0	0.5	8.3	29.9	0.1	20.0	0.0	0.0	20.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.02		0.72	0.35		0.16
Lane Grp Cap(c), veh/h	37	2113	898	160	2371	1007	345	0	0	172	0	0
V/C Ratio(X)	0.43	1.08	0.02	0.85	0.67	0.00	1.18	0.00	0.00	1.30	0.00	0.00
Avail Cap(c_a), veh/h	160	2113	898	160	2371	1007	345	0	0	172	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.21	0.21	0.21	0.66	0.66	0.66	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	53.2	23.5	10.1	49.2	12.4	7.1	46.2	0.0	0.0	46.1	0.0	0.0
Incr Delay (d2), s/veh	1.6	40.3	0.0	23.2	1.0	0.0	105.7	0.0	0.0	169.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	85.2	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (95%), veh/ln	0.8	70.5	0.3	7.6	17.8	0.1	29.5	0.0	0.0	21.1	0.0	0.0
Lane Grp Delay (d), s/veh	54.8	148.9	10.2	72.4	15.8	7.1	151.8	0.0	0.0	215.7	0.0	0.0
Lane Grp LOS	D	F	B	E	B	A	F			F		
Approach Vol, veh/h		2324			1734			406			223	
Approach Delay, s/veh		147.3			20.2			151.8			215.7	
Approach LOS		F			C			F			F	

Timer												
Assigned Phs	5	2		1	6			8			4	
Phs Duration (G+Y+Rc), s	7.3	70.0		15.0	77.7			25.0			25.0	
Change Period (Y+Rc), s	5.0	7.0		5.0	7.0			5.0			5.0	
Max Green Setting (Gmax), s	10.0	63.0		10.0	63.0			20.0			20.0	
Max Q Clear Time (g_c+I1), s	3.0	65.0		10.3	31.9			22.0			22.0	
Green Ext Time (p_c), s	0.0	0.0		0.0	29.8			0.0			0.0	

Intersection Summary												
HCM 2010 Ctrl Delay			104.0									
HCM 2010 LOS			F									

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	2400	155	65	1555	100	90	130	160	290	200	20
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	50	0	0	25	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	184.5	184.5	184.5	184.5	184.5	184.5	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	2	1	1	2	1	1	1	1	1	1	1
Cap, veh/h	27	2440	1037	87	2565	1090	279	293	249	279	293	249
Arrive On Green	0.02	0.66	0.66	0.05	0.70	0.70	0.16	0.16	0.00	0.16	0.16	0.00
Sat Flow, veh/h	1757	3689	1568	1757	3689	1568	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	11	2526	163	68	1637	105	95	137	0	305	211	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	1568	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.8	80.0	4.8	4.6	29.4	2.6	5.8	8.1	0.0	19.0	13.0	0.0
Cycle Q Clear(g_c), s	0.8	80.0	4.8	4.6	29.4	2.6	5.8	8.1	0.0	19.0	13.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	27	2440	1037	87	2565	1090	279	293	249	279	293	249
V/C Ratio(X)	0.41	1.04	0.16	0.79	0.64	0.10	0.34	0.47	0.00	1.09	0.72	0.00
Avail Cap(c_a), veh/h	102	2440	1037	102	2565	1090	279	293	249	279	293	249
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	59.0	20.5	7.7	56.9	10.1	6.0	45.4	46.4	0.0	51.0	48.5	0.0
Incr Delay (d2), s/veh	9.6	28.1	0.1	28.3	0.5	0.0	0.7	1.2	0.0	81.5	8.4	0.0
Initial Q Delay(d3),s/veh	0.0	73.8	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (95%), veh/ln	0.7	78.6	2.9	5.0	17.8	1.6	4.8	7.0	0.0	22.1	11.0	0.0
Lane Grp Delay (d), s/veh	68.6	122.3	7.8	85.2	12.5	6.1	46.1	47.5	0.0	132.5	56.9	0.0
Lane Grp LOS	E	F	A	F	B	A	D	D		F	E	
Approach Vol, veh/h		2700			1810			232			516	
Approach Delay, s/veh		115.2			14.9			47.0			101.6	
Approach LOS		F			B			D			F	

Timer												
Assigned Phs	5	2		1	6			8			4	
Phs Duration (G+Y+Rc), s	6.9	86.0		11.0	90.1			24.0			24.0	
Change Period (Y+Rc), s	5.0	6.0		5.0	6.0			5.0			5.0	
Max Green Setting (Gmax), s	7.0	80.0		7.0	80.0			8.0			19.0	
Max Q Clear Time (g_c+I1), s	2.8	82.0		6.6	31.4			10.1			21.0	
Green Ext Time (p_c), s	0.0	0.0		0.0	47.0			0.0			0.0	

Intersection Summary			
HCM 2010 Ctrl Delay		76.3	
HCM 2010 LOS		E	

Notes

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	20	115	225	265	255	5	0	2750	15	0	1800	150
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	50	0	0	25	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	190.0	188.1	188.1	190.0	188.1	188.1	0.0	186.3	186.3	0.0	186.3	186.3
Lanes	0	1	1	0	1	1	0	2	1	0	2	1
Cap, veh/h	61	309	306	174	130	306	0	2577	1095	0	2577	1095
Arrive On Green	0.19	0.19	0.00	0.19	0.19	0.00	0.00	0.69	0.69	0.00	0.69	0.69
Sat Flow, veh/h	139	1612	1599	674	676	1599	0	3725	1583	0	3725	1583
Grp Volume(v), veh/h	137	0	0	530	0	0	0	2806	15	0	1837	153
Grp Sat Flow(s),veh/h/ln	1750	0	1599	1350	0	1599	0	1863	1583	0	1863	1583
Q Serve(g_s), s	0.0	0.0	0.0	0.1	0.0	0.0	0.0	83.0	0.4	0.0	36.0	4.0
Cycle Q Clear(g_c), s	7.6	0.0	0.0	23.0	0.0	0.0	0.0	83.0	0.4	0.0	36.0	4.0
Prop In Lane	0.15		1.00	0.51		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	370	0	306	304	0	306	0	2577	1095	0	2577	1095
V/C Ratio(X)	0.37	0.00	0.00	1.74	0.00	0.00	0.00	1.09	0.01	0.00	0.71	0.14
Avail Cap(c_a), veh/h	370	0	306	304	0	306	0	2577	1095	0	2577	1095
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	42.3	0.0	0.0	51.1	0.0	0.0	0.0	18.5	5.8	0.0	11.3	6.3
Incr Delay (d2), s/veh	0.6	0.0	0.0	347.9	0.0	0.0	0.0	47.3	0.0	0.0	0.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	69.9	0.0	0.0	2.4	0.0
%ile Back of Q (95%), veh/ln	6.8	0.0	0.0	47.2	0.0	0.0	0.0	90.4	0.2	0.0	21.4	2.3
Lane Grp Delay (d), s/veh	42.9	0.0	0.0	399.0	0.0	0.0	0.0	135.6	5.8	0.0	14.6	6.4
Lane Grp LOS	D			F				F	A		B	A
Approach Vol, veh/h		137			530			2821			1990	
Approach Delay, s/veh		42.9			399.0			134.9			13.9	
Approach LOS		D			F			F			B	

Timer												
Assigned Phs		8		7	4			6			2	
Phs Duration (G+Y+Rc), s		30.0		0.0	30.0			90.0			90.0	
Change Period (Y+Rc), s		7.0		5.0	7.0			7.0			7.0	
Max Green Setting (Gmax), s		8.0		10.0	23.0			83.0			83.0	
Max Q Clear Time (g_c+I1), s		9.6		0.0	25.0			85.0			38.0	
Green Ext Time (p_c), s		0.0		0.0	0.0			0.0			44.4	

Intersection Summary		
HCM 2010 Ctrl Delay	114.2	
HCM 2010 LOS	F	

Notes

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	190	1315	55	0	1540	45	210	55	60	15	115	5
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	20	0	0	40	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	184.5	184.5	184.5	0.0	184.5	184.5	190.0	186.3	186.3	186.3	186.3	190.0
Lanes	1	2	1	0	2	1	0	1	1	1	1	0
Cap, veh/h	220	2460	1045	0	1845	784	253	52	383	60	429	18
Arrive On Green	0.13	0.67	0.00	0.00	0.50	0.00	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1757	3689	1568	0	3689	1568	824	216	1583	1265	1776	73
Grp Volume(v), veh/h	200	1384	0	0	1621	0	279	0	63	16	0	126
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	0	1845	1568	1041	0	1583	1265	0	1850
Q Serve(g_s), s	13.5	24.0	0.0	0.0	47.0	0.0	22.3	0.0	3.8	0.0	0.0	6.7
Cycle Q Clear(g_c), s	13.5	24.0	0.0	0.0	47.0	0.0	29.0	0.0	3.8	29.0	0.0	6.7
Prop In Lane	1.00		1.00	0.00		1.00	0.79		1.00	1.00		0.04
Lane Grp Cap(c), veh/h	220	2460	1045	0	1845	784	305	0	383	60	0	447
V/C Ratio(X)	0.91	0.56	0.00	0.00	0.88	0.00	0.91	0.00	0.16	0.27	0.00	0.28
Avail Cap(c_a), veh/h	220	2460	1045	0	1845	784	305	0	383	60	0	447
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.67	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	51.8	10.7	0.0	0.0	26.8	0.0	49.9	0.0	35.9	60.0	0.0	37.0
Incr Delay (d2), s/veh	37.3	0.9	0.0	0.0	4.4	0.0	30.4	0.0	0.2	2.3	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	1.1	0.0	0.0	27.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (95%), veh/ln	13.0	15.2	0.0	0.0	34.8	0.0	16.8	0.0	2.8	1.0	0.0	5.7
Lane Grp Delay (d), s/veh	89.1	12.7	0.0	0.0	59.1	0.0	80.3	0.0	36.1	62.3	0.0	37.4
Lane Grp LOS	F	B			E		F		D	E		D
Approach Vol, veh/h		1584			1621			342			142	
Approach Delay, s/veh		22.3			59.1			72.2			40.2	
Approach LOS		C			E			E			D	

Timer												
Assigned Phs	1	6			2			8			4	
Phs Duration (G+Y+Rc), s	20.0	86.0			66.0			34.0			34.0	
Change Period (Y+Rc), s	5.0	6.0			6.0			5.0			5.0	
Max Green Setting (Gmax), s	15.0	80.0			60.0			29.0			29.0	
Max Q Clear Time (g_c+I1), s	15.5	26.0			49.0			31.0			31.0	
Green Ext Time (p_c), s	0.0	40.6			10.2			0.0			0.0	

Intersection Summary												
HCM 2010 Ctrl Delay			43.8									
HCM 2010 LOS			D									

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	5	260	355	5	305	10	0	1375	15	475	1570	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	20	0	0	50	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	190.0	186.3	186.3	190.0	184.5	190.0	0.0	184.5	184.5	184.5	184.5	184.5
Lanes	0	1	1	0	1	0	0	2	1	1	2	1
Cap, veh/h	33	353	303	32	338	11	0	1476	627	468	2613	1111
Arrive On Green	0.19	0.19	0.00	0.19	0.19	0.19	0.00	0.40	0.00	0.27	0.71	0.00
Sat Flow, veh/h	10	1840	1583	9	1764	56	0	3689	1568	1757	3689	1568
Grp Volume(v), veh/h	270	0	0	326	0	0	0	1403	0	485	1602	0
Grp Sat Flow(s),veh/h/ln	1850	0	1583	1829	0	0	0	1845	1568	1757	1845	1568
Q Serve(g_s), s	0.0	0.0	0.0	4.6	0.0	0.0	0.0	44.2	0.0	32.0	26.9	0.0
Cycle Q Clear(g_c), s	16.5	0.0	0.0	21.0	0.0	0.0	0.0	44.2	0.0	32.0	26.9	0.0
Prop In Lane	0.02		1.00	0.02		0.03	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	385	0	303	381	0	0	0	1476	627	468	2613	1111
V/C Ratio(X)	0.70	0.00	0.00	0.86	0.00	0.00	0.00	0.95	0.00	1.04	0.61	0.00
Avail Cap(c_a), veh/h	385	0	303	381	0	0	0	1476	627	468	2613	1111
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.77	0.00	0.23	0.23	0.00
Uniform Delay (d), s/veh	45.9	0.0	0.0	47.7	0.0	0.0	0.0	34.9	0.0	44.0	9.0	0.0
Incr Delay (d2), s/veh	5.6	0.0	0.0	17.1	0.0	0.0	0.0	11.8	0.0	29.9	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.6	0.0	0.0	6.8	0.0
%ile Back of Q (95%), veh/ln	13.2	0.0	0.0	17.3	0.0	0.0	0.0	34.3	0.0	21.7	15.1	0.0
Lane Grp Delay (d), s/veh	51.4	0.0	0.0	64.8	0.0	0.0	0.0	73.3	0.0	73.9	16.1	0.0
Lane Grp LOS	D			E				E		F	B	
Approach Vol, veh/h		270			326			1403			2087	
Approach Delay, s/veh		51.4			64.8			73.3			29.5	
Approach LOS		D			E			E			C	

Timer												
Assigned Phs		4			8			2		1	6	
Phs Duration (G+Y+Rc), s		28.0			28.0			55.0		37.0	92.0	
Change Period (Y+Rc), s		5.0			5.0			7.0		5.0	7.0	
Max Green Setting (Gmax), s		23.0			23.0			48.0		32.0	85.0	
Max Q Clear Time (g_c+I1), s		18.5			23.0			46.2		34.0	28.9	
Green Ext Time (p_c), s		1.5			0.0			1.8		0.0	41.8	

Intersection Summary		
HCM 2010 Ctrl Delay	48.8	
HCM 2010 LOS	D	

Notes

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	30	1630	75	185	1930	35	110	145	130	35	175	20
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	25	0	0	50	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	182.7	182.7	182.7	179.2	179.2	190.0
Lanes	1	2	1	1	2	0	1	1	1	1	1	0
Cap, veh/h	58	2018	858	222	2361	0	156	350	492	182	303	34
Arrive On Green	0.02	0.36	0.00	0.13	0.63	0.00	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1774	3725	1583	1774	3725	0	1148	1827	1553	1042	1582	179
Grp Volume(v), veh/h	32	1734	0	197	2053	0	117	154	138	37	0	207
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	0	1148	1827	1553	1042	0	1761
Q Serve(g_s), s	2.1	51.7	0.0	13.1	53.9	0.0	10.1	8.9	8.0	3.9	0.0	12.9
Cycle Q Clear(g_c), s	2.1	51.7	0.0	13.1	53.9	0.0	23.0	8.9	8.0	12.8	0.0	12.9
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.10
Lane Grp Cap(c), veh/h	58	2018	858	222	2361	0	156	350	492	182	0	338
V/C Ratio(X)	0.55	0.86	0.00	0.89	0.87	0.00	0.75	0.44	0.28	0.20	0.00	0.61
Avail Cap(c_a), veh/h	89	2018	858	222	2361	0	156	350	492	182	0	338
HCM Platoon Ratio	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.16	0.16	0.00	0.14	0.14	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.8	34.0	0.0	51.7	17.9	0.0	55.8	42.8	30.7	48.5	0.0	44.4
Incr Delay (d2), s/veh	1.3	0.9	0.0	6.7	0.7	0.0	17.9	0.9	0.3	0.5	0.0	3.3
Initial Q Delay(d3),s/veh	0.0	7.9	0.0	0.0	24.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (95%), veh/ln	1.7	30.3	0.0	7.8	33.2	0.0	7.8	7.5	5.6	1.9	0.0	10.0
Lane Grp Delay (d), s/veh	59.1	42.7	0.0	58.3	43.3	0.0	73.7	43.7	31.1	49.0	0.0	47.7
Lane Grp LOS	E	D		E	D		E	D	C	D		D
Approach Vol, veh/h		1766			2250			409			244	
Approach Delay, s/veh		43.0			44.6			48.0			47.9	
Approach LOS		D			D			D			D	

Timer												
Assigned Phs	5	2		1	6			8			4	
Phs Duration (G+Y+Rc), s	8.9	72.0		20.0	83.1			28.0			28.0	
Change Period (Y+Rc), s	5.0	7.0		5.0	7.0			5.0			5.0	
Max Green Setting (Gmax), s	6.0	65.0		15.0	74.0			23.0			23.0	
Max Q Clear Time (g_c+I1), s	4.1	53.7		15.1	55.9			25.0			14.9	
Green Ext Time (p_c), s	0.0	11.0		0.0	17.5			0.0			1.9	

Intersection Summary	
HCM 2010 Ctrl Delay	44.5
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	50	1735	15	320	2100	15	10	105	125	40	140	40
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	20	0	0	50	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	184.5	184.5	184.5	184.5	184.5	184.5	190.0	186.3	190.0	190.0	186.3	190.0
Lanes	1	2	1	1	2	1	0	1	0	0	1	0
Cap, veh/h	73	1845	784	322	2368	1006	37	137	154	63	159	42
Arrive On Green	0.04	0.50	0.50	0.18	0.64	0.64	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1757	3689	1568	1757	3689	1568	34	781	881	158	908	239
Grp Volume(v), veh/h	53	1846	16	340	2234	16	256	0	0	235	0	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	1568	1695	0	0	1304	0	0
Q Serve(g_s), s	3.6	60.0	0.6	22.0	66.0	0.4	0.0	0.0	0.0	3.4	0.0	0.0
Cycle Q Clear(g_c), s	3.6	60.0	0.6	22.0	66.0	0.4	17.6	0.0	0.0	21.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.04		0.52	0.18		0.18
Lane Grp Cap(c), veh/h	73	1845	784	322	2368	1006	328	0	0	264	0	0
V/C Ratio(X)	0.73	1.00	0.02	1.06	0.94	0.02	0.78	0.00	0.00	0.89	0.00	0.00
Avail Cap(c_a), veh/h	88	1845	784	322	2368	1006	328	0	0	264	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.37	0.37	0.37	0.09	0.09	0.09	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	56.8	30.0	15.2	49.0	19.5	7.8	48.1	0.0	0.0	49.3	0.0	0.0
Incr Delay (d2), s/veh	8.6	12.9	0.0	32.4	1.1	0.0	11.5	0.0	0.0	29.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	39.0	0.0	0.0	50.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (95%), veh/ln	3.1	44.6	0.4	14.8	46.2	0.3	13.6	0.0	0.0	14.5	0.0	0.0
Lane Grp Delay (d), s/veh	65.4	81.9	15.2	81.4	71.1	7.8	59.6	0.0	0.0	78.3	0.0	0.0
Lane Grp LOS	E	F	B	F	E	A	E			E		
Approach Vol, veh/h		1915			2590			256			235	
Approach Delay, s/veh		80.9			72.1			59.6			78.3	
Approach LOS		F			E			E			E	

Timer												
Assigned Phs	5	2		1	6			8			4	
Phs Duration (G+Y+Rc), s	10.0	67.0		27.0	84.0			26.0			26.0	
Change Period (Y+Rc), s	5.0	7.0		5.0	7.0			5.0			5.0	
Max Green Setting (Gmax), s	6.0	60.0		22.0	76.0			21.0			21.0	
Max Q Clear Time (g_c+I1), s	5.6	62.0		24.0	68.0			19.6			23.0	
Green Ext Time (p_c), s	0.0	0.0		0.0	7.9			0.4			0.0	

Intersection Summary	
HCM 2010 Ctrl Delay	75.1
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	35	1750	110	115	2300	220	105	175	35	80	105	30
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	25	0	0	50	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	184.5	184.5	184.5	184.5	184.5	184.5	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	2	1	1	2	1	1	1	1	1	1	1
Cap, veh/h	60	2506	1065	141	2675	1137	200	210	178	200	210	178
Arrive On Green	0.03	0.68	0.68	0.08	0.73	0.73	0.11	0.11	0.00	0.11	0.11	0.00
Sat Flow, veh/h	1757	3689	1568	1757	3689	1568	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	36	1786	112	117	2347	224	107	179	0	82	107	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	1568	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	2.5	37.6	3.1	8.2	60.1	5.7	7.1	11.8	0.0	5.4	6.8	0.0
Cycle Q Clear(g_c), s	2.5	37.6	3.1	8.2	60.1	5.7	7.1	11.8	0.0	5.4	6.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	60	2506	1065	141	2675	1137	200	210	178	200	210	178
V/C Ratio(X)	0.60	0.71	0.11	0.83	0.88	0.20	0.54	0.85	0.00	0.41	0.51	0.00
Avail Cap(c_a), veh/h	141	2627	1116	141	2675	1137	213	224	190	213	224	190
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	59.5	12.5	6.9	56.7	13.0	5.5	52.4	54.4	0.0	51.6	52.2	0.0
Incr Delay (d2), s/veh	9.2	0.9	0.0	32.7	3.6	0.1	2.3	24.9	0.0	1.3	1.9	0.0
Initial Q Delay(d3),s/veh	0.0	2.5	0.0	0.0	20.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (95%), veh/ln	2.3	23.0	1.9	8.6	40.2	3.4	6.0	11.4	0.0	4.5	6.0	0.0
Lane Grp Delay (d), s/veh	68.7	15.8	7.0	89.4	37.1	5.6	54.6	79.3	0.0	52.9	54.1	0.0
Lane Grp LOS	E	B	A	F	D	A	D	E		D	D	
Approach Vol, veh/h		1934			2688			286			189	
Approach Delay, s/veh		16.3			36.8			70.1			53.6	
Approach LOS		B			D			E			D	

Timer												
Assigned Phs	5	2		1	6			8			4	
Phs Duration (G+Y+Rc), s	9.3	90.9		15.0	96.6			19.1			19.1	
Change Period (Y+Rc), s	5.0	6.0		5.0	6.0			5.0			5.0	
Max Green Setting (Gmax), s	10.0	89.0		10.0	89.0			15.0			15.0	
Max Q Clear Time (g_c+I1), s	4.5	39.6		10.2	62.1			13.8			8.8	
Green Ext Time (p_c), s	0.0	45.3		0.0	26.4			0.3			1.1	

Intersection Summary	
HCM 2010 Ctrl Delay	31.5
HCM 2010 LOS	C

Notes

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	35	115	85	190	335	5	0	1600	200	0	2500	120
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	25	0	0	50	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	190.0	188.1	188.1	190.0	188.1	188.1	0.0	186.3	186.3	0.0	186.3	186.3
Lanes	0	1	1	0	1	1	0	2	1	0	2	1
Cap, veh/h	81	242	306	134	176	306	0	2577	1095	0	2577	1095
Arrive On Green	0.19	0.19	0.00	0.19	0.19	0.00	0.00	0.69	0.69	0.00	0.69	0.69
Sat Flow, veh/h	230	1261	1599	487	920	1599	0	3725	1583	0	3725	1583
Grp Volume(v), veh/h	158	0	0	553	0	0	0	1684	211	0	2632	126
Grp Sat Flow(s),veh/h/ln	1491	0	1599	1407	0	1599	0	1863	1583	0	1863	1583
Q Serve(g_s), s	0.0	0.0	0.0	0.1	0.0	0.0	0.0	30.5	5.7	0.0	83.0	3.2
Cycle Q Clear(g_c), s	10.1	0.0	0.0	23.0	0.0	0.0	0.0	30.5	5.7	0.0	83.0	3.2
Prop In Lane	0.23		1.00	0.36		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	323	0	306	310	0	306	0	2577	1095	0	2577	1095
V/C Ratio(X)	0.49	0.00	0.00	1.78	0.00	0.00	0.00	0.65	0.19	0.00	1.02	0.12
Avail Cap(c_a), veh/h	323	0	306	310	0	306	0	2577	1095	0	2577	1095
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	42.9	0.0	0.0	50.7	0.0	0.0	0.0	10.4	6.6	0.0	18.5	6.2
Incr Delay (d2), s/veh	0.4	0.0	0.0	364.2	0.0	0.0	0.0	0.5	0.0	0.0	23.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	69.9	0.0
%ile Back of Q (95%), veh/ln	7.8	0.0	0.0	50.3	0.0	0.0	0.0	18.5	3.6	0.0	77.0	1.9
Lane Grp Delay (d), s/veh	43.4	0.0	0.0	414.9	0.0	0.0	0.0	12.8	6.6	0.0	111.7	6.2
Lane Grp LOS	D			F				B	A		F	A
Approach Vol, veh/h		158			553			1895			2758	
Approach Delay, s/veh		43.4			414.9			12.1			106.9	
Approach LOS		D			F			B			F	

Timer												
Assigned Phs		8		7	4			6			2	
Phs Duration (G+Y+Rc), s		30.0		0.0	30.0			90.0			90.0	
Change Period (Y+Rc), s		7.0		7.0	7.0			7.0			7.0	
Max Green Setting (Gmax), s		8.0		8.0	23.0			83.0			83.0	
Max Q Clear Time (g_c+I1), s		12.1		0.0	25.0			32.5			85.0	
Green Ext Time (p_c), s		0.0		0.0	0.0			44.8			0.0	

Intersection Summary												
HCM 2010 Ctrl Delay			103.3									
HCM 2010 LOS			F									

Notes

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	510	1550	305	0	1200	70	70	25	15	5	110	0
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	50	0	0	25	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	188.1	184.5	184.5	0.0	184.5	184.5	190.0	186.3	186.3	186.3	186.3	190.0
Lanes	1	2	1	0	2	1	0	1	1	1	1	0
Cap, veh/h	562	2817	1197	0	1493	635	139	41	216	89	254	0
Arrive On Green	0.31	0.76	0.00	0.00	0.40	0.00	0.14	0.14	0.14	0.14	0.14	0.00
Sat Flow, veh/h	1792	3689	1568	0	3689	1568	602	299	1583	1367	1863	0
Grp Volume(v), veh/h	537	1632	0	0	1263	0	100	0	16	5	116	0
Grp Sat Flow(s),veh/h/ln	1792	1845	1568	0	1845	1568	901	0	1583	1367	1863	0
Q Serve(g_s), s	32.3	20.6	0.0	0.0	34.1	0.0	6.8	0.0	1.0	0.4	6.3	0.0
Cycle Q Clear(g_c), s	32.3	20.6	0.0	0.0	34.1	0.0	13.1	0.0	1.0	13.5	6.3	0.0
Prop In Lane	1.00		1.00	0.00		1.00	0.74		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	562	2817	1197	0	1493	635	180	0	216	89	254	0
V/C Ratio(X)	0.96	0.58	0.00	0.00	0.85	0.00	0.56	0.00	0.07	0.06	0.46	0.00
Avail Cap(c_a), veh/h	570	2817	1197	0	1493	635	180	0	216	89	254	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	37.0	5.5	0.0	0.0	29.6	0.0	48.7	0.0	41.4	53.3	43.7	0.0
Incr Delay (d2), s/veh	26.9	0.9	0.0	0.0	6.1	0.0	3.8	0.0	0.1	0.3	1.3	0.0
Initial Q Delay(d3),s/veh	0.0	5.4	0.0	0.0	13.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (95%), veh/ln	25.4	13.6	0.0	0.0	25.7	0.0	5.3	0.0	0.7	0.3	5.6	0.0
Lane Grp Delay (d), s/veh	63.9	11.8	0.0	0.0	48.8	0.0	52.4	0.0	41.6	53.5	45.0	0.0
Lane Grp LOS	E	B			D		D		D	D	D	
Approach Vol, veh/h		2169			1263			116			121	
Approach Delay, s/veh		24.7			48.8			50.9			45.4	
Approach LOS		C			D			D			D	

Timer												
Assigned Phs	1	6			2			8			4	
Phs Duration (G+Y+Rc), s	39.5	90.0			50.5			20.0			20.0	
Change Period (Y+Rc), s	5.0	6.0			6.0			5.0			5.0	
Max Green Setting (Gmax), s	35.0	84.0			44.0			15.0			15.0	
Max Q Clear Time (g_c+I1), s	34.3	22.6			36.1			15.1			15.5	
Green Ext Time (p_c), s	0.2	42.6			7.4			0.0			0.0	

Intersection Summary												
HCM 2010 Ctrl Delay			34.5									
HCM 2010 LOS			C									

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	15	410	485	0	145	15	0	1600	15	310	1230	5
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	50	0	0	25	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	190.0	186.3	186.3	190.0	186.3	190.0	0.0	184.5	184.5	184.5	184.5	190.0
Lanes	0	1	1	0	1	0	0	2	1	2	2	0
Cap, veh/h	41	413	360	0	377	39	0	1912	812	341	2448	0
Arrive On Green	0.23	0.23	0.00	0.00	0.23	0.23	0.00	0.52	0.00	0.10	0.66	0.00
Sat Flow, veh/h	32	1815	1583	0	1657	173	0	3689	1568	3408	3689	0
Grp Volume(v), veh/h	448	0	0	0	0	169	0	1684	0	326	1295	0
Grp Sat Flow(s),veh/h/ln	1847	0	1583	0	0	1831	0	1845	1568	1704	1845	0
Q Serve(g_s), s	12.3	0.0	0.0	0.0	0.0	8.6	0.0	44.5	0.0	10.5	20.0	0.0
Cycle Q Clear(g_c), s	25.0	0.0	0.0	0.0	0.0	8.6	0.0	44.5	0.0	10.5	20.0	0.0
Prop In Lane	0.04		1.00	0.00		0.09	0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	454	0	360	0	0	416	0	1912	812	341	2448	0
V/C Ratio(X)	0.99	0.00	0.00	0.00	0.00	0.41	0.00	0.88	0.00	0.96	0.53	0.00
Avail Cap(c_a), veh/h	454	0	360	0	0	416	0	1912	812	341	2448	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00	0.56	0.56	0.00
Uniform Delay (d), s/veh	43.2	0.0	0.0	0.0	0.0	36.2	0.0	23.5	0.0	49.3	9.6	0.0
Incr Delay (d2), s/veh	38.8	0.0	0.0	0.0	0.0	0.6	0.0	6.2	0.0	25.9	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	41.3	0.0	0.0	1.6	0.0
%ile Back of Q (95%), veh/ln	24.5	0.0	0.0	0.0	0.0	7.3	0.0	38.7	0.0	8.6	11.9	0.0
Lane Grp Delay (d), s/veh	82.1	0.0	0.0	0.0	0.0	36.8	0.0	71.1	0.0	75.2	11.6	0.0
Lane Grp LOS	F					D		E		E	B	
Approach Vol, veh/h		448			169			1684			1621	
Approach Delay, s/veh		82.1			36.8			71.1			24.4	
Approach LOS		F			D			E			C	

Timer												
Assigned Phs		8			4			2		1	6	
Phs Duration (G+Y+Rc), s		30.0			30.0			64.0		16.0	80.0	
Change Period (Y+Rc), s		5.0			5.0			7.0		5.0	7.0	
Max Green Setting (Gmax), s		25.0			25.0			57.0		11.0	73.0	
Max Q Clear Time (g_c+I1), s		27.0			10.6			46.5		12.5	22.0	
Green Ext Time (p_c), s		0.0			3.3			8.7		0.0	26.1	

Intersection Summary												
HCM 2010 Ctrl Delay			51.6									
HCM 2010 LOS			D									

Notes

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	55	1800	135	125	1415	35	100	255	250	20	170	20
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	35	0	0	10	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	182.7	182.7	182.7	179.2	179.2	190.0
Lanes	1	2	1	1	2	0	1	1	1	1	1	0
Cap, veh/h	80	2170	922	159	2336	0	157	333	421	103	287	34
Arrive On Green	0.09	1.00	0.00	0.09	0.63	0.00	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1774	3725	1583	1774	3725	0	1184	1827	1545	899	1574	185
Grp Volume(v), veh/h	58	1895	0	132	1489	0	105	268	263	21	0	200
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	0	1184	1827	1545	899	0	1759
Q Serve(g_s), s	3.5	0.0	0.0	8.0	27.3	0.0	8.5	15.4	16.4	2.5	0.0	11.5
Cycle Q Clear(g_c), s	3.5	0.0	0.0	8.0	27.3	0.0	20.0	15.4	16.4	18.0	0.0	11.5
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.10
Lane Grp Cap(c), veh/h	80	2170	922	159	2336	0	157	333	421	103	0	320
V/C Ratio(X)	0.72	0.87	0.00	0.83	0.64	0.00	0.67	0.81	0.63	0.20	0.00	0.62
Avail Cap(c_a), veh/h	129	2170	922	161	2336	0	157	333	421	103	0	320
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.37	0.37	0.00	0.59	0.59	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	49.3	0.0	0.0	49.2	12.7	0.0	51.2	43.1	35.1	51.7	0.0	41.5
Incr Delay (d2), s/veh	4.5	2.1	0.0	18.6	0.8	0.0	10.5	13.5	2.9	1.0	0.0	3.8
Initial Q Delay(d3),s/veh	0.0	14.8	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (95%), veh/ln	2.9	5.6	0.0	7.1	15.6	0.0	6.1	13.0	10.7	1.1	0.0	9.2
Lane Grp Delay (d), s/veh	53.8	16.8	0.0	67.7	13.9	0.0	61.7	56.6	38.0	52.6	0.0	45.2
Lane Grp LOS	D	B		E	B		E	E	D	D		D
Approach Vol, veh/h		1953			1621			636			221	
Approach Delay, s/veh		17.9			18.3			49.7			45.9	
Approach LOS		B			B			D			D	

Timer												
Assigned Phs	5	2		1	6			8			4	
Phs Duration (G+Y+Rc), s	10.0	70.0		14.9	74.9			25.0			25.0	
Change Period (Y+Rc), s	5.0	6.0		5.0	6.0			5.0			5.0	
Max Green Setting (Gmax), s	8.0	64.0		10.0	66.0			20.0			20.0	
Max Q Clear Time (g_c+I1), s	5.5	2.0		10.0	29.3			22.0			20.0	
Green Ext Time (p_c), s	0.0	51.3		0.0	32.7			0.0			0.0	

Intersection Summary	
HCM 2010 Ctrl Delay	24.0
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	15	2200	15	130	1530	5	10	100	280	75	105	35
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	50	0	0	25	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	184.5	184.5	184.5	184.5	184.5	184.5	190.0	186.3	186.3	186.3	186.3	190.0
Lanes	1	2	1	1	2	1	0	1	1	1	1	0
Cap, veh/h	37	2113	898	160	2371	1007	47	321	430	199	244	80
Arrive On Green	0.02	0.57	0.57	0.09	0.64	0.64	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1757	3689	1568	1757	3689	1568	65	1767	1575	1037	1340	442
Grp Volume(v), veh/h	16	2292	16	135	1594	5	114	0	292	78	0	145
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	1568	1832	0	1575	1037	0	1782
Q Serve(g_s), s	1.0	63.0	0.5	8.3	29.9	0.1	0.0	0.0	18.2	7.8	0.0	8.0
Cycle Q Clear(g_c), s	1.0	63.0	0.5	8.3	29.9	0.1	5.9	0.0	18.2	13.7	0.0	8.0
Prop In Lane	1.00		1.00	1.00		1.00	0.09		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	37	2113	898	160	2371	1007	369	0	430	199	0	324
V/C Ratio(X)	0.43	1.08	0.02	0.85	0.67	0.00	0.31	0.00	0.68	0.39	0.00	0.45
Avail Cap(c_a), veh/h	160	2113	898	160	2371	1007	369	0	430	199	0	324
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.21	0.21	0.21	0.69	0.69	0.69	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	53.2	23.5	10.1	49.2	12.4	7.1	39.2	0.0	35.7	45.2	0.0	40.1
Incr Delay (d2), s/veh	1.6	40.3	0.0	24.0	1.1	0.0	0.5	0.0	4.3	1.3	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	85.2	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (95%), veh/ln	0.8	70.5	0.3	7.7	17.9	0.1	5.1	0.0	12.3	3.9	0.0	6.7
Lane Grp Delay (d), s/veh	54.8	148.9	10.2	73.2	15.9	7.1	39.7	0.0	40.0	46.4	0.0	41.0
Lane Grp LOS	D	F	B	E	B	A	D		D	D		D
Approach Vol, veh/h		2324			1734			406			223	
Approach Delay, s/veh		147.3			20.3			39.9			42.9	
Approach LOS		F			C			D			D	

Timer												
Assigned Phs	5	2		1	6			8			4	
Phs Duration (G+Y+Rc), s	7.3	70.0		15.0	77.7			25.0			25.0	
Change Period (Y+Rc), s	5.0	7.0		5.0	7.0			5.0			5.0	
Max Green Setting (Gmax), s	10.0	63.0		10.0	63.0			20.0			20.0	
Max Q Clear Time (g_c+I1), s	3.0	65.0		10.3	31.9			20.2			15.7	
Green Ext Time (p_c), s	0.0	0.0		0.0	29.8			0.0			1.2	

Intersection Summary		
HCM 2010 Ctrl Delay		86.1
HCM 2010 LOS		F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	2400	155	65	1555	100	90	130	160	290	200	20
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	50	0	0	25	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	184.5	184.5	184.5	184.5	184.5	184.5	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	2	1	1	2	1	1	1	1	1	1	1
Cap, veh/h	27	2235	950	87	2360	1003	162	157	133	224	392	333
Arrive On Green	0.02	0.61	0.61	0.05	0.64	0.64	0.08	0.08	0.00	0.08	0.21	0.00
Sat Flow, veh/h	1757	3689	1568	1757	3689	1568	1201	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	11	2526	163	68	1637	105	95	137	0	305	211	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	1568	1201	1863	1583	1774	1863	1583
Q Serve(g_s), s	0.7	72.0	5.4	4.5	34.2	3.1	9.4	8.6	0.0	10.0	12.0	0.0
Cycle Q Clear(g_c), s	0.7	72.0	5.4	4.5	34.2	3.1	9.4	8.6	0.0	10.0	12.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	27	2235	950	87	2360	1003	162	157	133	224	392	333
V/C Ratio(X)	0.41	1.13	0.17	0.79	0.69	0.10	0.59	0.87	0.00	1.36	0.54	0.00
Avail Cap(c_a), veh/h	103	2235	950	103	2360	1003	162	157	133	224	392	333
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	58.0	23.4	10.3	55.9	13.9	8.3	54.1	53.8	0.0	48.1	41.8	0.0
Incr Delay (d2), s/veh	9.6	64.9	0.1	27.4	0.9	0.0	5.5	38.2	0.0	188.0	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	80.5	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (95%), veh/ln	0.7	93.1	3.5	4.9	21.2	1.9	5.6	9.7	0.0	21.8	9.7	0.0
Lane Grp Delay (d), s/veh	67.5	168.9	10.4	83.2	17.4	8.3	59.6	92.0	0.0	236.1	43.3	0.0
Lane Grp LOS	E	F	B	F	B	A	E	F		F	D	
Approach Vol, veh/h		2700			1810			232			516	
Approach Delay, s/veh		158.9			19.3			78.8			157.3	
Approach LOS		F			B			E			F	

Timer												
Assigned Phs	5	2		1	6			8		7	4	
Phs Duration (G+Y+Rc), s	6.8	78.0		10.9	82.0			15.0		15.0	30.0	
Change Period (Y+Rc), s	5.0	6.0		5.0	6.0			5.0		5.0	5.0	
Max Green Setting (Gmax), s	7.0	72.0		7.0	72.0			10.0		10.0	25.0	
Max Q Clear Time (g_c+I1), s	2.7	74.0		6.5	36.2			11.4		12.0	14.0	
Green Ext Time (p_c), s	0.0	0.0		0.0	35.0			0.0		0.0	1.7	

Intersection Summary			
HCM 2010 Ctrl Delay		107.2	
HCM 2010 LOS		F	

Notes

User approved pedestrian interval to be less than phase max green.

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	20	115	225	265	255	5	0	2750	15	0	1800	150
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	10	0	0	50	0	0	25	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	190.0	188.1	188.1	190.0	188.1	188.1	0.0	186.3	186.3	0.0	186.3	186.3
Lanes	0	1	1	0	1	1	0	2	1	0	2	1
Cap, veh/h	61	309	306	175	130	306	0	2577	1095	0	2577	1095
Arrive On Green	0.19	0.19	0.00	0.19	0.19	0.00	0.00	0.69	0.69	0.00	0.69	0.69
Sat Flow, veh/h	139	1612	1599	677	678	1599	0	3725	1583	0	3725	1583
Grp Volume(v), veh/h	137	0	0	530	0	0	0	2806	15	0	1837	153
Grp Sat Flow(s),veh/h/ln	1750	0	1599	1355	0	1599	0	1863	1583	0	1863	1583
Q Serve(g_s), s	0.0	0.0	0.0	0.1	0.0	0.0	0.0	83.0	0.4	0.0	36.0	4.0
Cycle Q Clear(g_c), s	7.6	0.0	0.0	23.0	0.0	0.0	0.0	83.0	0.4	0.0	36.0	4.0
Prop In Lane	0.15		1.00	0.51		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	370	0	306	305	0	306	0	2577	1095	0	2577	1095
V/C Ratio(X)	0.37	0.00	0.00	1.74	0.00	0.00	0.00	1.09	0.01	0.00	0.71	0.14
Avail Cap(c_a), veh/h	370	0	306	305	0	306	0	2577	1095	0	2577	1095
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	42.3	0.0	0.0	51.0	0.0	0.0	0.0	18.5	5.8	0.0	11.3	6.3
Incr Delay (d2), s/veh	0.6	0.0	0.0	345.5	0.0	0.0	0.0	47.3	0.0	0.0	0.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	118.1	0.0	0.0	0.0	69.9	0.0	0.0	2.4	0.0
%ile Back of Q (95%), veh/ln	6.8	0.0	0.0	57.0	0.0	0.0	0.0	90.4	0.2	0.0	21.4	2.3
Lane Grp Delay (d), s/veh	42.9	0.0	0.0	514.6	0.0	0.0	0.0	135.6	5.8	0.0	14.6	6.4
Lane Grp LOS	D			F				F	A		B	A
Approach Vol, veh/h		137			530			2821			1990	
Approach Delay, s/veh		42.9			514.6			134.9			13.9	
Approach LOS		D			F			F			B	

Timer												
Assigned Phs		8		7	4			6			2	
Phs Duration (G+Y+Rc), s		30.0		0.0	30.0			90.0			90.0	
Change Period (Y+Rc), s		7.0		5.0	7.0			7.0			7.0	
Max Green Setting (Gmax), s		8.0		10.0	23.0			83.0			83.0	
Max Q Clear Time (g_c+I1), s		9.6		0.0	25.0			85.0			38.0	
Green Ext Time (p_c), s		0.0		0.0	0.0			0.0			44.4	

Intersection Summary		
HCM 2010 Ctrl Delay	125.4	
HCM 2010 LOS	F	

Notes

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	190	1315	55	0	1540	45	210	55	60	15	115	5
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	20	0	0	40	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	184.5	184.5	184.5	0.0	184.5	184.5	190.0	186.3	186.3	186.3	186.3	190.0
Lanes	1	2	1	0	2	1	0	1	1	1	1	0
Cap, veh/h	228	2500	1063	0	1870	795	281	60	366	69	411	17
Arrive On Green	0.13	0.68	0.00	0.00	0.51	0.00	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1757	3689	1568	0	3689	1568	983	258	1583	1595	1776	73
Grp Volume(v), veh/h	200	1384	0	0	1621	0	279	0	63	16	0	126
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	0	1845	1568	1241	0	1583	1595	0	1850
Q Serve(g_s), s	13.5	23.4	0.0	0.0	46.8	0.0	20.5	0.0	3.9	0.7	0.0	6.8
Cycle Q Clear(g_c), s	13.5	23.4	0.0	0.0	46.8	0.0	27.3	0.0	3.9	28.0	0.0	6.8
Prop In Lane	1.00		1.00	0.00		1.00	0.79		1.00	1.00		0.04
Lane Grp Cap(c), veh/h	228	2500	1063	0	1870	795	340	0	366	69	0	428
V/C Ratio(X)	0.88	0.55	0.00	0.00	0.87	0.00	0.82	0.00	0.17	0.23	0.00	0.29
Avail Cap(c_a), veh/h	276	2500	1063	0	1870	795	340	0	366	69	0	428
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.65	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	51.7	10.1	0.0	0.0	26.3	0.0	49.6	0.0	37.2	60.3	0.0	38.4
Incr Delay (d2), s/veh	22.9	0.9	0.0	0.0	3.8	0.0	14.6	0.0	0.2	1.7	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	1.0	0.0	0.0	24.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (95%), veh/ln	12.0	15.0	0.0	0.0	33.8	0.0	15.3	0.0	2.8	1.0	0.0	5.9
Lane Grp Delay (d), s/veh	74.7	12.0	0.0	0.0	54.9	0.0	64.2	0.0	37.4	62.0	0.0	38.7
Lane Grp LOS	E	B			D		E		D	E		D
Approach Vol, veh/h		1584			1621			342			142	
Approach Delay, s/veh		19.9			54.9			59.3			41.3	
Approach LOS		B			D			E			D	

Timer												
Assigned Phs	1	6			2			8			4	
Phs Duration (G+Y+Rc), s	20.7	88.0			67.3			33.0			33.0	
Change Period (Y+Rc), s	5.0	6.0			6.0			5.0			5.0	
Max Green Setting (Gmax), s	19.0	82.0			57.0			28.0			28.0	
Max Q Clear Time (g_c+I1), s	15.5	25.4			48.8			29.3			30.0	
Green Ext Time (p_c), s	0.2	42.1			7.7			0.0			0.0	

Intersection Summary												
HCM 2010 Ctrl Delay			39.7									
HCM 2010 LOS			D									

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	5	260	355	5	305	10	0	1375	15	475	1570	15
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	20	0	0	50	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	190.0	186.3	186.3	190.0	184.5	190.0	0.0	184.5	184.5	184.5	184.5	184.5
Lanes	0	1	1	0	1	0	0	2	1	2	2	1
Cap, veh/h	33	375	322	33	359	11	0	1814	771	544	2561	1088
Arrive On Green	0.20	0.20	0.00	0.20	0.20	0.20	0.00	0.49	0.00	0.16	0.69	0.00
Sat Flow, veh/h	10	1847	1583	9	1766	56	0	3689	1568	3408	3689	1568
Grp Volume(v), veh/h	270	0	0	326	0	0	0	1403	0	485	1602	0
Grp Sat Flow(s),veh/h/ln	1857	0	1583	1832	0	0	0	1845	1568	1704	1845	1568
Q Serve(g_s), s	0.0	0.0	0.0	4.1	0.0	0.0	0.0	36.4	0.0	16.3	27.4	0.0
Cycle Q Clear(g_c), s	15.8	0.0	0.0	20.1	0.0	0.0	0.0	36.4	0.0	16.3	27.4	0.0
Prop In Lane	0.02		1.00	0.02		0.03	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	409	0	322	403	0	0	0	1814	771	544	2561	1088
V/C Ratio(X)	0.66	0.00	0.00	0.81	0.00	0.00	0.00	0.77	0.00	0.89	0.63	0.00
Avail Cap(c_a), veh/h	461	0	366	455	0	0	0	1814	771	584	2561	1088
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.00	0.78	0.00	0.23	0.23	0.00
Uniform Delay (d), s/veh	43.3	0.0	0.0	45.1	0.0	0.0	0.0	24.3	0.0	48.0	9.7	0.0
Incr Delay (d2), s/veh	3.0	0.0	0.0	9.4	0.0	0.0	0.0	2.6	0.0	4.3	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9	0.0	0.0	7.3	0.0
%ile Back of Q (95%), veh/ln	12.4	0.0	0.0	15.8	0.0	0.0	0.0	23.5	0.0	9.5	15.7	0.0
Lane Grp Delay (d), s/veh	46.3	0.0	0.0	54.5	0.0	0.0	0.0	30.8	0.0	52.3	17.3	0.0
Lane Grp LOS	D			D				C		D	B	
Approach Vol, veh/h		270			326			1403			2087	
Approach Delay, s/veh		46.3			54.5			30.8			25.4	
Approach LOS		D			D			C			C	

Timer												
Assigned Phs		8			4			2		1	6	
Phs Duration (G+Y+Rc), s		28.7			28.7			64.4		23.6	88.0	
Change Period (Y+Rc), s		5.0			5.0			7.0		5.0	7.0	
Max Green Setting (Gmax), s		27.0			27.0			56.0		20.0	81.0	
Max Q Clear Time (g_c+I1), s		17.8			22.1			38.4		18.3	29.4	
Green Ext Time (p_c), s		2.5			1.6			15.8		0.4	39.3	

Intersection Summary		
HCM 2010 Ctrl Delay	31.0	
HCM 2010 LOS	C	

Notes

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	30	1630	75	185	1930	35	110	145	130	35	175	20
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	25	0	0	50	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	190.0	182.7	182.7	182.7	179.2	179.2	190.0
Lanes	1	2	1	2	2	0	1	1	1	1	1	0
Cap, veh/h	59	2180	926	260	2338	0	189	356	420	222	309	35
Arrive On Green	0.03	0.59	0.00	0.08	0.63	0.00	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	1774	3725	1583	3442	3725	0	1452	1827	1553	1330	1581	179
Grp Volume(v), veh/h	32	1734	0	197	2053	0	117	154	138	37	0	207
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1721	1863	0	1452	1827	1553	1330	0	1760
Q Serve(g_s), s	2.1	42.6	0.0	6.6	53.9	0.0	9.4	8.7	8.4	3.0	0.0	12.6
Cycle Q Clear(g_c), s	2.1	42.6	0.0	6.6	53.9	0.0	22.1	8.7	8.4	11.7	0.0	12.6
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	1.00		0.10
Lane Grp Cap(c), veh/h	59	2180	926	260	2338	0	189	356	420	222	0	343
V/C Ratio(X)	0.55	0.80	0.00	0.76	0.88	0.00	0.62	0.43	0.33	0.17	0.00	0.60
Avail Cap(c_a), veh/h	90	2180	926	438	2338	0	189	356	420	222	0	343
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.44	0.44	0.00	0.31	0.31	0.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.1	19.0	0.0	53.4	18.2	0.0	53.4	41.7	34.4	46.9	0.0	43.3
Incr Delay (d2), s/veh	3.5	1.4	0.0	1.4	1.7	0.0	6.1	0.8	0.5	0.4	0.0	3.0
Initial Q Delay(d3),s/veh	0.0	4.6	0.0	0.0	27.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (95%), veh/ln	1.8	24.3	0.0	4.5	35.6	0.0	6.8	7.3	5.9	1.8	0.0	9.8
Lane Grp Delay (d), s/veh	59.6	25.0	0.0	54.9	46.8	0.0	59.5	42.5	34.9	47.2	0.0	46.2
Lane Grp LOS	E	C		D	D		E	D	C	D		D
Approach Vol, veh/h		1766			2250			409			244	
Approach Delay, s/veh		25.6			47.5			44.8			46.4	
Approach LOS		C			D			D			D	

Timer												
Assigned Phs	5	2		1	6			8			4	
Phs Duration (G+Y+Rc), s	8.9	76.0		13.9	81.0			28.0			28.0	
Change Period (Y+Rc), s	5.0	7.0		5.0	7.0			5.0			5.0	
Max Green Setting (Gmax), s	6.0	65.0		15.0	74.0			23.0			23.0	
Max Q Clear Time (g_c+I1), s	4.1	44.6		8.6	55.9			24.1			14.6	
Green Ext Time (p_c), s	0.0	19.7		0.3	17.5			0.0			1.9	

Intersection Summary	
HCM 2010 Ctrl Delay	39.0
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	50	1735	15	320	2100	15	10	105	125	40	140	40
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	20	0	0	40	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	188.1	184.5	188.1	188.1	184.5	188.1	190.0	186.3	186.3	186.3	186.3	190.0
Lanes	1	2	1	1	2	1	0	1	1	1	1	0
Cap, veh/h	74	1998	866	343	2553	1106	36	153	500	84	174	50
Arrive On Green	0.04	0.54	0.54	0.19	0.69	0.69	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	1792	3689	1599	1792	3689	1599	26	1227	1572	1434	1388	401
Grp Volume(v), veh/h	53	1846	16	340	2234	16	123	0	133	43	0	192
Grp Sat Flow(s),veh/h/ln	1792	1845	1599	1792	1845	1599	1252	0	1572	1434	0	1789
Q Serve(g_s), s	3.5	55.1	0.6	22.7	56.8	0.4	0.4	0.0	7.6	2.0	0.0	12.6
Cycle Q Clear(g_c), s	3.5	55.1	0.6	22.7	56.8	0.4	13.0	0.0	7.6	15.0	0.0	12.6
Prop In Lane	1.00		1.00	1.00		1.00	0.09		1.00	1.00		0.22
Lane Grp Cap(c), veh/h	74	1998	866	343	2553	1106	189	0	500	84	0	224
V/C Ratio(X)	0.71	0.92	0.02	0.99	0.88	0.01	0.65	0.00	0.27	0.51	0.00	0.86
Avail Cap(c_a), veh/h	90	1998	866	343	2553	1106	189	0	500	84	0	224
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.43	0.43	0.43	0.09	0.09	0.09	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.8	25.2	12.7	48.4	14.4	5.8	49.3	0.0	30.6	59.4	0.0	51.5
Incr Delay (d2), s/veh	8.8	4.2	0.0	12.3	0.4	0.0	7.6	0.0	0.3	5.1	0.0	26.8
Initial Q Delay(d3),s/veh	0.0	9.5	0.0	0.0	14.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (95%), veh/ln	3.2	32.8	0.4	13.0	29.2	0.2	7.1	0.0	5.5	2.6	0.0	12.0
Lane Grp Delay (d), s/veh	65.6	38.9	12.7	60.7	29.0	5.8	56.9	0.0	30.9	64.5	0.0	78.3
Lane Grp LOS	E	D	B	E	C	A	E		C	E		E
Approach Vol, veh/h		1915			2590			256			235	
Approach Delay, s/veh		39.4			33.1			43.4			75.8	
Approach LOS		D			C			D			E	

Timer												
Assigned Phs	5	2		1	6			8			4	
Phs Duration (G+Y+Rc), s	10.0	72.0		28.0	90.0			20.0			20.0	
Change Period (Y+Rc), s	5.0	7.0		5.0	7.0			5.0			5.0	
Max Green Setting (Gmax), s	6.0	65.0		23.0	82.0			15.0			15.0	
Max Q Clear Time (g_c+I1), s	5.5	57.1		24.7	58.8			15.0			17.0	
Green Ext Time (p_c), s	0.0	7.8		0.0	22.7			0.0			0.0	

Intersection Summary			
HCM 2010 Ctrl Delay		38.0	
HCM 2010 LOS		D	

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	35	1750	110	115	2300	220	105	175	35	80	105	30
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	25	0	0	50	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	184.5	184.5	184.5	184.5	184.5	184.5	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	2	1	1	2	1	1	1	1	1	1	1
Cap, veh/h	60	2506	1065	142	2678	1138	198	208	177	198	208	177
Arrive On Green	0.03	0.68	0.68	0.08	0.73	0.73	0.11	0.11	0.00	0.11	0.11	0.00
Sat Flow, veh/h	1757	3689	1568	1757	3689	1568	1774	1863	1583	1774	1863	1583
Grp Volume(v), veh/h	36	1786	112	117	2347	224	107	179	0	82	107	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1568	1757	1845	1568	1774	1863	1583	1774	1863	1583
Q Serve(g_s), s	2.5	37.6	3.1	8.2	59.9	5.7	7.1	11.8	0.0	5.4	6.8	0.0
Cycle Q Clear(g_c), s	2.5	37.6	3.1	8.2	59.9	5.7	7.1	11.8	0.0	5.4	6.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	60	2506	1065	142	2678	1138	198	208	177	198	208	177
V/C Ratio(X)	0.60	0.71	0.11	0.82	0.88	0.20	0.54	0.86	0.00	0.41	0.51	0.00
Avail Cap(c_a), veh/h	211	2628	1117	211	2678	1138	213	224	190	198	208	177
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	59.5	12.5	6.9	56.5	12.9	5.5	52.4	54.5	0.0	51.7	52.3	0.0
Incr Delay (d2), s/veh	9.2	0.9	0.0	14.9	3.6	0.1	2.3	25.8	0.0	1.4	2.1	0.0
Initial Q Delay(d3),s/veh	0.0	2.5	0.0	0.0	20.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (95%), veh/ln	2.3	23.1	1.9	7.6	40.2	3.4	6.0	11.4	0.0	4.5	6.0	0.0
Lane Grp Delay (d), s/veh	68.6	15.8	7.0	71.5	36.8	5.6	54.7	80.3	0.0	53.0	54.4	0.0
Lane Grp LOS	E	B	A	E	D	A	D	F		D	D	
Approach Vol, veh/h		1934			2688			286			189	
Approach Delay, s/veh		16.3			35.7			70.7			53.8	
Approach LOS		B			D			E			D	

Timer												
Assigned Phs	5	2		1	6			8			4	
Phs Duration (G+Y+Rc), s	9.3	90.8		15.1	96.7			19.0			19.0	
Change Period (Y+Rc), s	5.0	6.0		5.0	6.0			5.0			5.0	
Max Green Setting (Gmax), s	15.0	89.0		15.0	89.0			15.0			10.0	
Max Q Clear Time (g_c+I1), s	4.5	39.6		10.2	61.9			13.8			8.8	
Green Ext Time (p_c), s	0.0	45.2		0.1	26.6			0.2			0.3	

Intersection Summary												
HCM 2010 Ctrl Delay			31.0									
HCM 2010 LOS			C									

Notes

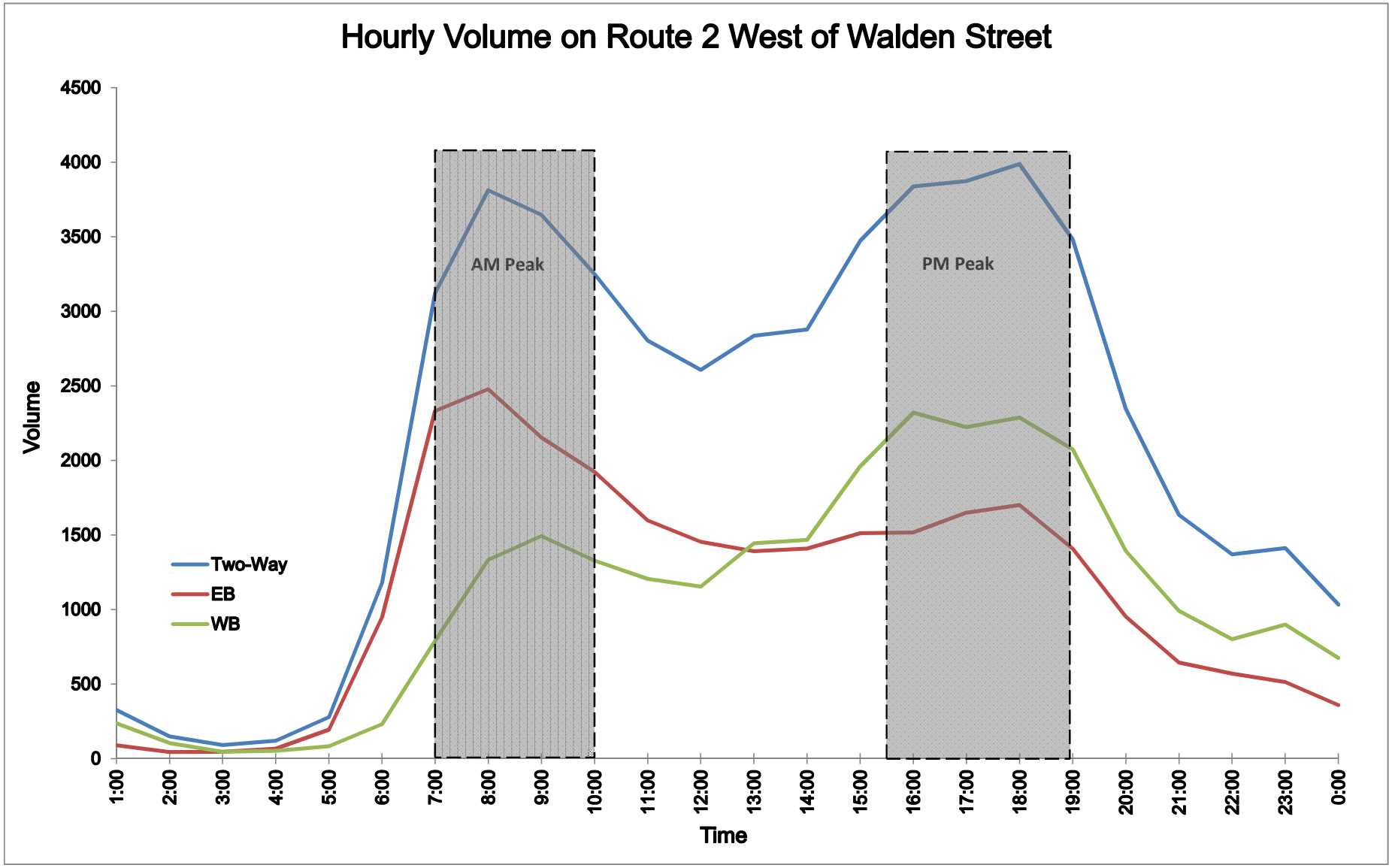
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Volume (veh/h)	35	115	85	190	335	5	0	1600	200	0	2500	120
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	25	0	0	50	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	190.0	188.1	188.1	188.1	188.1	188.1	0.0	186.3	186.3	0.0	186.3	186.3
Lanes	0	1	1	1	1	1	0	2	1	0	2	1
Cap, veh/h	39	20	107	179	361	306	0	2577	1095	0	2577	1095
Arrive On Green	0.07	0.07	0.00	0.07	0.19	0.00	0.00	0.69	0.69	0.00	0.69	0.69
Sat Flow, veh/h	30	302	1599	1792	1881	1599	0	3725	1583	0	3725	1583
Grp Volume(v), veh/h	158	0	0	200	353	0	0	1684	211	0	2632	126
Grp Sat Flow(s),veh/h/ln	332	0	1599	1792	1881	1599	0	1863	1583	0	1863	1583
Q Serve(g_s), s	0.6	0.0	0.0	8.0	22.4	0.0	0.0	30.5	5.7	0.0	83.0	3.2
Cycle Q Clear(g_c), s	8.0	0.0	0.0	8.0	22.4	0.0	0.0	30.5	5.7	0.0	83.0	3.2
Prop In Lane	0.23		1.00	1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	59	0	107	179	361	306	0	2577	1095	0	2577	1095
V/C Ratio(X)	2.67	0.00	0.00	1.11	0.98	0.00	0.00	0.65	0.19	0.00	1.02	0.12
Avail Cap(c_a), veh/h	59	0	107	179	361	306	0	2577	1095	0	2577	1095
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	58.2	0.0	0.0	50.7	48.3	0.0	0.0	10.4	6.6	0.0	18.5	6.2
Incr Delay (d2), s/veh	798.1	0.0	0.0	101.2	41.5	0.0	0.0	0.5	0.0	0.0	23.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	69.9	0.0
%ile Back of Q (95%), veh/ln	25.3	0.0	0.0	11.3	21.3	0.0	0.0	18.5	3.6	0.0	77.0	1.9
Lane Grp Delay (d), s/veh	856.3	0.0	0.0	151.9	89.8	0.0	0.0	12.8	6.6	0.0	111.7	6.2
Lane Grp LOS	F			F	F			B	A		F	A
Approach Vol, veh/h		158			553			1895			2758	
Approach Delay, s/veh		856.3			112.2			12.1			106.9	
Approach LOS		F			F			B			F	

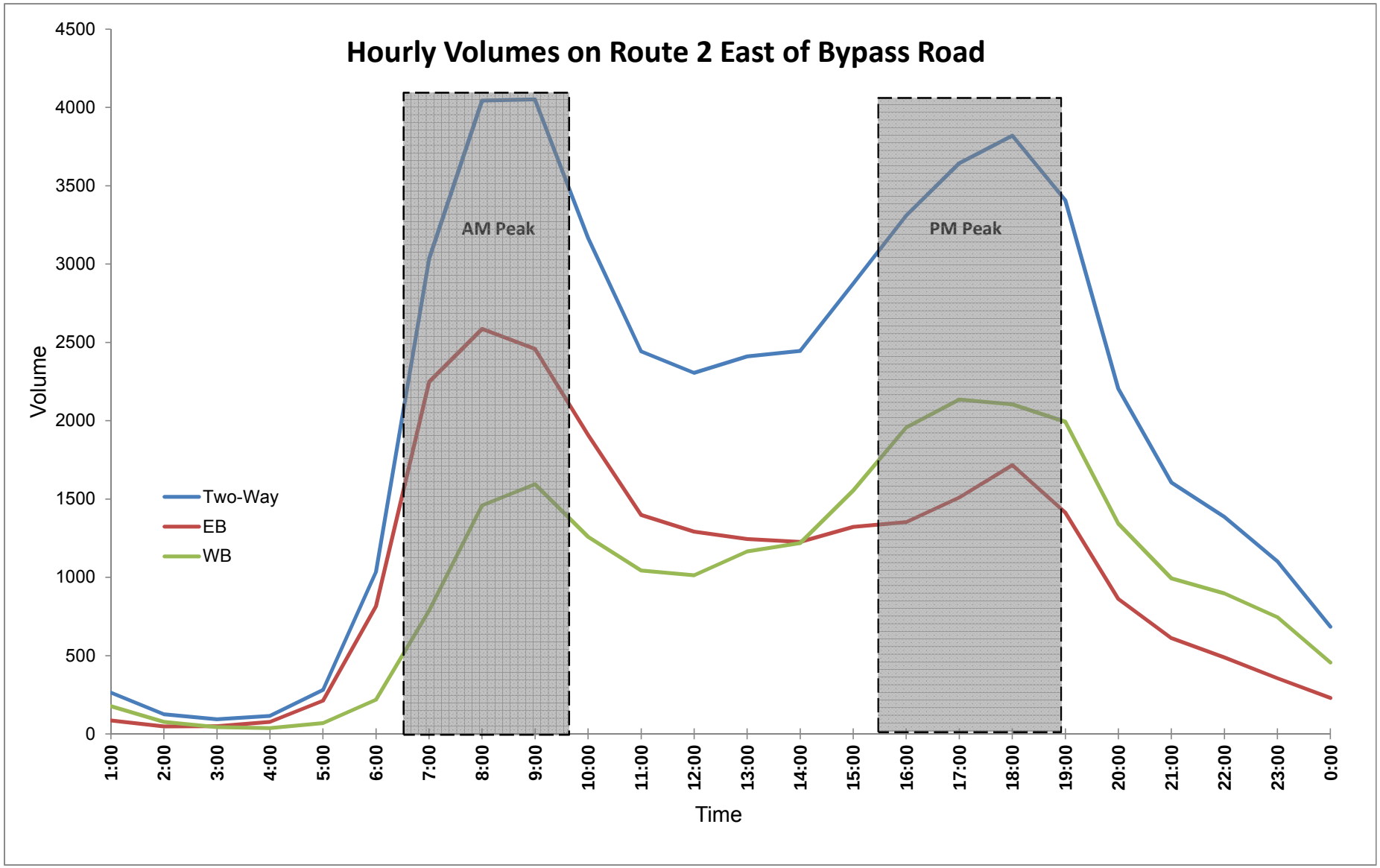
Timer												
Assigned Phs		8		7	4			6			2	
Phs Duration (G+Y+Rc), s		15.0		15.0	30.0			90.0			90.0	
Change Period (Y+Rc), s		7.0		7.0	7.0			7.0			7.0	
Max Green Setting (Gmax), s		8.0		8.0	23.0			83.0			83.0	
Max Q Clear Time (g_c+I1), s		10.0		10.0	24.4			32.5			85.0	
Green Ext Time (p_c), s		0.0		0.0	0.0			44.8			0.0	

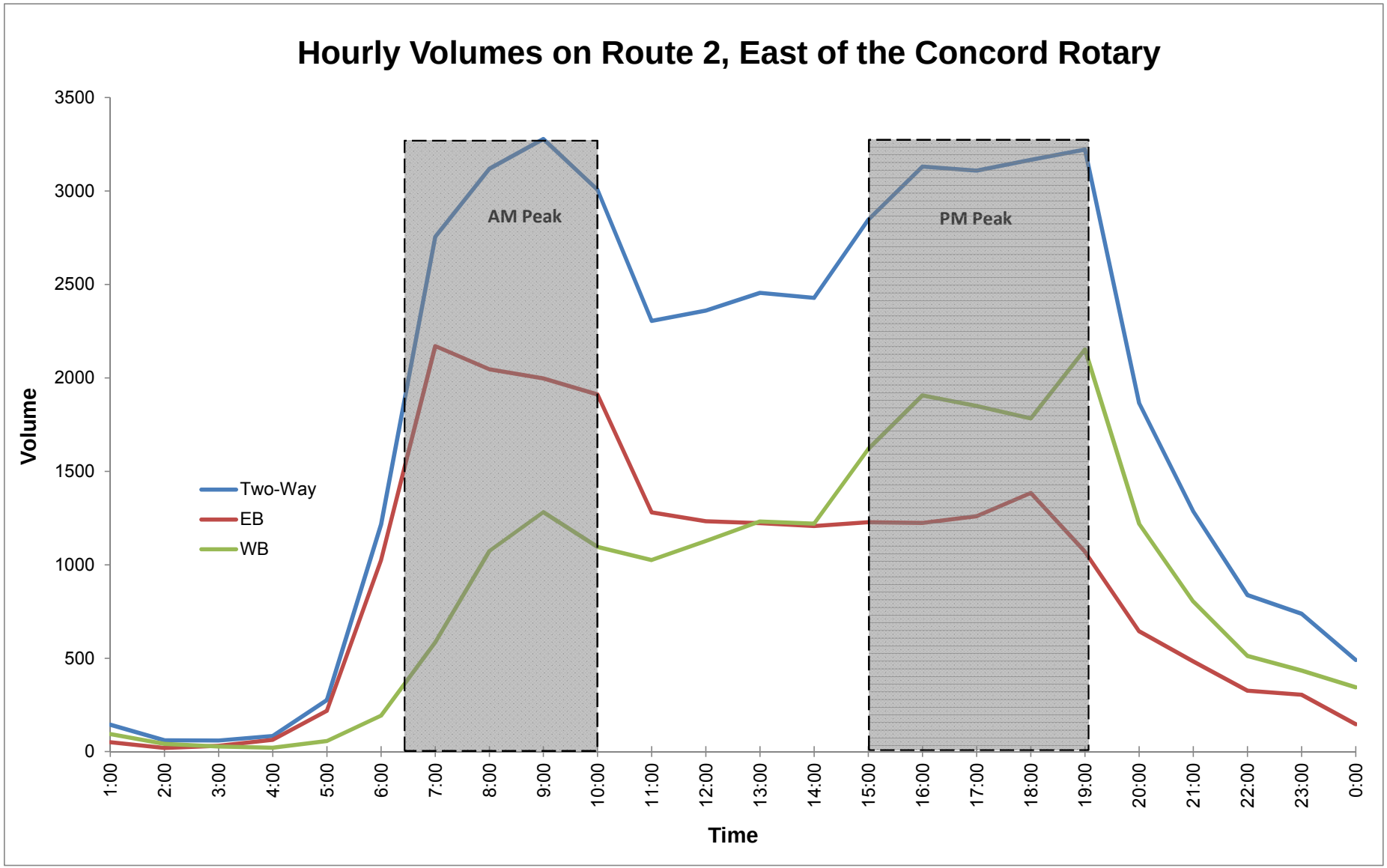
Intersection Summary		
HCM 2010 Ctrl Delay	96.1	
HCM 2010 LOS	F	

Notes

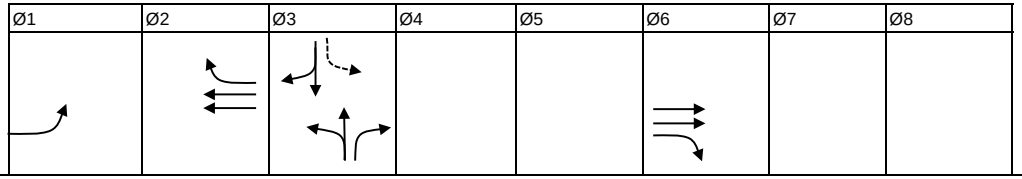
Appendix %: Time of Day Signal Settings


Hourly Volume on Route 2 West of Walden Street
Volume
4500
4000
3500
3000
2500
2000
1500
1000
500
0
AM Peak
PM Peak
Two-Way
EB
WB
1:00
2:00
3:00
4:00
5:00
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
0:00
Time


Hourly Volumes on Route 2 East of Bypass Road
Volume
4500
4000
3500
3000
2500
2000
1500
1000
500
0
AM Peak
PM Peak
Two-Way
EB
WB
1:00
2:00
3:00
4:00
5:00
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
0:00
Time


Hourly Volumes on Route 2, East of the Concord Rotary
Volume
3500
3000
2500
2000
1500
1000
500
0
AM Peak
PM Peak
Two-Way
EB
WB
1:00
2:00
3:00
4:00
5:00
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
0:00
Time

Appendix &: Timing Plan for Option 1—Retiming and Coordination of Existing Traffic Signals



SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (COORDINATED)

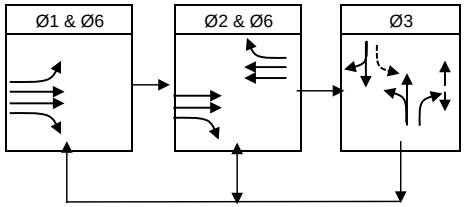
STREET	DIRECTION	HOUSING	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	FLASH
CONCORD TPKE (RTE 2)	EB-LT	A	GL	YL	RL	RL	RL	RL	RL	RL	RL							RL	RL	RL							FRL
CONCORD TPKE (RTE 2)	EB	B	R	R	R	R	R	R	R	R	R							GV	Y	R							FY
CONCORD TPKE (RTE 2)	EB	C	R	R	R	R	R	R	R	R	R							GV	Y	R							FY
CONCORD TPKE (RTE 2)	WB	D	R	R	R	GV	Y	R	R	R	R							R	R	R							FY
CONCORD TPKE (RTE 2)	WB	E	R	R	R	GV	Y	R	R	R	R							R	R	R							FY
BAKER AVE EXT	NB	F G	R	R	R	R	R	R	G	Y	R							R	R	R							FR
ACCESS RD TO RTE 2A	SB	J K	R	R	R	R	R	R	G	Y	R							R	R	R							FR
TIMING IN SECONDS																											
MINIMUM GREEN (INITIAL)			6			20			6									30									EMERGENCY ONLY
PASSAGE TIME			3			2			3									2									
MAXIMUM 1			20			50			20									50									
MAXIMUM 2			45			65			45									60									
YELLOW CLEARANCE				4			4			4									4								
RED CLEARANCE					1			2			1									2							
WALK (W)																											
PEDESTRIAN CLEARANCE																											
RECALL			OFF			EXT			OFF									EXT									
MEMORY			NON-LOCKING			LOCKING			NON-LOCKING									LOCKING									

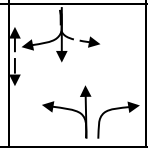
COORDINATION DATA

CYCLE	TIME PERIOD	OFFSET	CYCLE LENGTH
CYCLE 1	6:30-9:30 MON - FRI	55	110
CYCLE 2	15:30-19:00 MON - FRI	39	120
FULLY ACTUATED	ALL OTHER TIMES		

SPLIT	ø1	ø2	ø3	ø4	ø5	ø6	ø7	ø8
SPLIT 1	40	50	20			90		
SPLIT 2	20	65	35			85		
SPLIT 3								
SPLIT 4								

PREFERENTIAL PHASING SEQUENCE



Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8
							

SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (COORDINATED)

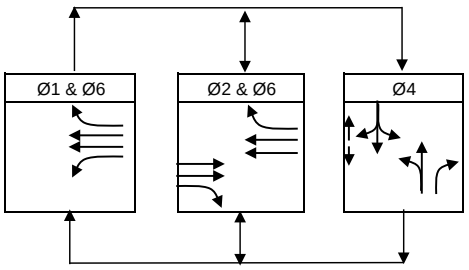
STREET	DIRECTION	HOUSING	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	FLASH
CONCORD TPKE (RTE 2)	EB	E	R	R	R	G	Y	R				R	R	R				R	R	R							FY
CONCORD TPKE (RTE 2)	EB	D	R	R	R	GV	Y	R				R	R	R				R	R	R							FY
CONCORD TPKE (RTE 2)	WB-LT	C,F	GL	YL	RL	RL	RL	RL				RL	RL	RL				RL	RL	RL							FRL
CONCORD TPKE (RTE 2)	WB	A	R	R	R	R	R	R				R	R	R				GV	Y	R							FY
CONCORD TPKE (RTE 2)	WB	B	R	R	R	R	R	R				R	R	R				G	Y	R							FY
MAIN STREET (RTE 62)	NB	G,H	R	R	R	R	R	R				G	Y	R				R	R	R							FR
MAIN STREET (RTE 62)	SB	J,K	R	R	R	R	R	R				G	Y	R				R	R	R							FR
PEDESTRIAN	ALL	ALL	DW	DW	DW	DW	DW	DW				W	FDW	DW				DW	DW	DW							OFF
TIMING IN SECONDS																											
MINIMUM GREEN (INITIAL)			6			30						6						30									EMERGENCY ONLY
PASSAGE TIME			3			2						3						2									
MAXIMUM 1			30			60						30						60									
MAXIMUM 2			25			60						30						60									
YELLOW CLEARANCE				4			5						4						5								
RED CLEARANCE					1			2						1						2							
WALK (W)												7															
PEDESTRIAN CLEARANCE													22														
RECALL			EXT			OFF						OFF						EXT									
MEMORY			NON-LOCK			LOCKING						LOCKING						LOCKING									

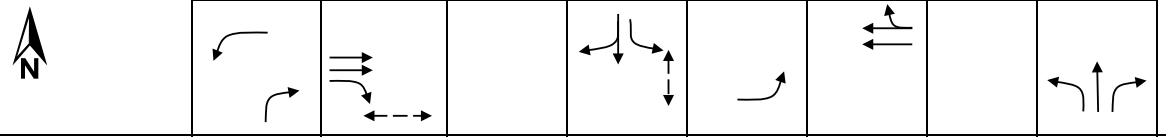
COORDINATION DATA

CYCLE	TIME PERIOD	OFFSET	CYCLE LENGTH
CYCLE 1	6:30-9:30 MON - FRI	0	110
CYCLE 2	15:30-19:00 MON - FRI	113	120
FULLY ACTUATED	ALL OTHER TIMES		

SPLIT	ø1	ø2	ø3	ø4	ø5	ø6	ø7	ø8
SPLIT 1	21	60		29		81		
SPLIT 2	37	55		28		92		
SPLIT 3								
SPLIT 4								

PREFERENTIAL PHASING SEQUENCE





SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (COORDINATED)

STREET	DIRECTION	HOUSING	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	FLASH
CONCORD TPKE (RTE 2)	EB-LT	A	RL	RL	RL	RL	RL	RL				RL	RL	RL	GL	YL	RL	RL	RL	RL				RL	RL	RL	FRL
CONCORD TPKE (RTE 2)	EB	B,C	R	R	R	GV	Y	RL				R	R	R	R	R	R	R	R	R				R	R	R	FY
CONCORD TPKE (RTE 2)	EB	D	R	R	R	G	Y	RL				R	R	R	R	R	R	R	R	R				R	R	R	FY
CONCORD TPKE (RTE 2)	WB-LT	E	GL	YL	RL	RL	RL	RL				RL	RL	RL	RL	RL	RL	RL	RL	RL				RL	RL	RL	FRL
CONCORD TPKE (RTE 2)	WB	F	R	R	R	R	R	R				R	R	R	R	R	R	GV	Y	R				R	R	R	FY
CONCORD TPKE (RTE 2)	WB	G	R	R	R	R	R	R				R	R	R	R	R	R	G	Y	R				R	R	R	FY
OLD RD TO NINE ACRE CNR	NB	J,K	R	R	R	R	R	R				R	R	R	R	R	R	R	R	R				G	Y	R	FR
OLD RD TO NINE ACRE CNR	SB	L,M	R	R	R	R	R	R				G	Y	R	R	R	R	GV	Y	R				R	R	R	FR
OLD RD TO NINE ACRE CNR	NB-RT	H	GRA	YRA	R	R	R	R				R	R	R	R	R	R	R	R	R				G	Y	R	FR
PEDESTRIAN	N-S	P1 - P2	DW	DW	DW	DW	DW	DW				W	DW	DW	DW	DW	DW	DW	DW	DW				DW	DW	DW	OFF
PEDESTRIAN	E-W	P3 - P4	DW	DW	DW	W	FDW	DW				DW	DW	DW	DW	DW	DW	DW	DW	DW				DW	DW	DW	OFF

TIMING IN SECONDS

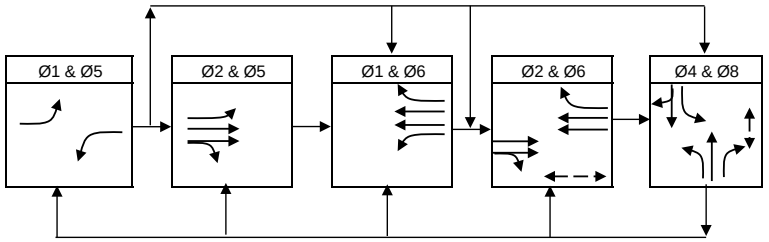
MINIMUM GREEN (INITIAL)			6			20						6			6			20						6			EMERGENCY ONLY
PASSAGE TIME			3			2						2			2			2						2			
MAXIMUM 1			15			60						25			13			60						20			
MAXIMUM 2			20			60						30			15			60						30			
YELLOW CLEARANCE				4			5						4			4			5						4		
RED CLEARANCE					1			2						1			1			2							1	
WALK (W)						7						7															
PEDESTRIAN CLEARANCE							23						22														
RECALL			OFF			EXT						OFF			OFF			EXT						OFF			
MEMORY			NON-LOCKING			LOCKING						NON-LOCKING			NON-LOCKING			LOCKING						NON-LOCKING			

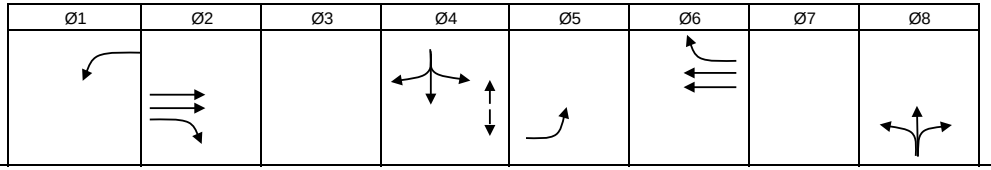
MASTER INTERSECTION: COORDINATION DATA (seconds)

CYCLE	TIME PERIOD	CYCLE LENGTH
CYCLE 1	6:30-9:30 MON - FRI	110
CYCLE 2	15:30-19:00 MON - FRI	120
FULLY ACTUATED	ALL OTHER TIMES	

SPLIT	ø1	ø2	ø3	ø4	ø5	ø6	ø7	ø8
SPLIT 1	15	70		25	13	72		25
SPLIT 2	20	72		28	12	80		28
SPLIT 3								
SPLIT 4								

PREFERENTIAL PHASING SEQUENCE





SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (COORDINATED)

STREET	DIRECTION	HOUSINGS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	FLASH
CONCORD TPKE (RTE 2)	EB-LT	A	RL	RL	RL	RL	RL	RL				RL	RL	RL	GL	YL	RL	RL	RL	RL				RL	RL	RL	FRL
CONCORD TPKE (RTE 2)	EB	B	R	R	R	GV	Y	RL				R	R	R	R	R	R	R	R	R				R	R	R	FY
CONCORD TPKE (RTE 2)	EB	C	R	R	R	G	Y	RL				R	R	R	R	R	R	R	R	R				R	R	R	FY
CONCORD TPKE (RTE 2)	WB-LT	D	GL	YL	RL	RL	RL	RL				RL	RL	RL	RL	RL	RL	RL	RL	RL				RL	RL	RL	FRL
CONCORD TPKE (RTE 2)	WB	E	R	R	R	R	R	R				R	R	R	R	R	R	GV	Y	R				R	R	R	FY
CONCORD TPKE (RTE 2)	WB	F	R	R	R	R	R	R				R	R	R	R	R	R	GV	Y	R				R	R	R	FY
SUDBURY RD	NB	G H	R	R	R	R	R	R				R	R	R	R	R	R	R	R	R				G	Y	R	FR
SUDBURY RD	SB	J K	R	R	R	R	R	R				G	Y	R	R	R	R	GV	Y	R				R	R	R	FR
PEDESTRIAN	N-S	ALL	DW	DW	W	DW	DW	DW				W	DW	DW	DW	DW	DW	DW	DW	DW				DW	DW	DW	OFF

TIMING IN SECONDS

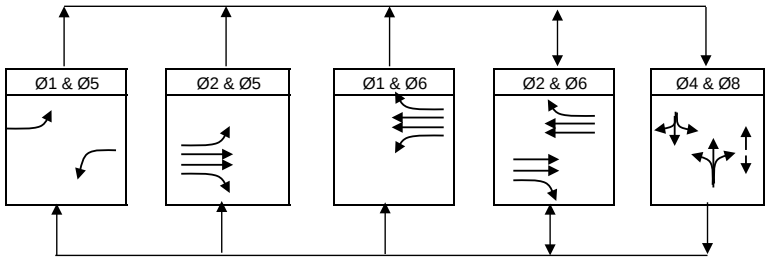
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
MINIMUM GREEN (INITIAL)		6			30						6			6			30						6			EMERGENCY ONLY
PASSAGE TIME		3			2						3			3			2						3			
MAXIMUM 1		20			60						20			15			60						20			
MAXIMUM 2		28			60						30			15			60						30			
YELLOW CLEARANCE			4			5						4			4			5						4		
RED CLEARANCE				1			2						1			1			2						1	
WALK (W)											7															
PEDESTRIAN CLEARANCE												22														
RECALL		OFF			EXT						OFF			OFF			EXT						EXT			
MEMORY		NON-LOCKING			LOCKING						NON-LOCKING			NON-LOCKING			LOCKING						LOCKING			

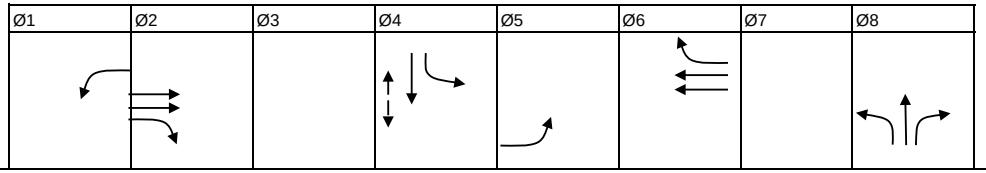
COORDINATION DATA

CYCLE	TIME PERIOD	OFFSET	CYCLE LENGTH
CYCLE 1	6:30-9:30 MON - FRI	62	110
CYCLE 2	15:30-19:00 MON - FRI	74	120
FULLY ACTUATED	ALL OTHER TIMES		

SPLIT	ø1	ø2	ø3	ø4	ø5	ø6	ø7	ø8
SPLIT 1	15	70		25	15	70		25
SPLIT 2	27	67		26	12	83		26
SPLIT 3								
SPLIT 4								

PREFERENTIAL PHASING SEQUENCE





SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (COORDINATED)

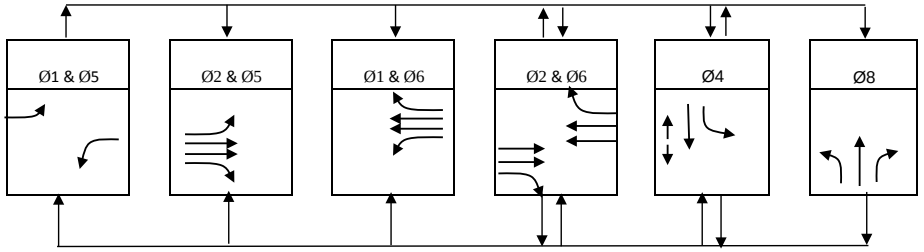
STREET	DIRECTION	HOUSING	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	FLASH
CONCORD TPKE (RTE 2)	EB-LT	E	RL	RL	RL	RL	RL	RL				RL	RL	RL	GL	YL	RL	RL	RL	RL				RL	RL	RL	FRL
CONCORD TPKE (RTE 2)	EB	F,G	R	R	R	GV	Y	R				R	R	R	R	R	R	R	R	R				R	R	R	FY
CONCORD TPKE (RTE 2)	EB	H	R	R	R	G	Y	R				R	R	R	R	R	R	R	R	R				R	R	R	FY
CONCORD TPKE (RTE 2)	WB-LT	A	GL	YL	RL	RL	RL	RL				RL	RL	RL	RL	RL	RL	RL	RL	RL				RL	RL	RL	FRL
CONCORD TPKE (RTE 2)	WB	B, C	R	R	R	R	R	R				R	R	R	R	R	R	GV	Y	R				R	R	R	FY
CONCORD TPKE (RTE 2)	WB	D	R	R	R	R	R	R				R	R	R	R	R	R	G	Y	R				R	R	R	FY
WALDEN ST	NB	J,K	R	R	R	R	R	R				R	R	R	R	R	R	R	R	R				G	Y	R	FR
WALDEN ST	SB	L,M	R	R	R	R	R	R				G	Y	R	R	R	R	GV	Y	R				R	R	R	FR
PEDESTRIAN	N-S	ALL	DW	DW	DW	DW	DW	DW				W	DW	DW	DW	DW	DW	DW	DW	DW				DW	DW	DW	OFF

TIMING IN SECONDS

MINIMUM GREEN (INITIAL)	6			20						6			6			30						6			EMERGENCY ONLY
PASSAGE TIME	3			2						3			3			2						3			
MAXIMUM 1	12			86						24			12			86						13			
MAXIMUM 2	15			95						20			15			95						20			
YELLOW CLEARANCE		4			4						4			4			4							4		
RED CLEARANCE			1			2						1			1			2							1	
WALK (W)										7																
PEDESTRIAN CLEARANCE											24															
RECALL	NONE			EXT						NONE			NONE			EXT						NONE			
MEMORY	NON-LOCKING			LOCKING						NON-LOCKING			NON-LOCKING			LOCKING						LOCKING			

	TIME PERIOD	CYCLE LENGTH
MAX 2	6:00-9:30 MON - FRI	135
	15:30-19:00 MON - FRI	150

PREFERENTIAL PHASING SEQUENCE



Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	PED	PREEMPTION
									

SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (COORDINATED)

STREET	DIRECTION	HOUSING	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	FLASH
CONCORD TPKE (RTE 2)	EB	A,B				R	R	R	R	R	R	R	R	R				G	Y	R				R	R	R	R	R	R	R	R	R	FY
CONCORD TPKE (RTE 2)	EB	C				R	R	R	R	R	R	R	R	R				GV	Y	R				R	R	R	R	R	R	R	R	R	FY
CONCORD TPKE (RTE 2)	WB	D				GV	Y	R	R	R	R	R	R	R				R	R	R				R	R	R	R	R	R	R	R	R	FY
CONCORD TPKE (RTE 2)	WB	E,F				G	Y	R	R	R	R	R	R	R				R	R	R				R	R	R	R	R	R	R	R	R	FY
BEDFORD ROAD	NB	G,H,J				R	R	R	R	R	R	R	R	R				R	R	R				G	Y	R	R	R	R	G	Y	R	FR
BEDFORD ROAD	SB	K,L,M				R	R	R	G	Y	R	G	Y	R				R	R	R				R	R	R	R	R	R	R	R	R	FR
BEDFORD ROAD	SB	N				R	R	R	G/GI	YL	R	G/GI	YL	R				R	R	R				R	R	R	R	R	R	R	R	R	FR
PEDESTRIAN	E-W	P3 - P4				DW	DW	DW	DW	DW	DW	DW	DW	DW				DW	DW	DW				DW	DW	DW	W	FDW	DW	DW	DW	DW	OFF
TIMING IN SECONDS																																	
MINIMUM GREEN (INITIAL)						25			4			4						25						6									
PASSAGE TIME						7			2			2						7						2									
MAXIMUM 1						90			15			15						90						30									
MAXIMUM 2						90			15			15						90						15									
YELLOW CLEARANCE							4			4			4						4						4								
RED CLEARANCE								3			3			3						3						3								
WALK (W)																											7						
PEDESTRIAN CLEARANCE																												22	1				
PREEMPTION																														*	4	2	
RECALL						ON						OFF			OFF			ON						OFF			OFF						
MEMORY						LOCKING						NON-LOCKING			NON-LOCKING			LOCKING						NON-LOCKING			NON-LOCKING						

EMERGENCY ONLY

	TIME PERIOD	CYCLE LENGTH
MAX 2	6:00-9:30 MON - FRI	120
	15:30-19:00 MON - FRI	120

PREFERENTIAL PHASING SEQUENCE