Revised Traffic Impact and Access Study

AMC South Parking Lot Redevelopment at Shoppers World

Framingham & Natick, Massachusetts

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Table of Contents

Table of Contents i

List of Tables ii

List of Figures iii

Summary 1

Introduction 1

Study Methodology 2

Existing Conditions 4

Study Area 4
Roadway Geometry 5
Roadways 5
Intersections 6
Public Transportation Facilities 9
Traffic Volumes 10
Seasonal Adjustment 11
Crash History 12

Future Conditions 14

Background Traffic Growth 14
Historic Traffic Growth 14
Site-specific Growth 14
Planned Roadway Improvements 16
Site-generated Traffic Volumes 17
Trip Distribution 23
Traffic Volume Increases 24

Traffic Operations Analysis 26

Level-of-Service Criteria 26
Signalized Intersections Capacity Analysis 27
Roundabout Intersection Capacity Analysis 31

Potential Traffic Improvements 32

Potential Intersection and Roadway Improvements 32
Site Drive, East Couplet and Ring Road 32
West Couplet and Ring Road 33
Pedestrian Measures 34

Conclusion 35

List of Tables

Table No.	Description	Page
Table 1	Daily Traffic Volumes	11
Table 2	Vehicle Crash Summary (2009 - 2013)	13
Table 3	Summary of Planned Background Developments	15
Table 4	Trip Generation for Larger Cinema	18
Table 5	Gross Roadway Peak Hour Trip Generation Summary	20
Table 6	Net Roadway Peak Hour Trip Generation Summary	23
Table 7	Trip Distribution Summary	24
Table 8	Traffic Volume Increases	25
Table 9	Signalized Intersection Capacity Analysis Summary	27
Table 10	Roundabout Capacity Analysis Summary	31
Table 11	Signalized Intersection Capacity Analysis Summary	33

List of Figures

Figure No.	Description	Page
1	Site Location and Study Area Intersections	1
2	Study Area Intersection Lane Geometry and Traffic Control	5
3	Public Transportation Routes	9
4	2016 Existing Conditions Weekday Evening Peak Hour Traffic Volumes	12
5	2016 Existing Conditions Saturday Midday Peak Hour Traffic Volumes	12
6	2023 No-Build Conditions Weekday Evening Peak Hour Traffic Volumes	15
7	2023 No-Build Conditions Saturday Midday Peak Hour Traffic Volumes	15
8	2023 Build Conditions Weekday Evening Peak Hour Traffic Volumes	24
9	2023 Build Conditions Saturday Midday Peak Hour Traffic Volumes	24
10	Conceptual Access Improvement Plan	33

Summary

On behalf of BRE DDR Shoppers World LLC (the "Proponent"), Vanasse Hangen Brustlin, Inc. (VHB) has prepared this revised traffic impact and access study (the "Study") to evaluate the impacts of a proposed mixed-use development that will be located on an existing overflow parking lot located on the southeasterly corner of the intersection of Shoppers World Drive and Flutie Pass/Shoppers World Driveway in Framingham, Massachusetts (the "Site").

The Study represents an update to the August 2015 Traffic Impact and Access Study that was reviewed by the Town of Framingham prior to the issuance of the Planning Board Decision dated February 22, 2016 for a previously proposed development on the Site. This updated study addresses the changes in the development program for the Site and planned development projects in the area. Specifically, the updates to the Study include addition of the traffic associated with adding up to 140 apartment units and 4,500 sf of specialty retail space to the previously approved development plan and the addition of the traffic associated with the recently approved Wegmans project at the Natick Mall to the study area roadway network (the Site Plans call for a total of 136 apartment units and 4,000 sf of specialty retail space). It is noted that the Study includes an analysis of the entire development plan even though a large portion of the plan has already been reviewed and approved by the Planning Board in February 2016.

Until recently, the Site was used as overflow parking for the AMC Cinema and as a MassDOT commuter park & ride lot. Primary access to the Site is currently provided via a signalized driveway aligned with the main AMC Cinema driveway on Flutie Pass. Additional limited access (right-turn-in-only) curb cuts are provided on Flutie Pass and on Shopper's World Drive. The Site is served by five bus routes that are part of the MWRTA system, with stops immediately adjacent to the Site. Shoppers World Drive is a private roadway controlled by the Proponent.

The number of seats within the cinema were reduced in 2015 by approximately 56 percent, thus rendering the overflow parking on the Site unnecessary for the cinema

use. The Proponent therefore proposes to redevelop the overflow parking lot to construct the following development components.

- A 16-lane King's Bowling Alley including a 5,400 square foot (sf) dining area (including outdoor seating) (*This was included in the August 2015 study);*
- An up to 9,500 sf full service restaurant (including outdoor seating) (*This was included in the August 2015 study);*
- A 5,040 sf iFly indoor skydiving/adventure facility (*This was included in the August 2015 study);*
- Up to 140 apartment units[1] along with structured parking (*This is a new addition to the development plan); and,*
- Up to 4,500 sf specialty retail space[1] (*This is a new addition to the development plan).*

Detailed trip generation analysis indicates that the overall Project outlined above is estimated to generate approximately 72 *net new* vehicle trips (14 entering/58 exiting) during the weekday morning peak hour, 188 *net new* vehicle trips (124 entering/64 exiting) during the weekday evening peak hour, and 177 *net new* trips (87 entering/90 exiting) during the Saturday midday peak hour. This overall net increase in traffic associated with the Project corresponds to an expected range from 5 trips per hour up to approximately 70 trips per hour at various Study locations, depending on the specific location and the specific peak hour under consideration. Compared to the overall traffic volumes on area roadways, the calculated traffic increases associated with the Project are relatively small and fall within the range of daily fluctuations of roadway traffic flow.

Intersection capacity analyses conducted for the Existing and projected future No-Build and Build traffic conditions indicate that while certain deficiencies currently exist at some study locations, the Project itself is expected to have a minimal impact on area traffic operations.

The Proponent is committed to funding the design and construction of certain roadway and traffic signal improvements in the vicinity of the Site. Specifically, the Study outlines the following traffic improvement measures:

- Widen East Couplet along the Site frontage to create a southbound left turn lane and a northbound right turn lane;
- Widen the Site driveway to accommodate a designated left-turn lane and a shared through/right-turn lane;
- Construct a crosswalk across Shoppers World Drive near the Site driveway;

[1] The Site Plans depict 136 apartment units and 4,000 sf of specialty retail space

- Provide timing and phasing changes to the intersections of Ring Road with East Couplet and West Couplet to accommodate the proposed improvements;
- Pedestrian focused enhancements on Flutie Pass and along the Route 9 frontage of the Site;
- Pedestrian walkway through the Site, connecting Flutie Pass and Route 9; and,
- Provide secure bicycle parking for residents and retail patrons.

In summary, and consistent with the findings of the August 2015 Study, this revised Study also continues to support the finding that the Project is expected to have a negligible overall impact on traffic operations within the study area. Given the mixed-use nature of the development components and the proposed mix of specific tenants, it is expected that a sizeable proportion of the peak hour trips are expected to be internal to the Site or would originate from adjacent roadways and retail establishments in the form of shared, pass-by and diverted link trips. In addition, the peak hours of some of the development components on the Site (such as the King's Bowling Alley), are expected to occur later than the peak hours of the adjacent roadways, thus further limiting the off-site traffic impacts of the overall Project during the peak periods. The proposed improvements, both on-site and off-site, will allow for improved access and enhanced operations of vehicles and pedestrians.

1
Introduction

Vanasse Hangen Brustlin, Inc. (VHB), on behalf of BRE DDR Shoppers World LLC (the "Proponent"), has prepared a traffic impact and access study (the "Study") for the proposed redevelopment of the AMC Cinema South Parking Lot (the "Project") located on a 12.8-acre parcel in the southeasterly corner of the intersection of Shoppers World Drive and Flutie Pass/Shoppers World Driveway (the "Site") in Framingham and Natick, Massachusetts. Approximately 8.4 acres of the Site is located in Framingham and the remaining 4.4 acres in Natick. Until 2015, the Site was primarily used as an overflow parking area for the AMC cinema located at 22 Flutie Pass. A portion of the Site was also used as a Park & Ride facility operated by the Massachusetts Department of Transportation (MassDOT). Figure 1 shows a site location map.

As a precursor to the Project, and with assistance from the Proponent, AMC completed permitting and construction of improvements to the cinema which resulted in the existing seat count of 3,657 seats to be reduced to 1,601 seats (i.e., a reduction of 2,056 seats or approximately 56% of the total seat count). The cinema renovations and seat count reduction were completed in April 2015.

As currently proposed, the Project described in this Study consists of the elements listed below that will be constructed on the Site. It is noted that several of the elements in the list have already been analyzed in a prior version of the traffic study that was reviewed by the Framingham Planning Board before the issuance of an approval in February 2015. Fore continuity and comprehensiveness of review, the entire development program is analyzed as part of this revised Study. For ease of reference, elements of the overall plan that were already analyzed in the prior study, and included again in this revised Study, are identified in parentheses.

- A 16-lane King's Bowling Alley including a 5,400 square foot (sf) dining area (including outdoor seating) (*This was included in the August 2015 study);*
- An up to 9,500 sf full service restaurant (including outdoor seating) (*This was included in the August 2015 study);*
- A 5,040 sf iFly indoor skydiving/adventure facility (*This was included in the August 2015 study);*

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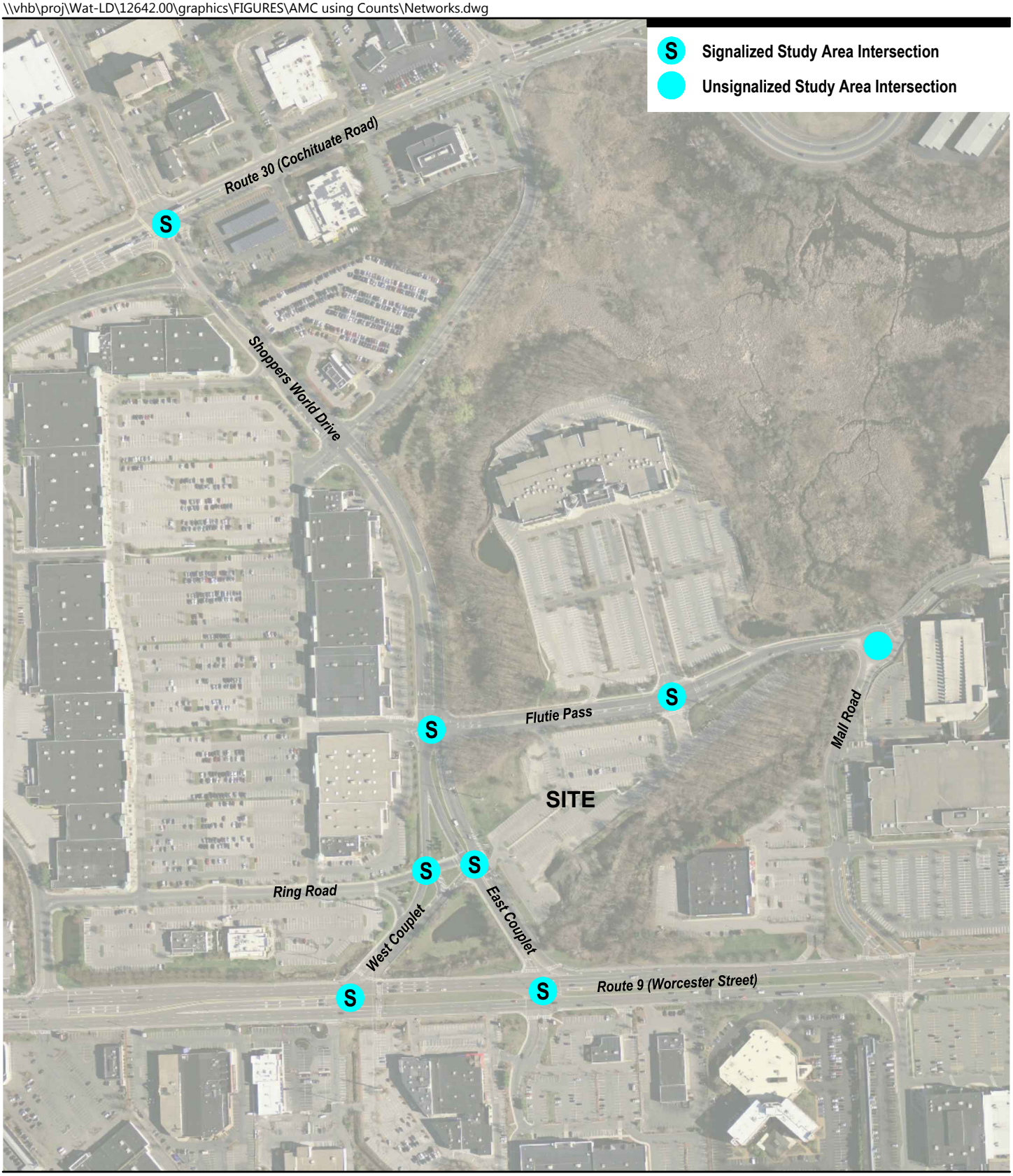

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Figure 1

Site Location Map and
Study Area Intersections
AMC South Parking Lot Redevelopment
Framingham, Massachusetts

- Up to 140 apartment units[2] along with structured parking (*This is a new addition to the development plan); and,*
- Up to 4,500 sf specialty retail space[1] (*This is a new addition to the development plan).*

Additionally, MassDOT has indicated to the Proponent that they no longer need to run their Park & Ride operations on the Site.

The Study quantifies existing and projected future traffic conditions with and without the Project. Based on the analysis of the future traffic conditions, the Study includes recommendations for potential access and pedestrian crosswalk improvements to ensure safe and efficient access to the Site and to improve some of the existing deficiencies.

Study Methodology

Prior to initiating the Study, potential access improvements for the Project were reviewed with MassDOT-District 3 staff. Feedback obtained from MassDOT regarding the access configuration and signal phasing on Shoppers World Drive were taken into consideration while preparing the Study.

Subsequent to the consultation with MassDOT, VHB consulted with the Planning Department staff in both Framingham and Natick to discuss an appropriate study area as well as to identify focus areas relative to traffic and safety issues that are of interest to the two towns.

Following the consultation with the towns' planning staff, VHB prepared the traffic assessment in three stages. The first stage involved an assessment of existing traffic conditions within the Project study area including an inventory of existing roadway geometry; observations of traffic flow, including daily and peak period traffic counts; and a review of vehicular crash data.

The second stage of the study established the framework for evaluating the transportation impacts of the proposed Project. Specific travel demand forecasts for the Project were assessed along with future traffic demands on the study area roadways due to projected background traffic growth and other proposed area developments that may occur independent of the proposed development. The year 2023, a seven-year time horizon, was selected as the design year for analysis for the preparation of this traffic impact and access assessment in accordance with MassDOT guidelines.

▼

[2] The Site Plans depict 136 apartment units and 4,000 sf of specialty retail space

The third and final stage involved conducting traffic analyses to identify both existing and projected future roadway capacities and demands. This analysis was used as the basis for determining potential Project impacts and to identify mitigation measures that would be implemented by the Proponent as part of the Project.

2

Existing Conditions

Evaluation of the transportation impacts associated with the Project requires a thorough understanding of the existing transportation conditions in the study area including, roadway geometry, traffic controls, daily and peak hour traffic flow, and traffic safety data. Each of these elements is described in detail below.

Study Area

Based on the discussions with Framingham and Natick planning staff, an understanding of the area roadway network and the expected transportation characteristics of the Project, a study area comprising of specific intersections along Route 30 (Cochituate Road), Shoppers World Drive, Flutie Pass, and Route 9 (Worcester Street) was selected for analysis. Specifically, the Study includes the following locations and their approach roadways. The study area locations are identified in Figure 1.

- Route 30 (Cochituate Road) at Whittier Street/Shoppers World Drive *(signalized)*,
- Shoppers World Drive at Flutie Pass/Shoppers World Driveway *(signalized)*,
- Flutie Pass at AMC Main Driveway/AMC South Parking Lot (Site) *(signalized)*,
- West Couplet at Ring Road *(signalized)*,
- East Couplet at Ring Road/AMC South Parking Lot (Site) *(signalized)*,
- Route 9 (Worcester Street) at East Couplet/Michael's Driveway *(signalized)*,
- Route 9 (Worcester Street) at West Couplet *(signalized)*, and
- Flutie Pass at Natick Mall Road *(roundabout)*.

The existing conditions analysis consisted of an inventory of the traffic control, roadway, driveway, and intersection geometry in the study area, the collection of daily and peak hour traffic volumes, and a review of recent crash history.

Roadway Geometry

Descriptions of the study area roadways and intersections are included below. Figure 2 shows lane configuration and traffic control at the study intersections.

Roadways

Route 30 (Cochituate Road)

Route 30 within the Study area is functionally classified as an east-west oriented urban principal arterial roadway. Within the study area, Route 30 is under the jurisdiction of the Town of Framingham. The roadway has two 11-foot travel lanes in each direction, with wider exclusive turn lanes at the signalized intersections. There are no usable shoulders or bicycle lanes on the roadway, within the study area. The posted speed limit is 40 mph. There are sidewalks on both sides of Route 30 within the study area. Land uses along Route 30 in the area predominantly consist of commercial properties.

Shoppers World Drive

Shoppers World Drive within the Study area is functionally classified as a local roadway. This roadway is privately owned and generally runs in a north-south direction. The roadway has two 12-foot travel lanes in each direction, with exclusive turn lanes at the signalized intersections. There are no usable shoulders or bicycle lanes on the roadway, within the study area. The is no posted speed limit within the study area. There are sidewalk segments located sporadically along Shoppers World Drive. Land uses along Shoppers World Drive in the vicinity of the Site predominantly consist of commercial properties.

Flutie Pass

Flutie Pass within the Study area is functionally classified as a local roadway. This roadway is privately owned and generally runs in an east-west direction. The roadway has two 12-foot travel lanes in each direction west of the AMC main driveway and one 12-foot travel lane in each direction east of the AMC main driveway with exclusive turn lanes at the major intersections. There are no usable shoulders or bicycle lanes on the roadway, within the study area. The is no posted speed limit within the study area. There is a sidewalk on the north side of Flutie Pass near the Site. Land uses along Flutie Pass predominantly consist of commercial properties.

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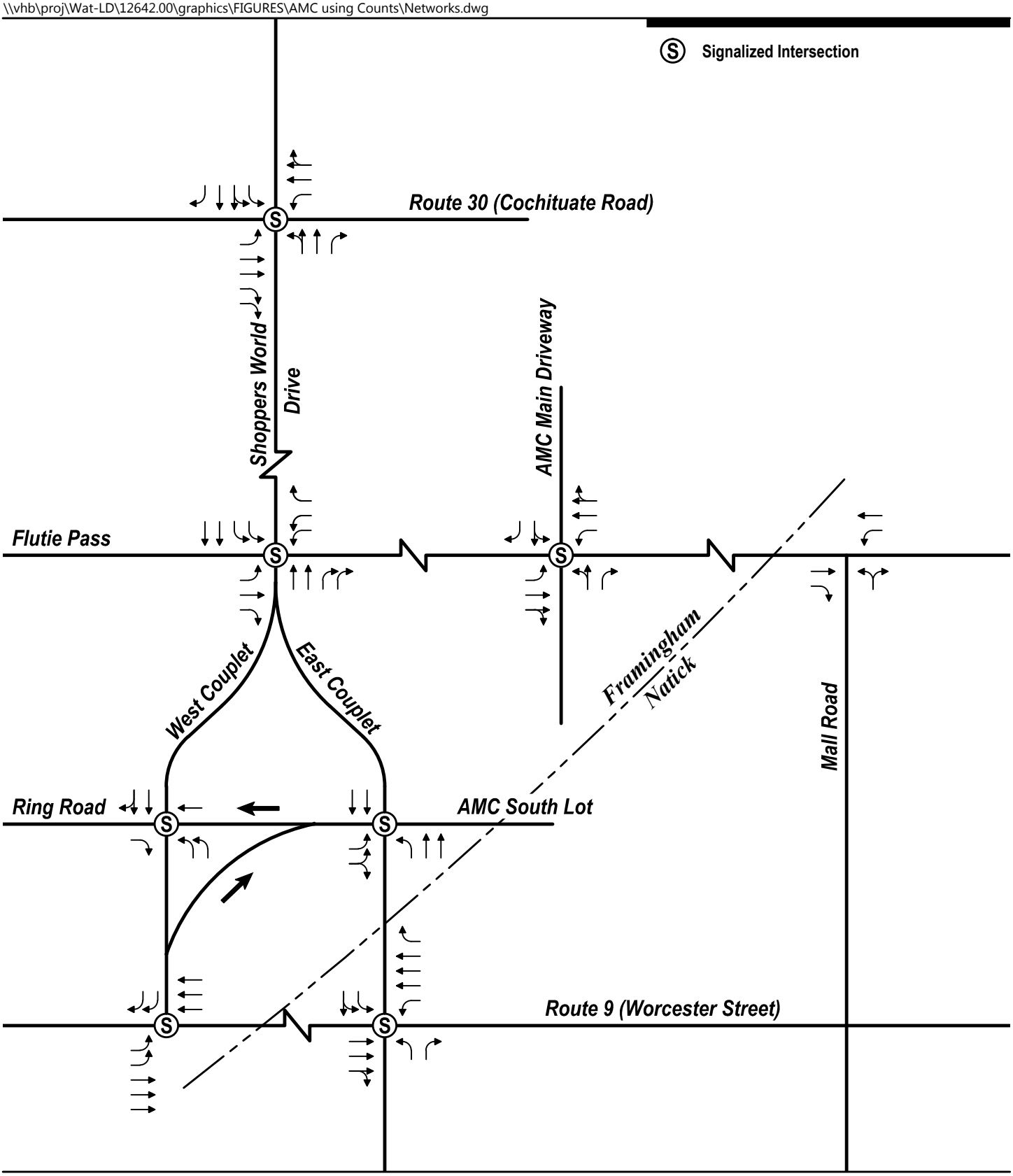


Not to Scale

Figure 2

Study Area Intersection
Lane Geometry and Traffic Control
AMC South Parking Lot Redevelopment
Framingham, Massachusetts

Route 9 (Worcester Street)

Route 9 within the Study area is functionally classified as a principal arterial roadway. It is under the MassDOT jurisdiction and generally runs in an east-west direction. The roadway has three 12-foot travel lanes in each direction, with exclusive turn lanes at the signalized intersections. There are no usable shoulders or bicycle lanes on the roadway, within the study area. The posted speed limit is 40 mph. There are sidewalks on both sides of Route 9 within the study area. Land uses along Route 9 predominantly consist of commercial properties.

Intersections

Route 30 (Cochituate Road) at Whittier Street/ Shoppers World Drive

Route 30 (Cochituate Road) intersects Whittier Street and Shoppers World Drive to form a four-way, fully actuated signalized intersection. The signal is part of a coordinated signal system extending along Route 30 to the east and west. The Route 30 eastbound approach consists of an exclusive left-turn lane, an exclusive through lane, and two channelized right-turn lanes that operate as part of the signal. The eastbound approach is separated from the westbound departure by an approximately six-foot median island. The Route 30 westbound approach is comprised of an exclusive left-turn lane, an exclusive through lane, and a shared through/right-turn lane. The westbound approach is separated from the eastbound departure by an approximately six-foot median island. The Shoppers World Drive northbound approach consists of a shared left turn/through lane, an exclusive through lane, and an exclusive right-turn lane. The northbound approach is separated from the southbound departure by an approximately six-foot median island. The Whittier Street southbound approach consists of an exclusive left-turn lane, a shared left-turn/though lane, an exclusive through lane, and an exclusive right-turn lane. There are sidewalks on all corners of the intersection, with crosswalks across the northbound, southbound, and eastbound approaches. Pedestrian crossings at the intersection are accommodated with an exclusive pedestrian signal phase. Land use near the intersection consists of retail and commercial properties.

Shoppers World Drive at Flutie Pass/ Shoppers World Driveway

Shoppers World Drive intersects Flutie Pass and Shoppers World Driveway to form a four-way, fully actuated signalized intersection. The Shoppers World Driveway eastbound approach consists of an exclusive left-turn lane, an exclusive through lane, and a channelized right-turn lane that operates under yield control. The Flutie Pass westbound approach is comprised of two exclusive left-turn lanes, and an exclusive

right-turn lane. The Shoppers World Drive northbound approach consists of two exclusive through lanes and two exclusive right-turn only lanes. The northbound approach is separated from the southbound departure by an approximately 20-foot median island. The Shoppers World Drive southbound approach consists of two exclusive left-turn lanes, and two exclusive through lanes. The southbound approach is separated from the northbound departure by an approximately six-foot median island. There are sidewalks on the northwest and northeast corners of the intersection, with a crosswalk across the southbound approach. Pedestrian crossings at the intersection are accommodated with an exclusive pedestrian signal phase. Land use near the intersection consists of retail and commercial properties.

Flutie Pass at AMC Main Driveway/AMC South Parking Lot

Flutie Pass intersects the AMC main driveway and AMC South Parking Lot to form a four-way, fully actuated signalized intersection. The Flutie Pass eastbound approach consists of an exclusive left-turn lane, an exclusive through lane, and a shared through/right-turn lane. The Flutie Pass westbound approach is comprised of an exclusive left-turn lane, an exclusive through lane, and a shared through/right-turn lane. The AMC South Parking Lot northbound approach consists of a shared left turn/through lane and an exclusive right-turn lane. The AMC main driveway southbound approach consists of a shared left turn/through lane and an exclusive right-turn lane. There are sidewalks on all corners of the intersection, with crosswalks across all approaches. Pedestrian crossings at the intersection are accommodated with an exclusive pedestrian signal phase. Land use near the intersection consists of commercial properties.

West Couplet at Ring Road

The West Couplet intersects Ring Road to form a four-way, fully actuated signalized intersection. The signal is part of a cluster with the intersection of the East Couplet and Ring Road/AMC South Parking Lot. The Ring Road eastbound approach consists of an exclusive channelized right-turn lane that operates under stop control. The Ring Road westbound approach is comprised of a single through lane. The West Couplet northbound approach consists of an exclusive left-turn lane. The northbound approach is separated from the southbound departure by an approximately 25-foot median island. The West Couplet southbound approach consists of an exclusive through lane and a shared through/right-turn lane. There are sidewalks on the northwest, northeast, and southwest corners of the intersection, with crosswalks across the eastbound and southbound approaches. Pedestrian crossings at the intersection are accommodated with concurrent pedestrian signal phases. Land use near the intersection consists of retail and commercial properties.

East Couplet at Ring Road/AMC South Parking Lot

The East Couplet intersects Ring Road and the AMC South Parking Lot to form a four-way, fully actuated signalized intersection. The signal is part of a cluster with the intersection of the West Couplet and Ring Road. The Ring Road eastbound approach consists of an exclusive left-turn lane and a shared left-turn/right-turn lane. The East Couplet northbound approach consists of an exclusive left-turn lane, an exclusive through lane, and shared through/right-turn lane. The northbound approach is separated from the southbound departure by an approximately six-foot median island. The East Couplet southbound approach consists of two exclusive through lanes. The southbound approach is separated from the northbound departure by an approximately 15-foot median island. The AMC South Parking Lot is a right-turn entrance only driveway. There are sidewalks on the northwest and southwest corners of the intersection, with a crosswalk across the eastbound approach. Pedestrian crossings at the intersection are accommodated with a concurrent pedestrian signal phase. Land use near the intersection consists of retail and commercial properties.

Route 9 (Worcester Street) at East Couplet/Michael's Driveway

Route 9 (Worcester Street) intersects the East Couplet and Michael's driveway to form a four-way, fully actuated signalized intersection. The signal is part of a coordinated signal system extending along Route 9 to the east and west. The Route 9 eastbound approach consists of two exclusive through lanes and a shared through/right-turn lane. The eastbound approach is separated from the westbound departure by an approximately 30-foot median island. The Route 9 westbound approach is comprised of an exclusive left-turn lane, three exclusive through lanes, and an exclusive channelized right-turn lane operating freely. The westbound approach is separated from the eastbound departure by an approximately 15-foot median island. The Michael's driveway northbound consists of an exclusive left-turn lane and an exclusive right-turn lane. The northbound approach is separated from the southbound departure by an approximately four-foot median island. The East Couplet southbound approach consists of an exclusive left-turn lane and a shared left-turn/though lane. The southbound approach is separated from the northbound departure by an approximately six-foot median island. There are sidewalks on all corners of the intersection, with crosswalks across the northbound and southbound approaches. However, no pedestrian signal phase is included in the signal. Land use near the intersection consists of retail and commercial properties.

Route 9 (Worcester Street) at West Couplet

Route 9 (Worcester Street) intersects the West Couplet to form a three-way, fully actuated signalized intersection. The signal is part of a coordinated signal system

extending along Route 9 to the east and west. The Route 9 eastbound approach consists of two exclusive left-turn lanes and two exclusive through lanes. The left-turn lanes are separated from the through lanes by an approximately five-foot median island. The eastbound approach is separated from the westbound departure by an approximately four-foot median island. The Route 9 westbound approach is comprised of three exclusive through lanes. The westbound approach is separated from the eastbound departure by an approximately 35-foot median island. The West Couplet southbound approach consists of two exclusive right-turn lanes. The southbound approach is separated from the northbound departure by an approximately 12-foot median island. There are sidewalks on all corners of the intersection, with crosswalks across the westbound and southbound approaches. Pedestrian crossings at the intersection are accommodated with a concurrent pedestrian signal phase. Land use near the intersection consists of retail and commercial properties.

Flutie Pass at Natick Mall Road

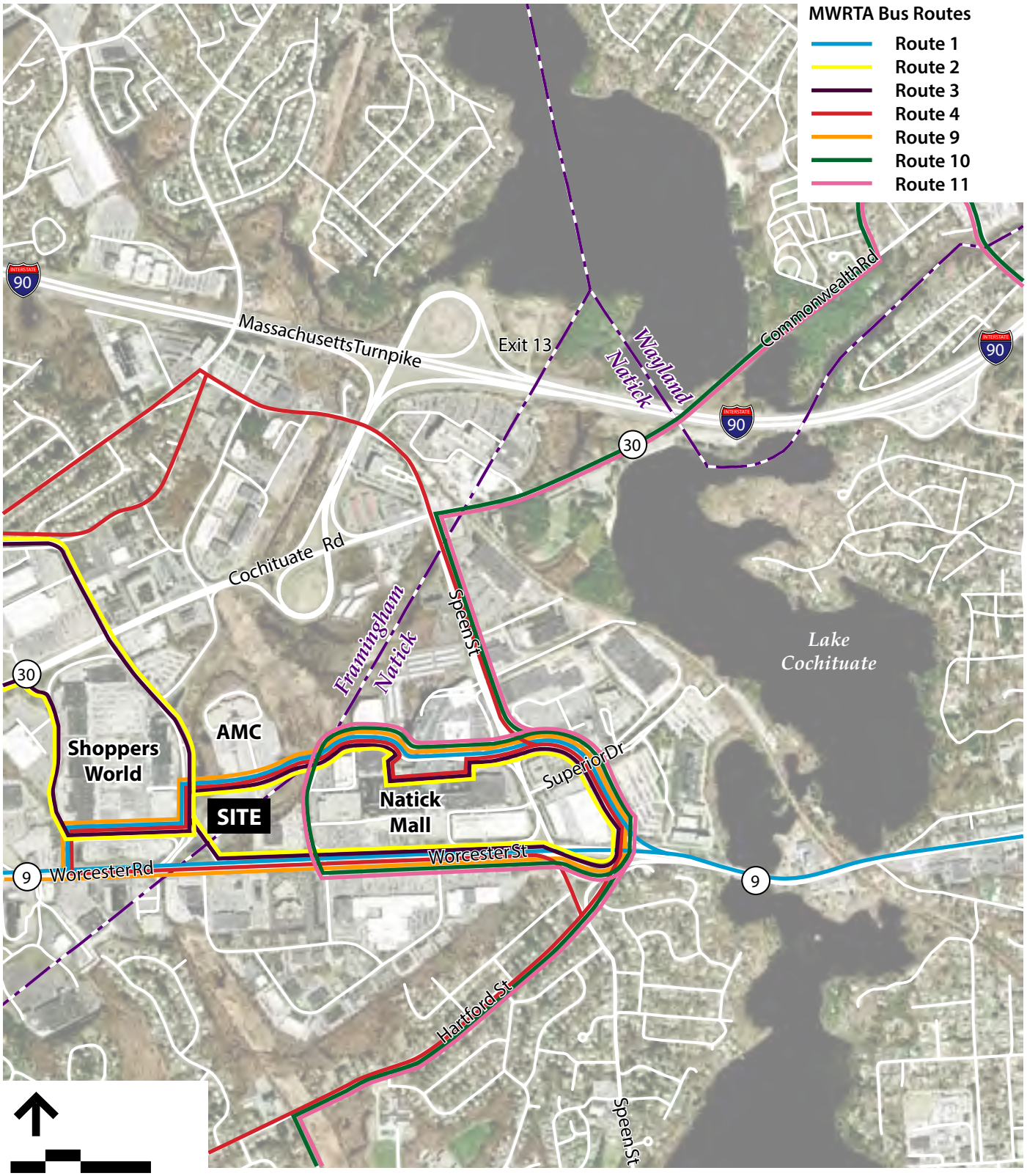
Flutie Pass intersects Natick Mall Road to form a three-legged roundabout. The Flutie Pass eastbound approach consists of an exclusive through lane and an exclusive right-turn lane. The Flutie Pass westbound approach is comprised of an exclusive left-turn lane and an exclusive through lane. The Mall Road northbound approach consists of a single general purpose lane accommodating all movements. All approaches are under yield control. There are sidewalks on the north side and southeast corner of the intersection, with a crosswalk across the westbound approach. Land use near the intersection consists of retail and commercial properties.

Public Transportation Facilities

The Metrowest Regional Transit Authority (MWRTA) operates buses in eleven communities in the Metrowest area including Natick, Framingham, and Wayland. Several of the MWRTA bus routes travel in the vicinity of the Project Site, with nearby stops at the Natick Mall, Flutie Pass, and Shoppers World. The MWRTA operates a "flag down" system that allows riders to wave down a bus in transit along the route, as well as at the designated bus stops.

Five MWRTA bus routes (Routes 1, 2, 3, 4, and 9) travel along Shoppers World Drive and Flutie Pass directly in front of the Site, and two MWRTA bus routes (Routes 10 and 11) travel along Mall Road to the east of the Site. A map showing the bus routes within the study area is shown in Figure 3. The MWRTA route schedules are included in the Appendix to this document. The following describes the various bus routes that travel along Speen Street.

- **Route 1** is the Green Line shuttle, running between the MWRTA central hub in Framingham and the Woodland MBTA Green Line station in Newton. The route runs mostly along Route 9 between 5:45 and 10:25 in the morning and



Source: Image: ArcGIS Image Service, MA_USGS_2008_15cm

Figure 3

Public Transportation Routes

AMC South Parking Lot Redevelopment
Framingham, Massachusettes

2:30 and 8:15 in the afternoon/evening. Route 1 does not run on the weekends.

- **Route 2** is a circuitous route running clockwise throughout Framingham, providing access to the MWRTA central hub between 6:30 AM and 7:55 PM on weekdays and 9:30 and 5:30 PM on Saturdays.
- **Route 3** is a circuitous route running counterclockwise throughout Framingham, providing access to the MWRTA central hub between 6:15 AM and 8:00 PM on weekdays and 9:00 AM and 5:00 PM on Saturdays.
- **Route 4** runs between the Market Basket in Ashland and Old Connecticut Path in Framingham between approximately 6:10 AM to 5:30 PM on weekdays, with headways of approximately an hour and a half. There is a dedicated stop on Flutie Pass, adjacent to the Site. Route 4 does not run on the weekends.
- **Route 9** provides service between the retail, residential, and employment hubs along Route 9. Major stops include the Mall, Shoppers World, Technology Park, and the 9/90 Corporate Center. There is also a dedicated stop on Flutie Pass, adjacent to the Site. Route 9 does not run on the weekends. Route 9 runs between 9:40 AM and 4:15 PM on weekdays, with headways of 1.5 hours.
- **Route 10** runs between the MWRTA central hub in Framingham and a loop through Natick (along Main Street), providing access to both Natick commuter rail stops between approximately 6:30 AM and 7:45 PM at headways of approximately one hour and twenty minutes on weekdays. Route 10 runs between 9:30 AM and 5:25 PM on Saturdays at headways of approximately one hour and twenty minutes.
- **Route 11** runs between the MWRTA central hub in Framingham and a loop through Natick (along Main Street), providing access to both Natick commuter rail stops between 6:30 AM and 8:10 PM at headways of approximately one hour and fifteen minutes on weekdays. Route 11 does not run on the weekends.

Traffic Volumes

Traffic volumes for the study area roadways and intersections were recorded in June 2014. In addition, traffic volumes collected in July 2013 as part of the Logan Express Parking Garage Traffic Impact and Access Study were used. The traffic counts were intentionally collected prior to the reduction in the seat count at the AMC cinema to ensure that the cinema trip generation prior to the seat count reduction is reflected in the Existing condition traffic networks.

Peak hour turning movement and classification (TMC) counts were collected at the study area intersections during the weekday evening from 4:00 PM to 6:00 PM and

Saturday midday from 11:00 AM to 2:00 PM. The traffic volumes were adjusted by a historic growth rate of one-percent per year to establish 2016 base year traffic volumes.

In addition, automatic traffic recorder (ATR) counts were conducted in July 2013 as part of the Logan Express Parking Garage Traffic Impact and Access Study for a period of 48-hours along Shoppers World and Flutie Pass (Tuesday through Wednesday). The traffic volumes were adjusted by a historic growth rate of one-percent per year to establish 2016 base year traffic volumes. The ATR counts are summarized below in Table 1.

Table 1 Daily Traffic Volumes

	Weekday	Morning Peak Hour			Evening Peak Hour		
Location	**ADT [1]**	**Volume**	**K Factor[2]**	**Dir. Dist.[3]**	**Volume**	**K Factor**	**Dir Dist**
Shoppers World Drive south of Burr Street Extension	11,800	535	5%	53% SB	1,035	9%	52% NB
Flutie Pass east of AMC South Parking Lot	7,900	270	3%	69% EB	735	9%	50% EB

Source: Based on automatic traffic recorder counts conducted in July 2013 and adjusted by a historic growth rate of 1.0-percent per year to establish 2016 base year traffic volumes.
a Average Daily Traffic volume, expressed in vehicles per day
b Represents the percent of daily traffic which occurs during the peak hour
c Directional distribution of peak hour traffic
Note: Peak hours do not necessarily coincide with the peak hours of turning movement counts

The ATR counts indicate that on a typical weekday, approximately 11,800 vehicles per day (vpd) travel along Shoppers World Drive, south of Burr Street Extension. Commuter peak hours represent approximately five-percent to nine-percent of the daily traffic along Shoppers World Drive. The traffic volumes along Shoppers World Drive, south of Burr Street Extension are heavier in the southbound direction in the mornings and heavier in the northbound direction during the evenings. On a typical weekday, approximately 7,900 vehicles per day (vpd) travel along Flutie Pass, east of the AMC South Parking Lot. Commuter peak hours represent approximately three-percent to nine-percent of the daily traffic along Flutie Pass. The traffic volumes along Flutie Pass, east of the AMC South Parking Lot are heavier in the eastbound direction in the mornings and evenings.

Seasonal Adjustment

The traffic data collected for the Study was obtained during the months of June. Record data from the Logan Express study were collected in July. To quantify the seasonal variation of traffic volumes in the area, historic traffic data available from MassDOT were reviewed. According to published MassDOT seasonal factors, June and July traffic counts are higher than average month conditions. However, to be conservative, the traffic volumes were not reduced to reflect average month

conditions. Where appropriate, traffic volumes were balanced between the intersections. The resulting 2016 Existing conditions weekday evening and Saturday midday peak hour traffic volume networks are presented in Figures 4 and 5, respectively.

Crash History

To identify crash trends in the study area, the most current crash data were obtained for the study area intersections from MassDOT for a five-year period (2009 through 2013). A summary of the data is presented in Table 2.

According to MassDOT, the MassDOT District 3 average crash rate is 0.90 for signalized intersections and 0.65 for unsignalized intersections. The crash rates represent the number of reported crashes for every million vehicles that pass through an intersection.

As shown in Table 2, seven of the eight intersections within the study area have crash rates that are currently below the respective District 3 averages. The intersection of Route 9 at the West Couplet has an average crash rate of 1.17, which is over the District 3 average. The majority of crashes occurring at the study area intersections were angle and rear-end collisions resulting in property damage only. It should be noted that crashes involving non-motorists (bikes, pedestrians) were reported at one study area intersection; Route 9 at the West Couplet.

It is also be noted that three of the study area intersections are classified by MassDOT as high crash or Highway Safety Improvement Program (HSIP) eligible locations. The three locations are Route 9 at West Couplet, Route 9 at East Couplet and Route 30 at Shoppers World Drive/Whittier Street. The intersection of Route 9 with West Couplet is ranked number 117 on MassDOT's top 200 crash location list.

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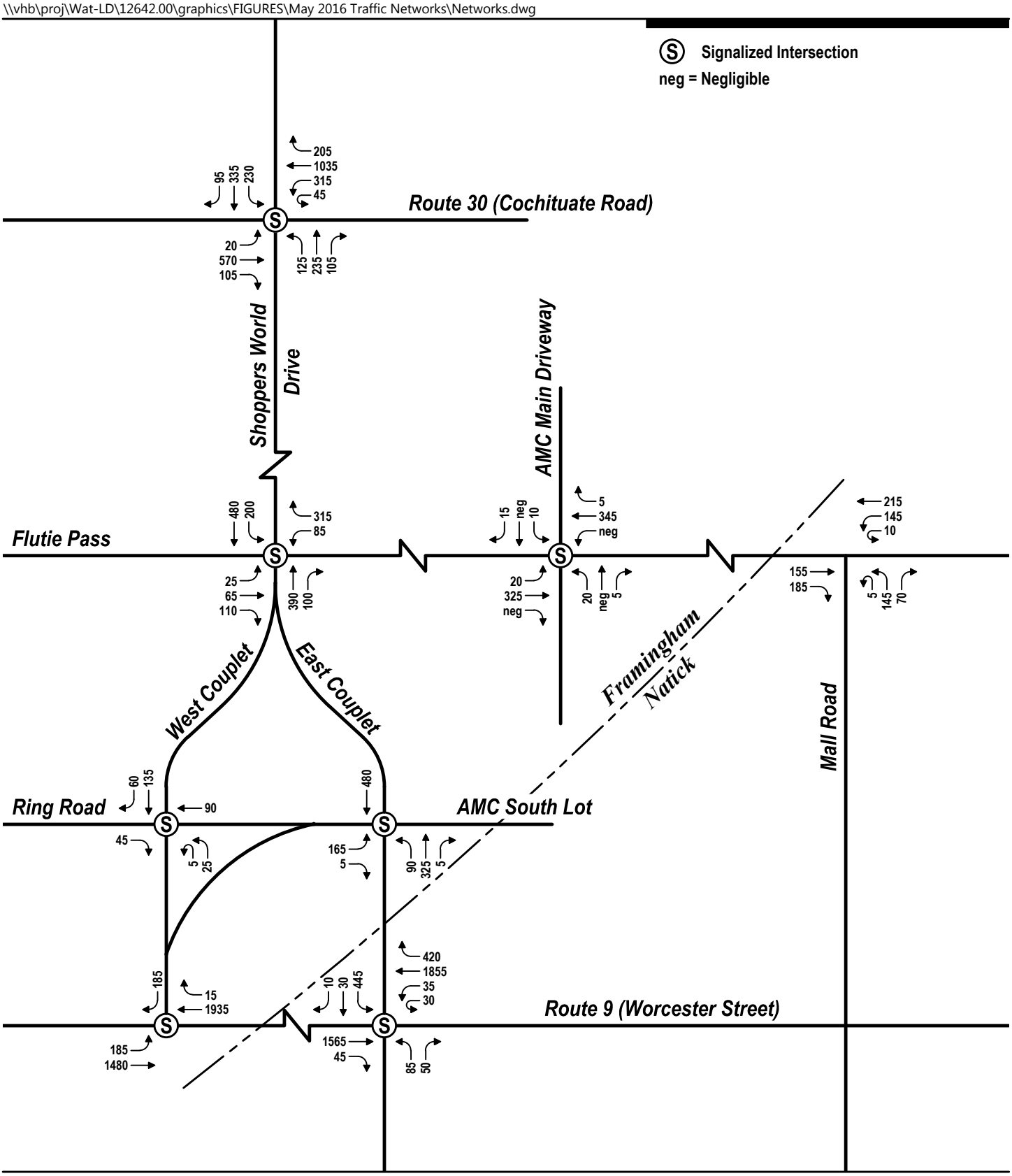

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Figure 4

2016 Existing Conditions
Weekday Evening Peak Hour Traffic Volumes
AMC South Parking Lot Redevelopment
Framingham, Massachusetts

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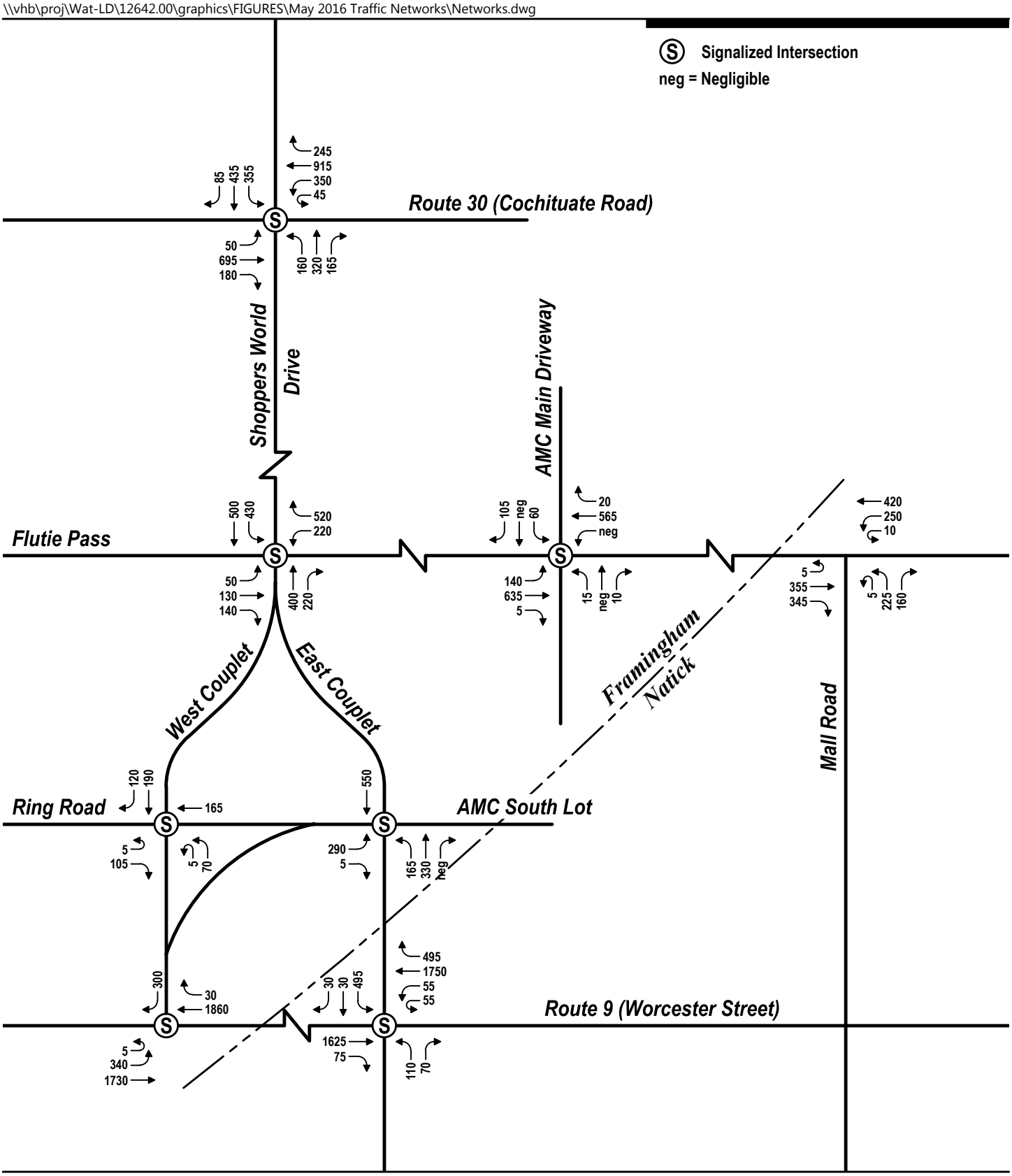

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Figure 5

2016 Existing Conditions
Saturday Midday Peak Hour Traffic Volumes
AMC South Parking Lot Redevelopment
Framingham, Massachusetts

Table 2 Vehicle Crash Summary (2009 - 2013)

	Route 30 at Whittier Street/ Shoppers World Drive	Shoppers World Drive at Flutie Pass/ Shoppers World Driveway	Flutie Pass at AMC Main Driveway/ AMC South Parking Lot	West Couplet at Ring Road	East Couplet at Ring Road/ AMC South Parking Lot	Route 9 at East Couplet/ Michael's Driveway	Route 9 at West Couplet	Flutie Pass at Mall Road
Year								
2009	11	1	0	0	2	7	16	0
2010	14	6	0	0	1	17	17	0
2011	9	3	0	0	0	18	23	1
2012	8	4	0	0	1	6	21	2
2013	11	0	1	0	1	14	12	1
Total	53	14	1	0	5	62	89	4
Collision Type								
Angle	25	5	1	0	3	14	28	1
Head-on	0	0	0	0	0	0	1	0
Rear-end	18	1	0	0	1	39	29	1
Rear-to-rear	0	0	0	0	0	0	4	0
Sideswipe – opposite direction	0	2	0	0	0	1	2	0
Sideswipe – same direction	5	6	0	0	0	5	9	1
Single Vehicle	3	0	0	0	1	3	12	1
Unknown	2	0	0	0	0	0	4	0
Not Reported	0	0	0	0	0	0	0	0
Severity								
Fatal injury	0	0	0	0	0	0	0	0
Non-fatal injury	14	3	0	0	2	13	17	1
Property damage only	38	10	1	0	3	49	69	3
Not Reported	0	1	0	0	0	0	1	0
Unknown	1	0	0	0	0	0	2	0
Time of Day								
Weekday, 7:00-9:00 AM	4	0	0	0	0	4	5	0
Weekday, 4:00-6:00 PM	13	1	0	0	0	10	18	0
Saturday, 11:00 AM – 2:00 PM	2	1	0	0	0	6	6	0
Weekday, other time	26	8	1	0	2	22	40	3
Weekend, other time	8	4	0	0	3	20	20	0
Pavement Conditions								
Dry	45	13	1	0	3	43	66	4
Wet	7	1	0	0	1	16	17	0
Snow	1	0	0	0	1	3	4	0
Unknown	0	0	0	0	0	0	2	0
Non Motorist (Bike, Pedestrian)	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**
MassDOT Crash Rate	**0.77**	**0.40**	**0.07**	**0.00**	**0.23**	**0.68**	**1.17**	**0.21**

Source: MassDOT Crash Data

3

Future Conditions

Traffic volumes in the study area were projected to the year 2023, which reflects a seven-year traffic-planning horizon. Independent of the Project, volumes on the roadway network under year 2023 No-Build conditions were assumed to include existing traffic and new traffic resulting from background traffic growth. Under the 2023 Build condition, Project generated traffic volumes were added to the 2023 No-Build volumes to reflect the year 2023 Build conditions within the Project study area.

Background Traffic Growth

Traffic growth on area roadways is a function of the expected land development, economic activity, and changes in demographics. Several methods can be used to estimate this growth. A procedure frequently employed is to estimate an annual percentage increase and apply that increase to study area traffic volumes. An alternative procedure is to identify estimated traffic generated by planned new major developments that would be expected to impact the project study area roadways. For the purpose of this assessment, both methods were utilized.

Historic Traffic Growth

To determine an applicable annual growth rate, historical traffic volumes within the study area were reviewed. Based on other projects recently completed within the area, both the peak hour and daily traffic volumes have, for the most part, either remained constant or decreased slightly. To be consistent with these other projects, a nominal annual growth rate of one percent per year was used for the future conditions traffic analyses to account for nominal growth in traffic over the next seven years.

Site-specific Growth

In addition to accounting for background growth, the traffic associated with other planned and/or approved developments in the area at the time of the performance of

the traffic counts were considered. Based on discussions with the towns of Framingham and Natick planning staff, the projects shown in Table 3 below were reviewed to determine if they could generate additional traffic through the study area.

Table 3 Summary of Planned Background Developments

Project Name	Type of Development	Project Size
Chick-fil-A	Restaurant	4,779± sf with drive-through window
Avidia Bank	Bank	5,313± sf with drive-through teller
TJX Building Expansion	Corporate Support Center	96,000 sf
MathWorks Facility in Natick	Office/Parking Garage	470 parking spaces
Sherwood Plaza South Redevelopment	Mixed use	41,000 fitness facility + 151,000 sf office + 25,000 sf retail
Life Time Athletic	Health club	137,971 sf
Logan Express	Parking Garage	625 parking spaces
Residential Component of Natick Mall[1]	Residential	250 units
Danforth Green	Residential	360 units
Wayland Town Center[2]	Mixed use	100 condos + 205,000 sf mixed-use
Christa McCaulliffe Charter School	School	To be relocated to Newbury Street
492 Old Connecticut Path Infill	Office	55,000 sf
Wegmans	Grocery	153,000± sf

Note: The table reflects projects planned/approved at the time of collecting traffic counts used in this study. Some of these developments have been partially or fully constructed and occupied since then. However, they have been retained in the analysis to ensure that their trip generation is accounted for in the future conditions analyses

1 Trips associated with unoccupied units were included
2 Phase 1 residential units are in place

The average annual traffic growth rate of one percent per year was applied and the traffic volumes from the listed background developments were added, where appropriate, to the 2016 Existing conditions traffic volumes to develop the 2023 No-Build traffic volumes for the weekday evening and Saturday midday peak hours.

The 2023 No-Build weekday evening and Saturday midday peak hour traffic volume networks are shown in Figures 6 and 7, respectively.

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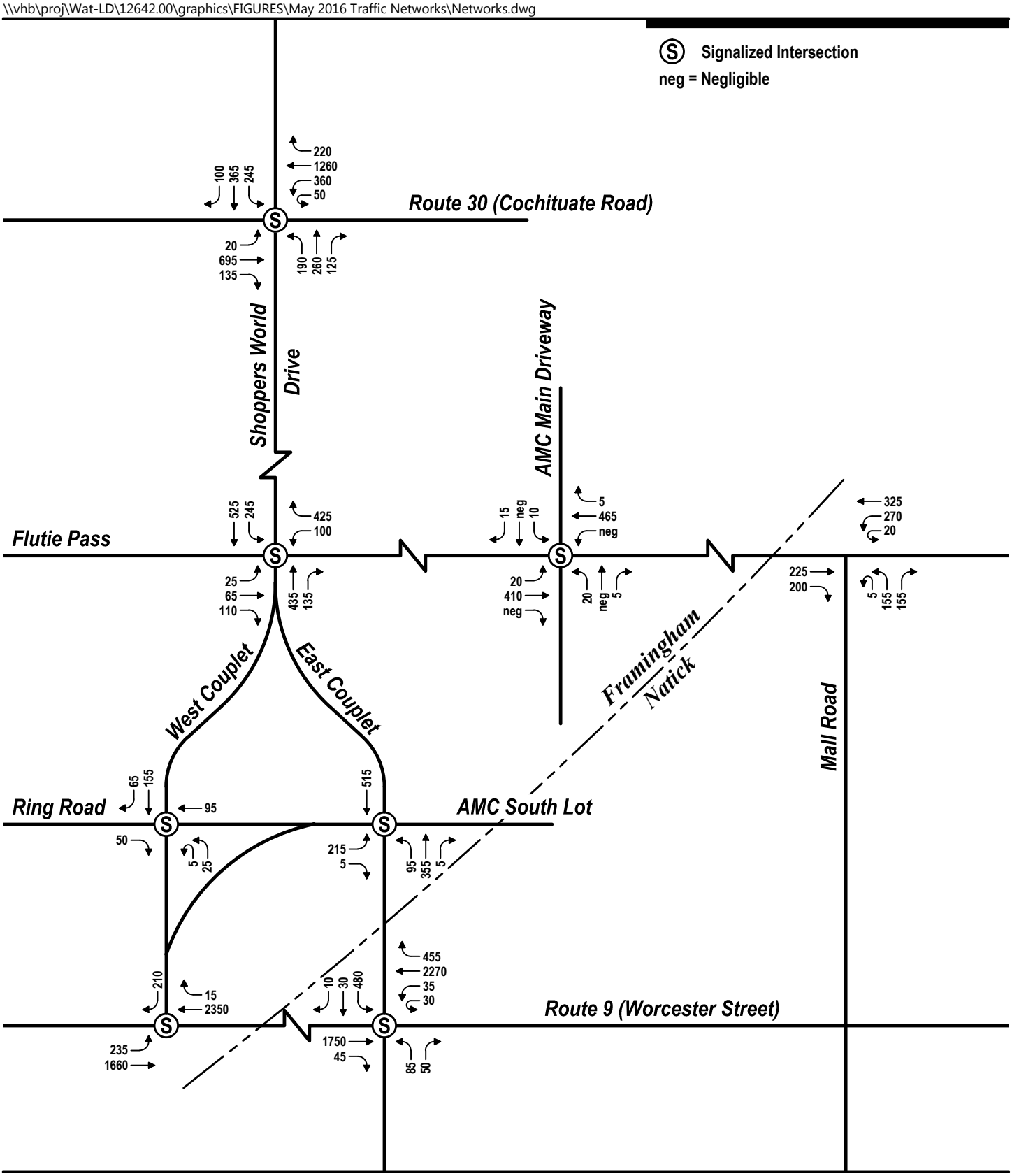

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Figure 6

2023 No-Build Conditions
Weekday Evening Peak Hour Traffic Volumes
AMC South Parking Lot Redevelopment
Framingham, Massachusetts

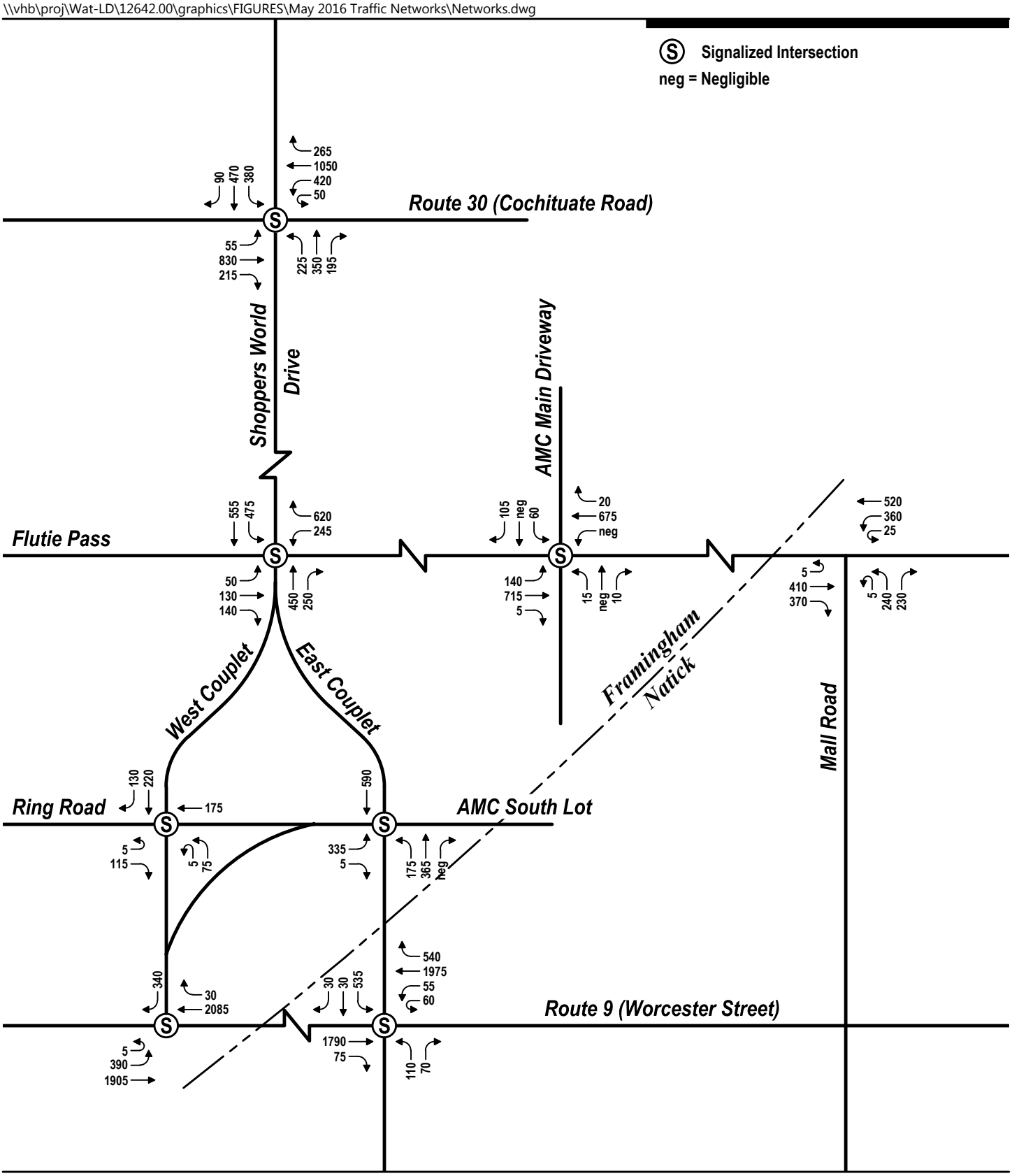

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Figure 7

2023 No-Build Conditions
Saturday Midday Peak Hour Traffic Volumes
AMC South Parking Lot Redevelopment
Framingham, Massachusetts

Planned Roadway Improvements

The following roadway and intersection improvement projects/initiatives, unrelated to the Project, were identified within the study area:

- **Route 30 Arterial Segment Study –** The Boston Region Metropolitan Planning Organization (MPO) recently completed a corridor study which covers Route 30 from Ring Road in Framingham to the TJX driveway just east of Speen Street in Natick. Numerous improvement alternatives, both short- and long-term, were proposed along the corridor, including multi-modal improvements, signal timing adjustments and major geometric changes aimed at increasing vehicular capacity. The intersections of Route 30 with Whittier Street/Shoppers World Drive was included in this study. However, at this time, no information is available regarding the implementation of the improvement findings in the MPO study.
- **Framingham Logan Express (FLEX) Site Improvements –** As part of the Logan Express Parking Garage project, ADA/MAAB compliant sidewalks were recently constructed on the north side of Burr Street Extension and on the east side of Shoppers World Drive within the FLEX project site limits.
- **Route 30 Traffic Signal Study** – The Town of Framingham is currently performing a study of five traffic signals along Route 30 (between Concord Street and Burr Street Extension) to identify enhancements and improvements that could be considered at the five intersections to help improve the corridor traffic flow. Implementation of the improvements identified in the on-going study will be covered under a future project.
- **Route 9 Adaptive Traffic Signal System** – The Massachusetts Department of Transportation is currently designing an adaptive traffic signal control system for five traffic signals along Route 9 (between Walmart Way in Framingham and Dean Road in Natick) to help reduce congestion along the corridor.

In addition to the above planned initiatives within the study area, the following roadway and intersection improvement projects were also identified outside, but in the immediate vicinity, of the study area:

- **Route 126 Corridor Study –** The Route 126 corridor study evaluated several intersections along Route 126 between School Street and Route 9 to develop improvements throughout the corridor. Intersection improvements at several intersections throughout the corridor were designed and some of them have already been implemented. The remaining improvements will be implemented over the next few years. While these improvements do not fall within this Project's study area, traffic flow to/from the Site, especially for Site traffic from the south and west along Route 30, can be expected to benefit from the improvements afforded by the corridor enhancement project.
- **Cochituate Rail Trail Crossing** – The Cochituate Rail Trail is currently under construction and will connect the Village of Saxonville to Natick Center. An actuated traffic signal is provided where the trail crosses Old Connecticut Path approximately mid-way between the Speen Street and Hamilton Street intersections.

Site-generated Traffic Volumes

The rate at which any development generates traffic is dependent upon a number of factors such as size, location, and nature of the use. To estimate the trip-generating characteristics for an existing vacant site or a new project, traffic projections are typically derived from trip generation rates published in the Institute of Transportation Engineers (ITE) *Trip Generation*[3] manual. Empirical data, such as actual driveway counts, if available for a specific use or tenant, is also used to further refine the trip projections that based on the ITE rates.

As noted earlier, several of the individual components of the overall development plan have already been analyzed in a prior version of the traffic study that was reviewed by the Framingham Planning Board before the issuance of an approval in February 2015. Fore continuity and comprehensiveness of review, the entire development program is analyzed as part of this revised Study.

The analysis methodology used for the estimation of Project related traffic volumes in this Study is described in the following sections.

Larger AMC Cinema (Prior to Renovation)

Not all of the vehicular traffic that is estimated for the Project in this Study is *new* traffic. At the time that the traffic counts were conducted, the AMC cinema on the north side of Flutie Pass contained 3,657 seats, which has since been reduced to 1,601 seats; a reduction in seating capacity of 56-percent. As was stated previously, ATR's were deployed on each of the movie theatre's three driveways to count the total

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3 Trip Generation Handbook; *9th Edition* Institute of Transportation Engineers; Washington, DC; 2009.

number of entering and exiting trips over a four-day period (Thursday through Sunday) and the resulting peak hour trips summarized in Table 4.

It should be noted that based on ITE trip generation estimates, the larger cinema should have generated substantially more traffic that what was counted at its driveways. For peak hour traffic impact analysis purposes, and for comparison to the future peak hour trip generation, actual driveway counts were used instead of ITE estimates. Use of ITE estimates for the existing cinema and adjusting them for the smaller seat count using ITE methodology would have substantially reduced the estimated *net new* vehicular trips for the project.

Table 4 Trip Generation for Larger Cinema

Peak Hour	Trips
Weekday Morning Peak Hour (vph)	
Enter	Neg
Exit	Neg
Total	Neg
Weekday Evening Peak Hour (vph)	
Enter	38
Exit	33
Total	71
Saturday Midday Peak Hour (vph)	
Enter	245
Exit	207
Total	452

vph vehicle trips per hour, based on actual driveway counts
Neg Negligible

As shown in Table 4, actual counts indicate that the previously existing larger cinema generated 71 vehicle trips (38 entering/33 exiting) during the weekday evening peak hour and 452 trips (245 entering/207 exiting) during the Saturday midday. These traffic volumes are reflected in the No-Build condition analysis discussed in the previous section of the report.

Peak Hour Trip Generation

Due to the unique nature of the mix of uses proposed as part of the redevelopment, a combination of ITE and tenant-based empirical data was utilized to estimate the number of peak hour trips that are expected to be generated by the Project. The following provides a breakdown of what data sources were utilized for each corresponding use on the site. Additionally, and for ease of reference, elements of the overall plan that were already analyzed in the prior study, and included again in this revised Study, are identified in parentheses.

- **Smaller Cinema** – Information provided by the Proponent indicates that the peak hour traffic that is generated by the smaller cinema may likely be in the order of 85-percent of the peak hour data obtained from the 2014 traffic counts. So the driveway traffic counts were factored down by 15 percent to calculate the trip reduction associated with the smaller cinema. It is noted that the use of an ITE based methodology for this calculation would have substantially reduced the estimated vehicular trips for the cinema when compared to the numbers used in this analysis (i.e., a 56% reduction in seats would have resulted in a mathematical 56% reduction in vehicle trips for the smaller cinema). The methodology used in this study can therefore be considered as conservatively worse case. (*This was included in the August 2015 study);*
- **King's Dining Area** – ITE LUC 932 (high turnover sit-down restaurant). (*This was included in the August 2015 study);*
- **King Bowling/Active Entertainment Area** – ITE LUC 437 (Bowling Alley). (*This was included in the August 2015 study);*
- **Stand-alone Restaurant** – ITE LUC 932 (high turnover sit-down restaurant). (*This was included in the August 2015 study);*
- **iFly Indoor Adventure Facility** – empirical data based on utilization of 40 maximum parking spaces. (*This was included in the August 2015 study);*
- **Residential** – ITE LUC 220 (apartment). (*This is a new addition to the development plan);* and,
- **Specialty Retail** – ITE LUC 826 (specialty retail). (*This is a new addition to the development plan).*

Table 5 provides a summary of the total gross peak hour trips, prior to applying any trip adjustments that can be expected for the overall mixed-use development. It is noted that since only the residential use would generate traffic during the weekday morning peak hour, and the critical peak times for a majority of the study locations is during the evenings and on weekends, capacity analyses were not conducted for the weekday morning peak period.

Table 5 Gross Roadway Peak Hour Trip Generation Summary

	Prior Conditions [a]	Future Conditions							Gross Increase
	Larger AMC Cinema	Smaller AMC Cinema [b,d]	Stand-Alone Restaurant [d]	King's (Dining Area) [c,d]	King's (Bowling) [d]	iFly [d]	Residential [e]	Specialty Retail [e]	Future - Existing
	3,657 Seats	*1,601 Seats*	*9,500 sf*	*5,400 sf*	*16 Lanes*	*40 Parking Spaces*	*140 Units*	*4,500 sf*	
Weekday Morning Peak Hour (vph)									
Enter	0	0	0	0	0	0	14	Neg	14±
Exit	0	0	0	0	0	0	58	Neg	58±
Total	0	0	0	0	0	0	72	Neg	72±
Weekday Evening Peak Hour (vph)									
Enter	38	32	56	32	15	16	62	5	180
Exit	33	28	38	21	9	12	33	7	115
Total	71	60	94	53	24	28	95	12	295
Saturday Midday Peak Hour (vph)									
Enter	245	208	71	40	15	20	37	13	159
Exit	207	176	63	36	24	20	36	10	158
Total	452	384	134	76	39	40	73	23	317

Neg Specialty retail, comprising predominantly of non-food service related uses, is assumed to generate negligible traffic during the weekday morning roadway peak
vph vehicle trips per hour
a Based on actual driveway counts before the cinema was remodeled and the seat count reduced
b Cinema trips reduced by a nominal 15 percent to represent a 56-percent seat count reduction
c Dining area of King's treated as a restaurant use for analysis purposes
d Analyzed and revised as part of the prior study and February 2016 Planning Board approval
e New component added to the development plan as part of the current application

Internal Capture

Given the mixed-use nature of the Project, it is expected that there will be shared business between the various components of the Project as well as between the Site and AMC Cinema parcel. While these shared trips represent new traffic to the individual uses, they do not represent new vehicle trips on the surrounding roadway network. Examples of this could be a resident of the apartments using one of the commercial establishments on the Site or a King's bowling patron who dines and bowls on the same trip. Information from the operator of King's indicates that this internal trip making at their facilities typically represents more than 60-percent of the visits. In these instances, the trips between the uses would be considered as internal trips as they can be expected to have no impact to the adjacent roadway system.

Guidelines provided by the National Cooperative Highway Research Program (NCHRP) for the calculation of internal capture trips were used in the analysis rather than the anecdotal 60-percent quoted by the bowling operator. For the purposes of this

analysis, the weekday evening internal capture rates provided in the NCHRP report for cinemas were used to reflect the internal capture characteristics of the King's bowling alley. No internal capture was assumed between King's and the stand-alone restaurant or King's and the cinema.

Shared Trips

The uses proposed on the Site are complementary to the AMC cinema use across the street from the Site. As such, it is expected that there will be some shared business between the Site and the cinema. For example, this would be in the form of a restaurant patron who drives or walks across Flutie Pass to watch a movie after visiting the Site. Such trips would be reflected only at the Site driveway and the cinema driveways on Flutie Pass, but not at the other study locations. For analysis purposes, this calculation was applied only between the cinema and the stand-alone restaurant, residential, and specialty retail uses on the Site. No shared trip credits were applied between the cinema and King's Bowling Alley.

It should also be noted that there will be shared business between the components of the Project and the adjacent Shoppers World Plaza and Natick Mall. To provide a conservative analysis, no adjustments were applied to the site generated traffic to account for shared use trips between the nearby existing retail uses.

Pass-by/Diverted-link Vehicle Trips

Based on an understanding of the operational characteristics of mixed-use facilities, it is expected the Project will draw a percentage of its traffic from the vehicular traffic that is already on the area roadway network, particularly during peak periods. These trips, which are considered *pass-by* or *diverted-link* trips, are already on the roadway system traveling to and from locations other than the Site (such as home, work or shopping destinations).

Pass-by trips are attracted to the Site as they pass through the area, in close proximity to the Site, and do not require a noticeable detour to visit the Site. The rate at which pass-by trips are attracted to a site is highly dependent on the type of land use, the proximity of the site to major traffic corridors, and the location and type of nearby land uses.

Diverted-link trips are attracted from the traffic flow on roadways in proximity to the Site but require a diversion from another roadway to gain access to the site.[4] The Site is located adjacent to a major arterial roadway (Route 9) that is anticipated to contribute vehicle trips, in the form of pass-by and diverted-link trips, to the proposed Site. Most of these diverted-link trips will be part of a multiple-stop chain of trips and

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4 *Trip Generation Handbook – An ITE Recommended Practice*, Institute of Transportation Engineers, March 2001.

for the purposes of this study are expected to originate from Route 9. An example of a multiple-stop diverted-link trip chain is that of a restaurant patron leaving his/her place of work in the evening, traveling to the Site, and then leaving the Site to travel home.

For analysis purposes, a 43-percent pass-by/diverted-link trip rate was applied to the stand alone restaurant use (ITE pass-by data) for both peak periods, and a 34-percent and 26-percent pass-by/diverted-link trip rate was applied to the specialty retail use (ITE pass-by data) during the weekday evening and Saturday midday peak periods, respectively, as allowed by MassDOT's updated guidelines for traffic impact analysis. Pass-by adjustment was not applied to the King's, iFly, and residential uses. Table 6 provides a summary of peak hour *net new* trip estimates for the Project.

As shown in Table 6, the Project is estimated to generate approximately 72 *net new* vehicle trips (14 entering/58 exiting) during the weekday morning peak hour, 188 *net new* vehicle trips (124 entering/64 exiting) during the weekday evening peak hour, and 177 *net new* trips (87 entering/90 exiting) during the Saturday midday peak hour. As previously mentioned, capacity analyses were not conducted for the weekday morning peak hour due to the minimal impacts expected as a result of the Project and the relatively less congested nature of a majority of the study locations during the weekday morning peak hour when compared to the evening and Saturday midday peak conditions. The trip reduction calculations are included in the Appendix.

Table 6 Net Roadway Peak Hour Trip Generation Summary

Time Period	Movement	Gross Increase Due to Project [a]	Internal Capture [b]	Shared Trips w/ AMC [c]	Pass-By [d]	Diverted Link Trips [e]	Total Adjustments	Resulting Adjustment %	**Net New Trips [f]**
Weekday Morning Peak Hour (vph)	Enter	14±	0	0	0	0	0	0%	**14±**
	Exit	58±	0	0	0	0	0	0%	**58±**
	Total	72±	0	0	0	0	0	0%	**72±**
Weekday Evening Peak Hour (vph)	Enter	180	29	7	7	13	56	31%	**124**
	Exit	115	29	7	5	10	51	44%	**64**
	Total	295	58	14	12	23	107	36%	**188**
Saturday Midday Peak Hour (vph)	Enter	159	35	8	9	20	72	45%	**87**
	Exit	158	35	8	8	17	68	43%	**90**
	Total	317	70	16	17	37	140	44%	**177**

vph vehicle trips per hour
a From Table 5
b Internal capture based on NCHRP percentages and ITE internal capture calculation methodology; internal capture assumed between residential and all proposed uses on site; no internal capture assumed between King's and the stand-alone restaurant and between King's and AMC
c Shared trips between the stand-alone restaurant and AMC based on NCHRP percentages and ITE calculation methodology; no shared trips assumed between King's and AMC
d 14-percent pass-by trips for restaurant use applied on Shoppers World Drive and Flutie Pass; total of pass-by and diverted link limited to 43-percent
e 29-percent diverted link trips for restaurant use assumed between Route 9 and the Site; no diverted link trips applied to Route 30; total of diverted link and pass-by limited to 43-percent
f Net new trips = gross increase – adjustments noted above

Trip Distribution

The directional distribution of the vehicular traffic approaching and departing the site is a function of the land use, population densities, the location of employment, existing travel patterns, competing uses, and the efficiency of the existing roadway system. Since the proposed redevelopment is a mix of different uses the directional distributions for each use were considered separately. The distribution of trips made to and from the proposed non-residential uses are based on the area traffic patterns. Trip distribution for residential use is based on 2010 U.S. Census Journey-to-Work data. Table 7 summarizes the calculations.

Table 7 Trip Distribution Summary

Roadway	Direction (From/To)	No-residential Uses Percent Site Traffic	Residential Use Percent Site Traffic
Route 30	East	18 %	26 %
	West	14 %	5 %
Whittier Street	North	10 %	7 %
Route 9	East	24 %	22 %
	West	24 %	36 %
Flutie Pass	East	10 %	4 %
	Total	*100%*	*100%*

To develop the 2023 Build conditions peak hour traffic volume, Project generated traffic volumes noted above were added to the 2023 No-Build conditions peak hour traffic volumes. The 2023 Build weekday evening and Saturday midday peak hour traffic volume networks are shown on Figures 8 and 9, respectively.

Traffic Volume Increases

Table 8 provides a comparison of Existing, No-Build and Build condition peak period traffic volumes for various roadway segments within the study area, and the increase in traffic associated with the Project (difference between the Build and No-Build conditions).

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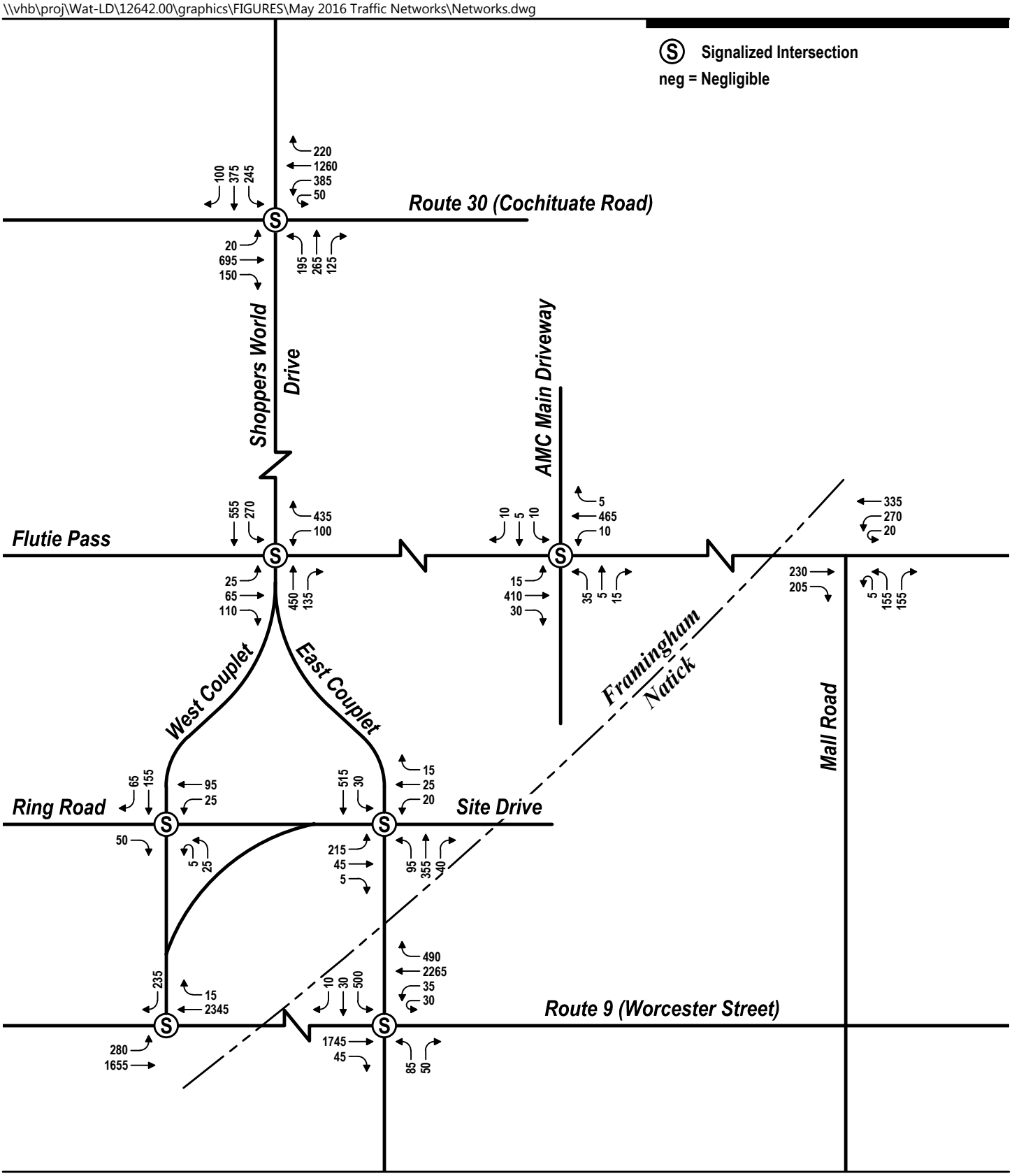

Figure 8

2023 Build Conditions
Weekday Evening Peak Hour Traffic Volumes
AMC South Parking Lot Redevelopment
Framingham, Massachusetts

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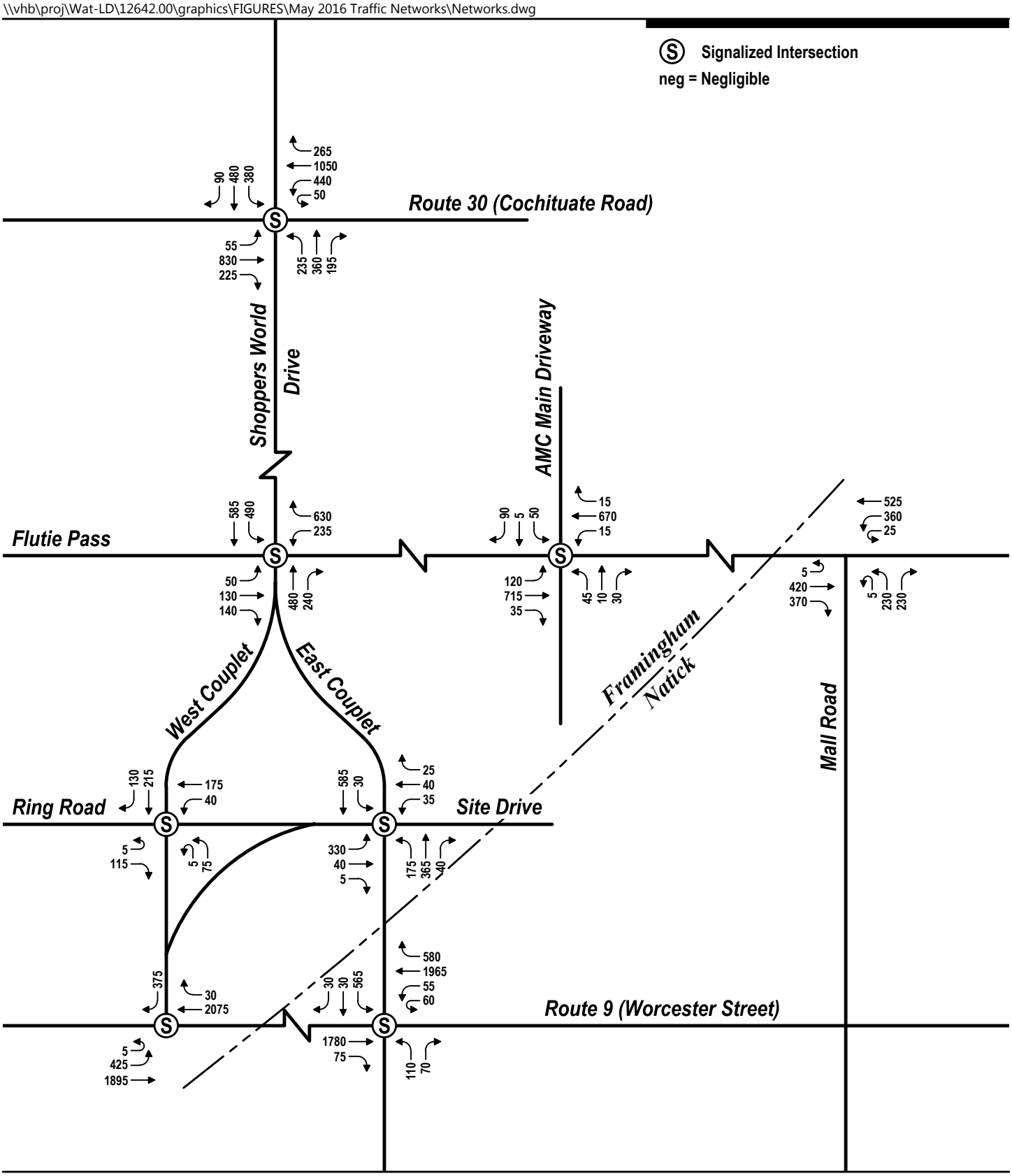

Not to Scale

Figure 9

2023 Build Conditions
Saturday Midday Peak Hour Traffic Volumes
AMC South Parking Lot Redevelopment
Framingham, Massachusetts

Table 8 Traffic Volume Increases

Location	Peak Period	Peak Hour Traffic Volumes			
		2016 Existing Conditions	2023 No-Build Conditions	2023 Build Conditions [a]	Traffic Volume Increase
Route 30, west of Shoppers World Drive	Weekday Evening	1,950	2,400	2,420	20
	Saturday Midday	2,085	2,465	2,485	20
Route 30, east of Shoppers World Drive	Weekday Evening	2,550	3,005	3,030	25
	Saturday Midday	2,815	3,240	3,260	20
Shoppers World Drive, south of Route 30	Weekday Evening	1,220	1,435	1,495	60
	Saturday Midday	1,610	1,875	1,935	60
Flutie Pass, west of Mall Road	Weekday Evening	700	905	925	20
	Saturday Midday	1,355	1,550	1,555	5
West Couplet, north of Route 9	Weekday Evening	385	460	530	70
	Saturday Midday	670	760	830	70
East Couplet, north of Route 9	Weekday Evening	905	975	1,030	55
	Saturday Midday	1,050	1,135	1,205	70
Route 9, west of West Couplet	Weekday Evening	3,785	4,455	4,515	60
	Saturday Midday	4,240	4,730	4,780	50
Route 9, east of East Couplet	Weekday Evening	4,430	5,100	5,145	45
	Saturday Midday	4,600	5,085	5,135	50

a 2023 Build conditions volumes include the reduction in AMC Cinema traffic associated with the reduction in seat count and the addition of site-generated traffic by the proposed AMC South Parking Lot development.

As shown in Table 8, the increase in traffic associated with the Project on the study area roadways is expected to range from 5 trips per hour up to approximately 70 trips per hour, depending on the specific location and the specific peak hour under consideration. Compared to the overall traffic volumes on area roadways, the above calculated increases associated with the Project are relatively small, and fall within the range of daily fluctuations or roadway traffic flow. Traffic improvement measures to handle the additional Site generated traffic are discussed later in this report.

4

Traffic Operations Analysis

Measuring existing traffic volumes and projecting future traffic volumes quantifies traffic flow within the study area. To assess quality of flow, roadway capacity analyses were conducted with respect to Existing and projected No-Build and Build traffic volume conditions. Capacity analyses provide an indication of how well the roadway facilities serve the traffic demands placed upon them. Roadway operating conditions are classified by calculated levels of service.

Level-of-Service Criteria

Level of service (LOS) is the term used to denote the different operating conditions which occur on a given roadway segment under various traffic volume loads. It is a qualitative measure of a number of factors including roadway geometrics, speed, travel delay and freedom to maneuver. Level of service provides an index to the operational qualities of a roadway segment or an intersection. Level-of-service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing congested operating conditions.

For this study, capacity analyses were completed for the signalized intersections within the study area using SYNCHRO traffic analysis software, and the roundabout within the study area using SIDRA traffic analysis software, both of which are based on the methodologies specified in the HCM[5]. Level-of-service designation is reported differently for signalized intersections and roundabouts. For signalized intersections, the analysis considers the operation of each lane or lane group entering the intersection and the LOS designation is for overall conditions at the intersection. The LOS designation for signalized intersections is based on the delay. For roundabouts, the analysis assumes that traffic entering the roundabout yields to the circulating traffic and therefore, capacity of the circulating traffic is not affected by traffic on the approaches. The LOS is only determined for the approach movements. The LOS designation for roundabouts is based on delay and volume to capacity (v/c) ratio.

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5 Highway Capacity Manual; Transportation Research Board; Washington D.C.

Signalized Intersections Capacity Analysis

Capacity analyses conducted for the signalized intersections are summarized in Table 9. The capacity analyses were conducted for 2016 Existing, 2023 No-Build and 2023 Build conditions.

Table 9 Signalized Intersection Capacity Analysis Summary

		2016 Existing Conditions					2023 No-Build Conditions					2023 Build Conditions				
Location	Movement	v/c[1]	Del[2]	LOS[3]	50 Q[4]	95 Q[5]	v/c	Del	LOS	50 Q	95 Q	v/c	Del	LOS	50 Q	95 Q
ROUTE 30 AT WHITTIER STREET/SHOPPERS WORLD DRIVE																
Weekday Evening	EB L	0.22	50	D	17	41	0.22	50	D	15	41	0.22	50	D	15	41
	EB T	0.47	24	C	161	253	0.52	26	C	187	#367	0.52	26	C	188	#367
	EB R	0.04	15	B	0	7	0.05	14	B	0	11	0.06	14	B	0	12
	WB L	>1.20	>120	F	~582	#722	>1.20	>120	F	~606	#805	>1.20	>120	F	~645	#846
	WB T/R	1.04	68	E	481	#794	1.12	97	F	571	#1060	1.13	99	F	574	#1060
	NB L/T	>1.20	>120	F	~179	#276	>1.20	>120	F	~227	#334	>1.20	>120	F	~235	#342
	NB R	0.47	44	D	45	97	0.50	42	D	54	101	0.50	42	D	53	101
	SB L	0.61	43	D	136	#330	0.74	52	D	152	#303	0.74	52	D	154	#309
	SBL/T	0.62	42	D	143	#284	0.73	47	D	158	#250	0.74	47	D	160	#257
	SB R	0.06	28	C	0	43	0.07	29	C	0	42	0.07	29	C	0	42
	Overall		**>120**	**F**				**>120**	**F**				**>120**	**F**		
Saturday Midday	EB L	0.48	51	D	36	74	0.48	51	D	39	#98	0.48	51	D	39	#98
	EB T	0.61	32	C	200	315	>1.20	>120	F	~352	#557	>1.20	>120	F	~352	#557
	EB R	0.07	19	B	0	12	0.08	29	C	0	17	0.08	29	C	0	17
	WB L	>1.20	>120	F	~574	#769	>1.20	>120	F	~665	#875	>1.20	>120	F	~697	#910
	WB T/R	1.07	82	F	426	#776	>1.20	>120	F	~644	#835	>1.20	>120	F	~644	#835
	NB L/T	>1.20	>120	F	~270	#379	>1.20	>120	F	~323	#439	>1.20	>120	F	~341	#457
	NB R	0.71	51	D	65	#158	0.45	33	C	62	135	0.45	33	C	62	135
	SB L	0.63	38	D	179	#427	0.62	36	D	185	#505	0.62	36	D	185	#505
	SBL/T	0.63	37	D	186	#374	0.61	35	C	192	#447	0.62	35	D	196	#456
	SB R	0.06	23	C	0	31	0.06	21	C	0	10	0.06	21	C	0	10
	Overall		**>120**	**F**				**>120**	**F**				**>120**	**F**		
SHOPPERS WORLD DRIVE AT FLUTIE PASS/SHOPPERS WORLD DRIVEWAY																
Weekday Evening	EB L	0.15	32	C	10	53	0.15	33	C	11	53	0.15	34	C	11	54
	EB T	0.37	33	C	28	108	0.37	35	C	29	111	0.38	35	D	30	113
	EB R	0.08	31	C	0	59	0.07	33	C	0	61	0.07	34	C	0	61
	WB L	0.26	32	C	18	63	0.29	33	C	23	73	0.29	34	C	23	74
	WB R	0.22	32	C	0	94	0.29	33	C	0	112	0.30	34	C	0	113
	NB T	0.45	23	C	76	221	0.44	23	C	82	256	0.46	24	C	87	272
	NB R	0.04	20	B	0	22	0.07	20	C	4	42	0.07	21	C	4	43
	SB L	0.39	29	C	41	123	0.45	30	C	54	149	0.47	31	C	60	163
	SB T	0.33	14	B	54	192	0.34	14	B	60	215	0.35	14	B	64	228
	Overall		**24**	**C**				**25**	**C**				**26**	**C**		
Saturday Midday	EB L	0.24	37	D	28	93	0.25	40	D	30	92	0.25	41	D	31	92
	EB T	0.60	41	D	76	#225	0.62	45	D	81	#217	0.63	46	D	84	#217
	EB R	0.10	36	D	0	65	0.09	39	D	0	68	0.09	40	D	0	68
	WB L	0.56	40	D	68	152	0.59	42	D	79	165	0.58	43	D	78	158
	WB R	0.37	38	D	0	97	0.42	30	D	0	147	0.43	41	D	0	150
	NB T	0.45	30	C	97	231	0.49	32	C	116	260	0.51	32	C	128	279
	NB R	0.10	27	C	4	47	0.14	28	C	111	61	0.14	28	C	14	66
	SB L	0.63	35	D	117	256	0.66	37	D	143	284	0.67	38	D	151	293
	SB T	0.32	16	B	77	203	0.34	16	B	88	227	0.35	16	B	94	241
	Overall		**32**	**C**				**33**	**C**				**34**	**C**		

Table 9 Signalized Intersection Capacity Analysis Summary (Continued)

		2016 Existing Conditions					2023 No-Build Conditions					2023 Build Conditions				
Location	Movement	v/c[1]	Del[2]	LOS[3]	50 Q[4]	95 Q[5]	v/c	Del	LOS	50 Q	95 Q	v/c	Del	LOS	50 Q	95 Q
FLUTIE PASS AT AMC MAIN DRIVEWAY/AMC SOUTH PARKING LOT																
Weekday	EB L	0.43	35	D	6	36	0.44	36	D	4	36	0.34	36	D	4	30
Evening	EB T/R	0.18	7	A	20	121	0.21	7	A	0	144	0.25	9	A	26	163
	WB L	0.00	0	A	0	0	0.00	0	A	0	0	0.23	35	D	3	24
	WB T/R	0.20	8	A	22	134	0.25	8	A	0	171	0.26	9	A	28	176
	NB L/T	0.45	33	C	11	31	0.45	36	D	4	37	0.49	34	C	11	58
	NB R	0.01	36	D	0	0	0.00	35	D	0	0	0.01	34	C	0	0
	SB L/T	0.13	33	C	3	21	0.20	34	C	2	23	0.18	32	C	4	28
	SB R	0.01	34	C	0	0	0.01	34	C	0	0	0.01	34	C	0	0
	Overall		**11**	**B**				**10**	**A**				**11**	**B**		
Saturday	EB L	0.66	38	D	60	#228	0.66	40	D	59	#237	0.55	34	C	49	#199
Midday	EB T/R	0.36	10	A	47	256	0.37	9	A	53	283	0.42	11	B	98	309
	WB L	0.03	38	D	0	7	0.07	41	D	0	6	0.23	38	D	6	34
	WB T/R	0.40	15	B	86	244	0.45	15	B	107	294	0.46	16	B	105	290
	NB L/T	0.33	35	C	13	27	0.18	36	D	7	34	0.55	38	D	23	83
	NB R	0.01	38	D	0	0	0.01	41	D	0	0	0.02	37	D	0	0
	SB L/T	0.59	40	D	27	84	0.56	40	D	25	88	0.52	37	D	23	82
	SB R	0.08	31	C	0	48	0.07	32	C	0	55	0.06	30	C	0	48
	Overall		**18**	**B**				**17**	**B**				**17**	**B**		
WEST COUPLET AT RING ROAD																
Weekday	EB R	0.04	34	C	0	0	0.03	33	C	0	0	0.03	20	C	0	0
Evening	WB T	0.45	11	B	16	20	0.39	4	A	3	5	0.21	4	A	11	18
	NB L	0.07	20	B	18	m50	0.07	21	C	17	m49	0.12	30	C	20	m49
	SB T/R	0.16	23	C	28	41	0.17	22	C	30	45	0.20	25	C	31	60
	Overall		**21**	**C**				**19**	**B**				**19**	**B**		
Saturday	EB R	0.07	31	C	0	0	0.08	30	C	0	0	0.08	19	B	0	0
Midday	WB T	0.54	5	A	5	6	0.54	4	A	5	6	0.35	4	A	16	25
	NB L	0.26	28	C	58	m93	0.25	29	C	54	m100	0.36	36	D	53	m100
	SB T/R	0.24	21	C	36	61	0.24	20	C	37	70	0.30	26	C	49	84
	Overall		**19**	**B**				**19**	**B**				**20**	**B**		

Table 9 Signalized Intersection Capacity Analysis Summary (Continued)

		2016 Existing Conditions					2023 No-Build Conditions					2023 Build Conditions				
Location	Movement	v/c[1]	Del[2]	LOS[3]	50 Q[4]	95 Q[5]	v/c	Del	LOS	50 Q	95 Q	v/c	Del	LOS	50 Q	95 Q
EAST COUPLET AT RING ROAD/AMC SOUTH PARKING LOT DWY *																
Weekday	EB L	0.43	60	E	65	m85	0.48	57	E	78	m86	0.62	26	C	28	m43
Evening	EB L/R	0.41	61	E	62	m83	0.46	57	E	75	m84	0.61	25	C	27	m42
	WB L											0.11	36	D	11	34
	WB T/R											0.03	36	D	0	0
	NB L	0.38	38	D	52	98	0.41	38	D	55	103	0.41	38	D	54	105
	NB T	0.15	6	A	22	62	0.17	7	A	28	71	0.31	23	C	83	127
	NB R											0.03	16	B	0	7
	SB L											0.13	34	C	16	43
	SB T	0.27	12	B	77	146	0.30	13	B	87	162	0.43	22	C	128	184
	Overall		**21**	**C**				**21**	**C**				**25**	**C**		
Saturday	EB L	0.50	38	D	92	m53	0.54	35	D	88	m56	0.79	35	D	43	m#202
Midday	EB L/R	0.50	38	D	92	m52	0.54	35	D	87	m55	0.77	34	C	42	m#196
	WB L											0.19	37	D	20	50
	WB T/R											0.04	36	D	0	0
	NB L	0.58	36	D	101	151	0.57	35	D	98	157	0.68	41	D	102	172
	NB T	0.17	7	A	33	66	0.18	7	A	36	73	0.32	21	C	81	117
	NB R											0.03	16	B	0	m1
	SB L											0.15	35	D	17	45
	SB T	0.39	17	B	123	217	0.43	18	B	136	229	0.55	25	C	162	219
	Overall		**21**	**C**				**22**	**C**				**29**	**C**		
ROUTE 9 (WORCESTER STREET) AT EAST COUPLET/MICHAEL'S DRIVEWAY																
Weekday	EB T/R	0.88	31	C	330	256	0.99	44	D	390	#485	0.99	44	D	389	#482
Evening	WB L	0.18	30	C	32	76	0.18	30	C	32	76	0.19	30	C	32	76
	WB T	0.58	9	A	199	311	0.71	11	B	289	439	0.72	12	B	293	436
	WB R	0.27	7	A	0	39	0.29	7	A	0	41	0.32	8	A	0	42
	NB L	0.64	39	D	50	91	0.61	37	D	47	91	0.63	37	D	47	92
	NB R	0.04	28	C	0	7	0.03	28	C	0	6	0.03	27	C	0	6
	SB L	0.73	32	C	160	256	0.74	31	C	171	269	0.76	25	C	180	277
	SB L/T/R	0.73	32	C	162	260	0.74	31	C	171	269	0.75	24	C	180	277
	Overall		**20**	**C**				**25**	**C**				**24**	**C**		
Saturday	EB T/R	0.80	23	C	317	380	0.88	27	C	368	440	0.88	26	C	364	436
Midday	WB L	0.51	37	D	63	117	0.53	38	D	65	121	0.53	38	D	65	121
	WB T	0.57	10	A	193	231	0.64	10	B	236	280	0.64	10	B	233	278
	WB R	0.33	8	A	0	33	0.36	8	A	0	34	0.38	8	A	0	35
	NB L	1.01	113	F	~80	#165	0.96	101	F	68	#177	1.05	>120	F	~75	#184
	NB R	0.06	27	C	0	20	0.05	27	C	0	21	0.05	27	C	0	21
	SB L	0.80	50	D	202	#327	0.85	54	D	214	#354	0.89	55	E	226	#381
	SB L/T/R	0.79	50	D	200	#323	0.83	52	D	209	#343	0.86	51	D	218	#364
	Overall		**23**	**C**				**24**	**C**				**24**	**C**		

* In the Build conditions, the intersection of East Couplet at Ring Road/AMC South Parking Lot Driveway is modeled as shown in the Site Plans; i.e., the South Parking Lot (Site) driveway is shown as a full access signalized driveway, with separate left and right turn lanes exiting the driveway and exclusive left and right turn lanes on Shoppers World Drive entering the driveway

Table 9 Signalized Intersection Capacity Analysis Summary (Continued)

		2016 Existing Conditions					2023 No-Build Conditions					2023 Build Conditions				
Location	Movement	v/c[1]	Del[2]	LOS[3]	50 Q[4]	95 Q[5]	v/c	Del	LOS	50 Q	95 Q	v/c	Del	LOS	50 Q	95 Q
ROUTE 9 (WORCESTER STREET) AT WEST COUPLET																
Weekday	EB L	0.25	27	C	47	68	0.27	26	C	54	84	0.32	26	C	65	98
Evening	EB T	0.41	2	A	0	119	0.41	2	A	0	138	0.41	2	A	0	137
	WB T	0.74	28	C	453	506	0.91	35	C	568	620	0.92	36	D	567	619
	SB R	0.26	19	B	24	47	0.30	19	B	28	52	0.32	20	B	45	64
	Overall		**17**	**B**				**21**	**C**				**22**	**C**		
Saturday	EB L	0.31	22	C	68	99	0.32	21	C	78	113	0.35	21	C	87	123
Midday	EB T	0.41	2	A	0	151	0.45	2	A	0	175	0.45	2	A	0	173
	WB T	0.81	20	B	344	m402	0.95	24	C	409	m480	0.95	25	C	406	m473
	SB R	0.34	23	B	47	66	0.37	16	B	56	74	0.40	16	B	72	94
	Overall		**11**	**B**				**15**	**B**				**15**	**B**		

1 Volume to capacity ratio.
2 Average total delay, in seconds per vehicle.
3 Level-of-service.
4 50th percentile queue, in feet.
5 95th percentile queue, in feet.
~ Volume exceeds calculated capacity, queue cannot be calculated accurately.
# 95th percentile volume exceeds capacity, queue may be longer.
m Volume for 95th percentile queue is metered by upstream signal.

A review of the analysis worksheets for the signalized study locations summarized in Table 9 indicates that the Project will have a minimal impact on traffic operations at study area intersections. The only intersection expected to operate at an overall intersection LOS below LOS C is the intersection of Route 30 and Shoppers World Drive.

At the intersection of the East Couplet/Ring Road and the Site driveway, as previously stated, the existing signal only allows for right-turns into the Site. As part of the Project, the existing Site driveway at this intersection will be converted to allow for all exiting and entering movements. Allowing exiting movements from the driveway requires an additional phase be added to the existing signal, as well as at the coordinated signal of West Couplet and Ring Road. These improvements were assumed to be in place under the Build conditions. Even with the additional phase, there is a minimal increase in delay at the intersection. Diagrams showing the 50th and 95th percentile queue lengths at this intersection are included in the Appendix to this document.

The remaining signalized intersections, albeit congested independent of the Project traffic, are expected to experience minimal additional impacts as a result of the Project. For example, the intersections of Route 9 with East Couplet and Flutie Pass with Shoppers World Drive have movements that are currently over capacity and are expected to operate poorly in the future, with or without the Project.

As noted earlier, congestion mitigation on the Cochituate Road (Route 30) corridor is a regional issue and was recently the subject of an independent planning study issued by the regional planning agency, with active participation by both Framingham and Natick. Both communities are in active dialog with MassDOT to identify potential

corridor enhancements that could be pursued to the deficiencies identified in the MPO study. Additionally, as noted earlier, MassDOT and the Town of Framingham are currently and independently pursuing design and planning level studies to address congestion on the Route 9 and Route 30 corridors, respectively.

Roundabout Intersection Capacity Analysis

Table 10 presents a summary of the capacity analyses for the Flutie Pass/Natick Mall Road roundabout. The capacity analyses were conducted for 2016 Existing, 2023 No-Build and 2023 Build conditions.

Table 10 Roundabout Capacity Analysis Summary

		2016 Existing Conditions					2023 No-Build Conditions					2023 Build Conditions				
Location	Movement	D[1]	v/c[2]	Del[3]	LOS[4]	95 Q[5]	D	v/c	Del	LOS	95 Q	D	v/c	Del	LOS	95 Q
FLUTIE PASS AT NATICK MALL ROAD																
Weekday	EB T	155	0.19	6	A	18	225	0.31	8	A	32	230	0.31	8	A	33
Evening	EB R	185	0.22	6	A	23	200	0.27	8	A	28	205	0.28	8	A	28
	WB L	155	0.20	6	A	20	290	0.34	8	A	39	290	0.34	8	A	39
	WB T	215	0.26	7	A	27	325	0.39	8	A	46	335	0.40	8	A	48
	NB L/R	220	0.25	6	A	26	315	0.38	9	A	44	315	0.38	9	A	45
Saturday	EB T	360	0.44	10	A	54	415	0.57	14	B	90	425	0.59	14	B	95
Midday	EB R	345	0.42	9	A	50	370	0.51	12	B	72	370	0.51	12	B	72
	WB L	260	0.32	8	A	35	385	0.48	11	B	63	385	0.47	10	B	62
	WB T	420	0.52	11	B	75	520	0.65	15	B	125	525	0.65	15	B	125
	NB L/R	390	0.58	14	B	93	475	0.73	21	C	151	465	0.72	21	C	146

1 Demand, in vehicles.
2 Volume to capacity ratio.
3 Average total delay, in seconds per vehicle.
4 Level-of-service.
5 95th percentile queue, in feet.

The analysis summary in Table 10 indicates that Project-related traffic is expected to have little to no impact on the existing roundabout at the intersection of Flutie Pass and Mall Road. All movements are expected to operate at LOS C or better during all analysis conditions.

5

Potential Traffic Improvements

Chapter 3 indicated that increase in traffic associated with the Project on the study area roadways is expected range from 5 trips per hour up to approximately 70 trips per hour, depending on the specific location and the specific peak hour under consideration. As noted earlier, compared to the overall traffic volumes on area roadways, the calculated traffic increases associated with the Project are relatively small and fall within the range of daily fluctuations of roadway traffic flow. Detailed capacity analyses in Chapter 4 confirmed that the Project-related traffic is expected to generate minimal additional impacts at study area locations.

This chapter discusses potential traffic improvement measures could be implemented to further minimize the potential for Project-related traffic impacts. As noted earlier, potential access improvements were initially vetted through a preliminary access review process with MassDOT-District 3 staff in 2014. Feedback obtained from MassDOT regarding the future Site access configuration and signal phasing on Shoppers World Drive were taken into consideration while preparing the Study.

Traffic analysis summaries that incorporate the improvements are presented in Table 11.

Potential Intersection and Roadway Improvements

Site Drive, East Couplet and Ring Road

As part of the Project, a full-access driveway will be added as the fourth leg to the intersection of Ring Road and the East Couplet, where a right-in only driveway currently exists today. The driveway will include a designated left-turn lane and a shared through/right-turn lane. In addition, a designated right turn lane will be constructed on the northbound approach and a designated southbound left-turn lane will be constructed on East Couplet within the existing median. The westbound Site

driveway approach will have its own protected phase and the southbound left-turn will operate under a protected-only phasing.

West Couplet and Ring Road

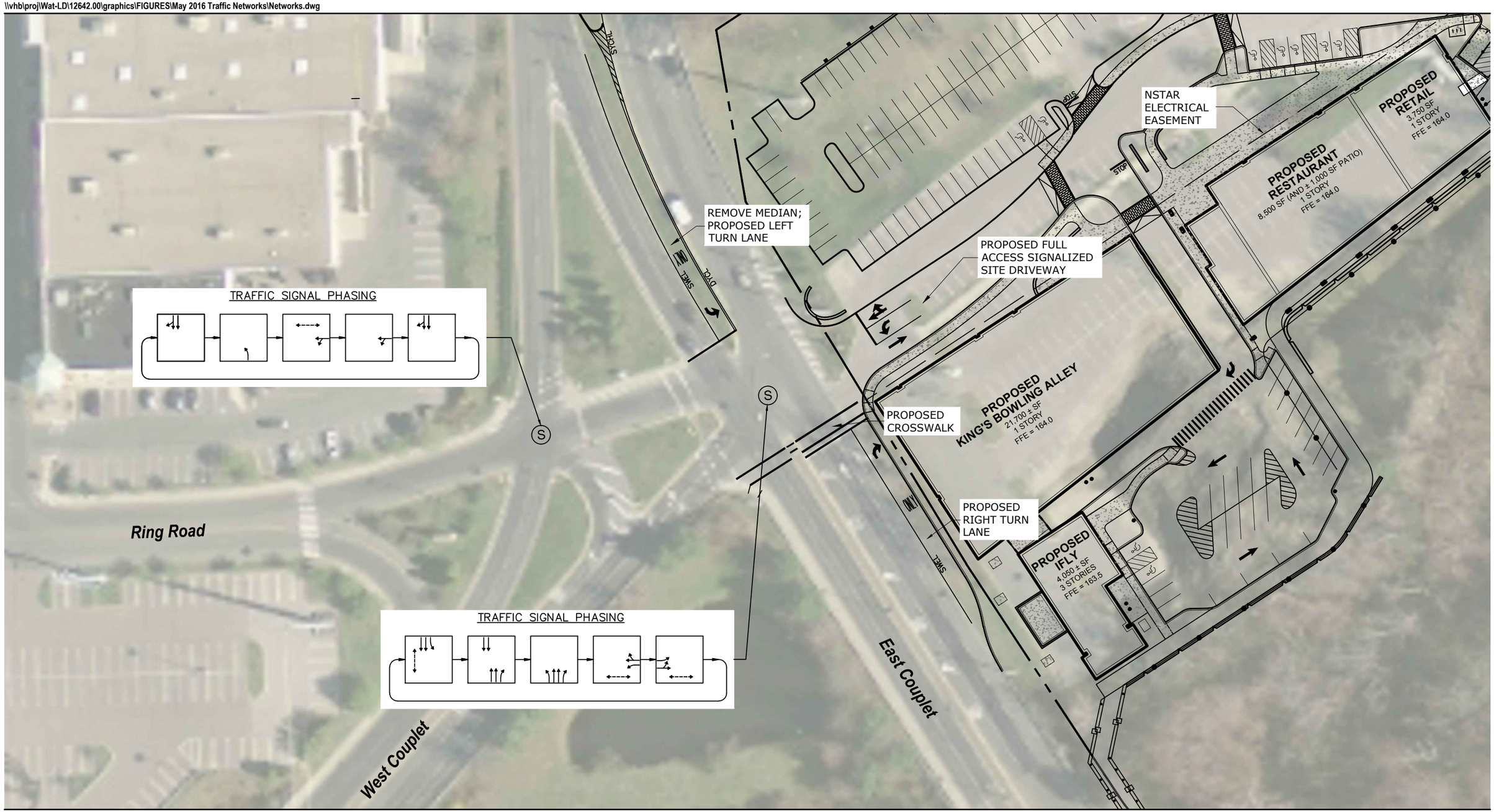
This intersection operates in unison with the Site Drive/East Couplet intersection. With the geometric and phasing changes proposed at the Site driveway intersection, timing changes will be required at this intersection as well. With the proposed timing changes this intersection will operate with a negligible impact to traffic operations (<1.0 second increase in overall delay) as a result of the Project.

Figure 10 shows a conceptual improvement plan for the intersection of the Site driveway with East Couplet and Ring Road. Capacity analysis results for the proposed conditions are summarized in Table 11.

Table 11 Signalized Intersection Capacity Analysis Summary

		2023 No-Build Conditions					2023 Build Conditions				
Location	Movement	v/c	Del	LOS	50 Q	95 Q	v/c	Del	LOS	50 Q	95 Q
EAST COUPLET AT RING ROAD/AMC SOUTH PARKING LOT											
Weekday	EB L	0.48	57	E	78	m86	0.62	26	C	28	m43
Evening	EB L/R	0.46	57	E	75	m84	0.61	25	C	27	m42
	WB L						0.11	36	D	11	34
	WB T/R						0.03	36	D	0	0
	NB L	0.41	38	D	55	103	0.41	38	D	54	105
	NB T	0.17	7	A	28	71	0.31	23	C	83	127
	NB R						0.03	16	B	0	7
	SB L						0.13	34	C	16	43
	SB T	0.30	13	B	87	162	0.43	22	C	128	184
	Overall		**21**	**C**				**25**	**C**		
Saturday	EB L	0.54	35	D	88	m56	0.79	35	D	43	m#202
Midday	EB L/R	0.54	35	D	87	m55	0.77	34	C	42	m#196
	WB L						0.19	37	D	20	50
	WB T/R						0.04	36	D	0	0
	NB L	0.57	35	D	98	157	0.68	41	D	102	172
	NB T	0.18	7	A	36	73	0.32	21	C	81	117
	NB R						0.03	16	B	0	m1
	SB L						0.15	35	D	17	45
	SB T	0.43	18	B	136	229	0.55	25	C	162	219
	Overall		**22**	**C**				**29**	**C**		
WEST COUPLET AT RING ROAD											
Weekday	EB R	0.03	33	C	0	0	0.03	20	C	0	0
Evening	WB T	0.39	4	A	3	5	0.21	4	A	11	18
	NB L	0.07	21	C	17	m49	0.12	30	C	20	m49
	SB T/R	0.17	22	C	30	45	0.20	25	C	31	60
	Overall		**19**	**B**				**19**	**B**		
Saturday	EB R	0.08	30	C	0	0	0.08	19	B	0	0
Midday	WB T	0.54	4	A	5	6	0.35	4	A	16	25
	NB L	0.25	29	C	54	m100	0.36	36	D	53	m100
	SB T/R	0.24	20	C	37	70	0.30	26	C	49	84
	Overall		**19**	**B**				**20**	**B**		

\\vhb\proj\Wat-LD\12642.00\graphics\FIGURES\May 2016 Traffic Networks\Networks.dwg



0 30 60 Feet

Figure 10

Conceptual Access Improvement Plan

AMC South Parking Lot Redevelopment
Framingham, Massachusetts

Pedestrian Measures

In addition to geometric and signal enhancements at the Site driveway on Shoppers World Drive, in order to encourage pedestrian travel between the Site and the various retail uses along Route 9, a new pedestrian crossing will be provided at the Site driveway intersection with East Couplet. Figure 10 shows the location of the proposed crosswalk.

Additionally, as part of the approvals granted by the towns of Natick and Framingham in 2015 for the previously proposed project on the Site, the Proponent agreed to implement pedestrian focused enhancements along Flutie Pass and along the Site, on the Route 9 frontage. The Proponent will provide secure bicycle parking for residents and retail patrons. The Proponent will also construct a pedestrian walkway through the Site, connecting Flutie Pass and Route 9. These improvements are shown on the Site Plans. The Proponent plans to implement the agreed upon improvements on Flutie Pass and along Route 9 as part of this Project subject to the receipt of the necessary permits and approvals. Any modifications to the roadway and pedestrian infrastructure within the State Highway Layout of Route 9 will be subject to review and approval by MassDOT.

6
Conclusion

This Study represents an update to the August 2015 Traffic Impact and Access Study that was reviewed by the Town of Framingham prior to the issuance of the Planning Board Decision dated February 22, 2016 for a previously proposed development on the Site. The updated Study addresses changes in the development program and planned development projects in the area. Specifically, the updates to the Study include addition of the traffic associated with adding up to 140 apartment units and 4,500 sf of specialty retail space[6] to the previously approved development plan and the addition of the traffic associated with the recently approved Wegmans project at the Natick Mall to the study area roadway network. It is noted that the Study includes an analysis of the entire development plan even though a large portion of the plan has already been reviewed and approved by the Planning Board in February 2016.

A study area for the Project was developed in consultation with the towns of Framingham and Natick planning staff. A preliminary access review was performed in 2014 and MassDOT-District 3's feedback on access configuration and traffic signal phasing on Shoppers World Drive were obtained that served as a precursor to the preparation of this Study.

The Study has evaluated the existing traffic operations and safety conditions of the roadways near the Project, analyzed the impact of background traffic growth and estimated the impacts of the overall Project.

Until recently, the Site served as an overflow parking for the AMC Cinema located across the street from the Site, on the north side of Flutie Pass, and as a MassDOT Park & Ride facility. The number of seats within the cinema were reduced in April 2015 by approximately 56 percent, thus rendering the overflow parking on the Site unnecessary. Additionally, MassDOT has indicated to the Proponent that they no longer need to run their Park & Ride operations on the Site.

▼

[6] The Site Plans depict 136 apartment units and 4,000 sf of specialty retail space

Given the mixed use nature of the overall development, a certain proportion of the trips estimated for the Project is expected to be internal to the Site or would originate from adjacent roadways and retail establishments (in the form of pass-by and diverted link trips) which helps reduce the impacts on the public roadway system. Additionally, the peak hours of some of the components of the Site, such as King's Bowling, are expected to occur later than the peak hours of the adjacent roadways (similar to the cinema peak), thus further limiting the off-site traffic impacts of the Project during the roadway peak hours. The Study estimates that the currently proposed overall mixed-use development would generate approximately 72 *net new* vehicle trips (14 entering/58 exiting) during the weekday morning peak hour, 188 *net new* vehicle trips (124 entering/64 exiting) during the weekday evening peak hour, and 177 *net new* trips (87 entering/90 exiting) during the Saturday midday peak hour. This overall net increase in traffic associated with the Project corresponds to an expected range from 5 trips per hour up to approximately 70 trips per hour at various Study locations, depending on the specific location and the specific peak hour under consideration. Compared to the overall traffic volumes on area roadways, the calculated traffic increases associated with the Project are relatively small and fall within the range of daily fluctuations of roadway traffic flow.

Detailed capacity analyses indicate that deficiencies currently exist at certain locations within the study area. More importantly, the analysis demonstrates that the limited additional Project related traffic will not have a noticeable effect on the area roadway traffic operations.

The Proponent is committed to funding the design and construction of certain geometric and traffic signal improvements that will further mitigate the limited effect of the peak hour and daily traffic demands of the overall Project. Specifically, the Study outlines the following traffic improvement measures:

- Widen East Couplet along the Site frontage to create a southbound left turn lane and a northbound right turn lane;
- Widen the Site driveway to accommodate a designated left-turn lane and a shared through/right-turn lane;
- Construct a new pedestrian crosswalk across Shoppers World Drive on the south side of the proposed driveway;
- Provide timing and phasing changes to the intersections of Ring Road with East Couplet and West Couplet;
- Pedestrian focused enhancements on Flutie Pass and along the Route 9 frontage of the Site;
- Construct a pedestrian walkway through the Site, connecting Flutie Pass and Route 9; and,
- Provide secure bicycle parking for residents and retail patrons.

Appendix

Traffic Volume Data

Public Transportation Schedules

Seasonal Adjustment Factors

Crash Analysis Data

Crash Rate Worksheets

Background Development Data

Trip Distribution

Site-Generated Traffic

Intersection Capacity Analyses

Queue Diagrams

Traffic Volume Data

AMC West Exit Driveway
north of Flutie Pass
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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

143938 A Volume
Site Code: TBA

Start	12-Jun-14		Fri		Sat		Sun		Mon		Tue		Wed		Average Da	
Time	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00	**9**	2	**2**	0	**12**	2	**16**	2	*	*	*	*	*	*	**10**	2
12:15	**2**	2	**0**	1	**10**	1	**6**	1	*	*	*	*	*	*	**4**	1
12:30	**0**	1	**5**	2	**28**	4	**9**	3	*	*	*	*	*	*	**10**	2
12:45	**0**	2	**3**	4	**4**	8	**10**	3	*	*	*	*	*	*	**4**	4
01:00	0	0	1	12	5	14	4	10	*	*	*	*	*	*	2	9
01:15	0	1	0	14	0	10	1	13	*	*	*	*	*	*	0	10
01:30	0	1	0	10	10	7	2	8	*	*	*	*	*	*	3	6
01:45	0	1	0	6	2	8	0	9	*	*	*	*	*	*	0	6
02:00	0	0	0	3	0	5	0	2	*	*	*	*	*	*	0	2
02:15	0	0	0	6	0	7	0	9	*	*	*	*	*	*	0	6
02:30	0	2	0	8	0	3	0	8	*	*	*	*	*	*	0	5
02:45	0	4	0	8	1	12	0	5	*	*	*	*	*	*	0	7
03:00	0	1	0	5	0	14	0	2	*	*	*	*	*	*	0	6
03:15	0	0	1	4	0	8	0	2	*	*	*	*	*	*	0	4
03:30	0	3	0	4	0	7	0	4	*	*	*	*	*	*	0	4
03:45	0	0	0	8	0	8	0	8	*	*	*	*	*	*	0	6
04:00	0	8	1	15	0	16	0	9	*	*	*	*	*	*	0	12
04:15	0	2	1	12	0	12	1	10	*	*	*	*	*	*	0	9
04:30	0	0	0	8	0	11	0	6	*	*	*	*	*	*	0	6
04:45	0	3	0	10	0	6	0	4	*	*	*	*	*	*	0	6
05:00	0	0	0	11	0	13	0	12	*	*	*	*	*	*	0	9
05:15	0	2	0	8	0	9	0	14	*	*	*	*	*	*	0	8
05:30	0	4	0	0	0	6	0	6	*	*	*	*	*	*	0	4
05:45	1	0	0	14	0	11	0	8	*	*	*	*	*	*	0	8
06:00	0	1	2	4	0	10	0	4	*	*	*	*	*	*	0	5
06:15	0	2	0	7	1	9	0	4	*	*	*	*	*	*	0	6
06:30	0	1	0	20	2	20	0	13	*	*	*	*	*	*	0	14
06:45	0	4	2	20	0	15	0	5	*	*	*	*	*	*	0	11
07:00	0	2	1	26	0	8	0	4	*	*	*	*	*	*	0	10
07:15	0	5	0	31	2	14	0	6	*	*	*	*	*	*	0	14
07:30	0	0	0	26	1	12	0	5	*	*	*	*	*	*	0	11
07:45	0	1	0	18	2	22	1	7	*	*	*	*	*	*	1	12
08:00	0	4	0	33	0	16	0	7	*	*	*	*	*	*	0	15
08:15	0	1	0	10	0	7	0	3	*	*	*	*	*	*	0	5
08:30	0	4	0	10	0	7	0	4	*	*	*	*	*	*	0	6
08:45	0	2	0	13	0	6	0	10	*	*	*	*	*	*	0	8
09:00	0	10	0	43	0	26	1	**5**	*	*	*	*	*	*	0	21
09:15	0	**7**	1	**25**	5	**14**	0	**8**	*	*	*	*	*	*	2	**14**
09:30	1	**7**	0	**39**	2	**32**	1	**20**	*	*	*	*	*	*	1	**24**
09:45	3	**2**	0	**35**	2	**30**	1	**11**	*	*	*	*	*	*	2	**20**
10:00	0	**36**	0	**59**	7	**38**	0	3	*	*	*	*	*	*	2	**34**
10:15	1	3	2	12	5	6	1	2	*	*	*	*	*	*	2	6
10:30	0	2	1	24	3	11	0	8	*	*	*	*	*	*	1	11
10:45	1	1	2	25	4	23	1	11	*	*	*	*	*	*	2	15
11:00	0	3	2	13	1	8	3	0	*	*	*	*	*	*	2	6
11:15	0	2	1	10	4	10	1	14	*	*	*	*	*	*	2	9
11:30	2	0	1	29	1	24	0	5	*	*	*	*	*	*	1	14
11:45	0	11	1	0	1	2	0	0	*	*	*	*	*	*	0	3
Total	20	150	30	705	115	572	59	317	0	0	0	0	0	0	51	436
Day Total	170		735		687		376		0		0		0		487	
% Splits	11.8 %	88.2 %	4.1%	95.9 %	16.7 %	83.3 %	15.7 %	84.3 %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	10.5 %	89.5%
Peak	12:00	09:15	12:00	09:15	12:00	09:15	12:00	09:00	-	-	-	-	-	-	12:00	09:15
Vol.	11	52	10	158	54	114	41	44	-	-	-	-	-	-	28	92
P.H.F.	0.306	0.361	0.500	0.669	0.482	0.750	0.641	0.550							0.700	0.676

AMC West Exit Driveway
north of Flutie Pass
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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

143938 A Volume
Site Code: TBA

Start Time	A.M.	SB (OUT)	P.M.											Thu 12-Jun-14
12:00	9		2											
12:15	2		2											
12:30	0		1											
12:45	0	11	2	7										
01:00	0		0											
01:15	0		1											
01:30	0		1											
01:45	0	0	1	3										
02:00	0		0											
02:15	0		0											
02:30	0		2											
02:45	0	0	4	6										
03:00	0		1											
03:15	0		0											
03:30	0		3											
03:45	0	0	0	4										
04:00	0		8											
04:15	0		2											
04:30	0		0											
04:45	0	0	3	13										
05:00	0		0											
05:15	0		2											
05:30	0		4											
05:45	1	1	0	6										
06:00	0		1											
06:15	0		2											
06:30	0		1											
06:45	0	0	4	8										
07:00	0		2											
07:15	0		5											
07:30	0		0											
07:45	0	0	1	8										
08:00	0		4											
08:15	0		1											
08:30	0		4											
08:45	0	0	2	11										
09:00	0		10											
09:15	0		7											
09:30	1		7											
09:45	3	4	2	26										
10:00	0		36											
10:15	1		3											
10:30	0		2											
10:45	1	2	1	42										
11:00	0		3											
11:15	0		2											
11:30	2		0											
11:45	0	2	11	16										
Total	20		150											
Percent			100.0 %		0.0%		0.0%							
Day Total		170												
Peak	12:00	-	09:15	-	-	-	-	-	-	-	-	-	-	-
Vol.	11	-	52	-	-	-	-	-	-	-	-	-	-	-
P.H.F.	0.306		0.361											

AMC West Exit Driveway
north of Flutie Pass
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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143938 A Volume
Site Code: TBA

Start Time	A.M.	SB (OUT)	P.M.												Fri 13-Jun-14
12:00	2		0												
12:15	0		1												
12:30	5		2												
12:45	3	10	4	7											
01:00	1		12												
01:15	0		14												
01:30	0		10												
01:45	0	1	6	42											
02:00	0		3												
02:15	0		6												
02:30	0		8												
02:45	0	0	8	25											
03:00	0		5												
03:15	1		4												
03:30	0		4												
03:45	0	1	8	21											
04:00	1		15												
04:15	1		12												
04:30	0		8												
04:45	0	2	10	45											
05:00	0		11												
05:15	0		8												
05:30	0		0												
05:45	0	0	14	33											
06:00	2		4												
06:15	0		7												
06:30	0		20												
06:45	2	4	20	51											
07:00	1		26												
07:15	0		31												
07:30	0		26												
07:45	0	1	18	101											
08:00	0		33												
08:15	0		10												
08:30	0		10												
08:45	0	0	13	66											
09:00	0		43												
09:15	1		25												
09:30	0		39												
09:45	0	1	35	142											
10:00	0		59												
10:15	2		12												
10:30	1		24												
10:45	2	5	25	120											
11:00	2		13												
11:15	1		10												
11:30	1		29												
11:45	1	5	0	52											
Total	30		705												
Percent			100.0 %		0.0%		0.0%								
Day Total		735													
Peak	12:00	-	09:15	-	-	-	-	-	-	-	-	-	-	-	
Vol.	10	-	158	-	-	-	-	-	-	-	-	-	-	-	
P.H.F.	0.500		0.669												

AMC West Exit Driveway
north of Flutie Pass
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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

143938 A Volume
Site Code: TBA

Start Time	A.M.	SB (OUT)	P.M.											Sat 14-Jun-14
12:00	12		2											
12:15	10		1											
12:30	28		4											
12:45	4	54	8	15										
01:00	5		14											
01:15	0		10											
01:30	10		7											
01:45	2	17	8	39										
02:00	0		5											
02:15	0		7											
02:30	0		3											
02:45	1	1	12	27										
03:00	0		14											
03:15	0		8											
03:30	0		7											
03:45	0	0	8	37										
04:00	0		16											
04:15	0		12											
04:30	0		11											
04:45	0	0	6	45										
05:00	0		13											
05:15	0		9											
05:30	0		6											
05:45	0	0	11	39										
06:00	0		10											
06:15	1		9											
06:30	2		20											
06:45	0	3	15	54										
07:00	0		8											
07:15	2		14											
07:30	1		12											
07:45	2	5	22	56										
08:00	0		16											
08:15	0		7											
08:30	0		7											
08:45	0	0	6	36										
09:00	0		26											
09:15	5		14											
09:30	2		32											
09:45	2	9	30	102										
10:00	7		38											
10:15	5		6											
10:30	3		11											
10:45	4	19	23	78										
11:00	1		8											
11:15	4		10											
11:30	1		24											
11:45	1	7	2	44										
Total	115		572											
Percent			100.0 %		0.0%		0.0%							
Day Total		687												
Peak	12:00	-	09:15	-	-	-	-	-	-	-	-	-	-	-
Vol.	54	-	114	-	-	-	-	-	-	-	-	-	-	-
P.H.F.	0.482		0.750											

AMC West Exit Driveway
north of Flutie Pass
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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

143938 A Volume
Site Code: TBA

Start Time	A.M.	SB (OUT)	P.M.											Sun 15-Jun-14
12:00	16		2											
12:15	6		1											
12:30	9		3											
12:45	10	41	3	9										
01:00	4		10											
01:15	1		13											
01:30	2		8											
01:45	0	7	9	40										
02:00	0		2											
02:15	0		9											
02:30	0		8											
02:45	0	0	5	24										
03:00	0		2											
03:15	0		2											
03:30	0		4											
03:45	0	0	8	16										
04:00	0		9											
04:15	1		10											
04:30	0		6											
04:45	0	1	4	29										
05:00	0		12											
05:15	0		14											
05:30	0		6											
05:45	0	0	8	40										
06:00	0		4											
06:15	0		4											
06:30	0		13											
06:45	0	0	5	26										
07:00	0		4											
07:15	0		6											
07:30	0		5											
07:45	1	1	7	22										
08:00	0		7											
08:15	0		3											
08:30	0		4											
08:45	0	0	10	24										
09:00	1		5											
09:15	0		8											
09:30	1		20											
09:45	1	3	11	44										
10:00	0		3											
10:15	1		2											
10:30	0		8											
10:45	1	2	11	24										
11:00	3		0											
11:15	1		14											
11:30	0		5											
11:45	0	4	0	19										
Total	59		317											
Percent			100.0 %		0.0%		0.0%							
Day Total		376												
Peak	12:00	-	09:00	-	-	-	-	-	-	-	-	-	-	-
Vol.	41	-	44	-	-	-	-	-	-	-	-	-	-	-
P.H.F.	0.641		0.550											

AMC Main Driveway
north of Flutie Pass
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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

143938 B Volume
Site Code: 12642.00

Start	12-Jun-14		13-Jun-14		14-Jun-14		15-Jun-14		16-Jun-14		17-Jun-14		18-Jun-14		Week Average	
Time	NB (IN)	SB (OUT	NB (IN)	SB (OUT	NB (IN)	SB (OUT	NB (IN)	SB (OUT	NB (IN)	SB (OUT	NB (IN)	SB (OUT	NB (IN)	SB (OUT	NB (IN)	SB (OUT
12:00 AM	2	**48**	1	**62**	5	**190**	2	**124**	*	*	*	*	*	*	2	**106**
01:00	0	10	0	10	0	53	1	49	*	*	*	*	*	*	0	30
02:00	0	5	0	1	1	3	0	8	*	*	*	*	*	*	0	4
03:00	1	3	1	1	1	2	0	2	*	*	*	*	*	*	1	2
04:00	0	0	0	0	1	1	0	1	*	*	*	*	*	*	0	0
05:00	0	1	1	1	1	0	0	0	*	*	*	*	*	*	0	0
06:00	2	0	5	4	3	3	0	3	*	*	*	*	*	*	2	2
07:00	0	4	0	2	30	8	0	0	*	*	*	*	*	*	8	4
08:00	2	0	1	1	2	2	2	2	*	*	*	*	*	*	2	1
09:00	6	4	6	3	10	2	5	1	*	*	*	*	*	*	7	2
10:00	6	6	58	9	66	34	56	9	*	*	*	*	*	*	46	14
11:00	**15**	14	**78**	20	**109**	32	**96**	18	*	*	*	*	*	*	**74**	21
12:00 PM	28	13	56	43	84	34	56	29	*	*	*	*	*	*	56	30
01:00	38	15	123	113	157	169	69	97	*	*	*	*	*	*	97	98
02:00	28	22	71	79	103	117	78	70	*	*	*	*	*	*	70	72
03:00	33	63	89	90	112	88	69	62	*	*	*	*	*	*	76	76
04:00	57	42	138	137	203	215	**96**	101	*	*	*	*	*	*	124	124
05:00	25	27	113	107	114	135	45	84	*	*	*	*	*	*	74	88
06:00	57	62	249	179	185	207	74	89	*	*	*	*	*	*	141	134
07:00	**114**	35	**296**	255	**258**	195	96	72	*	*	*	*	*	*	**191**	139
08:00	31	13	189	149	124	110	52	42	*	*	*	*	*	*	99	78
09:00	62	**103**	181	299	165	260	59	**120**	*	*	*	*	*	*	117	**196**
10:00	32	102	135	**325**	105	**277**	29	47	*	*	*	*	*	*	75	188
11:00	10	60	43	98	43	105	1	47	*	*	*	*	*	*	24	78
Total	549	652	1834	1988	1882	2242	886	1077	0	0	0	0	0	0	1286	1487
Day	1201		3822		4124		1963		0		0		0		2773	
AM Peak	11:00	00:00	11:00	00:00	11:00	00:00	11:00	00:00	-	-	-	-	-	-	11:00	00:00
Vol.	15	48	78	62	109	190	96	124	-	-	-	-	-	-	74	106
PM Peak	19:00	21:00	19:00	22:00	19:00	22:00	16:00	21:00	-	-	-	-	-	-	19:00	21:00
Vol.	114	103	296	325	258	277	96	120	-	-	-	-	-	-	191	196

Comb. Total	1201	3822	4124	1963	0	0	0	2773

AMC Main Driveway
north of Flutie Pass
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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

143938 B Volume
Site Code: 12642.00

Start	NB (IN)				SB (OUT)				Combined				12-Jun-14
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Thu
12:00	2		3		32		2		34		5		
12:15	0		7		14		4		14		11		
12:30	0		6		2		5		2		11		
12:45	0	2	12	28	0	48	2	13	0	50	14	41	
01:00	0		6		0		2		0		8		
01:15	0		15		0		8		0		23		
01:30	0		9		0		2		0		11		
01:45	0	0	8	38	10	10	3	15	10	10	11	53	
02:00	0		8		5		2		5		10		
02:15	0		10		0		2		0		12		
02:30	0		5		0		5		0		10		
02:45	0	0	5	28	0	5	13	22	0	5	18	50	
03:00	0		10		0		10		0		20		
03:15	1		5		2		3		3		8		
03:30	0		7		0		20		0		27		
03:45	0	1	11	33	1	3	30	63	1	4	41	96	
04:00	0		16		0		16		0		32		
04:15	0		14		0		4		0		18		
04:30	0		15		0		10		0		25		
04:45	0	0	12	57	0	0	12	42	0	0	24	99	
05:00	0		2		0		5		0		7		
05:15	0		8		0		6		0		14		
05:30	0		8		0		10		0		18		
05:45	0	0	7	25	1	1	6	27	1	1	13	52	
06:00	0		9		0		12		0		21		
06:15	2		7		0		15		2		22		
06:30	0		9		0		11		0		20		
06:45	0	2	32	57	0	0	24	62	0	2	56	119	
07:00	0		22		0		10		0		32		
07:15	0		28		4		12		4		40		
07:30	0		41		0		7		0		48		
07:45	0	0	23	114	0	4	6	35	0	4	29	149	
08:00	0		11		0		2		0		13		
08:15	0		10		0		3		0		13		
08:30	0		4		0		7		0		11		
08:45	2	2	6	31	0	0	1	13	2	2	7	44	
09:00	0		6		1		60		1		66		
09:15	1		17		1		19		2		36		
09:30	3		16		0		14		3		30		
09:45	2	6	23	62	2	4	10	103	4	10	33	165	
10:00	0		9		2		74		2		83		
10:15	2		13		0		13		2		26		
10:30	0		7		0		10		0		17		
10:45	4	6	3	32	4	6	5	102	8	12	8	134	
11:00	2		5		2		2		4		7		
11:15	2		3		6		0		8		3		
11:30	6		0		2		3		8		3		
11:45	5	15	2	10	4	14	55	60	9	29	57	70	
Total	34		515		95		557		129		1072		
Percent	26.4%		48.0%		73.6%		52.0%						
Day Total		549				652				1201			
Peak	11:00	-	06:45	-	12:00	-	09:15	-	12:00	-	09:15	-	-	-
Vol.	15	-	123	-	48	-	117	-	50	-	182	-	-	-
P.H.F.	0.625		0.750		0.375		0.395		0.368		0.548			

AMC Main Driveway
north of Flutie Pass
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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

143938 B Volume
Site Code: 12642.00

Start	NB (IN)				SB (OUT)				Combined				13-Jun-14
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Fri
12:00	0		12		13		8		13		20		
12:15	1		12		4		8		5		20		
12:30	0		16		35		8		35		24		
12:45	0	1	16	56	10	62	19	43	10	63	35	99	
01:00	0		10		8		52		8		62		
01:15	0		18		0		26		0		44		
01:30	0		42		2		19		2		61		
01:45	0	0	53	123	0	10	16	113	0	10	69	236	
02:00	0		20		0		12		0		32		
02:15	0		16		0		17		0		33		
02:30	0		11		0		16		0		27		
02:45	0	0	24	71	1	1	34	79	1	1	58	150	
03:00	1		15		0		6		1		21		
03:15	0		36		0		19		0		55		
03:30	0		21		0		15		0		36		
03:45	0	1	17	89	1	1	50	90	1	2	67	179	
04:00	0		25		0		56		0		81		
04:15	0		33		0		44		0		77		
04:30	0		31		0		19		0		50		
04:45	0	0	49	138	0	0	18	137	0	0	67	275	
05:00	1		26		0		25		1		51		
05:15	0		24		1		31		1		55		
05:30	0		25		0		15		0		40		
05:45	0	1	38	113	0	1	36	107	0	2	74	220	
06:00	2		41		2		30		4		71		
06:15	0		62		0		33		0		95		
06:30	1		68		2		65		3		133		
06:45	2	5	78	249	0	4	51	179	2	9	129	428	
07:00	0		80		0		54		0		134		
07:15	0		78		1		68		1		146		
07:30	0		80		0		82		0		162		
07:45	0	0	58	296	1	2	51	255	1	2	109	551	
08:00	1		45		1		74		2		119		
08:15	0		46		0		24		0		70		
08:30	0		44		0		29		0		73		
08:45	0	1	54	189	0	1	22	149	0	2	76	338	
09:00	0		45		1		82		1		127		
09:15	2		50		1		62		3		112		
09:30	0		42		1		87		1		129		
09:45	4	6	44	181	0	3	68	299	4	9	112	480	
10:00	1		47		2		130		3		177		
10:15	9		41		1		26		10		67		
10:30	14		25		4		65		18		90		
10:45	34	58	22	135	2	9	104	325	36	67	126	460	
11:00	24		22		4		16		28		38		
11:15	16		11		2		28		18		39		
11:30	22		4		8		48		30		52		
11:45	16	78	6	43	6	20	6	98	22	98	12	141	
Total	151		1683		114		1874		265		3557		
Percent	57.0%		47.3%		43.0%		52.7%						
Day Total		1834				1988				3822			
Peak	10:45	-	06:45	-	12:00	-	09:15	-	10:45	-	06:45	-	- -
Vol.	96	-	316	-	62	-	347	-	112	-	571	-	- -
P.H.F.	0.706		0.988		0.443		0.667		0.778		0.881		

AMC Main Driveway
north of Flutie Pass
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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

143938 B Volume
Site Code: 12642.00

Start	NB (IN)				SB (OUT)				Combined				14-Jun-14
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Sat
12:00	1		24		32		9		33		33		
12:15	2		20		55		7		57		27		
12:30	2		18		83		4		85		22		
12:45	0	5	22	84	20	190	14	34	20	195	36	118	
01:00	0		25		13		50		13		75		
01:15	0		30		2		46		2		76		
01:30	0		50		34		32		34		82		
01:45	0	0	52	157	4	53	41	169	4	53	93	326	
02:00	1		36		1		22		2		58		
02:15	0		20		2		38		2		58		
02:30	0		21		0		21		0		42		
02:45	0	1	26	103	0	3	36	117	0	4	62	220	
03:00	0		33		0		11		0		44		
03:15	1		32		2		12		3		44		
03:30	0		26		0		33		0		59		
03:45	0	1	21	112	0	2	32	88	0	3	53	200	
04:00	0		49		1		80		1		129		
04:15	1		58		0		61		1		119		
04:30	0		42		0		52		0		94		
04:45	0	1	54	203	0	1	22	215	0	2	76	418	
05:00	0		31		0		41		0		72		
05:15	1		16		0		40		1		56		
05:30	0		28		0		20		0		48		
05:45	0	1	39	114	0	0	34	135	0	1	73	249	
06:00	0		35		0		46		0		81		
06:15	0		56		0		30		0		86		
06:30	1		43		1		69		2		112		
06:45	2	3	51	185	2	3	62	207	4	6	113	392	
07:00	4		66		1		48		5		114		
07:15	9		72		1		48		10		120		
07:30	11		64		4		45		15		109		
07:45	6	30	56	258	2	8	54	195	8	38	110	453	
08:00	0		25		0		56		0		81		
08:15	1		27		0		10		1		37		
08:30	0		36		2		14		2		50		
08:45	1	2	36	124	0	2	30	110	1	4	66	234	
09:00	1		43		0		60		1		103		
09:15	2		53		1		40		3		93		
09:30	3		36		1		88		4		124		
09:45	4	10	33	165	0	2	72	260	4	12	105	425	
10:00	3		32		5		128		8		160		
10:15	6		38		15		36		21		74		
10:30	21		19		8		44		29		63		
10:45	36	66	16	105	6	34	69	277	42	100	85	382	
11:00	32		10		6		8		38		18		
11:15	20		15		12		30		32		45		
11:30	34		14		6		57		40		71		
11:45	23	109	4	43	8	32	10	105	31	141	14	148	
Total	229		1653		330		1912		559		3565		
Percent	41.0%		46.4%		59.0%		53.6%						
Day Total		1882				2242				4124			
Peak	10:45	-	07:00	-	12:00	-	09:15	-	12:00	-	09:15	-	- -
Vol.	122	-	258	-	190	-	328	-	195	-	482	-	- -
P.H.F.	0.847		0.896		0.572		0.641		0.574		0.753		

AMC Main Driveway
north of Flutie Pass
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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

143938 B Volume
Site Code: 12642.00

Start	NB (IN)				SB (OUT)				Combined				15-Jun-14
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Sun
12:00	1		13		19		2		20		15		
12:15	0		16		44		2		44		18		
12:30	0		10		44		12		44		22		
12:45	1	2	17	56	17	124	13	29	18	126	30	85	
01:00	0		5		12		20		12		25		
01:15	0		20		2		33		2		53		
01:30	1		23		28		21		29		44		
01:45	0	1	21	69	7	49	23	97	7	50	44	166	
02:00	0		24		8		11		8		35		
02:15	0		20		0		22		0		42		
02:30	0		16		0		14		0		30		
02:45	0	0	18	78	0	8	23	70	0	8	41	148	
03:00	0		26		2		10		2		36		
03:15	0		20		0		10		0		30		
03:30	0		11		0		20		0		31		
03:45	0	0	12	69	0	2	22	62	0	2	34	131	
04:00	0		31		0		38		0		69		
04:15	0		15		0		30		0		45		
04:30	0		22		1		22		1		44		
04:45	0	0	28	96	0	1	11	101	0	1	39	197	
05:00	0		14		0		25		0		39		
05:15	0		13		0		29		0		42		
05:30	0		9		0		12		0		21		
05:45	0	0	9	45	0	0	18	84	0	0	27	129	
06:00	0		19		1		14		1		33		
06:15	0		20		1		24		1		44		
06:30	0		15		0		38		0		53		
06:45	0	0	20	74	1	3	13	89	1	3	33	163	
07:00	0		34		0		26		0		60		
07:15	0		34		0		16		0		50		
07:30	0		16		0		10		0		26		
07:45	0	0	12	96	0	0	20	72	0	0	32	168	
08:00	1		10		2		10		3		20		
08:15	0		16		0		6		0		22		
08:30	1		10		0		8		1		18		
08:45	0	2	16	52	0	2	18	42	0	4	34	94	
09:00	0		26		1		26		1		52		
09:15	0		19		0		22		0		41		
09:30	3		12		0		52		3		64		
09:45	2	5	2	59	0	1	20	120	2	6	22	179	
10:00	2		17		1		14		3		31		
10:15	12		7		1		2		13		9		
10:30	16		4		3		11		19		15		
10:45	26	56	1	29	4	9	20	47	30	65	21	76	
11:00	22		0		4		1		26		1		
11:15	30		0		5		38		35		38		
11:30	27		0		7		4		34		4		
11:45	17	96	1	1	2	18	4	47	19	114	5	48	
Total	162		724		217		860		379		1584		
Percent	42.7%		45.7%		57.3%		54.3%						
Day Total		886				1077				1963			
Peak	10:45	-	06:45	-	12:00	-	09:00	-	12:00	-	04:00	-	- -
Vol.	105	-	104	-	124	-	120	-	126	-	197	-	- -
P.H.F.	0.875		0.765		0.705		0.577		0.716		0.714		

AMC East Entrance Driveway
north of Flutie Pass
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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

143938 C Volume
Site Code: 12642.00

Start	12-Jun-14		Fri		Sat		Sun		Mon		Tue		Wed		Average Da	
Time	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00	0	2	0	7	1	7	0	0	*	*	*	*	*	*	0	4
12:15	0	4	0	10	1	10	2	9	*	*	*	*	*	*	1	8
12:30	1	2	2	5	1	5	2	4	*	*	*	*	*	*	2	4
12:45	0	6	0	8	2	5	0	8	*	*	*	*	*	*	0	7
01:00	0	6	0	2	0	14	0	2	*	*	*	*	*	*	0	6
01:15	0	7	0	8	0	20	0	10	*	*	*	*	*	*	0	11
01:30	0	3	0	16	0	25	0	**17**	*	*	*	*	*	*	0	15
01:45	0	5	0	18	0	28	0	**11**	*	*	*	*	*	*	0	16
02:00	0	2	0	11	0	23	0	**9**	*	*	*	*	*	*	0	11
02:15	0	5	0	4	0	16	0	**11**	*	*	*	*	*	*	0	9
02:30	0	4	0	9	0	4	0	5	*	*	*	*	*	*	0	6
02:45	0	1	0	7	0	10	0	10	*	*	*	*	*	*	0	7
03:00	0	0	0	9	0	10	1	19	*	*	*	*	*	*	0	10
03:15	0	1	0	13	1	14	0	12	*	*	*	*	*	*	0	10
03:30	0	7	0	6	0	9	0	6	*	*	*	*	*	*	0	7
03:45	0	5	0	5	0	16	0	4	*	*	*	*	*	*	0	8
04:00	0	2	0	19	0	16	0	9	*	*	*	*	*	*	0	12
04:15	0	13	0	20	0	24	0	8	*	*	*	*	*	*	0	16
04:30	0	3	0	15	0	20	2	12	*	*	*	*	*	*	0	12
04:45	0	3	0	25	0	19	0	5	*	*	*	*	*	*	0	13
05:00	0	4	0	17	0	20	0	10	*	*	*	*	*	*	0	13
05:15	0	1	0	13	0	8	0	3	*	*	*	*	*	*	0	6
05:30	0	4	0	9	0	18	0	10	*	*	*	*	*	*	0	10
05:45	0	4	0	19	1	15	0	1	*	*	*	*	*	*	0	10
06:00	0	1	0	18	0	17	2	6	*	*	*	*	*	*	0	10
06:15	0	6	2	30	1	18	0	10	*	*	*	*	*	*	1	16
06:30	0	12	1	**34**	2	22	0	8	*	*	*	*	*	*	1	19
06:45	0	8	0	**48**	1	34	0	6	*	*	*	*	*	*	0	**24**
07:00	0	**12**	0	**50**	1	**51**	0	11	*	*	*	*	*	*	0	**31**
07:15	1	**14**	0	**85**	2	**46**	0	15	*	*	*	*	*	*	1	**40**
07:30	0	**13**	1	34	8	**36**	0	4	*	*	*	*	*	*	2	**22**
07:45	0	**16**	1	30	0	**36**	0	8	*	*	*	*	*	*	0	22
08:00	0	10	1	30	0	15	0	4	*	*	*	*	*	*	0	15
08:15	0	4	0	23	1	6	0	4	*	*	*	*	*	*	0	9
08:30	1	1	0	22	1	19	1	7	*	*	*	*	*	*	1	12
08:45	0	3	0	40	1	17	1	3	*	*	*	*	*	*	0	16
09:00	0	4	0	39	1	26	0	10	*	*	*	*	*	*	0	20
09:15	0	5	1	25	1	22	0	3	*	*	*	*	*	*	0	14
09:30	1	13	0	26	0	18	0	5	*	*	*	*	*	*	0	16
09:45	0	2	1	29	1	15	1	0	*	*	*	*	*	*	1	12
10:00	1	6	1	22	1	10	1	8	*	*	*	*	*	*	1	12
10:15	0	14	2	32	4	14	2	6	*	*	*	*	*	*	2	16
10:30	**0**	4	**10**	11	**11**	7	**8**	0	*	*	*	*	*	*	**7**	6
10:45	**2**	2	**19**	10	**18**	5	**14**	0	*	*	*	*	*	*	**13**	4
11:00	**2**	0	**13**	1	**14**	6	**6**	0	*	*	*	*	*	*	**9**	2
11:15	**3**	1	**4**	6	**14**	6	**8**	0	*	*	*	*	*	*	**7**	3
11:30	0	0	4	5	7	7	8	0	*	*	*	*	*	*	5	3
11:45	1	1	7	0	13	0	3	2	*	*	*	*	*	*	6	1
Total	13	246	70	925	110	809	62	315	0	0	0	0	0	0	60	576
Day Total	259		995		919		377		0		0		0		636	
% Splits	5.0%	95.0 %	7.0%	93.0 %	12.0 %	88.0 %	16.4 %	83.6 %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	9.4%	90.6%
Peak	10:30	07:00	10:30	06:30	10:30	07:00	10:30	01:30	-	-	-	-	-	-	10:30	06:45
Vol.	7	55	46	217	57	169	36	48	-	-	-	-	-	-	36	117
P.H.F.	0.583	0.859	0.605	0.638	0.792	0.828	0.643	0.706							0.692	0.731

AMC East Entrance Driveway
north of Flutie Pass
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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

143938 C Volume
Site Code: 12642.00

Start Time	A.M.	NB (IN)	P.M.											Thu 12-Jun-14
12:00	0		2											
12:15	0		4											
12:30	1		2											
12:45	0	1	6	14										
01:00	0		6											
01:15	0		7											
01:30	0		3											
01:45	0	0	5	21										
02:00	0		2											
02:15	0		5											
02:30	0		4											
02:45	0	0	1	12										
03:00	0		0											
03:15	0		1											
03:30	0		7											
03:45	0	0	5	13										
04:00	0		2											
04:15	0		13											
04:30	0		3											
04:45	0	0	3	21										
05:00	0		4											
05:15	0		1											
05:30	0		4											
05:45	0	0	4	13										
06:00	0		1											
06:15	0		6											
06:30	0		12											
06:45	0	0	8	27										
07:00	0		12											
07:15	1		14											
07:30	0		13											
07:45	0	1	16	55										
08:00	0		10											
08:15	0		4											
08:30	1		1											
08:45	0	1	3	18										
09:00	0		4											
09:15	0		5											
09:30	1		13											
09:45	0	1	2	24										
10:00	1		6											
10:15	0		14											
10:30	0		4											
10:45	2	3	2	26										
11:00	2		0											
11:15	3		1											
11:30	0		0											
11:45	1	6	1	2										
Total	13		246											
Percent			100.0 %		0.0%		0.0%							
Day Total		259												
Peak	10:30	-	07:00	-	-	-	-	-	-	-	-	-	-	-
Vol.	7	-	55	-	-	-	-	-	-	-	-	-	-	-
P.H.F.	0.583		0.859											

AMC East Entrance Driveway
north of Flutie Pass
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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143938 C Volume
Site Code: 12642.00

Start Time	A.M.	NB (IN)	P.M.											Fri 13-Jun-14
12:00	0		7											
12:15	0		10											
12:30	2		5											
12:45	0	2	8	30										
01:00	0		2											
01:15	0		8											
01:30	0		16											
01:45	0	0	18	44										
02:00	0		11											
02:15	0		4											
02:30	0		9											
02:45	0	0	7	31										
03:00	0		9											
03:15	0		13											
03:30	0		6											
03:45	0	0	5	33										
04:00	0		19											
04:15	0		20											
04:30	0		15											
04:45	0	0	25	79										
05:00	0		17											
05:15	0		13											
05:30	0		9											
05:45	0	0	19	58										
06:00	0		18											
06:15	2		30											
06:30	1		34											
06:45	0	3	48	130										
07:00	0		50											
07:15	0		85											
07:30	1		34											
07:45	1	2	30	199										
08:00	1		30											
08:15	0		23											
08:30	0		22											
08:45	0	1	40	115										
09:00	0		39											
09:15	1		25											
09:30	0		26											
09:45	1	2	29	119										
10:00	1		22											
10:15	2		32											
10:30	10		11											
10:45	19	32	10	75										
11:00	13		1											
11:15	4		6											
11:30	4		5											
11:45	7	28	0	12										
Total	70		925											
Percent			100.0 %		0.0%		0.0%							
Day Total		995												
Peak	10:30	-	06:30	-	-	-	-	-	-	-	-	-	-	-
Vol.	46	-	217	-	-	-	-	-	-	-	-	-	-	-
P.H.F.	0.605		0.638											

AMC East Entrance Driveway
north of Flutie Pass
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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143938 C Volume
Site Code: 12642.00

Start Time	A.M.	NB (IN)	P.M.											Sat 14-Jun-14
12:00	1		7											
12:15	1		10											
12:30	1		5											
12:45	2	5	5	27										
01:00	0		14											
01:15	0		20											
01:30	0		25											
01:45	0	0	28	87										
02:00	0		23											
02:15	0		16											
02:30	0		4											
02:45	0	0	10	53										
03:00	0		10											
03:15	1		14											
03:30	0		9											
03:45	0	1	16	49										
04:00	0		16											
04:15	0		24											
04:30	0		20											
04:45	0	0	19	79										
05:00	0		20											
05:15	0		8											
05:30	0		18											
05:45	1	1	15	61										
06:00	0		17											
06:15	1		18											
06:30	2		22											
06:45	1	4	34	91										
07:00	1		51											
07:15	2		46											
07:30	8		36											
07:45	0	11	36	169										
08:00	0		15											
08:15	1		6											
08:30	1		19											
08:45	1	3	17	57										
09:00	1		26											
09:15	1		22											
09:30	0		18											
09:45	1	3	15	81										
10:00	1		10											
10:15	4		14											
10:30	11		7											
10:45	18	34	5	36										
11:00	14		6											
11:15	14		6											
11:30	7		7											
11:45	13	48	0	19										
Total	110		809											
Percent			100.0 %		0.0%		0.0%							
Day Total		919												
Peak	10:30	-	07:00	-	-	-	-	-	-	-	-	-	-	-
Vol.	57	-	169	-	-	-	-	-	-	-	-	-	-	-
P.H.F.	0.792		0.828											

AMC East Entrance Driveway
north of Flutie Pass
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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143938 C Volume
Site Code: 12642.00

Start Time	A.M.	NB (IN)	P.M.											Sun 15-Jun-14
12:00	0		0											
12:15	2		9											
12:30	2		4											
12:45	0	4	8	21										
01:00	0		2											
01:15	0		10											
01:30	0		17											
01:45	0	0	11	40										
02:00	0		9											
02:15	0		11											
02:30	0		5											
02:45	0	0	10	35										
03:00	1		19											
03:15	0		12											
03:30	0		6											
03:45	0	1	4	41										
04:00	0		9											
04:15	0		8											
04:30	2		12											
04:45	0	2	5	34										
05:00	0		10											
05:15	0		3											
05:30	0		10											
05:45	0	0	1	24										
06:00	2		6											
06:15	0		10											
06:30	0		8											
06:45	0	2	6	30										
07:00	0		11											
07:15	0		15											
07:30	0		4											
07:45	0	0	8	38										
08:00	0		4											
08:15	0		4											
08:30	1		7											
08:45	1	2	3	18										
09:00	0		10											
09:15	0		3											
09:30	0		5											
09:45	1	1	0	18										
10:00	1		8											
10:15	2		6											
10:30	8		0											
10:45	14	25	0	14										
11:00	6		0											
11:15	8		0											
11:30	8		0											
11:45	3	25	2	2										
Total	62		315											
Percent			100.0 %		0.0%		0.0%							
Day Total		377												
Peak	10:30	-	01:30	-	-	-	-	-	-	-	-	-	-	-
Vol.	36	-	48	-	-	-	-	-	-	-	-	-	-	-
P.H.F.	0.643		0.706											

N/S: Whittier Street/ Shoppers World Dr
E/W: Cochituate Road (Route 30)
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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

File Name : 143938 AA
Site Code : TBA
Start Date : 6/12/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Whittier Street From North				Cochituate Road (Route 30) From East				Shoppers World Drive From South				Cochituate Road (Route 30) From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	22	70	57	0	40	225	44	6	22	58	26	0	25	147	6	1	749
04:15 PM	32	80	50	0	42	224	74	6	33	66	17	0	17	170	13	0	824
04:30 PM	19	76	57	0	36	229	58	12	20	53	21	0	20	194	10	0	805
04:45 PM	18	74	51	0	51	231	67	9	18	51	22	0	35	187	5	0	819
Total	91	300	215	0	169	909	243	33	93	228	86	0	97	698	34	1	3197
05:00 PM	27	73	66	0	38	227	78	11	27	61	28	0	32	168	3	0	839
05:15 PM	26	97	49	0	45	238	61	12	31	53	25	0	25	156	6	0	824
05:30 PM	23	85	57	0	61	304	88	11	26	56	37	0	21	113	10	0	892
05:45 PM	15	74	53	0	57	247	82	8	21	59	33	0	24	122	0	0	795
Total	91	329	225	0	201	1016	309	42	105	229	123	0	102	559	19	0	3350
Grand Total	182	629	440	0	370	1925	552	75	198	457	209	0	199	1257	53	1	6547
Apprch %	14.5	50.3	35.2	0	12.7	65.9	18.9	2.6	22.9	52.9	24.2	0	13.2	83.2	3.5	0.1	
Total %	2.8	9.6	6.7	0	5.7	29.4	8.4	1.1	3	7	3.2	0	3	19.2	0.8	0	
Cars	179	626	436	0	363	1875	545	74	197	454	206	0	199	1241	53	1	6449
% Cars	98.4	99.5	99.1	0	98.1	97.4	98.7	98.7	99.5	99.3	98.6	0	100	98.7	100	100	98.5
Heavy Vehicles	3	3	4	0	7	50	7	1	1	3	3	0	0	16	0	0	98
% Heavy Vehicles	1.6	0.5	0.9	0	1.9	2.6	1.3	1.3	0.5	0.7	1.4	0	0	1.3	0	0	1.5

	Whittier Street From North					Cochituate Road (Route 30) From East					Shoppers World Drive From South					Cochituate Road (Route 30) From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	18	74	51	0	143	51	231	67	9	358	18	51	22	0	91	**35**	**187**	5	0	**227**	819
05:00 PM	**27**	73	**66**	0	166	38	227	78	11	354	27	**61**	28	0	116	32	168	3	0	203	839
05:15 PM	26	**97**	49	0	**172**	45	238	61	**12**	356	**31**	53	25	0	109	25	156	6	0	187	824
05:30 PM	23	85	57	0	165	**61**	**304**	**88**	11	**464**	26	56	**37**	0	**119**	21	113	**10**	0	144	**892**
Total Volume	94	329	223	0	646	195	1000	294	43	1532	102	221	112	0	435	113	624	24	0	761	3374
% App. Total	14.6	50.9	34.5	0		12.7	65.3	19.2	2.8		23.4	50.8	25.7	0		14.8	82	3.2	0		
PHF	.870	.848	.845	.000	.939	.799	.822	.835	.896	.825	.823	.906	.757	.000	.914	.807	.834	.600	.000	.838	.946
Cars	92	328	221	0	641	194	973	291	42	1500	102	219	111	0	432	113	618	24	0	755	3328
% Cars	97.9	99.7	99.1	0	99.2	99.5	97.3	99.0	97.7	97.9	100	99.1	99.1	0	99.3	100	99.0	100	0	99.2	98.6
Heavy Vehicles	2	1	2	0	5	1	27	3	1	32	0	2	1	0	3	0	6	0	0	6	46
% Heavy Vehicles	2.1	0.3	0.9	0	0.8	0.5	2.7	1.0	2.3	2.1	0	0.9	0.9	0	0.7	0	1.0	0	0	0.8	1.4

N/S: Whittier Street/ Shoppers World Dr
E/W: Cochituate Road (Route 30)
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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File Name : 143938 AA
Site Code : TBA
Start Date : 6/12/2014
Page No : 1

Groups Printed- Cars

	Whittier Street From North				Cochituate Road (Route 30) From East				Shoppers World Drive From South				Cochituate Road (Route 30) From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	21	70	56	0	40	212	44	6	22	58	25	0	25	143	6	1	729
04:15 PM	32	79	50	0	40	221	72	6	33	65	17	0	17	168	13	0	813
04:30 PM	19	76	56	0	35	225	58	12	19	53	21	0	20	191	10	0	795
04:45 PM	17	74	51	0	51	219	66	9	18	51	21	0	35	186	5	0	803
Total	89	299	213	0	166	877	240	33	92	227	84	0	97	688	34	1	3140
05:00 PM	27	73	65	0	37	225	77	11	27	61	28	0	32	167	3	0	833
05:15 PM	25	96	48	0	45	237	61	11	31	52	25	0	25	153	6	0	815
05:30 PM	23	85	57	0	61	292	87	11	26	55	37	0	21	112	10	0	877
05:45 PM	15	73	53	0	54	244	80	8	21	59	32	0	24	121	0	0	784
Total	90	327	223	0	197	998	305	41	105	227	122	0	102	553	19	0	3309
Grand Total	179	626	436	0	363	1875	545	74	197	454	206	0	199	1241	53	1	6449
Apprch %	14.4	50.4	35.1	0	12.7	65.6	19.1	2.6	23	53	24	0	13.3	83.1	3.5	0.1	
Total %	2.8	9.7	6.8	0	5.6	29.1	8.5	1.1	3.1	7	3.2	0	3.1	19.2	0.8	0	

	Whittier Street From North					Cochituate Road (Route 30) From East					Shoppers World Drive From South					Cochituate Road (Route 30) From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	17	74	51	0	142	51	219	66	9	345	18	51	21	0	90	**35**	**186**	5	0	**226**	803
05:00 PM	**27**	73	**65**	0	165	37	225	77	**11**	350	27	**61**	28	0	116	32	167	3	0	202	833
05:15 PM	25	**96**	48	0	**169**	45	237	61	11	354	**31**	52	25	0	108	25	153	6	0	184	815
05:30 PM	23	85	57	0	165	**61**	**292**	**87**	11	**451**	26	55	**37**	0	**118**	21	112	**10**	0	143	**877**
Total Volume	92	328	221	0	641	194	973	291	42	1500	102	219	111	0	432	113	618	24	0	755	3328
% App. Total	14.4	51.2	34.5	0		12.9	64.9	19.4	2.8		23.6	50.7	25.7	0		15	81.9	3.2	0		
PHF	.852	.854	.850	.000	.948	.795	.833	.836	.955	.831	.823	.898	.750	.000	.915	.807	.831	.600	.000	.835	.949

N/S: Whittier Street/ Shoppers World Dr
E/W: Cochituate Road (Route 30)
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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File Name : 143938 AA
Site Code : TBA
Start Date : 6/12/2014
Page No : 1

Groups Printed- Heavy Vehicles

	Whittier Street From North				Cochituate Road (Route 30) From East				Shoppers World Drive From South				Cochituate Road (Route 30) From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	1	0	1	0	0	13	0	0	0	0	1	0	0	4	0	0	20
04:15 PM	0	1	0	0	2	3	2	0	0	1	0	0	0	2	0	0	11
04:30 PM	0	0	1	0	1	4	0	0	1	0	0	0	0	3	0	0	10
04:45 PM	1	0	0	0	0	12	1	0	0	0	1	0	0	1	0	0	16
Total	2	1	2	0	3	32	3	0	1	1	2	0	0	10	0	0	57
05:00 PM	0	0	1	0	1	2	1	0	0	0	0	0	0	1	0	0	6
05:15 PM	1	1	1	0	0	1	0	1	0	1	0	0	0	3	0	0	9
05:30 PM	0	0	0	0	0	12	1	0	0	1	0	0	0	1	0	0	15
05:45 PM	0	1	0	0	3	3	2	0	0	0	1	0	0	1	0	0	11
Total	1	2	2	0	4	18	4	1	0	2	1	0	0	6	0	0	41
Grand Total	3	3	4	0	7	50	7	1	1	3	3	0	0	16	0	0	98
Apprch %	30	30	40	0	10.8	76.9	10.8	1.5	14.3	42.9	42.9	0	0	100	0	0	
Total %	3.1	3.1	4.1	0	7.1	51	7.1	1	1	3.1	3.1	0	0	16.3	0	0	

	Whittier Street From North					Cochituate Road (Route 30) From East					Shoppers World Drive From South					Cochituate Road (Route 30) From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	**1**	0	**1**	0	**2**	0	**13**	0	0	**13**	0	0	**1**	0	**1**	0	**4**	0	0	**4**	**20**
04:15 PM	0	**1**	0	0	1	**2**	3	**2**	0	7	0	**1**	0	0	1	0	2	0	0	2	11
04:30 PM	0	0	1	0	1	1	4	0	0	5	**1**	0	0	0	1	0	3	0	0	3	10
04:45 PM	1	0	0	0	1	0	12	1	0	13	0	0	1	0	1	0	1	0	0	1	16
Total Volume	2	1	2	0	5	3	32	3	0	38	1	1	2	0	4	0	10	0	0	10	57
% App. Total	40	20	40	0		7.9	84.2	7.9	0		25	25	50	0		0	100	0	0		
PHF	.500	.250	.500	.000	.625	.375	.615	.375	.000	.731	.250	.250	.500	.000	1.00	.000	.625	.000	.000	.625	.713

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Start Date : 6/12/2014
Page No : 1

Groups Printed- Peds and Bicycles

	Whittier Street From North				Cochituate Road (Route 30) From East				Shoppers World Drive From South				Cochituate Road (Route 30) From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	2
04:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	2
Total	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	2	5
05:00 PM	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2	4
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:45 PM	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	1	4
Total	0	1	0	4	0	0	0	0	0	0	0	1	0	0	0	3	9
Grand Total	0	1	0	7	0	0	0	0	0	0	0	1	0	0	0	5	14
Apprch %	0	12.5	0	87.5	0	0	0	0	0	0	0	100	0	0	0	100	
Total %	0	7.1	0	50	0	0	0	0	0	0	0	7.1	0	0	0	35.7	

	Whittier Street From North					Cochituate Road (Route 30) From East					Shoppers World Drive From South					Cochituate Road (Route 30) From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	0	0	0	**1**	**1**	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
04:30 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
05:00 PM	0	**1**	0	0	1	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	**2**	**2**	**4**
Total Volume	0	1	0	3	4	0	0	0	0	0	0	0	0	1	1	0	0	0	4	4	9
% App. Total	0	25	0	75		0	0	0	0		0	0	0	100		0	0	0	100		
PHF	.000	.250	.000	.750	1.00	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.500	.500	.563

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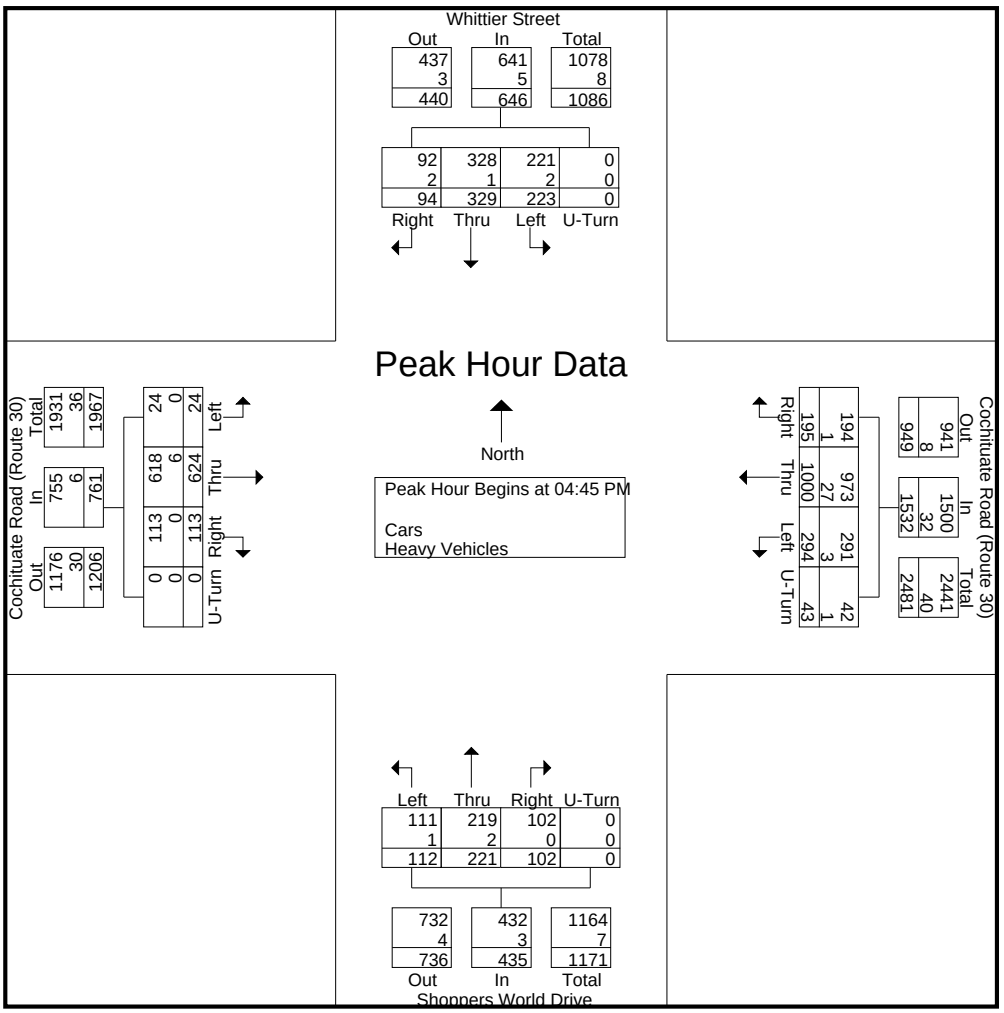
Start Date : 6/12/2014
Page No : 1

	Whittier Street From North					Cochituate Road (Route 30) From East					Shoppers World Drive From South					Cochituate Road (Route 30) From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	18	74	51	0	143	51	231	67	9	358	18	51	22	0	91	**35**	**187**	5	0	**227**	819
05:00 PM	**27**	73	**66**	0	166	38	227	78	11	354	27	**61**	28	0	116	32	168	3	0	203	839
05:15 PM	26	**97**	49	0	**172**	45	238	61	**12**	356	**31**	53	25	0	109	25	156	6	0	187	824
05:30 PM	23	85	57	0	165	**61**	**304**	**88**	11	**464**	26	56	**37**	0	**119**	21	113	**10**	0	144	**892**
Total Volume	94	329	223	0	646	195	1000	294	43	1532	102	221	112	0	435	113	624	24	0	761	3374
% App. Total	14.6	50.9	34.5	0		12.7	65.3	19.2	2.8		23.4	50.8	25.7	0		14.8	82	3.2	0		
PHF	.870	.848	.845	.000	.939	.799	.822	.835	.896	.825	.823	.906	.757	.000	.914	.807	.834	.600	.000	.838	.946
Cars	92	328	221	0	641	194	973	291	42	1500	102	219	111	0	432	113	618	24	0	755	3328
% Cars	97.9	99.7	99.1	0	99.2	99.5	97.3	99.0	97.7	97.9	100	99.1	99.1	0	99.3	100	99.0	100	0	99.2	98.6
Heavy Vehicles	2	1	2	0	5	1	27	3	1	32	0	2	1	0	3	0	6	0	0	6	46
% Heavy Vehicles	2.1	0.3	0.9	0	0.8	0.5	2.7	1.0	2.3	2.1	0	0.9	0.9	0	0.7	0	1.0	0	0	0.8	1.4



N/S: Whittier Street/ Shoppers World Dr
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File Name : 143938 AAA
Site Code : TBA
Start Date : 6/14/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Whittier Street From North				Cochituate Road (Route 30) From East				Shoppers World Drive From South				Cochituate Road (Route 30) From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	23	88	71	0	65	204	74	25	28	52	17	0	30	144	13	0	834
11:15 AM	32	103	59	0	69	186	65	10	22	66	30	0	34	144	15	0	835
11:30 AM	28	102	60	0	61	198	81	14	35	83	29	0	30	137	8	0	866
11:45 AM	24	131	79	0	72	242	93	12	36	75	25	0	33	152	13	0	987
Total	107	424	269	0	267	830	313	61	121	276	101	0	127	577	49	0	3522
12:00 PM	29	93	70	0	72	215	84	14	45	63	34	0	31	147	14	0	911
12:15 PM	19	79	53	0	64	254	87	17	33	80	37	0	34	162	9	0	928
12:30 PM	27	102	72	0	64	249	83	8	36	78	29	0	29	177	10	0	964
12:45 PM	31	119	75	0	51	221	91	16	35	84	29	0	35	169	9	0	965
Total	106	393	270	0	251	939	345	55	149	305	129	0	129	655	42	0	3768
01:00 PM	28	108	85	0	65	197	85	8	44	77	37	0	41	180	12	0	967
01:15 PM	24	112	82	0	57	222	77	14	42	87	39	0	48	153	9	1	967
01:30 PM	16	101	94	0	52	228	95	10	40	71	37	0	32	184	10	0	970
01:45 PM	17	107	86	0	64	248	86	12	34	80	42	0	57	164	16	0	1013
Total	85	428	347	0	238	895	343	44	160	315	155	0	178	681	47	1	3917
Grand Total	298	1245	886	0	756	2664	1001	160	430	896	385	0	434	1913	138	1	11207
Apprch %	12.3	51.3	36.5	0	16.5	58.2	21.9	3.5	25.1	52.4	22.5	0	17.5	77	5.6	0	
Total %	2.7	11.1	7.9	0	6.7	23.8	8.9	1.4	3.8	8	3.4	0	3.9	17.1	1.2	0	
Cars	294	1241	882	0	752	2631	990	160	428	891	383	0	432	1892	137	1	11114
% Cars	98.7	99.7	99.5	0	99.5	98.8	98.9	100	99.5	99.4	99.5	0	99.5	98.9	99.3	100	99.2
Heavy Vehicles	4	4	4	0	4	33	11	0	2	5	2	0	2	21	1	0	93
% Heavy Vehicles	1.3	0.3	0.5	0	0.5	1.2	1.1	0	0.5	0.6	0.5	0	0.5	1.1	0.7	0	0.8

	Whittier Street From North					Cochituate Road (Route 30) From East					Shoppers World Drive From South					Cochituate Road (Route 30) From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	**28**	108	85	0	**221**	**65**	197	85	8	355	**44**	77	37	0	158	41	180	12	0	233	967
01:15 PM	24	**112**	82	0	218	57	222	77	**14**	370	42	**87**	39	0	**168**	48	153	9	**1**	211	967
01:30 PM	16	101	**94**	0	211	52	228	**95**	10	385	40	71	37	0	148	32	**184**	10	0	226	970
01:45 PM	17	107	86	0	210	64	**248**	86	12	**410**	34	80	**42**	0	156	**57**	164	**16**	0	**237**	**1013**
Total Volume	85	428	347	0	860	238	895	343	44	1520	160	315	155	0	630	178	681	47	1	907	3917
% App. Total	9.9	49.8	40.3	0		15.7	58.9	22.6	2.9		25.4	50	24.6	0		19.6	75.1	5.2	0.1		
PHF	.759	.955	.923	.000	.973	.915	.902	.903	.786	.927	.909	.905	.923	.000	.938	.781	.925	.734	.250	.957	.967
Cars	82	427	346	0	855	238	883	337	44	1502	159	314	154	0	627	178	676	47	1	902	3886
% Cars	96.5	99.8	99.7	0	99.4	100	98.7	98.3	100	98.8	99.4	99.7	99.4	0	99.5	100	99.3	100	100	99.4	99.2
Heavy Vehicles	3	1	1	0	5	0	12	6	0	18	1	1	1	0	3	0	5	0	0	5	31
% Heavy Vehicles	3.5	0.2	0.3	0	0.6	0	1.3	1.7	0	1.2	0.6	0.3	0.6	0	0.5	0	0.7	0	0	0.6	0.8

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Page No : 1

Groups Printed- Cars

	Whittier Street From North				Cochituate Road (Route 30) From East				Shoppers World Drive From South				Cochituate Road (Route 30) From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	23	88	71	0	65	202	74	25	28	52	17	0	30	141	13	0	829
11:15 AM	32	102	59	0	69	185	63	10	21	66	30	0	33	144	15	0	829
11:30 AM	28	102	60	0	59	194	80	14	35	82	29	0	30	136	7	0	856
11:45 AM	24	131	78	0	71	239	93	12	36	74	25	0	33	150	13	0	979
Total	107	423	268	0	264	820	310	61	120	274	101	0	126	571	48	0	3493
12:00 PM	29	93	70	0	72	212	83	14	45	63	34	0	31	145	14	0	905
12:15 PM	18	78	53	0	64	252	87	17	33	80	37	0	34	158	9	0	920
12:30 PM	27	102	71	0	64	247	82	8	36	77	28	0	29	174	10	0	955
12:45 PM	31	118	74	0	50	217	91	16	35	83	29	0	34	168	9	0	955
Total	105	391	268	0	250	928	343	55	149	303	128	0	128	645	42	0	3735
01:00 PM	28	107	85	0	65	194	84	8	43	77	36	0	41	178	12	0	958
01:15 PM	24	112	82	0	57	221	76	14	42	87	39	0	48	153	9	1	965
01:30 PM	15	101	94	0	52	223	92	10	40	71	37	0	32	183	10	0	960
01:45 PM	15	107	85	0	64	245	85	12	34	79	42	0	57	162	16	0	1003
Total	82	427	346	0	238	883	337	44	159	314	154	0	178	676	47	1	3886
Grand Total	294	1241	882	0	752	2631	990	160	428	891	383	0	432	1892	137	1	11114
Apprch %	12.2	51.3	36.5	0	16.6	58	21.8	3.5	25.1	52.4	22.5	0	17.5	76.8	5.6	0	
Total %	2.6	11.2	7.9	0	6.8	23.7	8.9	1.4	3.9	8	3.4	0	3.9	17	1.2	0	

	Whittier Street From North					Cochituate Road (Route 30) From East					Shoppers World Drive From South					Cochituate Road (Route 30) From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	**28**	107	85	0	**220**	**65**	194	84	8	351	**43**	77	36	0	156	41	178	12	0	231	958
01:15 PM	24	**112**	82	0	218	57	221	76	**14**	368	42	**87**	39	0	**168**	48	153	9	**1**	211	965
01:30 PM	15	101	**94**	0	210	52	223	**92**	10	377	40	71	37	0	148	32	**183**	10	0	225	960
01:45 PM	15	107	85	0	207	64	**245**	85	12	**406**	34	79	**42**	0	155	**57**	162	**16**	0	**235**	**1003**
Total Volume	82	427	346	0	855	238	883	337	44	1502	159	314	154	0	627	178	676	47	1	902	3886
% App. Total	9.6	49.9	40.5	0		15.8	58.8	22.4	2.9		25.4	50.1	24.6	0		19.7	74.9	5.2	0.1		
PHF	.732	.953	.920	.000	.972	.915	.901	.916	.786	.925	.924	.902	.917	.000	.933	.781	.923	.734	.250	.960	.969

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Page No : 1

Groups Printed- Heavy Vehicles

	Whittier Street From North				Cochituate Road (Route 30) From East				Shoppers World Drive From South				Cochituate Road (Route 30) From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0	5
11:15 AM	0	1	0	0	0	1	2	0	1	0	0	0	1	0	0	0	6
11:30 AM	0	0	0	0	2	4	1	0	0	1	0	0	0	1	1	0	10
11:45 AM	0	0	1	0	1	3	0	0	0	1	0	0	0	2	0	0	8
Total	0	1	1	0	3	10	3	0	1	2	0	0	1	6	1	0	29
12:00 PM	0	0	0	0	0	3	1	0	0	0	0	0	0	2	0	0	6
12:15 PM	1	1	0	0	0	2	0	0	0	0	0	0	0	4	0	0	8
12:30 PM	0	0	1	0	0	2	1	0	0	1	1	0	0	3	0	0	9
12:45 PM	0	1	1	0	1	4	0	0	0	1	0	0	1	1	0	0	10
Total	1	2	2	0	1	11	2	0	0	2	1	0	1	10	0	0	33
01:00 PM	0	1	0	0	0	3	1	0	1	0	1	0	0	2	0	0	9
01:15 PM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2
01:30 PM	1	0	0	0	0	5	3	0	0	0	0	0	0	1	0	0	10
01:45 PM	2	0	1	0	0	3	1	0	0	1	0	0	0	2	0	0	10
Total	3	1	1	0	0	12	6	0	1	1	1	0	0	5	0	0	31
Grand Total	4	4	4	0	4	33	11	0	2	5	2	0	2	21	1	0	93
Apprch %	33.3	33.3	33.3	0	8.3	68.8	22.9	0	22.2	55.6	22.2	0	8.3	87.5	4.2	0	
Total %	4.3	4.3	4.3	0	4.3	35.5	11.8	0	2.2	5.4	2.2	0	2.2	22.6	1.1	0	

	Whittier Street From North					Cochituate Road (Route 30) From East					Shoppers World Drive From South					Cochituate Road (Route 30) From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:15 PM																					
12:15 PM	**1**	**1**	0	0	**2**	0	2	0	0	2	0	0	0	0	0	0	**4**	0	0	**4**	8
12:30 PM	0	0	**1**	0	1	0	2	**1**	0	3	0	**1**	**1**	0	**2**	0	3	0	0	3	9
12:45 PM	0	1	1	0	2	**1**	**4**	0	0	**5**	0	1	0	0	1	**1**	1	0	0	2	**10**
01:00 PM	0	1	0	0	1	0	3	1	0	4	**1**	0	1	0	2	0	2	0	0	2	9
Total Volume	1	3	2	0	6	1	11	2	0	14	1	2	2	0	5	1	10	0	0	11	36
% App. Total	16.7	50	33.3	0		7.1	78.6	14.3	0		20	40	40	0		9.1	90.9	0	0		
PHF	.250	.750	.500	.000	.750	.250	.688	.500	.000	.700	.250	.500	.500	.000	.625	.250	.625	.000	.000	.688	.900

N/S: Whittier Street/ Shoppers World Dr
E/W: Cochituate Road (Route 30)
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

PRECISION DATA INDUSTRIES, LLC
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File Name : 143938 AAA
Site Code : TBA
Start Date : 6/14/2014
Page No : 1

Groups Printed- Peds and Bicycles

	Whittier Street From North				Cochituate Road (Route 30) From East				Shoppers World Drive From South				Cochituate Road (Route 30) From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
11:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
11:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
11:30 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
11:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	4
12:30 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	3
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	2	0	0	0	0	0	0	0	2	0	0	0	5	9
01:00 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	3
01:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	3	5
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	3	0	0	0	0	0	1	0	1	0	1	0	3	9
Grand Total	0	0	0	10	0	0	0	0	0	1	0	3	0	1	0	8	23
Apprch %	0	0	0	100	0	0	0	0	0	25	0	75	0	11.1	0	88.9	
Total %	0	0	0	43.5	0	0	0	0	0	4.3	0	13	0	4.3	0	34.8	

	Whittier Street From North					Cochituate Road (Route 30) From East					Shoppers World Drive From South					Cochituate Road (Route 30) From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:30 PM																					
12:30 PM	0	0	0	**2**	**2**	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	**1**	0	0	1	3
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**	**2**	0	0	0	**3**	**3**	**5**
Total Volume	0	0	0	4	4	0	0	0	0	0	0	1	0	1	2	0	1	0	4	5	11
% App. Total	0	0	0	100		0	0	0	0		0	50	0	50		0	20	0	80		
PHF	.000	.000	.000	.500	.500	.000	.000	.000	.000	.000	.000	.250	.000	.250	.250	.000	.250	.000	.333	.417	.550

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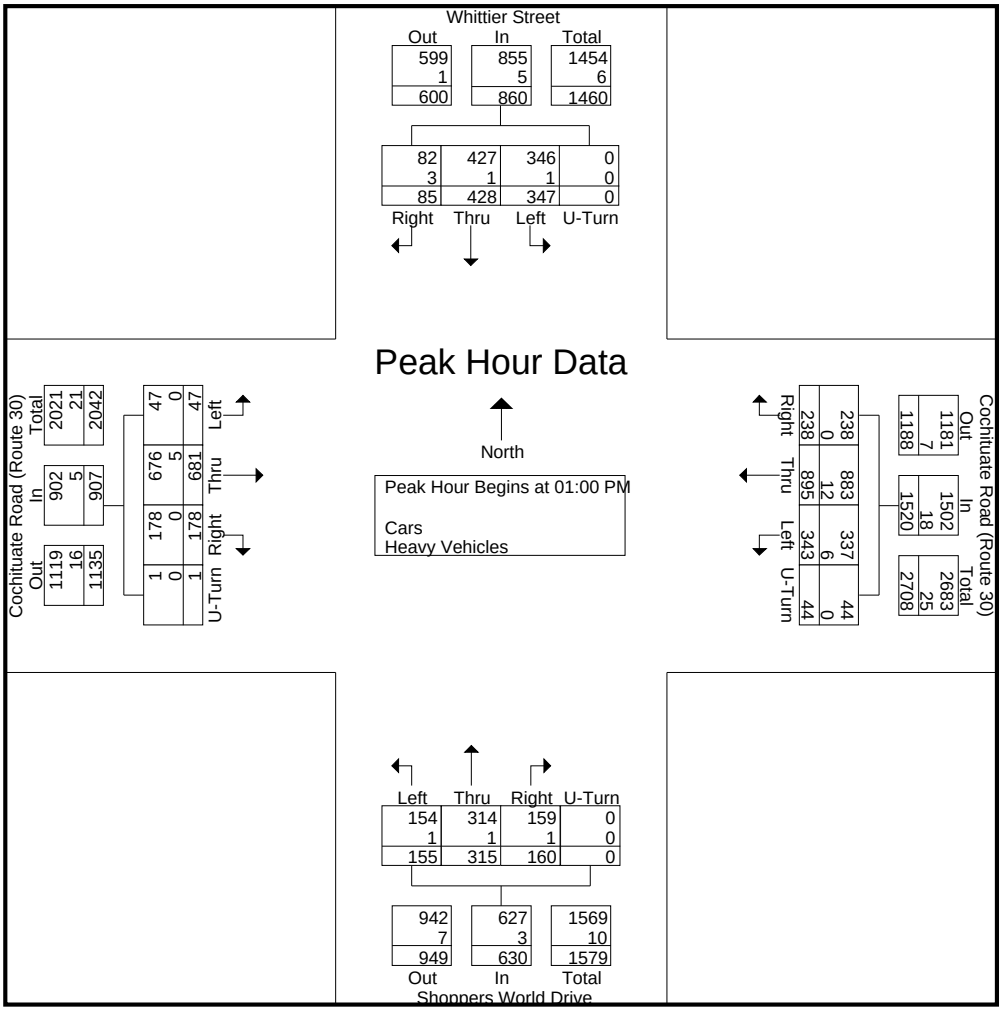
N/S: Whittier Street/ Shoppers World Dr
E/W: Cochituate Road (Route 30)
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

File Name : 143938 AAA
Site Code : TBA
Start Date : 6/14/2014
Page No : 1

	Whittier Street From North					Cochituate Road (Route 30) From East					Shoppers World Drive From South					Cochituate Road (Route 30) From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	**28**	108	85	0	**221**	**65**	197	85	8	355	**44**	77	37	0	158	41	180	12	0	233	967
01:15 PM	24	**112**	82	0	218	57	222	77	**14**	370	42	**87**	39	0	**168**	48	153	9	**1**	211	967
01:30 PM	16	101	**94**	0	211	52	228	**95**	10	385	40	71	37	0	148	32	**184**	10	0	226	970
01:45 PM	17	107	86	0	210	64	**248**	86	12	**410**	34	80	**42**	0	156	**57**	164	**16**	0	**237**	**1013**
Total Volume	85	428	347	0	860	238	895	343	44	1520	160	315	155	0	630	178	681	47	1	907	3917
% App. Total	9.9	49.8	40.3	0		15.7	58.9	22.6	2.9		25.4	50	24.6	0		19.6	75.1	5.2	0.1		
PHF	.759	.955	.923	.000	.973	.915	.902	.903	.786	.927	.909	.905	.923	.000	.938	.781	.925	.734	.250	.957	.967
Cars	82	427	346	0	855	238	883	337	44	1502	159	314	154	0	627	178	676	47	1	902	3886
% Cars	96.5	99.8	99.7	0	99.4	100	98.7	98.3	100	98.8	99.4	99.7	99.4	0	99.5	100	99.3	100	100	99.4	99.2
Heavy Vehicles	3	1	1	0	5	0	12	6	0	18	1	1	1	0	3	0	5	0	0	5	31
% Heavy Vehicles	3.5	0.2	0.3	0	0.6	0	1.3	1.7	0	1.2	0.6	0.3	0.6	0	0.5	0	0.7	0	0	0.6	0.8



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N/S: Shoppers World Drive
E/W: Flutie Pass/ Shoppers World
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

File Name : 143938 CC
Site Code : TBA
Start Date : 6/12/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Shoppers World Drive From North				Flutie Pass From East				Shoppers World Drive From South				Shoppers World Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	77	47	0	91	0	30	0	19	94	0	0	23	16	7	0	404
04:15 PM	0	96	38	0	107	0	15	0	20	86	0	0	20	17	5	0	404
04:30 PM	0	91	52	0	81	0	20	0	20	75	0	0	20	15	3	0	377
04:45 PM	0	117	58	0	75	0	24	0	18	93	0	0	28	13	7	0	433
Total	0	381	195	0	354	0	89	0	77	348	0	0	91	61	22	0	1618
05:00 PM	0	138	46	0	84	0	20	0	22	95	0	0	26	20	6	0	457
05:15 PM	0	100	57	1	83	0	23	0	29	114	0	0	32	16	9	0	464
05:30 PM	0	114	47	0	75	0	21	0	26	92	0	0	25	18	5	0	423
05:45 PM	0	117	44	0	67	0	18	0	19	81	0	0	26	13	6	0	391
Total	0	469	194	1	309	0	82	0	96	382	0	0	109	67	26	0	1735
Grand Total	0	850	389	1	663	0	171	0	173	730	0	0	200	128	48	0	3353
Apprch %	0	68.5	31.4	0.1	79.5	0	20.5	0	19.2	80.8	0	0	53.2	34	12.8	0	
Total %	0	25.4	11.6	0	19.8	0	5.1	0	5.2	21.8	0	0	6	3.8	1.4	0	
Cars	0	848	380	1	652	0	162	0	168	726	0	0	199	126	48	0	3310
% Cars	0	99.8	97.7	100	98.3	0	94.7	0	97.1	99.5	0	0	99.5	98.4	100	0	98.7
Heavy Vehicles	0	2	9	0	11	0	9	0	5	4	0	0	1	2	0	0	43
% Heavy Vehicles	0	0.2	2.3	0	1.7	0	5.3	0	2.9	0.5	0	0	0.5	1.6	0	0	1.3

	Shoppers World Drive From North					Flutie Pass From East					Shoppers World Drive From South					Shoppers World Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	117	**58**	0	175	75	0	**24**	0	99	18	93	0	0	111	28	13	7	0	48	433
05:00 PM	0	**138**	46	0	**184**	**84**	0	20	0	104	22	95	0	0	117	26	**20**	6	0	52	457
05:15 PM	0	100	57	**1**	158	83	0	23	0	**106**	**29**	**114**	0	0	**143**	**32**	16	**9**	0	**57**	**464**
05:30 PM	0	114	47	0	161	75	0	21	0	96	26	92	0	0	118	25	18	5	0	48	423
Total Volume	0	469	208	1	678	317	0	88	0	405	95	394	0	0	489	111	67	27	0	205	1777
% App. Total	0	69.2	30.7	0.1		78.3	0	21.7	0		19.4	80.6	0	0		54.1	32.7	13.2	0		
PHF	.000	.850	.897	.250	.921	.943	.000	.917	.000	.955	.819	.864	.000	.000	.855	.867	.838	.750	.000	.899	.957
Cars	0	469	202	1	672	311	0	84	0	395	93	391	0	0	484	110	67	27	0	204	1755
% Cars	0	100	97.1	100	99.1	98.1	0	95.5	0	97.5	97.9	99.2	0	0	99.0	99.1	100	100	0	99.5	98.8
Heavy Vehicles	0	0	6	0	6	6	0	4	0	10	2	3	0	0	5	1	0	0	0	1	22
% Heavy Vehicles	0	0	2.9	0	0.9	1.9	0	4.5	0	2.5	2.1	0.8	0	0	1.0	0.9	0	0	0	0.5	1.2

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City, State: Framingham, MA
Client: VHB/ V. Kalikiri

File Name : 143938 CC
Site Code : TBA
Start Date : 6/12/2014
Page No : 1

Groups Printed- Cars

	Shoppers World Drive From North				Flutie Pass From East				Shoppers World Drive From South				Shoppers World Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	77	46	0	90	0	26	0	18	93	0	0	23	15	7	0	395
04:15 PM	0	94	38	0	106	0	15	0	18	86	0	0	20	16	5	0	398
04:30 PM	0	91	50	0	78	0	19	0	20	75	0	0	20	15	3	0	371
04:45 PM	0	117	57	0	74	0	24	0	18	92	0	0	28	13	7	0	430
Total	0	379	191	0	348	0	84	0	74	346	0	0	91	59	22	0	1594
05:00 PM	0	138	44	0	82	0	19	0	21	95	0	0	25	20	6	0	450
05:15 PM	0	100	56	1	83	0	21	0	29	113	0	0	32	16	9	0	460
05:30 PM	0	114	45	0	72	0	20	0	25	91	0	0	25	18	5	0	415
05:45 PM	0	117	44	0	67	0	18	0	19	81	0	0	26	13	6	0	391
Total	0	469	189	1	304	0	78	0	94	380	0	0	108	67	26	0	1716
Grand Total	0	848	380	1	652	0	162	0	168	726	0	0	199	126	48	0	3310
Apprch %	0	69	30.9	0.1	80.1	0	19.9	0	18.8	81.2	0	0	53.4	33.8	12.9	0	
Total %	0	25.6	11.5	0	19.7	0	4.9	0	5.1	21.9	0	0	6	3.8	1.5	0	

	Shoppers World Drive From North					Flutie Pass From East					Shoppers World Drive From South					Shoppers World Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	117	**57**	0	174	74	0	**24**	0	98	18	92	0	0	110	28	13	7	0	48	430
05:00 PM	0	**138**	44	0	**182**	82	0	19	0	101	21	95	0	0	116	25	**20**	6	0	51	450
05:15 PM	0	100	56	**1**	157	**83**	0	21	0	**104**	**29**	**113**	0	0	**142**	**32**	16	**9**	0	**57**	**460**
05:30 PM	0	114	45	0	159	72	0	20	0	92	25	91	0	0	116	25	18	5	0	48	415
Total Volume	0	469	202	1	672	311	0	84	0	395	93	391	0	0	484	110	67	27	0	204	1755
% App. Total	0	69.8	30.1	0.1		78.7	0	21.3	0		19.2	80.8	0	0		53.9	32.8	13.2	0		
PHF	.000	.850	.886	.250	.923	.937	.000	.875	.000	.950	.802	.865	.000	.000	.852	.859	.838	.750	.000	.895	.954

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File Name : 143938 CC
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Page No : 1

Groups Printed- Heavy Vehicles

	Shoppers World Drive From North				Flutie Pass From East				Shoppers World Drive From South				Shoppers World Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	0	1	0	1	0	4	0	1	1	0	0	0	1	0	0	9
04:15 PM	0	2	0	0	1	0	0	0	2	0	0	0	0	1	0	0	6
04:30 PM	0	0	2	0	3	0	1	0	0	0	0	0	0	0	0	0	6
04:45 PM	0	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	3
Total	0	2	4	0	6	0	5	0	3	2	0	0	0	2	0	0	24
05:00 PM	0	0	2	0	2	0	1	0	1	0	0	0	1	0	0	0	7
05:15 PM	0	0	1	0	0	0	2	0	0	1	0	0	0	0	0	0	4
05:30 PM	0	0	2	0	3	0	1	0	1	1	0	0	0	0	0	0	8
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	5	0	5	0	4	0	2	2	0	0	1	0	0	0	19
Grand Total	0	2	9	0	11	0	9	0	5	4	0	0	1	2	0	0	43
Apprch %	0	18.2	81.8	0	55	0	45	0	55.6	44.4	0	0	33.3	66.7	0	0	
Total %	0	4.7	20.9	0	25.6	0	20.9	0	11.6	9.3	0	0	2.3	4.7	0	0	

	Shoppers World Drive From North					Flutie Pass From East					Shoppers World Drive From South					Shoppers World Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	1	0	1	1	0	**4**	0	**5**	1	**1**	0	0	**2**	0	**1**	0	0	**1**	**9**
04:15 PM	0	**2**	0	0	**2**	1	0	0	0	1	**2**	0	0	0	2	0	1	0	0	1	6
04:30 PM	0	0	**2**	0	2	**3**	0	1	0	4	0	0	0	0	0	0	0	0	0	0	6
04:45 PM	0	0	1	0	1	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	3
Total Volume	0	2	4	0	6	6	0	5	0	11	3	2	0	0	5	0	2	0	0	2	24
% App. Total	0	33.3	66.7	0		54.5	0	45.5	0		60	40	0	0		0	100	0	0		
PHF	.000	.250	.500	.000	.750	.500	.000	.313	.000	.550	.375	.500	.000	.000	.625	.000	.500	.000	.000	.500	.667

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Page No : 1

Groups Printed- Peds and Bicycles

	Shoppers World Drive From North				Flutie Pass From East				Shoppers World Drive From South				Shoppers World Driveway From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:15 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
04:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	3
05:30 PM	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	2
05:45 PM	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
Total	0	0	1	6	0	0	0	0	0	0	0	1	0	0	0	0	8
Grand Total	0	0	1	10	0	0	0	0	0	0	0	1	0	0	0	0	12
Apprch %	0	0	9.1	90.9	0	0	0	0	0	0	0	100	0	0	0	0	
Total %	0	0	8.3	83.3	0	0	0	0	0	0	0	8.3	0	0	0	0	

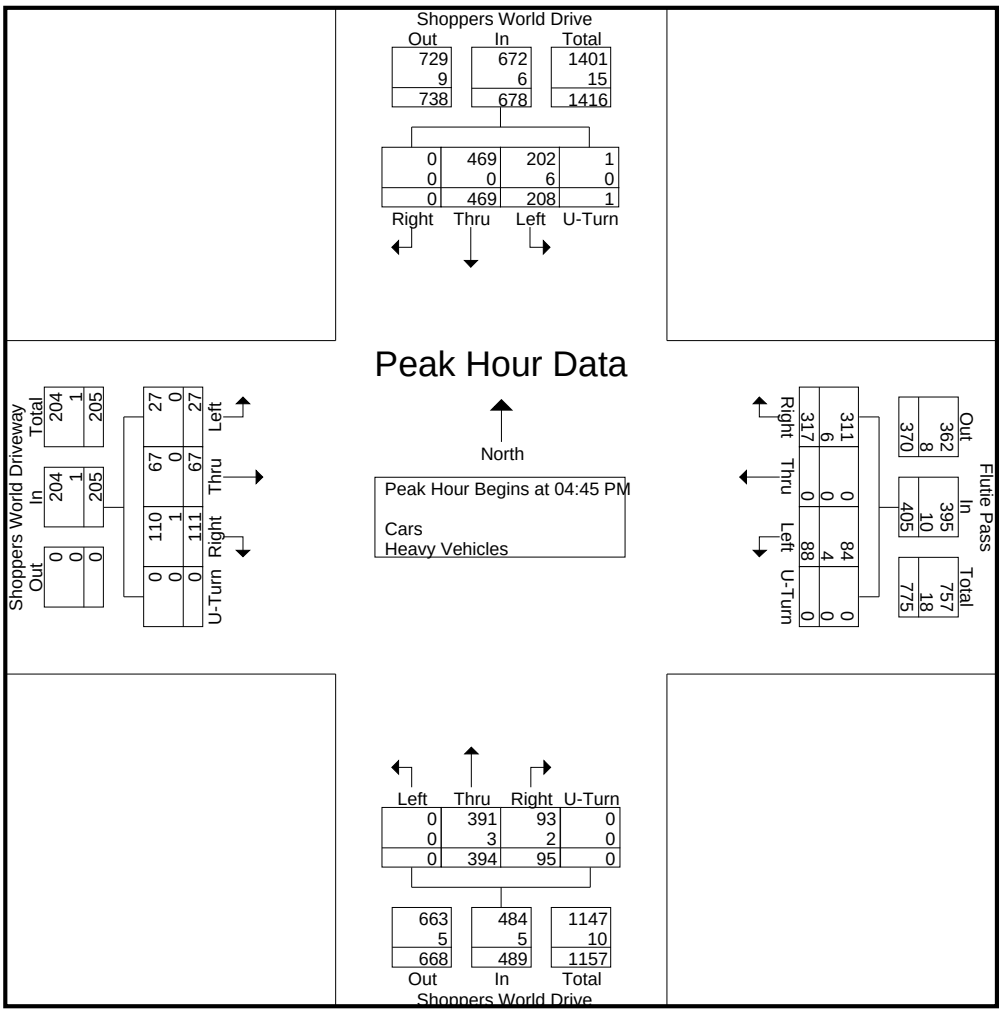
	Shoppers World Drive From North					Flutie Pass From East					Shoppers World Drive From South					Shoppers World Driveway From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	**1**	2	**3**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**
05:30 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0	0	2
05:45 PM	0	0	0	**3**	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Total Volume	0	0	1	6	7	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	8
% App. Total	0	0	14.3	85.7		0	0	0	0		0	0	0	100		0	0	0	0		
PHF	.000	.000	.250	.500	.583	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.000	.667

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

N/S: Shoppers World Drive
E/W: Flutie Pass/ Shoppers World
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

File Name : 143938 CC
Site Code : TBA
Start Date : 6/12/2014
Page No : 1

	Shoppers World Drive From North					Flutie Pass From East					Shoppers World Drive From South					Shoppers World Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	117	**58**	0	175	75	0	**24**	0	99	18	93	0	0	111	28	13	7	0	48	433
05:00 PM	0	**138**	46	0	**184**	**84**	0	20	0	104	22	95	0	0	117	26	**20**	6	0	52	457
05:15 PM	0	100	57	**1**	158	83	0	23	0	**106**	**29**	**114**	0	0	**143**	**32**	16	**9**	0	**57**	**464**
05:30 PM	0	114	47	0	161	75	0	21	0	96	26	92	0	0	118	25	18	5	0	48	423
Total Volume	0	469	208	1	678	317	0	88	0	405	95	394	0	0	489	111	67	27	0	205	1777
% App. Total	0	69.2	30.7	0.1		78.3	0	21.7	0		19.4	80.6	0	0		54.1	32.7	13.2	0		
PHF	.000	.850	.897	.250	.921	.943	.000	.917	.000	.955	.819	.864	.000	.000	.855	.867	.838	.750	.000	.899	.957
Cars	0	469	202	1	672	311	0	84	0	395	93	391	0	0	484	110	67	27	0	204	1755
% Cars	0	100	97.1	100	99.1	98.1	0	95.5	0	97.5	97.9	99.2	0	0	99.0	99.1	100	100	0	99.5	98.8
Heavy Vehicles	0	0	6	0	6	6	0	4	0	10	2	3	0	0	5	1	0	0	0	1	22
% Heavy Vehicles	0	0	2.9	0	0.9	1.9	0	4.5	0	2.5	2.1	0.8	0	0	1.0	0.9	0	0	0	0.5	1.2



N/S: Shoppers World Drive
E/W: Flutie Pass/ Shoppers World
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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File Name : 143938 CCC
Site Code : TBA
Start Date : 6/14/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Shoppers World Drive From North				Flutie Pass From East				Shoppers World Drive From South				Shoppers World Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	0	92	80	0	77	0	24	0	51	64	0	0	37	25	5	0	455
11:15 AM	0	86	91	0	73	0	21	0	38	90	0	0	37	20	3	0	459
11:30 AM	0	115	98	0	83	0	25	0	52	80	0	0	23	21	10	0	507
11:45 AM	0	118	109	0	88	0	31	0	54	75	0	1	32	24	14	0	546
Total	0	411	378	0	321	0	101	0	195	309	0	1	129	90	32	0	1967
12:00 PM	0	119	75	1	82	0	26	0	50	78	0	0	40	17	8	0	496
12:15 PM	0	107	80	0	83	0	29	0	46	84	0	0	49	37	8	0	523
12:30 PM	0	86	89	0	101	0	47	0	45	92	0	0	44	20	4	0	528
12:45 PM	0	127	88	0	96	0	40	0	46	86	0	0	35	30	12	0	560
Total	0	439	332	1	362	0	142	0	187	340	0	0	168	104	32	0	2107
01:00 PM	0	122	99	0	131	0	53	0	46	102	0	0	29	28	16	0	626
01:15 PM	0	109	89	0	116	0	65	0	47	100	0	0	41	32	8	0	607
01:30 PM	0	109	129	0	108	0	37	0	60	88	0	0	35	27	13	0	606
01:45 PM	0	129	106	0	155	0	50	0	54	81	0	0	34	45	11	0	665
Total	0	469	423	0	510	0	205	0	207	371	0	0	139	132	48	0	2504
Grand Total	0	1319	1133	1	1193	0	448	0	589	1020	0	1	436	326	112	0	6578
Apprch %	0	53.8	46.2	0	72.7	0	27.3	0	36.6	63.4	0	0.1	49.9	37.3	12.8	0	
Total %	0	20.1	17.2	0	18.1	0	6.8	0	9	15.5	0	0	6.6	5	1.7	0	
Cars	0	1314	1120	1	1179	0	439	0	588	1011	0	1	436	325	112	0	6526
% Cars	0	99.6	98.9	100	98.8	0	98	0	99.8	99.1	0	100	100	99.7	100	0	99.2
Heavy Vehicles	0	5	13	0	14	0	9	0	1	9	0	0	0	1	0	0	52
% Heavy Vehicles	0	0.4	1.1	0	1.2	0	2	0	0.2	0.9	0	0	0	0.3	0	0	0.8

	Shoppers World Drive From North					Flutie Pass From East					Shoppers World Drive From South					Shoppers World Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	0	122	99	0	221	131	0	53	0	184	46	**102**	0	0	**148**	29	28	**16**	0	73	626
01:15 PM	0	109	89	0	198	116	0	**65**	0	181	47	100	0	0	147	**41**	32	8	0	81	607
01:30 PM	0	109	**129**	0	**238**	108	0	37	0	145	**60**	88	0	0	148	35	27	13	0	75	606
01:45 PM	0	**129**	106	0	235	**155**	0	50	0	**205**	54	81	0	0	135	34	**45**	11	0	**90**	**665**
Total Volume	0	469	423	0	892	510	0	205	0	715	207	371	0	0	578	139	132	48	0	319	2504
% App. Total	0	52.6	47.4	0		71.3	0	28.7	0		35.8	64.2	0	0		43.6	41.4	15	0		
PHF	.000	.909	.820	.000	.937	.823	.000	.788	.000	.872	.863	.909	.000	.000	.976	.848	.733	.750	.000	.886	.941
Cars	0	467	419	0	886	505	0	201	0	706	206	369	0	0	575	139	131	48	0	318	2485
% Cars	0	99.6	99.1	0	99.3	99.0	0	98.0	0	98.7	99.5	99.5	0	0	99.5	100	99.2	100	0	99.7	99.2
Heavy Vehicles	0	2	4	0	6	5	0	4	0	9	1	2	0	0	3	0	1	0	0	1	19
% Heavy Vehicles	0	0.4	0.9	0	0.7	1.0	0	2.0	0	1.3	0.5	0.5	0	0	0.5	0	0.8	0	0	0.3	0.8

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N/S: Shoppers World Drive
E/W: Flutie Pass/ Shoppers World
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

File Name : 143938 CCC
Site Code : TBA
Start Date : 6/14/2014
Page No : 1

Groups Printed- Cars

	Shoppers World Drive From North				Flutie Pass From East				Shoppers World Drive From South				Shoppers World Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	0	92	79	0	76	0	23	0	51	63	0	0	37	25	5	0	451
11:15 AM	0	85	89	0	73	0	19	0	38	88	0	0	37	20	3	0	452
11:30 AM	0	114	97	0	82	0	25	0	52	80	0	0	23	21	10	0	504
11:45 AM	0	118	109	0	86	0	31	0	54	75	0	1	32	24	14	0	544
Total	0	409	374	0	317	0	98	0	195	306	0	1	129	90	32	0	1951
12:00 PM	0	118	73	1	81	0	26	0	50	78	0	0	40	17	8	0	492
12:15 PM	0	107	79	0	82	0	27	0	46	83	0	0	49	37	8	0	518
12:30 PM	0	86	88	0	100	0	47	0	45	89	0	0	44	20	4	0	523
12:45 PM	0	127	87	0	94	0	40	0	46	86	0	0	35	30	12	0	557
Total	0	438	327	1	357	0	140	0	187	336	0	0	168	104	32	0	2090
01:00 PM	0	122	96	0	128	0	53	0	46	102	0	0	29	28	16	0	620
01:15 PM	0	108	89	0	116	0	64	0	47	99	0	0	41	32	8	0	604
01:30 PM	0	109	128	0	108	0	35	0	59	87	0	0	35	26	13	0	600
01:45 PM	0	128	106	0	153	0	49	0	54	81	0	0	34	45	11	0	661
Total	0	467	419	0	505	0	201	0	206	369	0	0	139	131	48	0	2485
Grand Total	0	1314	1120	1	1179	0	439	0	588	1011	0	1	436	325	112	0	6526
Apprch %	0	54	46	0	72.9	0	27.1	0	36.8	63.2	0	0.1	49.9	37.2	12.8	0	
Total %	0	20.1	17.2	0	18.1	0	6.7	0	9	15.5	0	0	6.7	5	1.7	0	

	Shoppers World Drive From North					Flutie Pass From East					Shoppers World Drive From South					Shoppers World Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	0	122	96	0	218	128	0	53	0	181	46	**102**	0	0	**148**	29	28	**16**	0	73	620
01:15 PM	0	108	89	0	197	116	0	**64**	0	180	47	99	0	0	146	**41**	32	8	0	81	604
01:30 PM	0	109	**128**	0	**237**	108	0	35	0	143	**59**	87	0	0	146	35	26	13	0	74	600
01:45 PM	0	**128**	106	0	234	**153**	0	49	0	**202**	54	81	0	0	135	34	**45**	11	0	**90**	**661**
Total Volume	0	467	419	0	886	505	0	201	0	706	206	369	0	0	575	139	131	48	0	318	2485
% App. Total	0	52.7	47.3	0		71.5	0	28.5	0		35.8	64.2	0	0		43.7	41.2	15.1	0		
PHF	.000	.912	.818	.000	.935	.825	.000	.785	.000	.874	.873	.904	.000	.000	.971	.848	.728	.750	.000	.883	.940

N/S: Shoppers World Drive
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File Name : 143938 CCC
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Start Date : 6/14/2014
Page No : 1

Groups Printed- Heavy Vehicles

	Shoppers World Drive From North				Flutie Pass From East				Shoppers World Drive From South				Shoppers World Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	4
11:15 AM	0	1	2	0	0	0	2	0	0	2	0	0	0	0	0	0	7
11:30 AM	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	3
11:45 AM	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	2	4	0	4	0	3	0	0	3	0	0	0	0	0	0	16
12:00 PM	0	1	2	0	1	0	0	0	0	0	0	0	0	0	0	0	4
12:15 PM	0	0	1	0	1	0	2	0	0	1	0	0	0	0	0	0	5
12:30 PM	0	0	1	0	1	0	0	0	0	3	0	0	0	0	0	0	5
12:45 PM	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	3
Total	0	1	5	0	5	0	2	0	0	4	0	0	0	0	0	0	17
01:00 PM	0	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	6
01:15 PM	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3
01:30 PM	0	0	1	0	0	0	2	0	1	1	0	0	0	1	0	0	6
01:45 PM	0	1	0	0	2	0	1	0	0	0	0	0	0	0	0	0	4
Total	0	2	4	0	5	0	4	0	1	2	0	0	0	1	0	0	19
Grand Total	0	5	13	0	14	0	9	0	1	9	0	0	0	1	0	0	52
Apprch %	0	27.8	72.2	0	60.9	0	39.1	0	10	90	0	0	0	100	0	0	
Total %	0	9.6	25	0	26.9	0	17.3	0	1.9	17.3	0	0	0	1.9	0	0	

	Shoppers World Drive From North					Flutie Pass From East					Shoppers World Drive From South					Shoppers World Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:15 PM																					
12:15 PM	0	0	1	0	1	1	0	**2**	0	**3**	0	1	0	0	1	0	0	0	0	0	5
12:30 PM	0	0	1	0	1	1	0	0	0	1	0	**3**	0	0	**3**	0	0	0	0	0	5
12:45 PM	0	0	1	0	1	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
01:00 PM	0	0	**3**	0	**3**	**3**	0	0	0	3	0	0	0	0	0	0	0	0	0	0	**6**
Total Volume	0	0	6	0	6	7	0	2	0	9	0	4	0	0	4	0	0	0	0	0	19
% App. Total	0	0	100	0		77.8	0	22.2	0		0	100	0	0		0	0	0	0		
PHF	.000	.000	.500	.000	.500	.583	.000	.250	.000	.750	.000	.333	.000	.000	.333	.000	.000	.000	.000	.000	.792

N/S: Shoppers World Drive
E/W: Flutie Pass/ Shoppers World
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Groups Printed- Peds and Bicycles

	Shoppers World Drive From North				Flutie Pass From East				Shoppers World Drive From South				Shoppers World Driveway From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	2
11:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
11:45 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	1	5
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
01:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
01:15 PM	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4
01:30 PM	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	4
01:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	9	1	0	0	0	0	0	0	0	0	0	0	0	10
Grand Total	0	1	2	12	1	0	0	0	0	0	0	0	0	0	0	1	17
Apprch %	0	6.7	13.3	80	100	0	0	0	0	0	0	0	0	0	0	100	
Total %	0	5.9	11.8	70.6	5.9	0	0	0	0	0	0	0	0	0	0	5.9	

	Shoppers World Drive From North					Flutie Pass From East					Shoppers World Drive From South					Shoppers World Driveway From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:45 PM																					
12:45 PM	0	0	**2**	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
01:00 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
01:15 PM	0	0	0	**4**	**4**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**4**
01:30 PM	0	0	0	3	3	**1**	0	0	0	**1**	0	0	0	0	0	0	0	0	0	0	4
Total Volume	0	0	2	8	10	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	11
% App. Total	0	0	20	80		100	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.250	.500	.625	.250	.000	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.688

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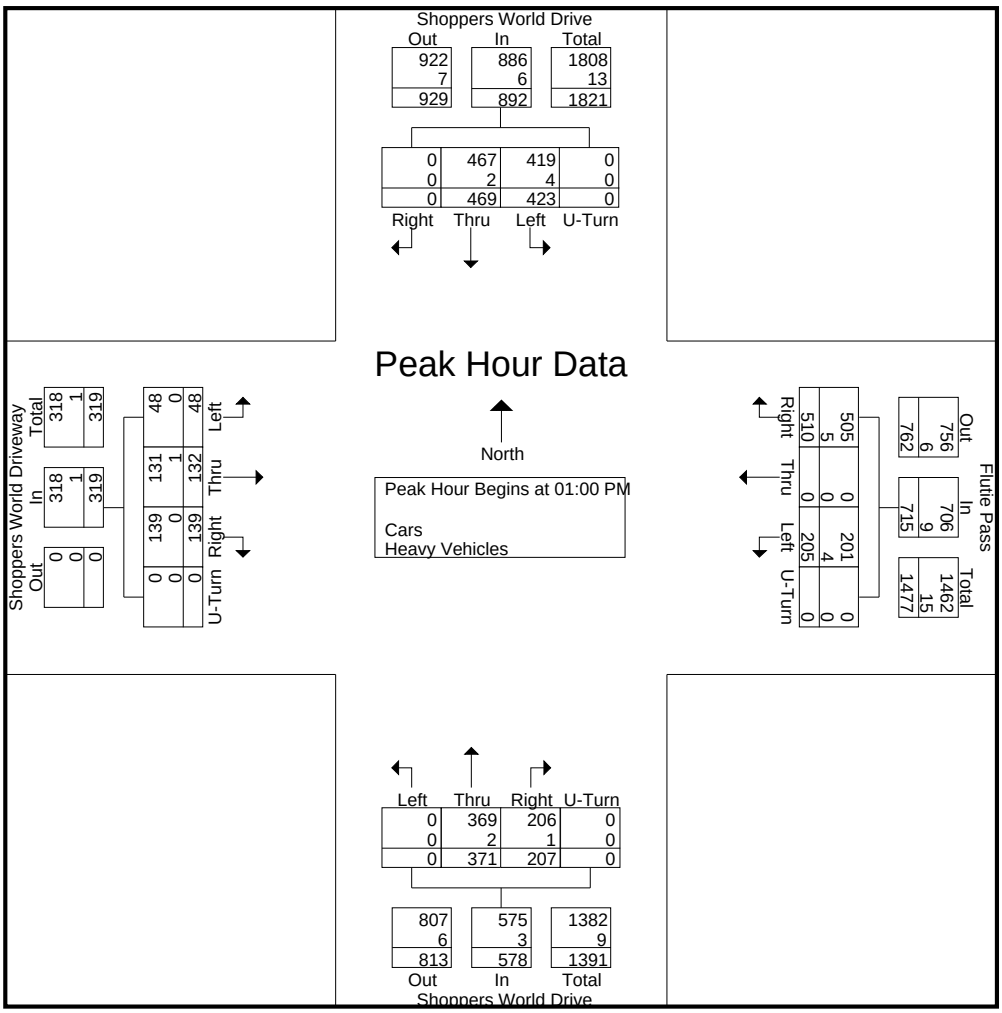
N/S: Shoppers World Drive
E/W: Flutie Pass/ Shoppers World
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

File Name : 143938 CCC
Site Code : TBA
Start Date : 6/14/2014
Page No : 1

	Shoppers World Drive From North					Flutie Pass From East					Shoppers World Drive From South					Shoppers World Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	0	122	99	0	221	131	0	53	0	184	46	**102**	0	0	**148**	29	28	**16**	0	73	626
01:15 PM	0	109	89	0	198	116	0	**65**	0	181	47	100	0	0	147	**41**	32	8	0	81	607
01:30 PM	0	109	**129**	0	**238**	108	0	37	0	145	**60**	88	0	0	148	35	27	13	0	75	606
01:45 PM	0	**129**	106	0	235	**155**	0	50	0	**205**	54	81	0	0	135	34	**45**	11	0	**90**	**665**
Total Volume	0	469	423	0	892	510	0	205	0	715	207	371	0	0	578	139	132	48	0	319	2504
% App. Total	0	52.6	47.4	0		71.3	0	28.7	0		35.8	64.2	0	0		43.6	41.4	15	0		
PHF	.000	.909	.820	.000	.937	.823	.000	.788	.000	.872	.863	.909	.000	.000	.976	.848	.733	.750	.000	.886	.941
Cars	0	467	419	0	886	505	0	201	0	706	206	369	0	0	575	139	131	48	0	318	2485
% Cars	0	99.6	99.1	0	99.3	99.0	0	98.0	0	98.7	99.5	99.5	0	0	99.5	100	99.2	100	0	99.7	99.2
Heavy Vehicles	0	2	4	0	6	5	0	4	0	9	1	2	0	0	3	0	1	0	0	1	19
% Heavy Vehicles	0	0.4	0.9	0	0.7	1.0	0	2.0	0	1.3	0.5	0.5	0	0	0.5	0	0.8	0	0	0.3	0.8



N/S: AMC Main Driveway/Park and Ride Lot
E/W: Flutie Pass
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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File Name : 143938 DD
Site Code : TBA
Start Date : 6/12/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	AMC Main Driveway From North				Flutie Pass From East				Park and Ride Lot From South				Flutie Pass From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	13	0	3	0	3	105	1	0	1	1	2	0	0	78	12	0	219
04:15 PM	2	0	2	0	2	112	1	0	1	1	1	0	2	58	12	0	194
04:30 PM	7	0	3	0	2	84	0	0	0	0	9	0	0	68	12	0	185
04:45 PM	8	0	3	0	0	89	2	0	1	0	2	0	0	72	12	0	189
Total	30	0	11	0	7	390	4	0	3	2	14	0	2	276	48	0	787
05:00 PM	3	0	3	0	0	85	0	0	2	0	12	0	0	76	2	0	183
05:15 PM	2	0	4	0	1	97	0	0	2	1	3	0	0	88	6	0	204
05:30 PM	6	0	3	0	0	80	0	0	1	0	5	0	0	78	8	0	181
05:45 PM	6	0	0	0	2	78	0	0	2	0	1	0	0	72	5	0	166
Total	17	0	10	0	3	340	0	0	7	1	21	0	0	314	21	0	734
Grand Total	47	0	21	0	10	730	4	0	10	3	35	0	2	590	69	0	1521
Apprch %	69.1	0	30.9	0	1.3	98.1	0.5	0	20.8	6.2	72.9	0	0.3	89.3	10.4	0	
Total %	3.1	0	1.4	0	0.7	48	0.3	0	0.7	0.2	2.3	0	0.1	38.8	4.5	0	
Cars	47	0	20	0	10	718	4	0	10	3	27	0	2	580	69	0	1490
% Cars	100	0	95.2	0	100	98.4	100	0	100	100	77.1	0	100	98.3	100	0	98
Heavy Vehicles	0	0	1	0	0	12	0	0	0	0	8	0	0	10	0	0	31
% Heavy Vehicles	0	0	4.8	0	0	1.6	0	0	0	0	22.9	0	0	1.7	0	0	2

	AMC Main Driveway From North					Flutie Pass From East					Park and Ride Lot From South					Flutie Pass From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	**13**	0	**3**	0	**16**	**3**	105	1	0	109	**1**	**1**	2	0	4	0	**78**	**12**	0	**90**	**219**
04:15 PM	2	0	2	0	4	2	**112**	1	0	**115**	1	1	1	0	3	**2**	58	12	0	72	194
04:30 PM	7	0	3	0	10	2	84	0	0	86	0	0	**9**	0	**9**	0	68	12	0	80	185
04:45 PM	8	0	3	0	11	0	89	**2**	0	91	1	0	2	0	3	0	72	12	0	84	189
Total Volume	30	0	11	0	41	7	390	4	0	401	3	2	14	0	19	2	276	48	0	326	787
% App. Total	73.2	0	26.8	0		1.7	97.3	1	0		15.8	10.5	73.7	0		0.6	84.7	14.7	0		
PHF	.577	.000	.917	.000	.641	.583	.871	.500	.000	.872	.750	.500	.389	.000	.528	.250	.885	1.00	.000	.906	.898
Cars	30	0	11	0	41	7	383	4	0	394	3	2	10	0	15	2	269	48	0	319	769
% Cars	100	0	100	0	100	100	98.2	100	0	98.3	100	100	71.4	0	78.9	100	97.5	100	0	97.9	97.7
Heavy Vehicles	0	0	0	0	0	0	7	0	0	7	0	0	4	0	4	0	7	0	0	7	18
% Heavy Vehicles	0	0	0	0	0	0	1.8	0	0	1.7	0	0	28.6	0	21.1	0	2.5	0	0	2.1	2.3

N/S: AMC Main Driveway/Park and Ride Lot
E/W: Flutie Pass
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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Site Code : TBA
Start Date : 6/12/2014
Page No : 1

Groups Printed- Cars

	AMC Main Driveway From North				Flutie Pass From East				Park and Ride Lot From South				Flutie Pass From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	13	0	3	0	3	101	1	0	1	1	1	0	0	74	12	0	210
04:15 PM	2	0	2	0	2	111	1	0	1	1	1	0	2	55	12	0	190
04:30 PM	7	0	3	0	2	82	0	0	0	0	7	0	0	68	12	0	181
04:45 PM	8	0	3	0	0	89	2	0	1	0	1	0	0	72	12	0	188
Total	30	0	11	0	7	383	4	0	3	2	10	0	2	269	48	0	769
05:00 PM	3	0	2	0	0	84	0	0	2	0	10	0	0	75	2	0	178
05:15 PM	2	0	4	0	1	95	0	0	2	1	3	0	0	87	6	0	201
05:30 PM	6	0	3	0	0	78	0	0	1	0	3	0	0	77	8	0	176
05:45 PM	6	0	0	0	2	78	0	0	2	0	1	0	0	72	5	0	166
Total	17	0	9	0	3	335	0	0	7	1	17	0	0	311	21	0	721
Grand Total	47	0	20	0	10	718	4	0	10	3	27	0	2	580	69	0	1490
Apprch %	70.1	0	29.9	0	1.4	98.1	0.5	0	25	7.5	67.5	0	0.3	89.1	10.6	0	
Total %	3.2	0	1.3	0	0.7	48.2	0.3	0	0.7	0.2	1.8	0	0.1	38.9	4.6	0	

	AMC Main Driveway From North					Flutie Pass From East					Park and Ride Lot From South					Flutie Pass From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	**13**	0	**3**	0	**16**	**3**	101	1	0	105	**1**	**1**	1	0	3	0	**74**	**12**	0	**86**	**210**
04:15 PM	2	0	2	0	4	2	**111**	1	0	**114**	1	1	1	0	3	**2**	55	12	0	69	190
04:30 PM	7	0	3	0	10	2	82	0	0	84	0	0	**7**	0	**7**	0	68	12	0	80	181
04:45 PM	8	0	3	0	11	0	89	**2**	0	91	1	0	1	0	2	0	72	12	0	84	188
Total Volume	30	0	11	0	41	7	383	4	0	394	3	2	10	0	15	2	269	48	0	319	769
% App. Total	73.2	0	26.8	0		1.8	97.2	1	0		20	13.3	66.7	0		0.6	84.3	15	0		
PHF	.577	.000	.917	.000	.641	.583	.863	.500	.000	.864	.750	.500	.357	.000	.536	.250	.909	1.00	.000	.927	.915

N/S: AMC Main Driveway/Park and Ride Lot
E/W: Flutie Pass
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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File Name : 143938 DD
Site Code : TBA
Start Date : 6/12/2014
Page No : 1

Groups Printed- Heavy Vehicles

	AMC Main Driveway From North				Flutie Pass From East				Park and Ride Lot From South				Flutie Pass From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	0	0	0	0	0	4	0	0	0	0	1	0	0	4	0	0	9
04:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0	4
04:30 PM	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	4
04:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	7	0	0	0	0	4	0	0	7	0	0	18
05:00 PM	0	0	1	0	0	1	0	0	0	0	2	0	0	1	0	0	5
05:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	3
05:30 PM	0	0	0	0	0	2	0	0	0	0	2	0	0	1	0	0	5
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	0	0	5	0	0	0	0	4	0	0	3	0	0	13
Grand Total	0	0	1	0	0	12	0	0	0	0	8	0	0	10	0	0	31
Apprch %	0	0	100	0	0	100	0	0	0	0	100	0	0	100	0	0	
Total %	0	0	3.2	0	0	38.7	0	0	0	0	25.8	0	0	32.3	0	0	

	AMC Main Driveway From North					Flutie Pass From East					Park and Ride Lot From South					Flutie Pass From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	0	0	0	0	**4**	0	0	**4**	0	0	1	0	1	0	**4**	0	0	**4**	**9**
04:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
04:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	**2**	0	**2**	0	0	0	0	0	4
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	7	0	0	7	0	0	4	0	4	0	7	0	0	7	18
% App. Total	0	0	0	0		0	100	0	0		0	0	100	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.438	.000	.000	.438	.000	.000	.500	.000	.500	.000	.438	.000	.000	.438	.500

N/S: AMC Main Driveway/Park and Ride Lot
E/W: Flutie Pass
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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Site Code : TBA
Start Date : 6/12/2014
Page No : 1

Groups Printed- Peds and Bicycles

	AMC Main Driveway From North				Flutie Pass From East				Park and Ride Lot From South				Flutie Pass From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	3
04:15 PM	0	0	0	1	0	0	0	0	0	0	0	3	0	0	0	0	4
04:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	3	0	0	0	0	0	0	0	5	0	0	0	0	8
05:00 PM	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
05:15 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	3
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
05:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	4	0	1	0	0	0	0	0	1	0	1	0	0	7
Grand Total	0	0	0	7	0	1	0	0	0	0	0	6	0	1	0	0	15
Apprch %	0	0	0	100	0	100	0	0	0	0	0	100	0	100	0	0	
Total %	0	0	0	46.7	0	6.7	0	0	0	0	0	40	0	6.7	0	0	

	AMC Main Driveway From North					Flutie Pass From East					Park and Ride Lot From South					Flutie Pass From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	0	**1**	**1**	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	3
04:15 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	**3**	**3**	0	0	0	0	0	**4**
04:30 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	3	3	0	0	0	0	0	0	0	0	5	5	0	0	0	0	0	8
% App. Total	0	0	0	100		0	0	0	0		0	0	0	100		0	0	0	0		
PHF	.000	.000	.000	.750	.750	.000	.000	.000	.000	.000	.000	.000	.000	.417	.417	.000	.000	.000	.000	.000	.500

N/S: AMC Main Driveway/Park and Ride Lot
E/W: Flutie Pass
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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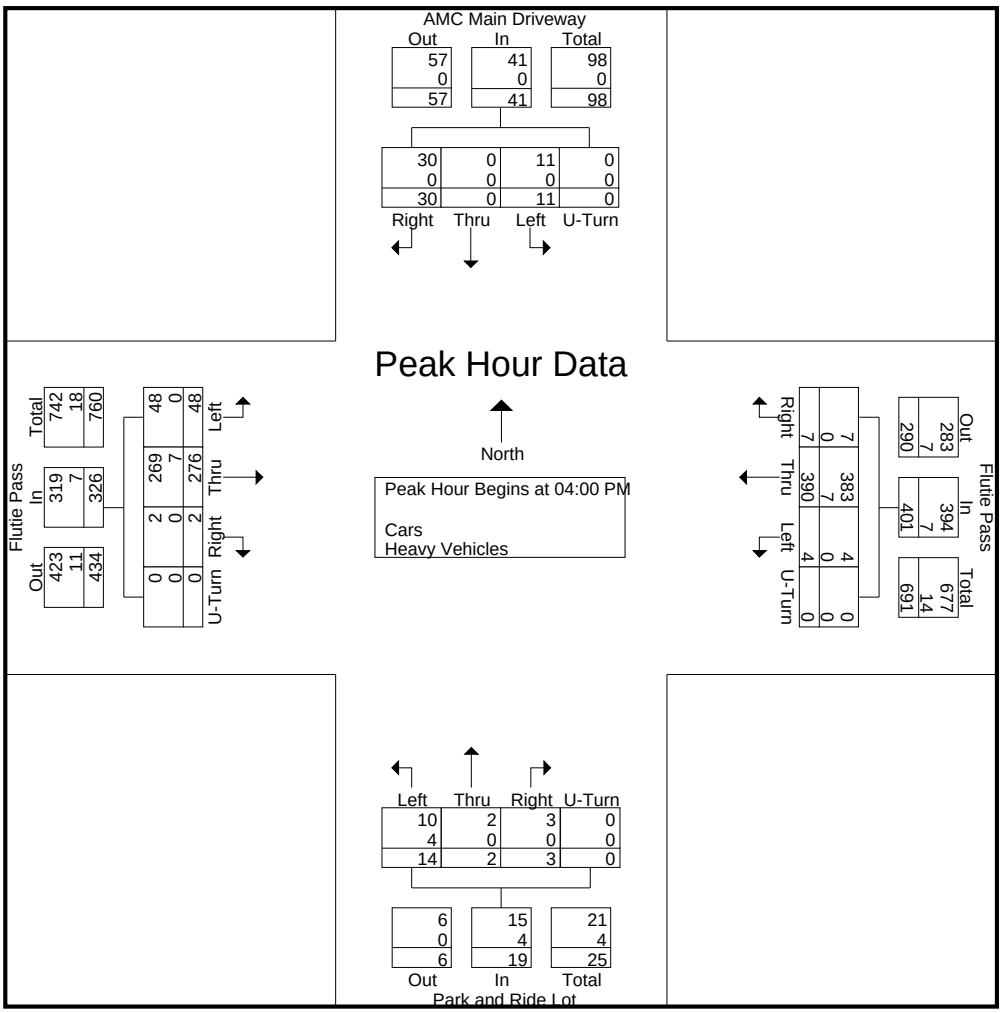
	AMC Main Driveway From North					Flutie Pass From East					Park and Ride Lot From South					Flutie Pass From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	**13**	0	**3**	0	**16**	**3**	105	1	0	109	**1**	**1**	2	0	4	0	**78**	**12**	0	**90**	**219**
04:15 PM	2	0	2	0	4	2	**112**	1	0	**115**	1	1	1	0	3	**2**	58	12	0	72	194
04:30 PM	7	0	3	0	10	2	84	0	0	86	0	0	**9**	0	**9**	0	68	12	0	80	185
04:45 PM	8	0	3	0	11	0	89	**2**	0	91	1	0	2	0	3	0	72	12	0	84	189
Total Volume	30	0	11	0	41	7	390	4	0	401	3	2	14	0	19	2	276	48	0	326	787
% App. Total	73.2	0	26.8	0		1.7	97.3	1	0		15.8	10.5	73.7	0		0.6	84.7	14.7	0		
PHF	.577	.000	.917	.000	.641	.583	.871	.500	.000	.872	.750	.500	.389	.000	.528	.250	.885	1.00	.000	.906	.898
Cars	30	0	11	0	41	7	383	4	0	394	3	2	10	0	15	2	269	48	0	319	769
% Cars	100	0	100	0	100	100	98.2	100	0	98.3	100	100	71.4	0	78.9	100	97.5	100	0	97.9	97.7
Heavy Vehicles	0	0	0	0	0	0	7	0	0	7	0	0	4	0	4	0	7	0	0	7	18
% Heavy Vehicles	0	0	0	0	0	0	1.8	0	0	1.7	0	0	28.6	0	21.1	0	2.5	0	0	2.1	2.3



N/S: AMC Main Driveway/Park and Ride Lot
E/W: Flutie Pass
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

PRECISION DATA INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
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File Name : 143938 DDD
Site Code : TBA
Start Date : 6/14/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	AMC Main Driveway From North				Flutie Pass From East				Park and Ride Lot From South				Flutie Pass From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	3	0	3	0	5	93	1	0	2	0	3	0	3	129	27	0	269
11:15 AM	7	0	5	0	1	85	0	0	3	0	0	0	1	136	19	0	257
11:30 AM	3	0	2	0	2	111	0	0	0	0	0	0	0	136	32	0	286
11:45 AM	5	0	2	0	3	104	2	0	2	2	2	0	0	165	17	0	304
Total	18	0	12	0	11	393	3	0	7	2	5	0	4	566	95	0	1116
12:00 PM	4	0	6	0	3	99	2	0	1	0	2	0	0	117	23	0	257
12:15 PM	7	0	2	0	2	106	0	0	3	0	3	0	2	138	19	0	282
12:30 PM	0	0	4	0	0	143	1	0	0	1	0	0	0	123	17	0	289
12:45 PM	6	0	6	0	4	116	1	0	2	0	7	0	1	137	18	0	298
Total	17	0	18	0	9	464	4	0	6	1	12	0	3	515	77	0	1126
01:00 PM	33	0	16	0	5	132	0	0	0	0	1	0	0	156	20	0	363
01:15 PM	27	0	21	0	5	151	0	0	1	0	1	0	1	140	25	0	372
01:30 PM	18	0	14	0	0	130	1	2	3	0	5	0	2	154	51	0	380
01:45 PM	28	0	11	0	8	142	0	0	4	2	6	0	3	154	42	0	400
Total	106	0	62	0	18	555	1	2	8	2	13	0	6	604	138	0	1515
Grand Total	141	0	92	0	38	1412	8	2	21	5	30	0	13	1685	310	0	3757
Apprch %	60.5	0	39.5	0	2.6	96.7	0.5	0.1	37.5	8.9	53.6	0	0.6	83.9	15.4	0	
Total %	3.8	0	2.4	0	1	37.6	0.2	0.1	0.6	0.1	0.8	0	0.3	44.8	8.3	0	
Cars	140	0	92	0	38	1398	8	2	21	5	24	0	13	1678	308	0	3727
% Cars	99.3	0	100	0	100	99	100	100	100	100	80	0	100	99.6	99.4	0	99.2
Heavy Vehicles	1	0	0	0	0	14	0	0	0	0	6	0	0	7	2	0	30
% Heavy Vehicles	0.7	0	0	0	0	1	0	0	0	0	20	0	0	0.4	0.6	0	0.8

	AMC Main Driveway From North					Flutie Pass From East					Park and Ride Lot From South					Flutie Pass From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	**33**	0	16	0	**49**	5	132	0	0	137	0	0	1	0	1	0	**156**	20	0	176	363
01:15 PM	27	0	**21**	0	48	5	**151**	0	0	**156**	1	0	1	0	2	1	140	25	0	166	372
01:30 PM	18	0	14	0	32	0	130	**1**	**2**	133	3	0	5	0	8	2	154	**51**	0	**207**	380
01:45 PM	28	0	11	0	39	**8**	142	0	0	150	**4**	**2**	**6**	0	**12**	**3**	154	42	0	199	**400**
Total Volume	106	0	62	0	168	18	555	1	2	576	8	2	13	0	23	6	604	138	0	748	1515
% App. Total	63.1	0	36.9	0		3.1	96.4	0.2	0.3		34.8	8.7	56.5	0		0.8	80.7	18.4	0		
PHF	.803	.000	.738	.000	.857	.563	.919	.250	.250	.923	.500	.250	.542	.000	.479	.500	.968	.676	.000	.903	.947
Cars	105	0	62	0	167	18	549	1	2	570	8	2	11	0	21	6	601	137	0	744	1502
% Cars	99.1	0	100	0	99.4	100	98.9	100	100	99.0	100	100	84.6	0	91.3	100	99.5	99.3	0	99.5	99.1
Heavy Vehicles	1	0	0	0	1	0	6	0	0	6	0	0	2	0	2	0	3	1	0	4	13
% Heavy Vehicles	0.9	0	0	0	0.6	0	1.1	0	0	1.0	0	0	15.4	0	8.7	0	0.5	0.7	0	0.5	0.9

N/S: AMC Main Driveway/Park and Ride Lot
E/W: Flutie Pass
City, State: Framingham, MA
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Groups Printed- Cars

	AMC Main Driveway From North				Flutie Pass From East				Park and Ride Lot From South				Flutie Pass From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	3	0	3	0	5	93	1	0	2	0	2	0	3	129	27	0	268
11:15 AM	7	0	5	0	1	84	0	0	3	0	0	0	1	135	18	0	254
11:30 AM	3	0	2	0	2	110	0	0	0	0	0	0	0	136	32	0	285
11:45 AM	5	0	2	0	3	103	2	0	2	2	1	0	0	165	17	0	302
Total	18	0	12	0	11	390	3	0	7	2	3	0	4	565	94	0	1109
12:00 PM	4	0	6	0	3	98	2	0	1	0	1	0	0	116	23	0	254
12:15 PM	7	0	2	0	2	104	0	0	3	0	3	0	2	137	19	0	279
12:30 PM	0	0	4	0	0	142	1	0	0	1	0	0	0	123	17	0	288
12:45 PM	6	0	6	0	4	115	1	0	2	0	6	0	1	136	18	0	295
Total	17	0	18	0	9	459	4	0	6	1	10	0	3	512	77	0	1116
01:00 PM	33	0	16	0	5	130	0	0	0	0	0	0	0	154	20	0	358
01:15 PM	27	0	21	0	5	150	0	0	1	0	1	0	1	140	24	0	370
01:30 PM	17	0	14	0	0	129	1	2	3	0	4	0	2	153	51	0	376
01:45 PM	28	0	11	0	8	140	0	0	4	2	6	0	3	154	42	0	398
Total	105	0	62	0	18	549	1	2	8	2	11	0	6	601	137	0	1502
Grand Total	140	0	92	0	38	1398	8	2	21	5	24	0	13	1678	308	0	3727
Apprch %	60.3	0	39.7	0	2.6	96.7	0.6	0.1	42	10	48	0	0.7	83.9	15.4	0	
Total %	3.8	0	2.5	0	1	37.5	0.2	0.1	0.6	0.1	0.6	0	0.3	45	8.3	0	

	AMC Main Driveway From North					Flutie Pass From East					Park and Ride Lot From South					Flutie Pass From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	**33**	0	16	0	**49**	5	130	0	0	135	0	0	0	0	0	0	**154**	20	0	174	358
01:15 PM	27	0	**21**	0	48	5	**150**	0	0	**155**	1	0	1	0	2	1	140	24	0	165	370
01:30 PM	17	0	14	0	31	0	129	**1**	**2**	132	3	0	4	0	7	2	153	**51**	0	**206**	376
01:45 PM	28	0	11	0	39	**8**	140	0	0	148	**4**	**2**	**6**	0	**12**	**3**	154	42	0	199	**398**
Total Volume	105	0	62	0	167	18	549	1	2	570	8	2	11	0	21	6	601	137	0	744	1502
% App. Total	62.9	0	37.1	0		3.2	96.3	0.2	0.4		38.1	9.5	52.4	0		0.8	80.8	18.4	0		
PHF	.795	.000	.738	.000	.852	.563	.915	.250	.250	.919	.500	.250	.458	.000	.438	.500	.976	.672	.000	.903	.943

N/S: AMC Main Driveway/Park and Ride Lot
E/W: Flutie Pass
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

PRECISION DATA INDUSTRIES, LLC
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File Name : 143938 DDD
Site Code : TBA
Start Date : 6/14/2014
Page No : 1

Groups Printed- Heavy Vehicles

	AMC Main Driveway From North				Flutie Pass From East				Park and Ride Lot From South				Flutie Pass From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
11:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	3
11:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
11:45 AM	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	2
Total	0	0	0	0	0	3	0	0	0	0	2	0	0	1	1	0	7
12:00 PM	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	3
12:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	3
12:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
12:45 PM	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	3
Total	0	0	0	0	0	5	0	0	0	0	2	0	0	3	0	0	10
01:00 PM	0	0	0	0	0	2	0	0	0	0	1	0	0	2	0	0	5
01:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	2
01:30 PM	1	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	4
01:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Total	1	0	0	0	0	6	0	0	0	0	2	0	0	3	1	0	13
Grand Total	1	0	0	0	0	14	0	0	0	0	6	0	0	7	2	0	30
Apprch %	100	0	0	0	0	100	0	0	0	0	100	0	0	77.8	22.2	0	
Total %	3.3	0	0	0	0	46.7	0	0	0	0	20	0	0	23.3	6.7	0	

	AMC Main Driveway From North					Flutie Pass From East					Park and Ride Lot From South					Flutie Pass From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:45 PM																					
12:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	**1**	0	**1**	0	1	0	0	1	3
01:00 PM	0	0	0	0	0	0	**2**	0	0	**2**	0	0	1	0	1	0	**2**	0	0	**2**	**5**
01:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	**1**	0	1	2
01:30 PM	**1**	0	0	0	**1**	0	1	0	0	1	0	0	1	0	1	0	1	0	0	1	4
Total Volume	1	0	0	0	1	0	5	0	0	5	0	0	3	0	3	0	4	1	0	5	14
% App. Total	100	0	0	0		0	100	0	0		0	0	100	0		0	80	20	0		
PHF	.250	.000	.000	.000	.250	.000	.625	.000	.000	.625	.000	.000	.750	.000	.750	.000	.500	.250	.000	.625	.700

N/S: AMC Main Driveway/Park and Ride Lot
E/W: Flutie Pass
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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File Name : 143938 DDD
Site Code : TBA
Start Date : 6/14/2014
Page No : 1

Groups Printed- Peds and Bicycles

	AMC Main Driveway From North				Flutie Pass From East				Park and Ride Lot From South				Flutie Pass From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
11:00 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
11:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	3	0	1	0	0	0	0	0	0	0	0	0	0	4
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
12:30 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
12:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	2
Total	0	0	0	3	0	0	0	0	0	0	0	0	0	1	0	1	5
01:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
01:15 PM	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	7
01:30 PM	0	0	0	5	0	1	0	0	0	0	0	0	0	0	0	0	6
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	13	0	1	0	0	0	0	0	0	0	0	0	0	14
Grand Total	0	0	0	19	0	2	0	0	0	0	0	0	0	1	0	1	23
Apprch %	0	0	0	100	0	100	0	0	0	0	0	0	0	50	0	50	
Total %	0	0	0	82.6	0	8.7	0	0	0	0	0	0	0	4.3	0	4.3	

	AMC Main Driveway From North					Flutie Pass From East					Park and Ride Lot From South					Flutie Pass From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:45 PM																					
12:45 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	**1**	0	0	**1**	2
01:00 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
01:15 PM	0	0	0	**7**	**7**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**7**
01:30 PM	0	0	0	5	5	0	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	0	6
Total Volume	0	0	0	14	14	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	16
% App. Total	0	0	0	100		0	100	0	0		0	0	0	0		0	100	0	0		
PHF	.000	.000	.000	.500	.500	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.571

N/S: AMC Main Driveway/Park and Ride Lot
E/W: Flutie Pass
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Client: VHB/ V. Kalikiri

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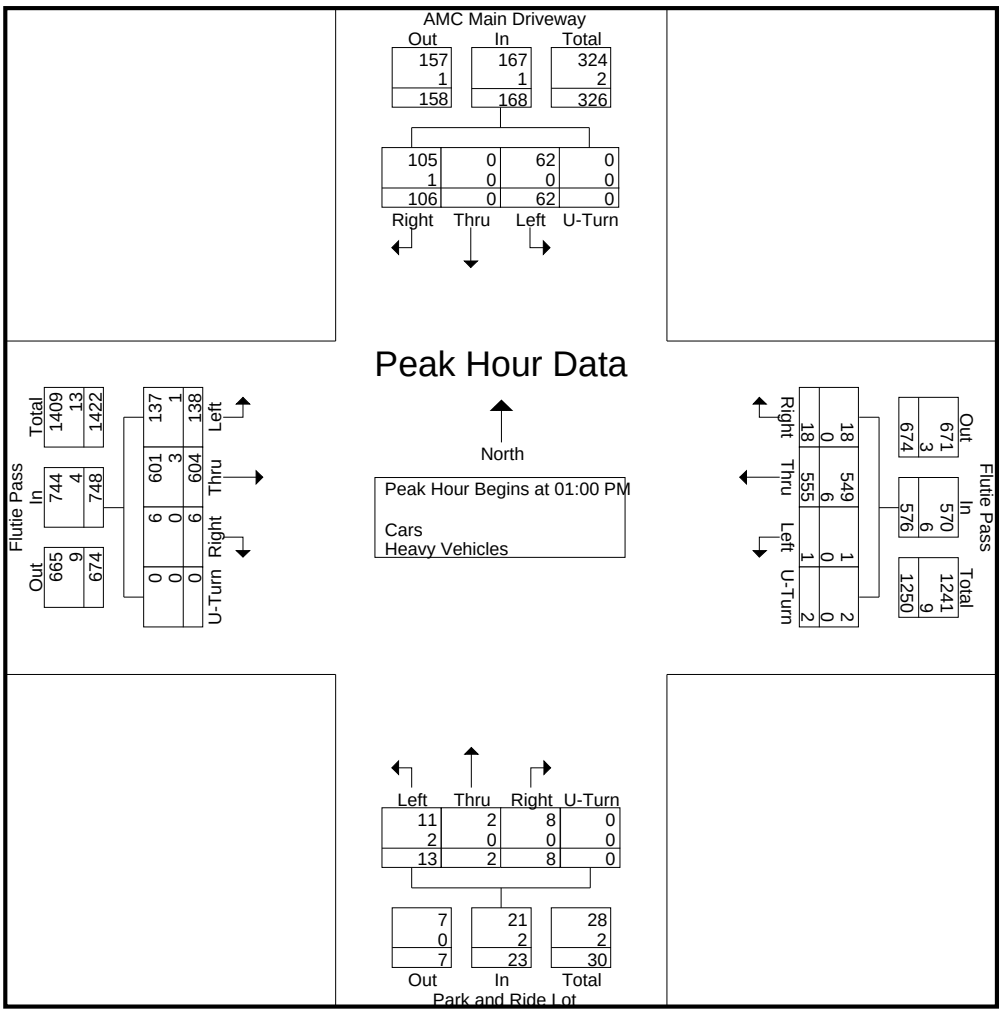
	AMC Main Driveway From North					Flutie Pass From East					Park and Ride Lot From South					Flutie Pass From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	**33**	0	16	0	**49**	5	132	0	0	137	0	0	1	0	1	0	**156**	20	0	176	363
01:15 PM	27	0	**21**	0	48	5	**151**	0	0	**156**	1	0	1	0	2	1	140	25	0	166	372
01:30 PM	18	0	14	0	32	0	130	**1**	**2**	133	3	0	5	0	8	2	154	**51**	0	**207**	380
01:45 PM	28	0	11	0	39	**8**	142	0	0	150	**4**	**2**	**6**	0	**12**	**3**	154	42	0	199	**400**
Total Volume	106	0	62	0	168	18	555	1	2	576	8	2	13	0	23	6	604	138	0	748	1515
% App. Total	63.1	0	36.9	0		3.1	96.4	0.2	0.3		34.8	8.7	56.5	0		0.8	80.7	18.4	0		
PHF	.803	.000	.738	.000	.857	.563	.919	.250	.250	.923	.500	.250	.542	.000	.479	.500	.968	.676	.000	.903	.947
Cars	105	0	62	0	167	18	549	1	2	570	8	2	11	0	21	6	601	137	0	744	1502
% Cars	99.1	0	100	0	99.4	100	98.9	100	100	99.0	100	100	84.6	0	91.3	100	99.5	99.3	0	99.5	99.1
Heavy Vehicles	1	0	0	0	1	0	6	0	0	6	0	0	2	0	2	0	3	1	0	4	13
% Heavy Vehicles	0.9	0	0	0	0.6	0	1.1	0	0	1.0	0	0	15.4	0	8.7	0	0.5	0.7	0	0.5	0.9



PRECISION DATA INDUSTRIES, LLC
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S: Mall Road
E/W: Flutie Pass
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

File Name : 143938 EE
Site Code : TBA
Start Date : 6/12/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Flutie Pass From East			Mall Road From South			Flutie Pass From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
04:00 PM	84	39	1	20	31	0	44	32	1	252
04:15 PM	88	45	4	12	34	0	33	30	0	246
04:30 PM	58	30	1	20	29	2	35	34	1	210
04:45 PM	57	40	3	20	39	0	39	40	0	238
Total	287	154	9	72	133	2	151	136	2	946
05:00 PM	49	33	3	15	41	0	46	42	0	229
05:15 PM	60	39	3	12	35	1	55	37	0	242
05:30 PM	57	41	3	19	31	4	43	41	0	239
05:45 PM	47	31	0	21	35	0	36	32	0	202
Total	213	144	9	67	142	5	180	152	0	912
Grand Total	500	298	18	139	275	7	331	288	2	1858
Apprch %	61.3	36.5	2.2	33	65.3	1.7	53.3	46.4	0.3	
Total %	26.9	16	1	7.5	14.8	0.4	17.8	15.5	0.1	
Cars	488	279	18	136	274	7	322	286	2	1812
% Cars	97.6	93.6	100	97.8	99.6	100	97.3	99.3	100	97.5
Heavy Vehicles	12	19	0	3	1	0	9	2	0	46
% Heavy Vehicles	2.4	6.4	0	2.2	0.4	0	2.7	0.7	0	2.5

	Flutie Pass From East				Mall Road From South				Flutie Pass From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	57	40	**3**	100	**20**	39	0	**59**	39	40	0	79	238
05:00 PM	49	33	3	85	15	**41**	0	56	46	**42**	0	88	229
05:15 PM	**60**	39	3	**102**	12	35	1	48	**55**	37	0	**92**	**242**
05:30 PM	57	**41**	3	101	19	31	**4**	54	43	41	0	84	239
Total Volume	223	153	12	388	66	146	5	217	183	160	0	343	948
% App. Total	57.5	39.4	3.1		30.4	67.3	2.3		53.4	46.6	0		
PHF	.929	.933	1.00	.951	.825	.890	.313	.919	.832	.952	.000	.932	.979
Cars	217	141	12	370	65	146	5	216	180	159	0	339	925
% Cars	97.3	92.2	100	95.4	98.5	100	100	99.5	98.4	99.4	0	98.8	97.6
Heavy Vehicles	6	12	0	18	1	0	0	1	3	1	0	4	23
% Heavy Vehicles	2.7	7.8	0	4.6	1.5	0	0	0.5	1.6	0.6	0	1.2	2.4

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S: Mall Road
E/W: Flutie Pass
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

File Name : 143938 EE
Site Code : TBA
Start Date : 6/12/2014
Page No : 1

Groups Printed- Cars

	Flutie Pass From East			Mall Road From South			Flutie Pass From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
04:00 PM	79	34	1	20	31	0	40	32	1	238
04:15 PM	88	44	4	11	34	0	31	29	0	241
04:30 PM	57	29	1	19	28	2	35	34	1	206
04:45 PM	57	38	3	20	39	0	39	40	0	236
Total	281	145	9	70	132	2	145	135	2	921
05:00 PM	47	31	3	14	41	0	45	41	0	222
05:15 PM	58	35	3	12	35	1	54	37	0	235
05:30 PM	55	37	3	19	31	4	42	41	0	232
05:45 PM	47	31	0	21	35	0	36	32	0	202
Total	207	134	9	66	142	5	177	151	0	891
Grand Total	488	279	18	136	274	7	322	286	2	1812
Apprch %	62.2	35.5	2.3	32.6	65.7	1.7	52.8	46.9	0.3	
Total %	26.9	15.4	1	7.5	15.1	0.4	17.8	15.8	0.1	

	Flutie Pass From East				Mall Road From South				Flutie Pass From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	57	**38**	**3**	**98**	**20**	39	0	**59**	39	40	0	79	**236**
05:00 PM	47	31	3	81	14	**41**	0	55	45	**41**	0	86	222
05:15 PM	**58**	35	3	96	12	35	1	48	**54**	37	0	**91**	235
05:30 PM	55	37	3	95	19	31	**4**	54	42	41	0	83	232
Total Volume	217	141	12	370	65	146	5	216	180	159	0	339	925
% App. Total	58.6	38.1	3.2		30.1	67.6	2.3		53.1	46.9	0		
PHF	.935	.928	1.00	.944	.813	.890	.313	.915	.833	.970	.000	.931	.980

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File Name : 143938 EE
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Start Date : 6/12/2014
Page No : 1

Groups Printed- Heavy Vehicles

	Flutie Pass From East			Mall Road From South			Flutie Pass From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
04:00 PM	5	5	0	0	0	0	4	0	0	14
04:15 PM	0	1	0	1	0	0	2	1	0	5
04:30 PM	1	1	0	1	1	0	0	0	0	4
04:45 PM	0	2	0	0	0	0	0	0	0	2
Total	6	9	0	2	1	0	6	1	0	25
05:00 PM	2	2	0	1	0	0	1	1	0	7
05:15 PM	2	4	0	0	0	0	1	0	0	7
05:30 PM	2	4	0	0	0	0	1	0	0	7
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	6	10	0	1	0	0	3	1	0	21
Grand Total	12	19	0	3	1	0	9	2	0	46
Apprch %	38.7	61.3	0	75	25	0	81.8	18.2	0	
Total %	26.1	41.3	0	6.5	2.2	0	19.6	4.3	0	

	Flutie Pass From East				Mall Road From South				Flutie Pass From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:00 PM													
04:00 PM	**5**	**5**	0	**10**	0	0	0	0	**4**	0	0	**4**	**14**
04:15 PM	0	1	0	1	**1**	0	0	1	2	**1**	0	3	5
04:30 PM	1	1	0	2	1	**1**	0	**2**	0	0	0	0	4
04:45 PM	0	2	0	2	0	0	0	0	0	0	0	0	2
Total Volume	6	9	0	15	2	1	0	3	6	1	0	7	25
% App. Total	40	60	0		66.7	33.3	0		85.7	14.3	0		
PHF	.300	.450	.000	.375	.500	.250	.000	.375	.375	.250	.000	.438	.446

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Site Code : TBA
Start Date : 6/12/2014
Page No : 1

Groups Printed- Peds and Bicycles

	Flutie Pass From East			Mall Road From South			Flutie Pass From West			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	1	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	1	0	1	2
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	1	0	0	0	0	0	0	1
Total	0	0	1	0	1	0	1	0	1	4
Grand Total	0	0	1	0	1	0	1	0	1	4
Apprch %	0	0	100	0	100	0	50	0	50	
Total %	0	0	25	0	25	0	25	0	25	

	Flutie Pass From East				Mall Road From South				Flutie Pass From West				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	0	0	0	0	0	**1**	0	**1**	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	**1**	0	**1**	**2**	**2**
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	**1**	**1**	0	0	0	0	0	0	0	0	1
Total Volume	0	0	1	1	0	1	0	1	1	0	1	2	4
% App. Total	0	0	100		0	100	0		50	0	50		
PHF	.000	.000	.250	.250	.000	.250	.000	.250	.250	.000	.250	.250	.500

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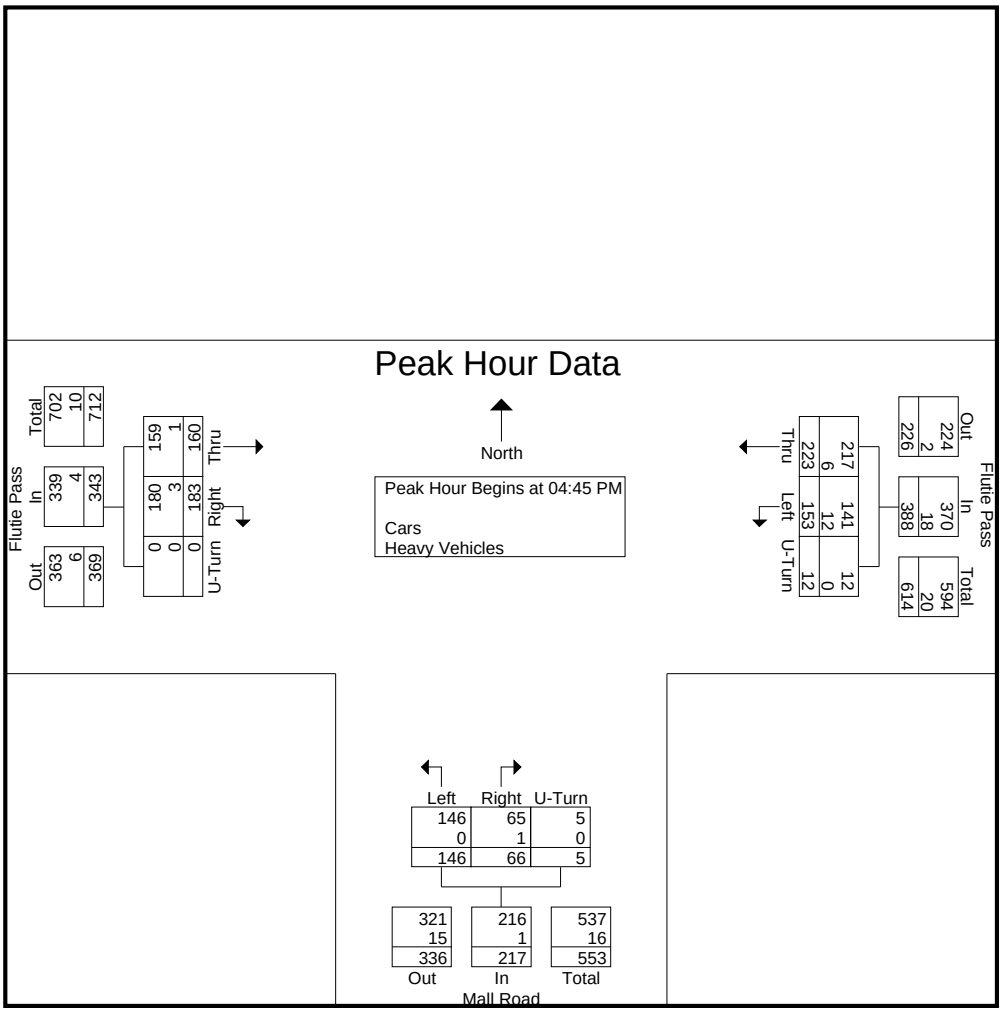
Site Code : TBA
Start Date : 6/12/2014
Page No : 1

	Flutie Pass From East				Mall Road From South				Flutie Pass From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	57	40	**3**	100	**20**	39	0	**59**	39	40	0	79	238
05:00 PM	49	33	3	85	15	**41**	0	56	46	**42**	0	88	229
05:15 PM	**60**	39	3	**102**	12	35	1	48	**55**	37	0	**92**	**242**
05:30 PM	57	**41**	3	101	19	31	**4**	54	43	41	0	84	239
Total Volume	223	153	12	388	66	146	5	217	183	160	0	343	948
% App. Total	57.5	39.4	3.1		30.4	67.3	2.3		53.4	46.6	0		
PHF	.929	.933	1.00	.951	.825	.890	.313	.919	.832	.952	.000	.932	.979
Cars	217	141	12	370	65	146	5	216	180	159	0	339	925
% Cars	97.3	92.2	100	95.4	98.5	100	100	99.5	98.4	99.4	0	98.8	97.6
Heavy Vehicles	6	12	0	18	1	0	0	1	3	1	0	4	23
% Heavy Vehicles	2.7	7.8	0	4.6	1.5	0	0	0.5	1.6	0.6	0	1.2	2.4



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Start Date : 6/14/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Flutie Pass From East			Mall Road From South			Flutie Pass From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
11:00 AM	73	43	2	33	40	3	74	58	0	326
11:15 AM	59	46	4	25	40	0	79	60	0	313
11:30 AM	73	36	4	26	47	0	94	48	1	329
11:45 AM	73	65	4	38	47	2	103	63	0	395
Total	278	190	14	122	174	5	350	229	1	1363
12:00 PM	74	74	2	34	38	1	61	60	0	344
12:15 PM	69	66	5	27	52	0	78	64	0	361
12:30 PM	89	50	0	36	58	0	76	59	1	369
12:45 PM	80	67	4	47	43	1	81	61	0	384
Total	312	257	11	144	191	2	296	244	1	1458
01:00 PM	91	57	6	37	53	3	84	90	0	421
01:15 PM	114	59	1	37	53	1	78	83	2	428
01:30 PM	97	65	1	39	53	0	96	81	0	432
01:45 PM	108	62	3	45	63	1	80	94	1	457
Total	410	243	11	158	222	5	338	348	3	1738
Grand Total	1000	690	36	424	587	12	984	821	5	4559
Apprch %	57.9	40	2.1	41.4	57.4	1.2	54.4	45.4	0.3	
Total %	21.9	15.1	0.8	9.3	12.9	0.3	21.6	18	0.1	
Cars	989	681	36	422	584	11	977	821	5	4526
% Cars	98.9	98.7	100	99.5	99.5	91.7	99.3	100	100	99.3
Heavy Vehicles	11	9	0	2	3	1	7	0	0	33
% Heavy Vehicles	1.1	1.3	0	0.5	0.5	8.3	0.7	0	0	0.7

	Flutie Pass From East				Mall Road From South				Flutie Pass From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 01:00 PM													
01:00 PM	91	57	**6**	154	37	53	**3**	93	84	90	0	174	421
01:15 PM	**114**	59	1	**174**	37	53	1	91	78	83	**2**	163	428
01:30 PM	97	**65**	1	163	39	53	0	92	**96**	81	0	**177**	432
01:45 PM	108	62	3	173	**45**	**63**	1	**109**	80	**94**	1	175	**457**
Total Volume	410	243	11	664	158	222	5	385	338	348	3	689	1738
% App. Total	61.7	36.6	1.7		41	57.7	1.3		49.1	50.5	0.4		
PHF	.899	.935	.458	.954	.878	.881	.417	.883	.880	.926	.375	.973	.951
Cars	406	240	11	657	158	220	4	382	335	348	3	686	1725
% Cars	99.0	98.8	100	98.9	100	99.1	80.0	99.2	99.1	100	100	99.6	99.3
Heavy Vehicles	4	3	0	7	0	2	1	3	3	0	0	3	13
% Heavy Vehicles	1.0	1.2	0	1.1	0	0.9	20.0	0.8	0.9	0	0	0.4	0.7

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Site Code : TBA
Start Date : 6/14/2014
Page No : 1

Groups Printed- Cars

	Flutie Pass From East			Mall Road From South			Flutie Pass From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
11:00 AM	73	43	2	33	40	3	74	58	0	326
11:15 AM	58	46	4	25	40	0	78	60	0	311
11:30 AM	72	36	4	26	47	0	94	48	1	328
11:45 AM	72	64	4	38	47	2	103	63	0	393
Total	275	189	14	122	174	5	349	229	1	1358
12:00 PM	73	73	2	33	38	1	60	60	0	340
12:15 PM	68	64	5	27	51	0	77	64	0	356
12:30 PM	88	50	0	35	58	0	76	59	1	367
12:45 PM	79	65	4	47	43	1	80	61	0	380
Total	308	252	11	142	190	2	293	244	1	1443
01:00 PM	91	57	6	37	51	3	82	90	0	417
01:15 PM	113	59	1	37	53	1	78	83	2	427
01:30 PM	96	65	1	39	53	0	95	81	0	430
01:45 PM	106	59	3	45	63	0	80	94	1	451
Total	406	240	11	158	220	4	335	348	3	1725
Grand Total	989	681	36	422	584	11	977	821	5	4526
Apprch %	58	39.9	2.1	41.5	57.4	1.1	54.2	45.5	0.3	
Total %	21.9	15	0.8	9.3	12.9	0.2	21.6	18.1	0.1	

	Flutie Pass From East				Mall Road From South				Flutie Pass From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 01:00 PM													
01:00 PM	91	57	**6**	154	37	51	**3**	91	82	90	0	172	417
01:15 PM	**113**	59	1	**173**	37	53	1	91	78	83	**2**	163	427
01:30 PM	96	**65**	1	162	39	53	0	92	**95**	81	0	**176**	430
01:45 PM	106	59	3	168	**45**	**63**	0	**108**	80	**94**	1	175	**451**
Total Volume	406	240	11	657	158	220	4	382	335	348	3	686	1725
% App. Total	61.8	36.5	1.7		41.4	57.6	1		48.8	50.7	0.4		
PHF	.898	.923	.458	.949	.878	.873	.333	.884	.882	.926	.375	.974	.956

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Page No : 1

Groups Printed- Heavy Vehicles

	Flutie Pass From East			Mall Road From South			Flutie Pass From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	0
11:15 AM	1	0	0	0	0	0	1	0	0	2
11:30 AM	1	0	0	0	0	0	0	0	0	1
11:45 AM	1	1	0	0	0	0	0	0	0	2
Total	3	1	0	0	0	0	1	0	0	5
12:00 PM	1	1	0	1	0	0	1	0	0	4
12:15 PM	1	2	0	0	1	0	1	0	0	5
12:30 PM	1	0	0	1	0	0	0	0	0	2
12:45 PM	1	2	0	0	0	0	1	0	0	4
Total	4	5	0	2	1	0	3	0	0	15
01:00 PM	0	0	0	0	2	0	2	0	0	4
01:15 PM	1	0	0	0	0	0	0	0	0	1
01:30 PM	1	0	0	0	0	0	1	0	0	2
01:45 PM	2	3	0	0	0	1	0	0	0	6
Total	4	3	0	0	2	1	3	0	0	13
Grand Total	11	9	0	2	3	1	7	0	0	33
Apprch %	55	45	0	33.3	50	16.7	100	0	0	
Total %	33.3	27.3	0	6.1	9.1	3	21.2	0	0	

	Flutie Pass From East				Mall Road From South				Flutie Pass From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 12:00 PM													
12:00 PM	**1**	1	0	2	**1**	0	0	**1**	**1**	0	0	**1**	4
12:15 PM	1	**2**	0	**3**	0	**1**	0	1	1	0	0	1	**5**
12:30 PM	1	0	0	1	1	0	0	1	0	0	0	0	2
12:45 PM	1	2	0	3	0	0	0	0	1	0	0	1	4
Total Volume	4	5	0	9	2	1	0	3	3	0	0	3	15
% App. Total	44.4	55.6	0		66.7	33.3	0		100	0	0		
PHF	1.00	.625	.000	.750	.500	.250	.000	.750	.750	.000	.000	.750	.750

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Page No : 1

Groups Printed- Peds and Bicycles

	Flutie Pass From East			Mall Road From South			Flutie Pass From West			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	1	0	0	0	0	0	0	1
11:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	0	0	0	0	0	0	1
12:00 PM	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	1	0	0	0	1	0	0	2
Total	0	0	1	0	0	0	1	0	0	2
01:00 PM	0	0	1	0	0	0	0	0	0	1
01:15 PM	0	0	1	0	0	0	0	0	0	1
01:30 PM	1	0	3	0	0	0	0	0	0	4
01:45 PM	0	0	0	0	0	0	0	0	0	0
Total	1	0	5	0	0	0	0	0	0	6
Grand Total	1	0	7	0	0	0	1	0	0	9
Apprch %	12.5	0	87.5	0	0	0	100	0	0	
Total %	11.1	0	77.8	0	0	0	11.1	0	0	

	Flutie Pass From East				Mall Road From South				Flutie Pass From West				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 12:45 PM													
12:45 PM	0	0	1	1	0	0	0	0	**1**	0	0	**1**	2
01:00 PM	0	0	1	1	0	0	0	0	0	0	0	0	1
01:15 PM	0	0	1	1	0	0	0	0	0	0	0	0	1
01:30 PM	**1**	0	**3**	**4**	0	0	0	0	0	0	0	0	**4**
Total Volume	1	0	6	7	0	0	0	0	1	0	0	1	8
% App. Total	14.3	0	85.7		0	0	0		100	0	0		
PHF	.250	.000	.500	.438	.000	.000	.000	.000	.250	.000	.000	.250	.500

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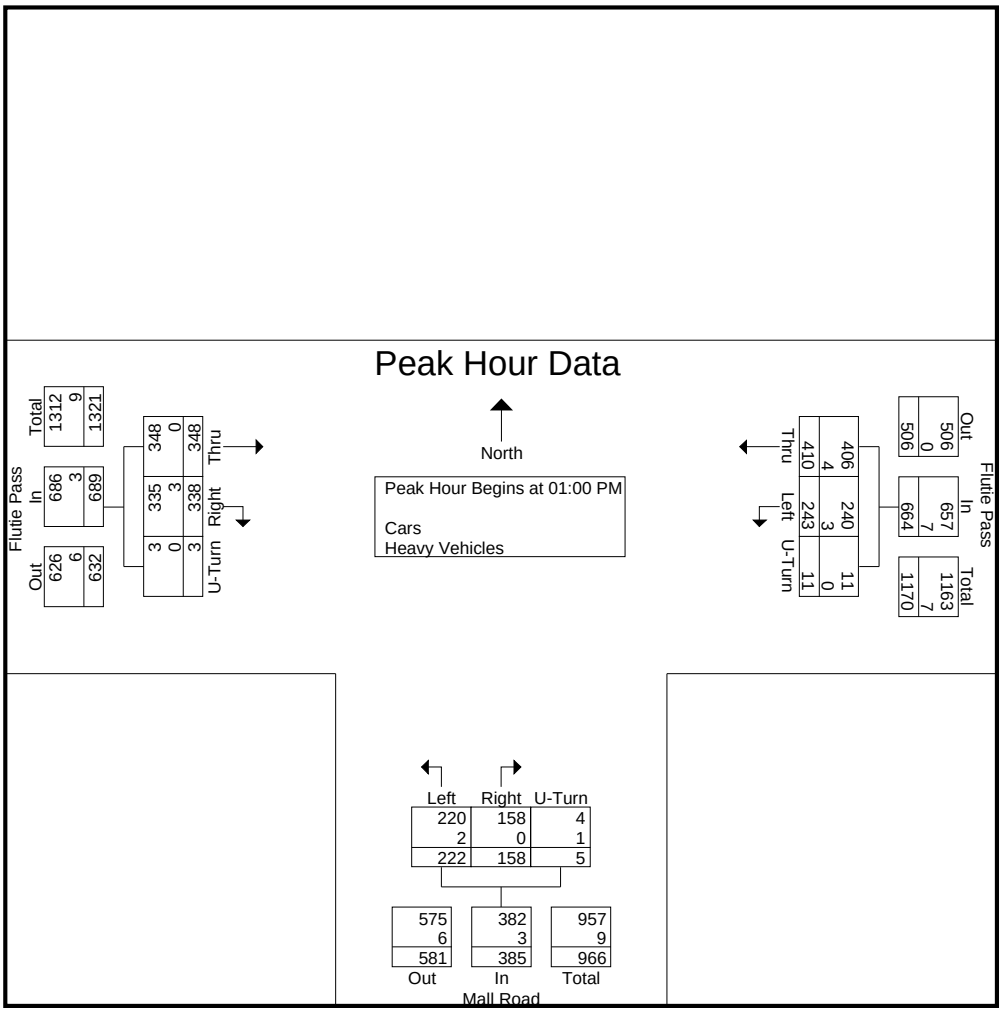
S: Mall Road
E/W: Flutie Pass
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

File Name : 143938 EEE
Site Code : TBA
Start Date : 6/14/2014
Page No : 1

	Flutie Pass From East				Mall Road From South				Flutie Pass From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 01:00 PM													
01:00 PM	91	57	**6**	154	37	53	**3**	93	84	90	0	174	421
01:15 PM	**114**	59	1	**174**	37	53	1	91	78	83	**2**	163	428
01:30 PM	97	**65**	1	163	39	53	0	92	**96**	81	0	**177**	432
01:45 PM	108	62	3	173	**45**	**63**	1	**109**	80	**94**	1	175	**457**
Total Volume	410	243	11	664	158	222	5	385	338	348	3	689	1738
% App. Total	61.7	36.6	1.7		41	57.7	1.3		49.1	50.5	0.4		
PHF	.899	.935	.458	.954	.878	.881	.417	.883	.880	.926	.375	.973	.951
Cars	406	240	11	657	158	220	4	382	335	348	3	686	1725
% Cars	99.0	98.8	100	98.9	100	99.1	80.0	99.2	99.1	100	100	99.6	99.3
Heavy Vehicles	4	3	0	7	0	2	1	3	3	0	0	3	13
% Heavy Vehicles	1.0	1.2	0	1.1	0	0.9	20.0	0.8	0.9	0	0	0.4	0.7



N/S: Shoppers World Drive/ Ring Road
E/W: Ring Road
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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File Name : 143938 FF
Site Code : TBA
Start Date : 6/12/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	From Shoppers World Drive From North				Ring Road From East				Ring Road (Route 9 Access) From South				Ring Road From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	18	14	0	0	0	19	0	0	32	0	7	0	14	0	0	0	104
04:15 PM	12	24	0	0	0	24	0	0	30	0	6	3	7	0	0	0	106
04:30 PM	11	25	0	0	0	16	0	0	36	0	6	2	10	0	0	1	107
04:45 PM	6	36	0	0	0	25	0	0	33	0	7	4	9	0	0	1	121
Total	47	99	0	0	0	84	0	0	131	0	26	9	40	0	0	2	438
05:00 PM	12	33	0	0	0	23	0	0	31	0	4	1	10	0	0	0	114
05:15 PM	15	27	0	0	0	30	0	0	44	0	8	0	5	0	0	0	129
05:30 PM	11	35	0	0	0	26	0	0	41	0	7	0	17	0	0	0	137
05:45 PM	16	31	0	0	0	7	1	0	33	0	7	2	13	0	0	1	111
Total	54	126	0	0	0	86	1	0	149	0	26	3	45	0	0	1	491
Grand Total	101	225	0	0	0	170	1	0	280	0	52	12	85	0	0	3	929
Apprch %	31	69	0	0	0	99.4	0.6	0	81.4	0	15.1	3.5	96.6	0	0	3.4	
Total %	10.9	24.2	0	0	0	18.3	0.1	0	30.1	0	5.6	1.3	9.1	0	0	0.3	
Cars	92	224	0	0	0	170	1	0	275	0	52	12	85	0	0	3	914
% Cars	91.1	99.6	0	0	0	100	100	0	98.2	0	100	100	100	0	0	100	98.4
Heavy Vehicles	9	1	0	0	0	0	0	0	5	0	0	0	0	0	0	0	15
% Heavy Vehicles	8.9	0.4	0	0	0	0	0	0	1.8	0	0	0	0	0	0	0	1.6

	From Shoppers World Drive From North					Ring Road From East					Ring Road (Route 9 Access) From South					Ring Road From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	6	**36**	0	0	42	0	25	0	0	25	33	0	7	**4**	44	9	0	0	**1**	10	121
05:00 PM	12	33	0	0	45	0	23	0	0	23	31	0	4	1	36	10	0	0	0	10	114
05:15 PM	**15**	27	0	0	42	0	**30**	0	0	**30**	**44**	0	**8**	0	**52**	5	0	0	0	5	129
05:30 PM	11	35	0	0	**46**	0	26	0	0	26	41	0	7	0	48	**17**	0	0	0	**17**	**137**
Total Volume	44	131	0	0	175	0	104	0	0	104	149	0	26	5	180	41	0	0	1	42	501
% App. Total	25.1	74.9	0	0		0	100	0	0		82.8	0	14.4	2.8		97.6	0	0	2.4		
PHF	.733	.910	.000	.000	.951	.000	.867	.000	.000	.867	.847	.000	.813	.313	.865	.603	.000	.000	.250	.618	.914
Cars	40	131	0	0	171	0	104	0	0	104	147	0	26	5	178	41	0	0	1	42	495
% Cars	90.9	100	0	0	97.7	0	100	0	0	100	98.7	0	100	100	98.9	100	0	0	100	100	98.8
Heavy Vehicles	4	0	0	0	4	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	6
% Heavy Vehicles	9.1	0	0	0	2.3	0	0	0	0	0	1.3	0	0	0	1.1	0	0	0	0	0	1.2

N/S: Shoppers World Drive/ Ring Road
E/W: Ring Road
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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File Name : 143938 FF
Site Code : TBA
Start Date : 6/12/2014
Page No : 1

Groups Printed- Cars

	From Shoppers World Drive From North				Ring Road From East				Ring Road (Route 9 Access) From South				Ring Road From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	14	14	0	0	0	19	0	0	31	0	7	0	14	0	0	0	99
04:15 PM	12	23	0	0	0	24	0	0	29	0	6	3	7	0	0	0	104
04:30 PM	10	25	0	0	0	16	0	0	36	0	6	2	10	0	0	1	106
04:45 PM	6	36	0	0	0	25	0	0	33	0	7	4	9	0	0	1	121
Total	42	98	0	0	0	84	0	0	129	0	26	9	40	0	0	2	430
05:00 PM	11	33	0	0	0	23	0	0	30	0	4	1	10	0	0	0	112
05:15 PM	13	27	0	0	0	30	0	0	44	0	8	0	5	0	0	0	127
05:30 PM	10	35	0	0	0	26	0	0	40	0	7	0	17	0	0	0	135
05:45 PM	16	31	0	0	0	7	1	0	32	0	7	2	13	0	0	1	110
Total	50	126	0	0	0	86	1	0	146	0	26	3	45	0	0	1	484
Grand Total	92	224	0	0	0	170	1	0	275	0	52	12	85	0	0	3	914
Apprch %	29.1	70.9	0	0	0	99.4	0.6	0	81.1	0	15.3	3.5	96.6	0	0	3.4	
Total %	10.1	24.5	0	0	0	18.6	0.1	0	30.1	0	5.7	1.3	9.3	0	0	0.3	

	From Shoppers World Drive From North					Ring Road From East					Ring Road (Route 9 Access) From South					Ring Road From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	6	**36**	0	0	42	0	25	0	0	25	33	0	7	**4**	44	9	0	0	**1**	10	121
05:00 PM	11	33	0	0	44	0	23	0	0	23	30	0	4	1	35	10	0	0	0	10	112
05:15 PM	**13**	27	0	0	40	0	**30**	0	0	**30**	**44**	0	**8**	0	**52**	5	0	0	0	5	127
05:30 PM	10	35	0	0	**45**	0	26	0	0	26	40	0	7	0	47	**17**	0	0	0	**17**	**135**
Total Volume	40	131	0	0	171	0	104	0	0	104	147	0	26	5	178	41	0	0	1	42	495
% App. Total	23.4	76.6	0	0		0	100	0	0		82.6	0	14.6	2.8		97.6	0	0	2.4		
PHF	.769	.910	.000	.000	.950	.000	.867	.000	.000	.867	.835	.000	.813	.313	.856	.603	.000	.000	.250	.618	.917

N/S: Shoppers World Drive/ Ring Road
E/W: Ring Road
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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File Name : 143938 FF
Site Code : TBA
Start Date : 6/12/2014
Page No : 1

Groups Printed- Heavy Vehicles

	From Shoppers World Drive From North				Ring Road From East				Ring Road (Route 9 Access) From South				Ring Road From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:00 PM	4	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	5
04:15 PM	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
04:30 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	5	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	8
05:00 PM	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
05:15 PM	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:30 PM	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
05:45 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Total	4	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	7
Grand Total	9	1	0	0	0	0	0	0	5	0	0	0	0	0	0	0	15
Apprch %	90	10	0	0	0	0	0	0	100	0	0	0	0	0	0	0	
Total %	60	6.7	0	0	0	0	0	0	33.3	0	0	0	0	0	0	0	

	From Shoppers World Drive From North					Ring Road From East					Ring Road (Route 9 Access) From South					Ring Road From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	**4**	0	0	0	**4**	0	0	0	0	0	**1**	0	0	0	**1**	0	0	0	0	0	**5**
04:15 PM	0	**1**	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
04:30 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	5	1	0	0	6	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	8
% App. Total	83.3	16.7	0	0		0	0	0	0		100	0	0	0		0	0	0	0		
PHF	.313	.250	.000	.000	.375	.000	.000	.000	.000	.000	.500	.000	.000	.000	.500	.000	.000	.000	.000	.000	.400

N/S: Shoppers World Drive/ Ring Road
E/W: Ring Road
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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File Name : 143938 FF
Site Code : TBA
Start Date : 6/12/2014
Page No : 1

Groups Printed- Peds and Bicycles

	From Shoppers World Drive From North				Ring Road From East				Ring Road (Route 9 Access) From South				Ring Road From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	3
Apprch %	0	0	0	0	0	0	0	0	0	0	0	0	33.3	0	0	66.7	
Total %	0	0	0	0	0	0	0	0	0	0	0	0	33.3	0	0	66.7	

	From Shoppers World Drive From North					Ring Road From East					Ring Road (Route 9 Access) From South					Ring Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	1	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	0	1	**2**	**2**
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2	3	3
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		33.3	0	0	66.7		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.500	.375	.375

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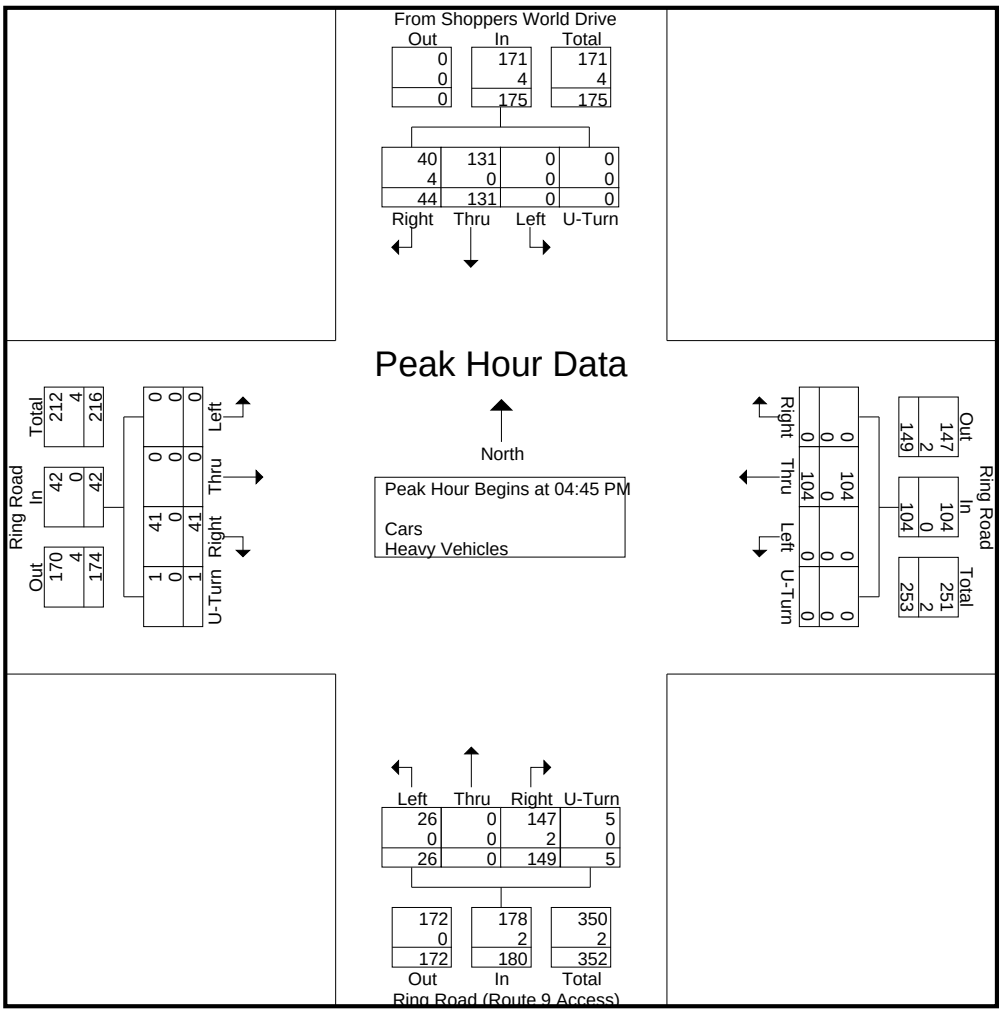
E/W: Ring Road
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

File Name : 143938 FF
Site Code : TBA
Start Date : 6/12/2014
Page No : 1

	From Shoppers World Drive From North					Ring Road From East					Ring Road (Route 9 Access) From South					Ring Road From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	6	**36**	0	0	42	0	25	0	0	25	33	0	7	**4**	44	9	0	0	**1**	10	121
05:00 PM	12	33	0	0	45	0	23	0	0	23	31	0	4	1	36	10	0	0	0	10	114
05:15 PM	**15**	27	0	0	42	0	**30**	0	0	**30**	**44**	0	**8**	0	**52**	5	0	0	0	5	129
05:30 PM	11	35	0	0	**46**	0	26	0	0	26	41	0	7	0	48	**17**	0	0	0	**17**	**137**
Total Volume	44	131	0	0	175	0	104	0	0	104	149	0	26	5	180	41	0	0	1	42	501
% App. Total	25.1	74.9	0	0		0	100	0	0		82.8	0	14.4	2.8		97.6	0	0	2.4		
PHF	.733	.910	.000	.000	.951	.000	.867	.000	.000	.867	.847	.000	.813	.313	.865	.603	.000	.000	.250	.618	.914
Cars	40	131	0	0	171	0	104	0	0	104	147	0	26	5	178	41	0	0	1	42	495
% Cars	90.9	100	0	0	97.7	0	100	0	0	100	98.7	0	100	100	98.9	100	0	0	100	100	98.8
Heavy Vehicles	4	0	0	0	4	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	6
% Heavy Vehicles	9.1	0	0	0	2.3	0	0	0	0	0	1.3	0	0	0	1.1	0	0	0	0	0	1.2



N/S: Shoppers World Drive/ Ring Road
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File Name : 143938 FFF
Site Code : TBA
Start Date : 6/14/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	From Shoppers World Drive From North				Ring Road From East				Ring Road (Route 9 Access) From South				Ring Road From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	12	32	0	0	0	31	0	0	0	0	4	4	5	0	0	0	88
11:15 AM	15	19	0	0	0	32	1	0	0	0	5	2	12	0	0	1	87
11:30 AM	16	22	0	0	0	43	0	0	0	0	7	0	21	0	0	0	109
11:45 AM	21	29	0	0	0	34	2	0	0	0	16	6	20	0	0	1	129
Total	64	102	0	0	0	140	3	0	0	0	32	12	58	0	0	2	413
12:00 PM	31	29	0	0	0	48	0	0	0	0	10	5	26	0	0	2	151
12:15 PM	22	32	0	0	0	36	0	0	0	0	16	2	19	0	0	0	127
12:30 PM	22	36	0	0	0	30	0	0	0	0	17	5	16	0	0	0	126
12:45 PM	21	48	0	0	0	34	0	0	0	0	13	1	22	0	0	0	139
Total	96	145	0	0	0	148	0	0	0	0	56	13	83	0	0	2	543
01:00 PM	29	43	0	0	0	46	0	0	0	0	22	2	24	0	0	0	166
01:15 PM	33	53	0	0	0	37	0	0	0	0	15	3	27	0	0	1	169
01:30 PM	31	36	0	0	0	45	0	0	0	0	12	0	25	0	0	1	150
01:45 PM	25	43	0	0	0	33	0	0	0	0	18	2	21	0	0	1	143
Total	118	175	0	0	0	161	0	0	0	0	67	7	97	0	0	3	628
Grand Total	278	422	0	0	0	449	3	0	0	0	155	32	238	0	0	7	1584
Apprch %	39.7	60.3	0	0	0	99.3	0.7	0	0	0	82.9	17.1	97.1	0	0	2.9	
Total %	17.6	26.6	0	0	0	28.3	0.2	0	0	0	9.8	2	15	0	0	0.4	
Cars	273	421	0	0	0	448	3	0	0	0	155	30	237	0	0	7	1574
% Cars	98.2	99.8	0	0	0	99.8	100	0	0	0	100	93.8	99.6	0	0	100	99.4
Heavy Vehicles	5	1	0	0	0	1	0	0	0	0	0	2	1	0	0	0	10
% Heavy Vehicles	1.8	0.2	0	0	0	0.2	0	0	0	0	0	6.2	0.4	0	0	0	0.6

	From Shoppers World Drive From North					Ring Road From East					Ring Road (Route 9 Access) From South					Ring Road From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	29	43	0	0	72	0	**46**	0	0	**46**	0	0	**22**	2	**24**	24	0	0	0	24	166
01:15 PM	**33**	**53**	0	0	**86**	0	37	0	0	37	0	0	15	**3**	18	**27**	0	0	**1**	**28**	**169**
01:30 PM	31	36	0	0	67	0	45	0	0	45	0	0	12	0	12	25	0	0	1	26	150
01:45 PM	25	43	0	0	68	0	33	0	0	33	0	0	18	2	20	21	0	0	1	22	143
Total Volume	118	175	0	0	293	0	161	0	0	161	0	0	67	7	74	97	0	0	3	100	628
% App. Total	40.3	59.7	0	0		0	100	0	0		0	0	90.5	9.5		97	0	0	3		
PHF	.894	.825	.000	.000	.852	.000	.875	.000	.000	.875	.000	.000	.761	.583	.771	.898	.000	.000	.750	.893	.929
Cars	116	174	0	0	290	0	161	0	0	161	0	0	67	6	73	97	0	0	3	100	624
% Cars	98.3	99.4	0	0	99.0	0	100	0	0	100	0	0	100	85.7	98.6	100	0	0	100	100	99.4
Heavy Vehicles	2	1	0	0	3	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	4
% Heavy Vehicles	1.7	0.6	0	0	1.0	0	0	0	0	0	0	0	0	14.3	1.4	0	0	0	0	0	0.6

N/S: Shoppers World Drive/ Ring Road
E/W: Ring Road
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

PRECISION DATA INDUSTRIES, LLC
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File Name : 143938 FFF
Site Code : TBA
Start Date : 6/14/2014
Page No : 1

Groups Printed- Cars

	From Shoppers World Drive From North				Ring Road From East				Ring Road (Route 9 Access) From South				Ring Road From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	12	32	0	0	0	30	0	0	0	0	4	4	5	0	0	0	87
11:15 AM	14	19	0	0	0	32	1	0	0	0	5	2	11	0	0	1	85
11:30 AM	16	22	0	0	0	43	0	0	0	0	7	0	21	0	0	0	109
11:45 AM	21	29	0	0	0	34	2	0	0	0	16	6	20	0	0	1	129
Total	63	102	0	0	0	139	3	0	0	0	32	12	57	0	0	2	410
12:00 PM	31	29	0	0	0	48	0	0	0	0	10	5	26	0	0	2	151
12:15 PM	20	32	0	0	0	36	0	0	0	0	16	2	19	0	0	0	125
12:30 PM	22	36	0	0	0	30	0	0	0	0	17	4	16	0	0	0	125
12:45 PM	21	48	0	0	0	34	0	0	0	0	13	1	22	0	0	0	139
Total	94	145	0	0	0	148	0	0	0	0	56	12	83	0	0	2	540
01:00 PM	29	43	0	0	0	46	0	0	0	0	22	2	24	0	0	0	166
01:15 PM	32	53	0	0	0	37	0	0	0	0	15	2	27	0	0	1	167
01:30 PM	31	35	0	0	0	45	0	0	0	0	12	0	25	0	0	1	149
01:45 PM	24	43	0	0	0	33	0	0	0	0	18	2	21	0	0	1	142
Total	116	174	0	0	0	161	0	0	0	0	67	6	97	0	0	3	624
Grand Total	273	421	0	0	0	448	3	0	0	0	155	30	237	0	0	7	1574
Apprch %	39.3	60.7	0	0	0	99.3	0.7	0	0	0	83.8	16.2	97.1	0	0	2.9	
Total %	17.3	26.7	0	0	0	28.5	0.2	0	0	0	9.8	1.9	15.1	0	0	0.4	

	From Shoppers World Drive From North					Ring Road From East					Ring Road (Route 9 Access) From South					Ring Road From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	29	43	0	0	72	0	**46**	0	0	**46**	0	0	**22**	**2**	**24**	24	0	0	0	24	166
01:15 PM	**32**	**53**	0	0	**85**	0	37	0	0	37	0	0	15	2	17	**27**	0	0	**1**	**28**	**167**
01:30 PM	31	35	0	0	66	0	45	0	0	45	0	0	12	0	12	25	0	0	1	26	149
01:45 PM	24	43	0	0	67	0	33	0	0	33	0	0	18	2	20	21	0	0	1	22	142
Total Volume	116	174	0	0	290	0	161	0	0	161	0	0	67	6	73	97	0	0	3	100	624
% App. Total	40	60	0	0		0	100	0	0		0	0	91.8	8.2		97	0	0	3		
PHF	.906	.821	.000	.000	.853	.000	.875	.000	.000	.875	.000	.000	.761	.750	.760	.898	.000	.000	.750	.893	.934

N/S: Shoppers World Drive/ Ring Road
E/W: Ring Road
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

PRECISION DATA INDUSTRIES, LLC
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File Name : 143938 FFF
Site Code : TBA
Start Date : 6/14/2014
Page No : 1

Groups Printed- Heavy Vehicles

	From Shoppers World Drive From North				Ring Road From East				Ring Road (Route 9 Access) From South				Ring Road From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
11:15 AM	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	3
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2
01:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
01:45 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	2	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	4
Grand Total	5	1	0	0	0	1	0	0	0	0	0	2	1	0	0	0	10
Apprch %	83.3	16.7	0	0	0	100	0	0	0	0	0	100	100	0	0	0	
Total %	50	10	0	0	0	10	0	0	0	0	0	20	10	0	0	0	

	From Shoppers World Drive From North					Ring Road From East					Ring Road (Route 9 Access) From South					Ring Road From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	**1**	0	0	0	**1**	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0	0	**2**
01:30 PM	0	**1**	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
01:45 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	2	1	0	0	3	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	4
% App. Total	66.7	33.3	0	0		0	0	0	0		0	0	0	100		0	0	0	0		
PHF	.500	.250	.000	.000	.750	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.000	.500

N/S: Shoppers World Drive/ Ring Road
E/W: Ring Road
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

PRECISION DATA INDUSTRIES, LLC
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File Name : 143938 FFF
Site Code : TBA
Start Date : 6/14/2014
Page No : 1

Groups Printed- Peds and Bicycles

	From Shoppers World Drive From North				Ring Road From East				Ring Road (Route 9 Access) From South				Ring Road From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
01:00 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	3
Grand Total	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0	2	5
Apprch %	0	100	0	0	0	0	0	0	0	0	50	50	0	0	0	100	
Total %	0	20	0	0	0	0	0	0	0	0	20	20	0	0	0	40	

	From Shoppers World Drive From North					Ring Road From East					Ring Road (Route 9 Access) From South					Ring Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:15 PM																					
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	**1**	1
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	**1**	**1**	**2**	0	0	0	0	0	**2**
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	1	1	3
% App. Total	0	0	0	0		0	0	0	0		0	0	50	50		0	0	0	100		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.250	.000	.000	.000	.250	.250	.375

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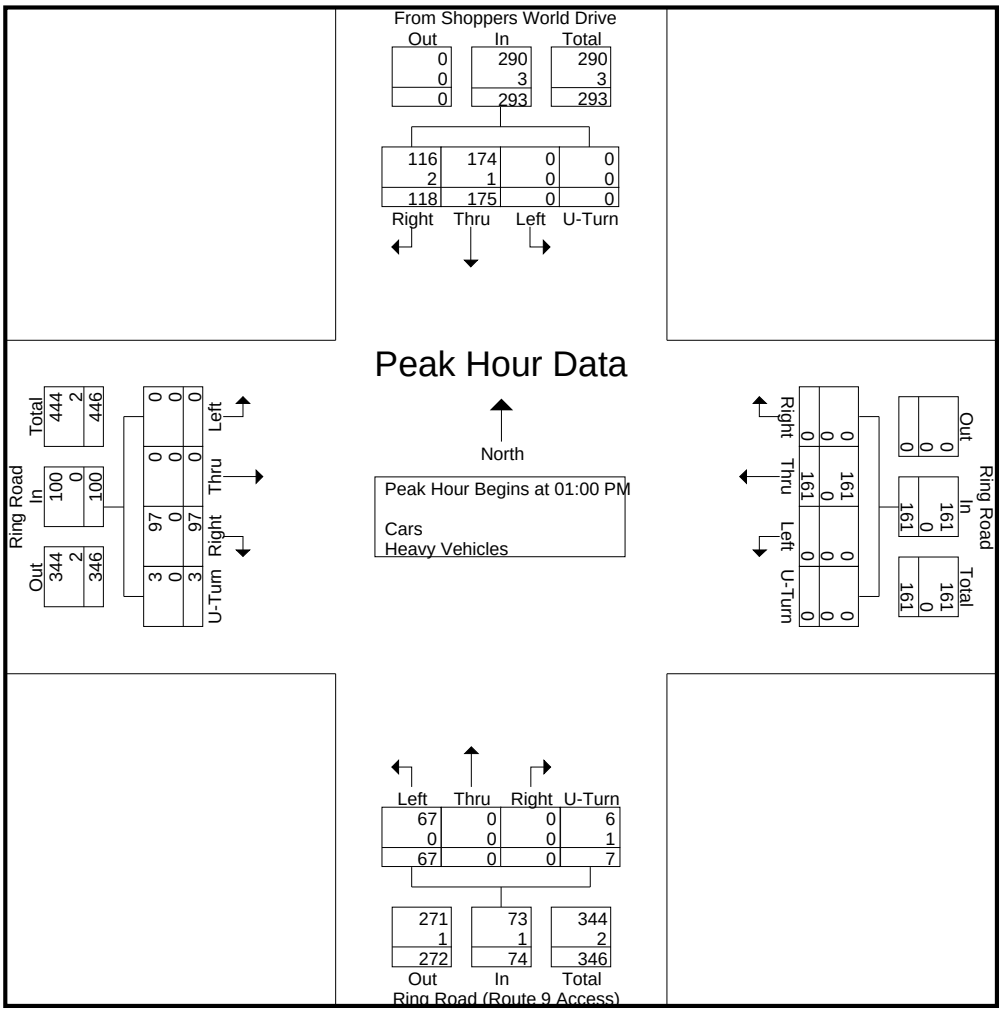
N/S: Shoppers World Drive/ Ring Road
E/W: Ring Road
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

File Name : 143938 FFF
Site Code : TBA
Start Date : 6/14/2014
Page No : 1

	From Shoppers World Drive From North					Ring Road From East					Ring Road (Route 9 Access) From South					Ring Road From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	29	43	0	0	72	0	**46**	0	0	**46**	0	0	**22**	2	**24**	24	0	0	0	24	166
01:15 PM	**33**	**53**	0	0	**86**	0	37	0	0	37	0	0	15	**3**	18	**27**	0	0	**1**	**28**	**169**
01:30 PM	31	36	0	0	67	0	45	0	0	45	0	0	12	0	12	25	0	0	1	26	150
01:45 PM	25	43	0	0	68	0	33	0	0	33	0	0	18	2	20	21	0	0	1	22	143
Total Volume	118	175	0	0	293	0	161	0	0	161	0	0	67	7	74	97	0	0	3	100	628
% App. Total	40.3	59.7	0	0		0	100	0	0		0	0	90.5	9.5		97	0	0	3		
PHF	.894	.825	.000	.000	.852	.000	.875	.000	.000	.875	.000	.000	.761	.583	.771	.898	.000	.000	.750	.893	.929
Cars	116	174	0	0	290	0	161	0	0	161	0	0	67	6	73	97	0	0	3	100	624
% Cars	98.3	99.4	0	0	99.0	0	100	0	0	100	0	0	100	85.7	98.6	100	0	0	100	100	99.4
Heavy Vehicles	2	1	0	0	3	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	4
% Heavy Vehicles	1.7	0.6	0	0	1.0	0	0	0	0	0	0	0	0	14.3	1.4	0	0	0	0	0	0.6



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N/S: Shoppers World Drive
E/W: Park and Ride Lot/ Ring Road
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

File Name : 143938 HHH
Site Code : TBA
Start Date : 6/14/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Shoppers World Drive From North				Park and Ride Lot From East				Shoppers World Drive From South				Ring Road From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	0	108	0	0	0	0	0	0	0	55	31	0	1	0	65	0	260
11:15 AM	0	110	0	0	0	0	0	0	0	64	32	0	3	1	58	0	268
11:30 AM	0	119	1	0	0	0	0	0	0	65	43	0	0	0	68	0	296
11:45 AM	0	126	0	0	0	0	0	0	2	64	34	0	1	1	69	0	297
Total	0	463	1	0	0	0	0	0	2	248	140	0	5	2	260	0	1121
12:00 PM	0	125	0	1	0	0	0	0	0	65	48	1	0	0	61	0	301
12:15 PM	0	139	0	0	0	0	0	0	0	77	36	0	2	1	53	0	308
12:30 PM	0	120	0	1	0	0	0	0	0	71	30	1	1	1	67	1	293
12:45 PM	0	128	0	0	0	0	0	0	0	79	35	2	3	0	51	0	298
Total	0	512	0	2	0	0	0	0	0	292	149	4	6	2	232	1	1200
01:00 PM	0	131	0	0	0	0	0	0	0	94	47	0	3	0	64	0	339
01:15 PM	0	128	0	0	0	0	0	0	0	76	35	1	1	0	72	0	313
01:30 PM	0	120	0	0	0	0	0	0	0	74	45	1	1	0	73	0	314
01:45 PM	0	145	0	0	0	0	0	0	1	74	35	0	0	2	69	0	326
Total	0	524	0	0	0	0	0	0	1	318	162	2	5	2	278	0	1292
Grand Total	0	1499	1	2	0	0	0	0	3	858	451	6	16	6	770	1	3613
Apprch %	0	99.8	0.1	0.1	0	0	0	0	0.2	65.1	34.2	0.5	2	0.8	97.1	0.1	
Total %	0	41.5	0	0.1	0	0	0	0	0.1	23.7	12.5	0.2	0.4	0.2	21.3	0	
Cars	0	1492	1	2	0	0	0	0	3	854	450	6	15	6	765	1	3595
% Cars	0	99.5	100	100	0	0	0	0	100	99.5	99.8	100	93.8	100	99.4	100	99.5
Heavy Vehicles	0	7	0	0	0	0	0	0	0	4	1	0	1	0	5	0	18
% Heavy Vehicles	0	0.5	0	0	0	0	0	0	0	0.5	0.2	0	6.2	0	0.6	0	0.5

	Shoppers World Drive From North					Park and Ride Lot From East					Shoppers World Drive From South					Ring Road From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	0	131	0	0	131	0	0	0	0	0	0	**94**	**47**	0	**141**	**3**	0	64	0	67	**339**
01:15 PM	0	128	0	0	128	0	0	0	0	0	0	76	35	**1**	112	1	0	72	0	73	313
01:30 PM	0	120	0	0	120	0	0	0	0	0	0	74	45	1	120	1	0	**73**	0	**74**	314
01:45 PM	0	**145**	0	0	**145**	0	0	0	0	0	**1**	74	35	0	110	0	**2**	69	0	71	326
Total Volume	0	524	0	0	524	0	0	0	0	0	1	318	162	2	483	5	2	278	0	285	1292
% App. Total	0	100	0	0		0	0	0	0		0.2	65.8	33.5	0.4		1.8	0.7	97.5	0		
PHF	.000	.903	.000	.000	.903	.000	.000	.000	.000	.000	.250	.846	.862	.500	.856	.417	.250	.952	.000	.963	.953
Cars	0	521	0	0	521	0	0	0	0	0	1	318	162	2	483	5	2	274	0	281	1285
% Cars	0	99.4	0	0	99.4	0	0	0	0	0	100	100	100	100	100	100	100	98.6	0	98.6	99.5
Heavy Vehicles	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	7
% Heavy Vehicles	0	0.6	0	0	0.6	0	0	0	0	0	0	0	0	0	0	0	0	1.4	0	1.4	0.5

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N/S: Shoppers World Drive
E/W: Park and Ride Lot/ Ring Road
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

File Name : 143938 HHH
Site Code : TBA
Start Date : 6/14/2014
Page No : 1

Groups Printed- Cars

	Shoppers World Drive From North				Park and Ride Lot From East				Shoppers World Drive From South				Ring Road From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	0	108	0	0	0	0	0	0	0	55	30	0	1	0	65	0	259
11:15 AM	0	108	0	0	0	0	0	0	0	63	32	0	3	1	58	0	265
11:30 AM	0	118	1	0	0	0	0	0	0	65	43	0	0	0	68	0	295
11:45 AM	0	126	0	0	0	0	0	0	2	63	34	0	1	1	69	0	296
Total	0	460	1	0	0	0	0	0	2	246	139	0	5	2	260	0	1115
12:00 PM	0	124	0	1	0	0	0	0	0	65	48	1	0	0	61	0	300
12:15 PM	0	139	0	0	0	0	0	0	0	76	36	0	2	1	52	0	306
12:30 PM	0	120	0	1	0	0	0	0	0	70	30	1	1	1	67	1	292
12:45 PM	0	128	0	0	0	0	0	0	0	79	35	2	2	0	51	0	297
Total	0	511	0	2	0	0	0	0	0	290	149	4	5	2	231	1	1195
01:00 PM	0	131	0	0	0	0	0	0	0	94	47	0	3	0	64	0	339
01:15 PM	0	127	0	0	0	0	0	0	0	76	35	1	1	0	70	0	310
01:30 PM	0	119	0	0	0	0	0	0	0	74	45	1	1	0	71	0	311
01:45 PM	0	144	0	0	0	0	0	0	1	74	35	0	0	2	69	0	325
Total	0	521	0	0	0	0	0	0	1	318	162	2	5	2	274	0	1285
Grand Total	0	1492	1	2	0	0	0	0	3	854	450	6	15	6	765	1	3595
Apprch %	0	99.8	0.1	0.1	0	0	0	0	0.2	65	34.3	0.5	1.9	0.8	97.2	0.1	
Total %	0	41.5	0	0.1	0	0	0	0	0.1	23.8	12.5	0.2	0.4	0.2	21.3	0	

	Shoppers World Drive From North					Park and Ride Lot From East					Shoppers World Drive From South					Ring Road From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	0	131	0	0	131	0	0	0	0	0	0	**94**	**47**	0	**141**	**3**	0	64	0	67	**339**
01:15 PM	0	127	0	0	127	0	0	0	0	0	0	76	35	**1**	112	1	0	70	0	71	310
01:30 PM	0	119	0	0	119	0	0	0	0	0	0	74	45	1	120	1	0	**71**	0	**72**	311
01:45 PM	0	**144**	0	0	**144**	0	0	0	0	0	**1**	74	35	0	110	0	**2**	69	0	71	325
Total Volume	0	521	0	0	521	0	0	0	0	0	1	318	162	2	483	5	2	274	0	281	1285
% App. Total	0	100	0	0		0	0	0	0		0.2	65.8	33.5	0.4		1.8	0.7	97.5	0		
PHF	.000	.905	.000	.000	.905	.000	.000	.000	.000	.000	.250	.846	.862	.500	.856	.417	.250	.965	.000	.976	.948

N/S: Shoppers World Drive
E/W: Park and Ride Lot/ Ring Road
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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File Name : 143938 HHH
Site Code : TBA
Start Date : 6/14/2014
Page No : 1

Groups Printed- Heavy Vehicles

	Shoppers World Drive From North				Park and Ride Lot From East				Shoppers World Drive From South				Ring Road From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
11:15 AM	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
11:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Total	0	3	0	0	0	0	0	0	0	2	1	0	0	0	0	0	6
12:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	2
12:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Total	0	1	0	0	0	0	0	0	0	2	0	0	1	0	1	0	5
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	3
01:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	3
01:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	3	0	0	0	0	0	0	0	0	0	0	0	0	4	0	7
Grand Total	0	7	0	0	0	0	0	0	0	4	1	0	1	0	5	0	18
Apprch %	0	100	0	0	0	0	0	0	0	80	20	0	16.7	0	83.3	0	
Total %	0	38.9	0	0	0	0	0	0	0	22.2	5.6	0	5.6	0	27.8	0	

	Shoppers World Drive From North					Park and Ride Lot From East					Shoppers World Drive From South					Ring Road From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:45 PM																					
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	0	0	1	1
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**2**	0	**2**	**3**
01:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	3
Total Volume	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	4	0	5	7
% App. Total	0	100	0	0		0	0	0	0		0	0	0	0		20	0	80	0		
PHF	.000	.500	.000	.000	.500	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.500	.000	.625	.583

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N/S: Shoppers World Drive
E/W: Park and Ride Lot/ Ring Road
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

File Name : 143938 HHH
Site Code : TBA
Start Date : 6/14/2014
Page No : 1

Groups Printed- Peds and Bicycles

	Shoppers World Drive From North				Park and Ride Lot From East				Shoppers World Drive From South				Ring Road From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	4
Apprch %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50	
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50	

	Shoppers World Drive From North					Park and Ride Lot From East					Shoppers World Drive From South					Ring Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:00 AM																					
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**	**1**
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	100	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.500	.500

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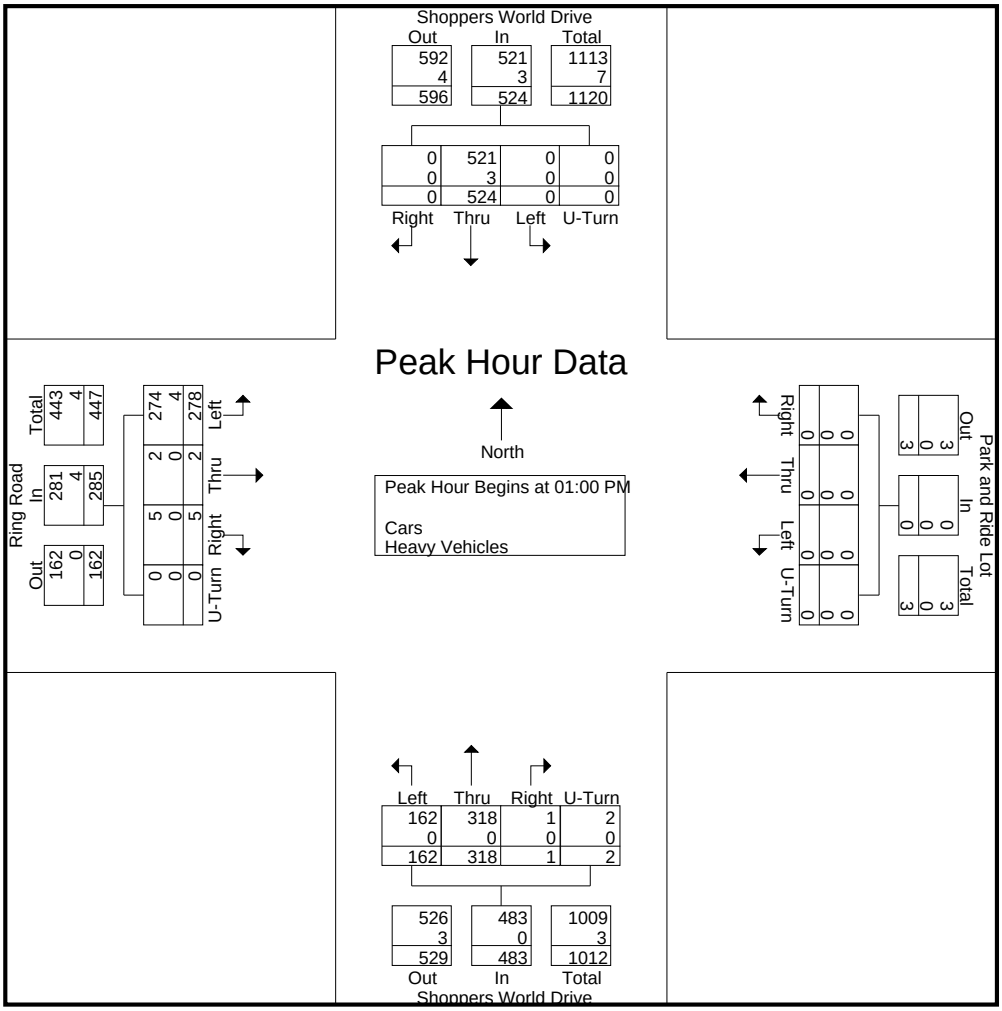
E/W: Park and Ride Lot/ Ring Road
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

File Name : 143938 HHH
Site Code : TBA
Start Date : 6/14/2014
Page No : 1

	Shoppers World Drive From North					Park and Ride Lot From East					Shoppers World Drive From South					Ring Road From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	0	131	0	0	131	0	0	0	0	0	0	**94**	**47**	0	**141**	**3**	0	64	0	67	**339**
01:15 PM	0	128	0	0	128	0	0	0	0	0	0	76	35	**1**	112	1	0	72	0	73	313
01:30 PM	0	120	0	0	120	0	0	0	0	0	0	74	45	1	120	1	0	**73**	0	**74**	314
01:45 PM	0	**145**	0	0	**145**	0	0	0	0	0	**1**	74	35	0	110	0	**2**	69	0	71	326
Total Volume	0	524	0	0	524	0	0	0	0	0	1	318	162	2	483	5	2	278	0	285	1292
% App. Total	0	100	0	0		0	0	0	0		0.2	65.8	33.5	0.4		1.8	0.7	97.5	0		
PHF	.000	.903	.000	.000	.903	.000	.000	.000	.000	.000	.250	.846	.862	.500	.856	.417	.250	.952	.000	.963	.953
Cars	0	521	0	0	521	0	0	0	0	0	1	318	162	2	483	5	2	274	0	281	1285
% Cars	0	99.4	0	0	99.4	0	0	0	0	0	100	100	100	100	100	100	100	98.6	0	98.6	99.5
Heavy Vehicles	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	7
% Heavy Vehicles	0	0.6	0	0	0.6	0	0	0	0	0	0	0	0	0	0	0	0	1.4	0	1.4	0.5



N/S: Shoppers World Drive/Michaels Plaza
E/W: Worcester Street (Route 9)
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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File Name : 143938 III
Site Code : TBA
Start Date : 6/14/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Shoppers World Drive From North				Worcester Street (Route 9) From East				Michaels Plaza From South				Worcester Street (Route 9) From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	3	5	102	0	85	361	16	2	14	0	20	1	15	407	0	0	1031
11:15 AM	5	7	105	0	96	321	9	2	9	0	17	0	19	358	0	0	948
11:30 AM	7	6	94	0	106	319	16	3	19	1	22	0	16	357	0	0	966
11:45 AM	3	8	126	0	101	372	16	4	19	0	21	0	11	412	0	0	1093
Total	18	26	427	0	388	1373	57	11	61	1	80	1	61	1534	0	0	4038
12:00 PM	3	11	111	0	112	407	14	13	13	0	31	0	17	355	0	0	1087
12:15 PM	4	2	123	0	117	409	20	9	18	0	34	0	15	411	0	0	1162
12:30 PM	7	11	108	0	105	419	14	12	19	0	25	0	19	373	0	1	1113
12:45 PM	4	7	119	0	107	392	18	22	16	0	24	0	23	417	0	0	1149
Total	18	31	461	0	441	1627	66	56	66	0	114	0	74	1556	0	1	4511
01:00 PM	6	12	123	0	139	369	12	15	19	0	38	0	18	403	0	1	1155
01:15 PM	8	6	113	0	114	406	12	17	16	0	22	0	11	390	0	0	1115
01:30 PM	8	5	109	0	119	387	16	10	12	0	33	0	17	379	0	0	1095
01:45 PM	5	7	139	0	114	435	14	14	21	0	18	0	27	422	0	0	1216
Total	27	30	484	0	486	1597	54	56	68	0	111	0	73	1594	0	1	4581
Grand Total	63	87	1372	0	1315	4597	177	123	195	1	305	1	208	4684	0	2	13130
Apprch %	4.1	5.7	90.1	0	21.2	74	2.8	2	38.8	0.2	60.8	0.2	4.3	95.7	0	0	
Total %	0.5	0.7	10.4	0	10	35	1.3	0.9	1.5	0	2.3	0	1.6	35.7	0	0	
Cars	62	86	1365	0	1310	4549	177	123	193	1	305	1	208	4640	0	2	13022
% Cars	98.4	98.9	99.5	0	99.6	99	100	100	99	100	100	100	100	99.1	0	100	99.2
Heavy Vehicles	1	1	7	0	5	48	0	0	2	0	0	0	0	44	0	0	108
% Heavy Vehicles	1.6	1.1	0.5	0	0.4	1	0	0	1	0	0	0	0	0.9	0	0	0.8

	Shoppers World Drive From North					Worcester Street (Route 9) From East					Michaels Plaza From South					Worcester Street (Route 9) From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	6	**12**	123	0	141	**139**	369	12	15	535	19	0	**38**	0	**57**	18	403	0	**1**	422	1155
01:15 PM	**8**	6	113	0	127	114	406	12	**17**	549	16	0	22	0	38	11	390	0	0	401	1115
01:30 PM	8	5	109	0	122	119	387	**16**	10	532	12	0	33	0	45	17	379	0	0	396	1095
01:45 PM	5	7	**139**	0	**151**	114	**435**	14	14	**577**	**21**	0	18	0	39	**27**	**422**	0	0	**449**	**1216**
Total Volume	27	30	484	0	541	486	1597	54	56	2193	68	0	111	0	179	73	1594	0	1	1668	4581
% App. Total	5	5.5	89.5	0		22.2	72.8	2.5	2.6		38	0	62	0		4.4	95.6	0	0.1		
PHF	.844	.625	.871	.000	.896	.874	.918	.844	.824	.950	.810	.000	.730	.000	.785	.676	.944	.000	.250	.929	.942
Cars	26	30	481	0	537	486	1582	54	56	2178	67	0	111	0	178	73	1584	0	1	1658	4551
% Cars	96.3	100	99.4	0	99.3	100	99.1	100	100	99.3	98.5	0	100	0	99.4	100	99.4	0	100	99.4	99.3
Heavy Vehicles	1	0	3	0	4	0	15	0	0	15	1	0	0	0	1	0	10	0	0	10	30
% Heavy Vehicles	3.7	0	0.6	0	0.7	0	0.9	0	0	0.7	1.5	0	0	0	0.6	0	0.6	0	0	0.6	0.7

N/S: Shoppers World Drive/Michaels Plaza
E/W: Worcester Street (Route 9)
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

PRECISION DATA INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
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File Name : 143938 III
Site Code : TBA
Start Date : 6/14/2014
Page No : 1

Groups Printed- Cars

	Shoppers World Drive From North				Worcester Street (Route 9) From East				Michaels Plaza From South				Worcester Street (Route 9) From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	3	5	102	0	84	359	16	2	14	0	20	1	15	400	0	0	1021
11:15 AM	5	6	104	0	95	314	9	2	9	0	17	0	19	354	0	0	934
11:30 AM	7	6	93	0	106	315	16	3	19	1	22	0	16	352	0	0	956
11:45 AM	3	8	126	0	100	369	16	4	18	0	21	0	11	410	0	0	1086
Total	18	25	425	0	385	1357	57	11	60	1	80	1	61	1516	0	0	3997
12:00 PM	3	11	110	0	112	403	14	13	13	0	31	0	17	354	0	0	1081
12:15 PM	4	2	123	0	116	404	20	9	18	0	34	0	15	405	0	0	1150
12:30 PM	7	11	108	0	104	414	14	12	19	0	25	0	19	369	0	1	1103
12:45 PM	4	7	118	0	107	389	18	22	16	0	24	0	23	412	0	0	1140
Total	18	31	459	0	439	1610	66	56	66	0	114	0	74	1540	0	1	4474
01:00 PM	6	12	123	0	139	364	12	15	18	0	38	0	18	401	0	1	1147
01:15 PM	8	6	112	0	114	401	12	17	16	0	22	0	11	389	0	0	1108
01:30 PM	8	5	108	0	119	384	16	10	12	0	33	0	17	377	0	0	1089
01:45 PM	4	7	138	0	114	433	14	14	21	0	18	0	27	417	0	0	1207
Total	26	30	481	0	486	1582	54	56	67	0	111	0	73	1584	0	1	4551
Grand Total	62	86	1365	0	1310	4549	177	123	193	1	305	1	208	4640	0	2	13022
Apprch %	4.1	5.7	90.2	0	21.3	73.9	2.9	2	38.6	0.2	61	0.2	4.3	95.7	0	0	
Total %	0.5	0.7	10.5	0	10.1	34.9	1.4	0.9	1.5	0	2.3	0	1.6	35.6	0	0	

	Shoppers World Drive From North					Worcester Street (Route 9) From East					Michaels Plaza From South					Worcester Street (Route 9) From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	6	**12**	123	0	141	**139**	364	12	15	530	18	0	**38**	0	**56**	18	401	0	**1**	420	1147
01:15 PM	**8**	6	112	0	126	114	401	12	**17**	544	16	0	22	0	38	11	389	0	0	400	1108
01:30 PM	8	5	108	0	121	119	384	**16**	10	529	12	0	33	0	45	17	377	0	0	394	1089
01:45 PM	4	7	**138**	0	**149**	114	**433**	14	14	**575**	**21**	0	18	0	39	**27**	**417**	0	0	**444**	**1207**
Total Volume	26	30	481	0	537	486	1582	54	56	2178	67	0	111	0	178	73	1584	0	1	1658	4551
% App. Total	4.8	5.6	89.6	0		22.3	72.6	2.5	2.6		37.6	0	62.4	0		4.4	95.5	0	0.1		
PHF	.813	.625	.871	.000	.901	.874	.913	.844	.824	.947	.798	.000	.730	.000	.795	.676	.950	.000	.250	.934	.943

N/S: Shoppers World Drive/Michaels Plaza
E/W: Worcester Street (Route 9)
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

PRECISION DATA INDUSTRIES, LLC
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File Name : 143938 III
Site Code : TBA
Start Date : 6/14/2014
Page No : 1

Groups Printed- Heavy Vehicles

	Shoppers World Drive From North				Worcester Street (Route 9) From East				Michaels Plaza From South				Worcester Street (Route 9) From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	0	0	0	0	1	2	0	0	0	0	0	0	0	7	0	0	10
11:15 AM	0	1	1	0	1	7	0	0	0	0	0	0	0	4	0	0	14
11:30 AM	0	0	1	0	0	4	0	0	0	0	0	0	0	5	0	0	10
11:45 AM	0	0	0	0	1	3	0	0	1	0	0	0	0	2	0	0	7
Total	0	1	2	0	3	16	0	0	1	0	0	0	0	18	0	0	41
12:00 PM	0	0	1	0	0	4	0	0	0	0	0	0	0	1	0	0	6
12:15 PM	0	0	0	0	1	5	0	0	0	0	0	0	0	6	0	0	12
12:30 PM	0	0	0	0	1	5	0	0	0	0	0	0	0	4	0	0	10
12:45 PM	0	0	1	0	0	3	0	0	0	0	0	0	0	5	0	0	9
Total	0	0	2	0	2	17	0	0	0	0	0	0	0	16	0	0	37
01:00 PM	0	0	0	0	0	5	0	0	1	0	0	0	0	2	0	0	8
01:15 PM	0	0	1	0	0	5	0	0	0	0	0	0	0	1	0	0	7
01:30 PM	0	0	1	0	0	3	0	0	0	0	0	0	0	2	0	0	6
01:45 PM	1	0	1	0	0	2	0	0	0	0	0	0	0	5	0	0	9
Total	1	0	3	0	0	15	0	0	1	0	0	0	0	10	0	0	30
Grand Total	1	1	7	0	5	48	0	0	2	0	0	0	0	44	0	0	108
Apprch %	11.1	11.1	77.8	0	9.4	90.6	0	0	100	0	0	0	0	100	0	0	
Total %	0.9	0.9	6.5	0	4.6	44.4	0	0	1.9	0	0	0	0	40.7	0	0	

	Shoppers World Drive From North					Worcester Street (Route 9) From East					Michaels Plaza From South					Worcester Street (Route 9) From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:00 AM																					
11:00 AM	0	0	0	0	0	**1**	2	0	0	3	0	0	0	0	0	0	**7**	0	0	**7**	10
11:15 AM	0	**1**	**1**	0	**2**	1	**7**	0	0	**8**	0	0	0	0	0	0	4	0	0	4	**14**
11:30 AM	0	0	1	0	1	0	4	0	0	4	0	0	0	0	0	0	5	0	0	5	10
11:45 AM	0	0	0	0	0	1	3	0	0	4	**1**	0	0	0	**1**	0	2	0	0	2	7
Total Volume	0	1	2	0	3	3	16	0	0	19	1	0	0	0	1	0	18	0	0	18	41
% App. Total	0	33.3	66.7	0		15.8	84.2	0	0		100	0	0	0		0	100	0	0		
PHF	.000	.250	.500	.000	.375	.750	.571	.000	.000	.594	.250	.000	.000	.000	.250	.000	.643	.000	.000	.643	.732

N/S: Shoppers World Drive/Michaels Plaza
E/W: Worcester Street (Route 9)
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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File Name : 143938 III
Site Code : TBA
Start Date : 6/14/2014
Page No : 1

Groups Printed- Peds and Bicycles

	Shoppers World Drive From North				Worcester Street (Route 9) From East				Michaels Plaza From South				Worcester Street (Route 9) From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
12:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
12:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
12:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Total	0	0	0	2	0	1	0	0	0	0	0	1	0	0	0	0	4
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
01:15 PM	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	3
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
01:45 PM	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	0	6
Total	0	0	0	2	0	0	0	0	0	0	0	9	0	0	0	0	11
Grand Total	0	0	1	5	0	1	0	0	0	0	0	10	0	0	0	0	17
Apprch %	0	0	16.7	83.3	0	100	0	0	0	0	0	100	0	0	0	0	
Total %	0	0	5.9	29.4	0	5.9	0	0	0	0	0	58.8	0	0	0	0	

	Shoppers World Drive From North					Worcester Street (Route 9) From East					Michaels Plaza From South					Worcester Street (Route 9) From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
01:15 PM	0	0	0	**1**	**1**	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	3
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
01:45 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	**5**	**5**	0	0	0	0	0	**6**
Total Volume	0	0	0	2	2	0	0	0	0	0	0	0	0	9	9	0	0	0	0	0	11
% App. Total	0	0	0	100		0	0	0	0		0	0	0	100		0	0	0	0		
PHF	.000	.000	.000	.500	.500	.000	.000	.000	.000	.000	.000	.000	.000	.450	.450	.000	.000	.000	.000	.000	.458

N/S: Shoppers World Drive/Michaels Plaza
E/W: Worcester Street (Route 9)
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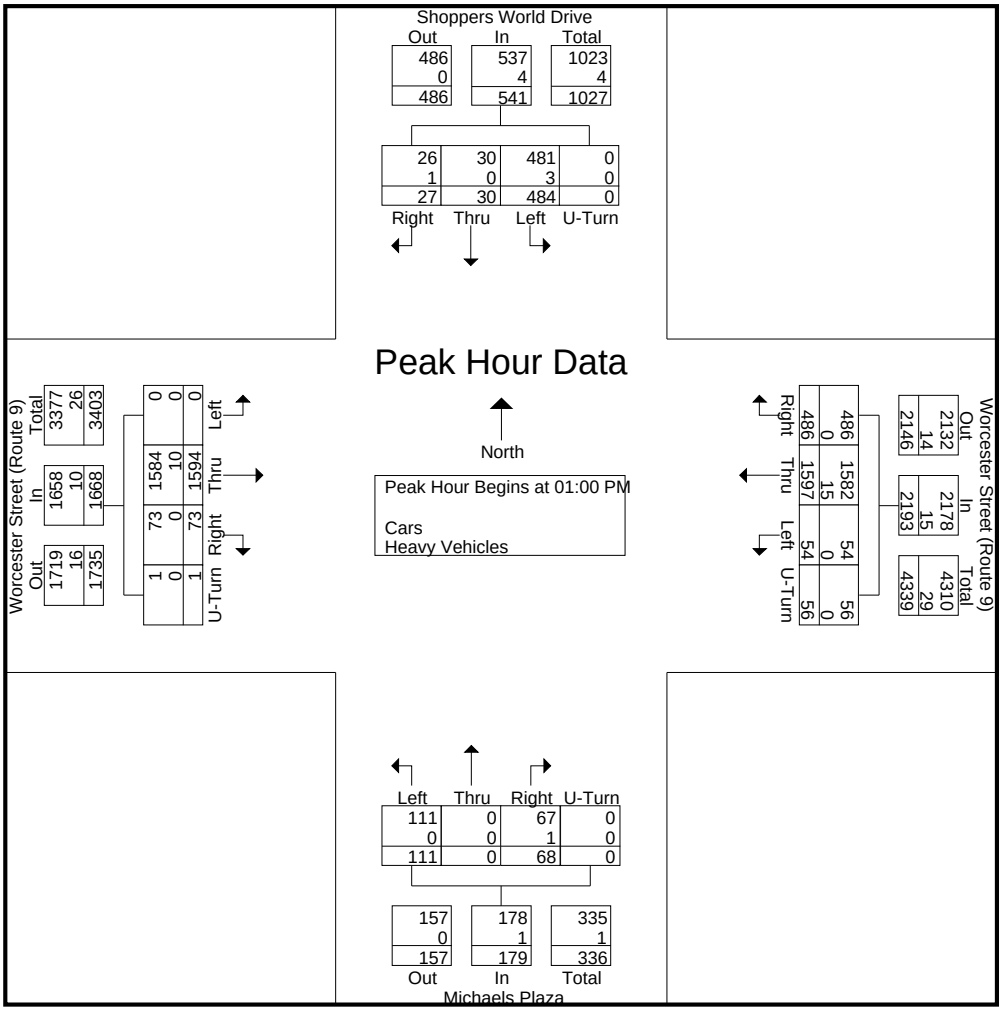
Page No : 1

	Shoppers World Drive From North					Worcester Street (Route 9) From East					Michaels Plaza From South					Worcester Street (Route 9) From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	6	**12**	123	0	141	**139**	369	12	15	535	19	0	**38**	0	**57**	18	403	0	**1**	422	1155
01:15 PM	**8**	6	113	0	127	114	406	12	**17**	549	16	0	22	0	38	11	390	0	0	401	1115
01:30 PM	8	5	109	0	122	119	387	**16**	10	532	12	0	33	0	45	17	379	0	0	396	1095
01:45 PM	5	7	**139**	0	**151**	114	**435**	14	14	**577**	**21**	0	18	0	39	**27**	**422**	0	0	**449**	**1216**
Total Volume	27	30	484	0	541	486	1597	54	56	2193	68	0	111	0	179	73	1594	0	1	1668	4581
% App. Total	5	5.5	89.5	0		22.2	72.8	2.5	2.6		38	0	62	0		4.4	95.6	0	0.1		
PHF	.844	.625	.871	.000	.896	.874	.918	.844	.824	.950	.810	.000	.730	.000	.785	.676	.944	.000	.250	.929	.942
Cars	26	30	481	0	537	486	1582	54	56	2178	67	0	111	0	178	73	1584	0	1	1658	4551
% Cars	96.3	100	99.4	0	99.3	100	99.1	100	100	99.3	98.5	0	100	0	99.4	100	99.4	0	100	99.4	99.3
Heavy Vehicles	1	0	3	0	4	0	15	0	0	15	1	0	0	0	1	0	10	0	0	10	30
% Heavy Vehicles	3.7	0	0.6	0	0.7	0	0.9	0	0	0.7	1.5	0	0	0	0.6	0	0.6	0	0	0.6	0.7



N/S: Ring Road/ Bobs Furniture Drive
E/W: Worcester Street (Route 9)
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

PRECISION DATA INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
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File Name : 143938 JJJ
Site Code : TBA
Start Date : 6/14/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Ring Road From North				Worcester Street (Route 9) From East				Bobs Furniture Driveway From South				Worcester Street (Route 9) From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	43	0	0	0	4	377	0	0	6	0	0	0	9	396	78	3	916
11:15 AM	35	0	0	0	4	340	0	0	4	0	0	0	9	391	57	0	840
11:30 AM	38	0	0	0	3	352	0	0	14	0	0	0	11	372	78	2	870
11:45 AM	54	0	0	0	4	385	0	0	3	0	0	0	8	419	80	1	954
Total	170	0	0	0	15	1454	0	0	27	0	0	0	37	1578	293	6	3580
12:00 PM	64	0	0	0	6	443	0	0	6	0	0	0	18	391	75	1	1004
12:15 PM	53	0	0	0	3	434	0	0	10	0	0	0	10	433	77	0	1020
12:30 PM	54	0	0	1	10	450	0	0	10	0	0	0	13	379	69	0	986
12:45 PM	67	0	0	0	3	422	0	0	9	0	0	0	12	445	64	0	1022
Total	238	0	0	1	22	1749	0	0	35	0	0	0	53	1648	285	1	4032
01:00 PM	81	0	0	0	11	421	0	0	18	0	0	0	15	423	89	0	1058
01:15 PM	81	0	0	0	3	461	0	0	7	0	0	0	14	416	74	0	1056
01:30 PM	62	0	0	0	3	475	0	0	10	0	0	0	11	423	88	0	1072
01:45 PM	72	0	0	1	11	464	0	0	16	0	0	0	4	432	81	3	1084
Total	296	0	0	1	28	1821	0	0	51	0	0	0	44	1694	332	3	4270
Grand Total	704	0	0	2	65	5024	0	0	113	0	0	0	134	4920	910	10	11882
Apprch %	99.7	0	0	0.3	1.3	98.7	0	0	100	0	0	0	2.2	82.4	15.2	0.2	
Total %	5.9	0	0	0	0.5	42.3	0	0	1	0	0	0	1.1	41.4	7.7	0.1	
Cars	700	0	0	2	64	4974	0	0	113	0	0	0	133	4873	902	10	11771
% Cars	99.4	0	0	100	98.5	99	0	0	100	0	0	0	99.3	99	99.1	100	99.1
Heavy Vehicles	4	0	0	0	1	50	0	0	0	0	0	0	1	47	8	0	111
% Heavy Vehicles	0.6	0	0	0	1.5	1	0	0	0	0	0	0	0.7	1	0.9	0	0.9

	Ring Road From North					Worcester Street (Route 9) From East					Bobs Furniture Driveway From South					Worcester Street (Route 9) From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	**81**	0	0	0	**81**	**11**	421	0	0	432	**18**	0	0	0	**18**	**15**	423	**89**	0	**527**	1058
01:15 PM	81	0	0	0	81	3	461	0	0	464	7	0	0	0	7	14	416	74	0	504	1056
01:30 PM	62	0	0	0	62	3	**475**	0	0	**478**	10	0	0	0	10	11	423	88	0	522	1072
01:45 PM	72	0	0	**1**	73	11	464	0	0	475	16	0	0	0	16	4	**432**	81	**3**	520	**1084**
Total Volume	296	0	0	1	297	28	1821	0	0	1849	51	0	0	0	51	44	1694	332	3	2073	4270
% App. Total	99.7	0	0	0.3		1.5	98.5	0	0		100	0	0	0		2.1	81.7	16	0.1		
PHF	.914	.000	.000	.250	.917	.636	.958	.000	.000	.967	.708	.000	.000	.000	.708	.733	.980	.933	.250	.983	.985
Cars	294	0	0	1	295	28	1805	0	0	1833	51	0	0	0	51	44	1682	326	3	2055	4234
% Cars	99.3	0	0	100	99.3	100	99.1	0	0	99.1	100	0	0	0	100	100	99.3	98.2	100	99.1	99.2
Heavy Vehicles	2	0	0	0	2	0	16	0	0	16	0	0	0	0	0	0	12	6	0	18	36
% Heavy Vehicles	0.7	0	0	0	0.7	0	0.9	0	0	0.9	0	0	0	0	0	0	0.7	1.8	0	0.9	0.8

N/S: Ring Road/ Bobs Furniture Drive
E/W: Worcester Street (Route 9)
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Page No : 1

Groups Printed- Cars

	Ring Road From North				Worcester Street (Route 9) From East				Bobs Furniture Driveway From South				Worcester Street (Route 9) From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	43	0	0	0	4	375	0	0	6	0	0	0	9	389	77	3	906
11:15 AM	34	0	0	0	4	333	0	0	4	0	0	0	9	387	56	0	827
11:30 AM	38	0	0	0	3	348	0	0	14	0	0	0	11	368	78	2	862
11:45 AM	54	0	0	0	4	382	0	0	3	0	0	0	8	417	80	1	949
Total	169	0	0	0	15	1438	0	0	27	0	0	0	37	1561	291	6	3544
12:00 PM	64	0	0	0	6	439	0	0	6	0	0	0	18	389	75	1	998
12:15 PM	53	0	0	0	3	429	0	0	10	0	0	0	9	427	77	0	1008
12:30 PM	53	0	0	1	10	444	0	0	10	0	0	0	13	375	69	0	975
12:45 PM	67	0	0	0	2	419	0	0	9	0	0	0	12	439	64	0	1012
Total	237	0	0	1	21	1731	0	0	35	0	0	0	52	1630	285	1	3993
01:00 PM	81	0	0	0	11	416	0	0	18	0	0	0	15	420	89	0	1050
01:15 PM	80	0	0	0	3	456	0	0	7	0	0	0	14	415	71	0	1046
01:30 PM	61	0	0	0	3	472	0	0	10	0	0	0	11	421	85	0	1063
01:45 PM	72	0	0	1	11	461	0	0	16	0	0	0	4	426	81	3	1075
Total	294	0	0	1	28	1805	0	0	51	0	0	0	44	1682	326	3	4234
Grand Total	700	0	0	2	64	4974	0	0	113	0	0	0	133	4873	902	10	11771
Apprch %	99.7	0	0	0.3	1.3	98.7	0	0	100	0	0	0	2.2	82.3	15.2	0.2	
Total %	5.9	0	0	0	0.5	42.3	0	0	1	0	0	0	1.1	41.4	7.7	0.1	

	Ring Road From North					Worcester Street (Route 9) From East					Bobs Furniture Driveway From South					Worcester Street (Route 9) From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	**81**	0	0	0	**81**	**11**	416	0	0	427	**18**	0	0	0	**18**	**15**	420	**89**	0	**524**	1050
01:15 PM	80	0	0	0	80	3	456	0	0	459	7	0	0	0	7	14	415	71	0	500	1046
01:30 PM	61	0	0	0	61	3	**472**	0	0	**475**	10	0	0	0	10	11	421	85	0	517	1063
01:45 PM	72	0	0	**1**	73	11	461	0	0	472	16	0	0	0	16	4	**426**	81	**3**	514	**1075**
Total Volume	294	0	0	1	295	28	1805	0	0	1833	51	0	0	0	51	44	1682	326	3	2055	4234
% App. Total	99.7	0	0	0.3		1.5	98.5	0	0		100	0	0	0		2.1	81.8	15.9	0.1		
PHF	.907	.000	.000	.250	.910	.636	.956	.000	.000	.965	.708	.000	.000	.000	.708	.733	.987	.916	.250	.980	.985

N/S: Ring Road/ Bobs Furniture Drive
E/W: Worcester Street (Route 9)
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

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

File Name : 143938 JJJ
Site Code : TBA
Start Date : 6/14/2014
Page No : 1

Groups Printed- Heavy Vehicles

	Ring Road From North				Worcester Street (Route 9) From East				Bobs Furniture Driveway From South				Worcester Street (Route 9) From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
11:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	7	1	0	10
11:15 AM	1	0	0	0	0	7	0	0	0	0	0	0	0	4	1	0	13
11:30 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	4	0	0	8
11:45 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	2	0	0	5
Total	1	0	0	0	0	16	0	0	0	0	0	0	0	17	2	0	36
12:00 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0	6
12:15 PM	0	0	0	0	0	5	0	0	0	0	0	0	1	6	0	0	12
12:30 PM	1	0	0	0	0	6	0	0	0	0	0	0	0	4	0	0	11
12:45 PM	0	0	0	0	1	3	0	0	0	0	0	0	0	6	0	0	10
Total	1	0	0	0	1	18	0	0	0	0	0	0	1	18	0	0	39
01:00 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	3	0	0	8
01:15 PM	1	0	0	0	0	5	0	0	0	0	0	0	0	1	3	0	10
01:30 PM	1	0	0	0	0	3	0	0	0	0	0	0	0	2	3	0	9
01:45 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	6	0	0	9
Total	2	0	0	0	0	16	0	0	0	0	0	0	0	12	6	0	36
Grand Total	4	0	0	0	1	50	0	0	0	0	0	0	1	47	8	0	111
Apprch %	100	0	0	0	2	98	0	0	0	0	0	0	1.8	83.9	14.3	0	
Total %	3.6	0	0	0	0.9	45	0	0	0	0	0	0	0.9	42.3	7.2	0	

	Ring Road From North					Worcester Street (Route 9) From East					Bobs Furniture Driveway From South					Worcester Street (Route 9) From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:15 PM																					
12:15 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	**1**	**6**	0	0	**7**	**12**
12:30 PM	**1**	0	0	0	**1**	0	**6**	0	0	**6**	0	0	0	0	0	0	4	0	0	4	11
12:45 PM	0	0	0	0	0	**1**	3	0	0	4	0	0	0	0	0	0	6	0	0	6	10
01:00 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	3	0	0	3	8
Total Volume	1	0	0	0	1	1	19	0	0	20	0	0	0	0	0	1	19	0	0	20	41
% App. Total	100	0	0	0		5	95	0	0		0	0	0	0		5	95	0	0		
PHF	.250	.000	.000	.000	.250	.250	.792	.000	.000	.833	.000	.000	.000	.000	.000	.250	.792	.000	.000	.714	.854

N/S: Ring Road/ Bobs Furniture Drive
E/W: Worcester Street (Route 9)
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

PRECISION DATA INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
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Email: datarequests@pdillc.com

File Name : 143938 JJJ
Site Code : TBA
Start Date : 6/14/2014
Page No : 1

Groups Printed- Peds and Bicycles

	Ring Road From North				Worcester Street (Route 9) From East				Bobs Furniture Driveway From South				Worcester Street (Route 9) From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
11:45 AM	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	2
Total	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	3
12:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
12:30 PM	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	4
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Total	0	0	0	2	0	1	0	2	0	0	0	2	0	0	0	0	7
01:00 PM	0	0	0	0	0	0	0	1	0	0	0	3	0	0	0	0	4
01:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Total	0	0	0	1	0	0	0	1	0	0	0	5	0	0	0	0	7
Grand Total	0	0	0	5	0	1	0	4	0	0	0	7	0	0	0	0	17
Apprch %	0	0	0	100	0	20	0	80	0	0	0	100	0	0	0	0	
Total %	0	0	0	29.4	0	5.9	0	23.5	0	0	0	41.2	0	0	0	0	

	Ring Road From North					Worcester Street (Route 9) From East					Bobs Furniture Driveway From South					Worcester Street (Route 9) From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:15 PM																					
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
12:30 PM	0	0	0	**2**	**2**	0	0	0	**2**	**2**	0	0	0	0	0	0	0	0	0	0	**4**
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
01:00 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	**3**	**3**	0	0	0	0	0	4
Total Volume	0	0	0	2	2	0	0	0	3	3	0	0	0	5	5	0	0	0	0	0	10
% App. Total	0	0	0	100		0	0	0	100		0	0	0	100		0	0	0	0		
PHF	.000	.000	.000	.250	.250	.000	.000	.000	.375	.375	.000	.000	.000	.417	.417	.000	.000	.000	.000	.000	.625

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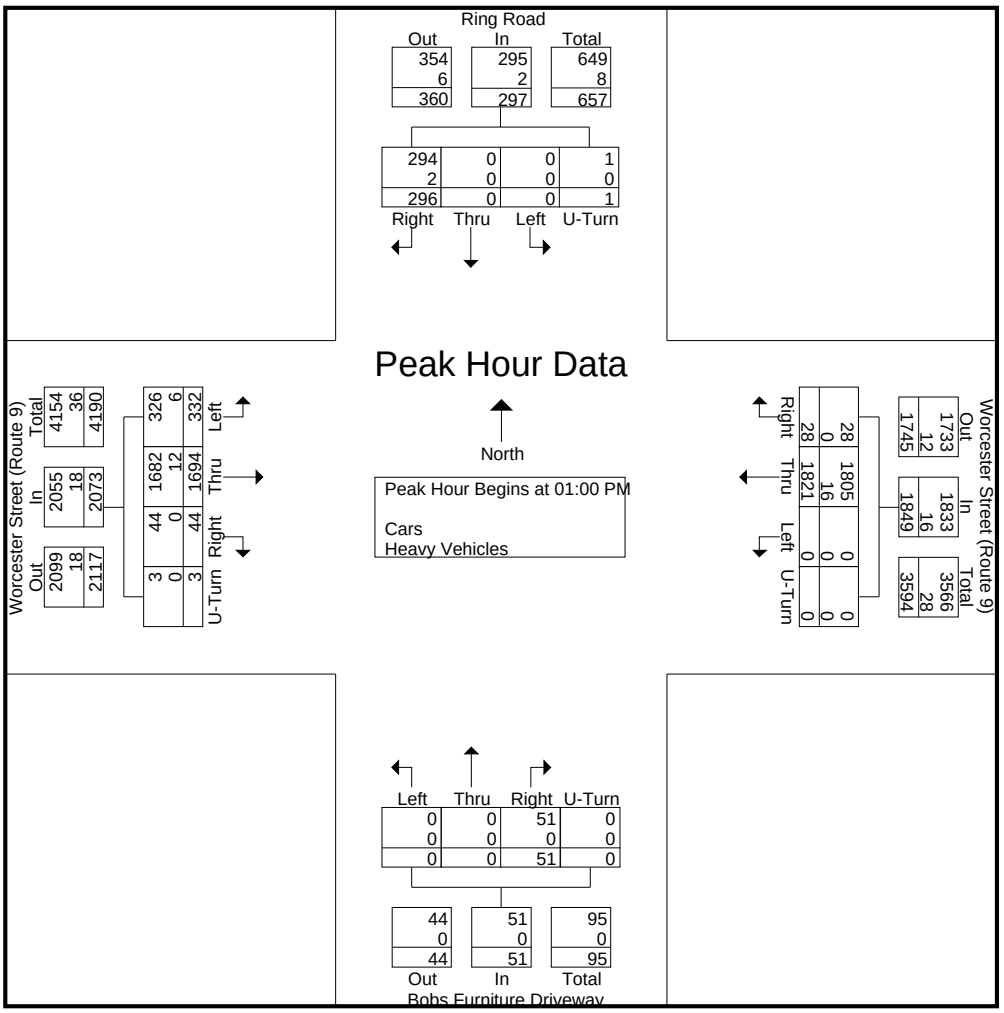
E/W: Worcester Street (Route 9)
City, State: Framingham, MA
Client: VHB/ V. Kalikiri

File Name : 143938 JJJ
Site Code : TBA
Start Date : 6/14/2014
Page No : 1

	Ring Road From North					Worcester Street (Route 9) From East					Bobs Furniture Driveway From South					Worcester Street (Route 9) From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 01:00 PM																					
01:00 PM	**81**	0	0	0	**81**	**11**	421	0	0	432	**18**	0	0	0	**18**	**15**	423	**89**	0	**527**	1058
01:15 PM	81	0	0	0	81	3	461	0	0	464	7	0	0	0	7	14	416	74	0	504	1056
01:30 PM	62	0	0	0	62	3	**475**	0	0	**478**	10	0	0	0	10	11	423	88	0	522	1072
01:45 PM	72	0	0	**1**	73	11	464	0	0	475	16	0	0	0	16	4	**432**	81	**3**	520	**1084**
Total Volume	296	0	0	1	297	28	1821	0	0	1849	51	0	0	0	51	44	1694	332	3	2073	4270
% App. Total	99.7	0	0	0.3		1.5	98.5	0	0		100	0	0	0		2.1	81.7	16	0.1		
PHF	.914	.000	.000	.250	.917	.636	.958	.000	.000	.967	.708	.000	.000	.000	.708	.733	.980	.933	.250	.983	.985
Cars	294	0	0	1	295	28	1805	0	0	1833	51	0	0	0	51	44	1682	326	3	2055	4234
% Cars	99.3	0	0	100	99.3	100	99.1	0	0	99.1	100	0	0	0	100	100	99.3	98.2	100	99.1	99.2
Heavy Vehicles	2	0	0	0	2	0	16	0	0	16	0	0	0	0	0	0	12	6	0	18	36
% Heavy Vehicles	0.7	0	0	0	0.7	0	0.9	0	0	0.9	0	0	0	0	0	0	0.7	1.8	0	0.9	0.8



Accurate Counts
978-664-2565

1614000H

Location : Ring Road
Location : South of Burr Street
City/State: Framingham, MA

Start	23-Jul-13	NB		Hour Totals		SB		Hour Totals		Combined Totals	
Time	Tue	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		5	110			3	108				
12:15		18	110			3	120				
12:30		10	139			2	122				
12:45		1	97	34	456	5	120	13	470	47	926
01:00		1	100			3	113				
01:15		2	108			0	104				
01:30		1	118			2	87				
01:45		2	86	6	412	0	105	5	409	11	821
02:00		0	108			5	250				
02:15		0	101			1	245				
02:30		0	115			1	239				
02:45		3	133	3	457	0	217	7	951	10	1408
03:00		2	151			1	170				
03:15		2	138			0	77				
03:30		4	144			0	89				
03:45		4	109	12	542	2	105	3	441	15	983
04:00		1	105			1	96				
04:15		6	159			2	81				
04:30		3	134			1	102				
04:45		11	114	21	512	6	107	10	386	31	898
05:00		12	132			5	106				
05:15		13	146			4	119				
05:30		12	111			8	113				
05:45		22	129	59	518	8	130	25	468	84	986
06:00		28	136			3	94				
06:15		44	129			15	109				
06:30		49	113			22	91				
06:45		50	93	171	471	23	99	63	393	234	864
07:00		34	88			35	96				
07:15		41	94			44	84				
07:30		49	73			37	73				
07:45		44	95	168	350	40	73	156	326	324	676
08:00		42	87			49	57				
08:15		44	72			67	57				
08:30		59	59			48	62				
08:45		66	71	211	289	57	37	221	213	432	502
09:00		66	84			50	40				
09:15		51	64			69	30				
09:30		52	48			63	41				
09:45		60	37	229	233	77	30	259	141	488	374
10:00		60	62			61	28				
10:15		56	18			91	37				
10:30		67	11			80	19				
10:45		59	25	242	116	104	5	336	89	578	205
11:00		91	11			65	13				
11:15		102	6			82	3				
11:30		91	4			120	11				
11:45		86	6	370	27	121	2	388	29	758	56
Total		1526	4383			1486	4316			3012	8699
Percent		25.8%	74.2%			25.6%	74.4%			25.7%	74.3%

Accurate Counts
978-664-2565

Location : Ring Road
Location : South of Burr Street
City/State: Framingham, MA

1614000H

Start Time	24-Jul-13 Wed	NB Morning	NB Afternoon	Hour Totals Morning	Hour Totals Afternoon	SB Morning	SB Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		8	155			5	103				
12:15		24	92			3	116				
12:30		5	124			2	106				
12:45		4	91	41	462	3	112	13	437	54	899
01:00		2	147			0	86				
01:15		2	100			1	101				
01:30		0	104			1	94				
01:45		0	88	4	439	0	107	2	388	6	827
02:00		0	95			1	106				
02:15		0	109			1	88				
02:30		1	101			2	98				
02:45		2	105	3	410	0	107	4	399	7	809
03:00		0	119			0	88				
03:15		0	121			1	96				
03:30		1	104			2	112				
03:45		2	111	3	455	5	107	8	403	11	858
04:00		3	118			3	105				
04:15		7	160			6	83				
04:30		4	108			2	125				
04:45		5	127	19	513	9	101	20	414	39	927
05:00		10	164			3	113				
05:15		11	138			5	138				
05:30		13	114			8	123				
05:45		25	114	59	530	11	118	27	492	86	1022
06:00		39	130			5	118				
06:15		73	106			13	124				
06:30		69	118			25	67				
06:45		57	85	238	439	27	109	70	418	308	857
07:00		55	99			34	89				
07:15		62	90			28	102				
07:30		46	69			43	89				
07:45		52	60	215	318	39	85	144	365	359	683
08:00		43	94			57	68				
08:15		51	96			56	52				
08:30		60	76			89	55				
08:45		56	70	210	336	92	55	294	230	504	566
09:00		70	101			79	36				
09:15		63	83			64	43				
09:30		58	45			70	25				
09:45		56	48	247	277	84	25	297	129	544	406
10:00		57	30			66	29				
10:15		54	23			81	18				
10:30		83	17			84	14				
10:45		61	6	255	76	82	15	313	76	568	152
11:00		83	19			68	3				
11:15		68	9			104	8				
11:30		81	7			110	4				
11:45		103	10	335	45	112	5	394	20	729	65
Total		1629	4300			1586	3771			3215	8071
Percent		27.5%	72.5%			29.6%	70.4%			28.5%	71.5%
Grand Total		3155	8683			3072	8087			6227	16770
Percent		26.7%	73.3%			27.5%	72.5%			27.1%	72.9%
ADT		ADT 11,498		AADT 11,498							

Accurate Counts
978-664-2565

1614000H

Location : Ring Road
Location : South of Burr Street
City/State: Framingham, MA

Start	22-Jul-13		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	34	13	41	13	*	*	*	*	*	*	*	*	38	13
01:00	*	*	6	5	4	2	*	*	*	*	*	*	*	*	5	4
02:00	*	*	3	7	3	4	*	*	*	*	*	*	*	*	3	6
03:00	*	*	12	3	3	8	*	*	*	*	*	*	*	*	8	6
04:00	*	*	21	10	19	20	*	*	*	*	*	*	*	*	20	15
05:00	*	*	59	25	59	27	*	*	*	*	*	*	*	*	59	26
06:00	*	*	171	63	238	70	*	*	*	*	*	*	*	*	204	66
07:00	*	*	168	156	215	144	*	*	*	*	*	*	*	*	192	150
08:00	*	*	211	221	210	294	*	*	*	*	*	*	*	*	210	258
09:00	*	*	229	259	247	297	*	*	*	*	*	*	*	*	238	278
10:00	*	*	242	336	255	313	*	*	*	*	*	*	*	*	248	324
11:00	*	*	**370**	**388**	**335**	**394**	*	*	*	*	*	*	*	*	**352**	**391**
12:00 PM	*	*	456	470	462	437	*	*	*	*	*	*	*	*	459	454
01:00	*	*	412	409	439	388	*	*	*	*	*	*	*	*	426	398
02:00	*	*	457	**951**	410	399	*	*	*	*	*	*	*	*	434	**675**
03:00	*	*	**542**	441	455	403	*	*	*	*	*	*	*	*	498	422
04:00	*	*	512	386	513	414	*	*	*	*	*	*	*	*	512	400
05:00	*	*	518	468	**530**	**492**	*	*	*	*	*	*	*	*	**524**	480
06:00	*	*	471	393	439	418	*	*	*	*	*	*	*	*	455	406
07:00	*	*	350	326	318	365	*	*	*	*	*	*	*	*	334	346
08:00	*	*	289	213	336	230	*	*	*	*	*	*	*	*	312	222
09:00	*	*	233	141	277	129	*	*	*	*	*	*	*	*	255	135
10:00	*	*	116	89	76	76	*	*	*	*	*	*	*	*	96	82
11:00	*	*	27	29	45	20	*	*	*	*	*	*	*	*	36	24
Lane	0	0	5909	5802	5929	5357	0	0	0	0	0	0	0	0	5918	5581
Day	0		11711		11286		0		0		0		0		11499	
AM Peak	-	-	11:00	11:00	11:00	11:00	-	-	-	-	-	-	-	-	11:00	11:00
Vol.	-	-	370	388	335	394	-	-	-	-	-	-	-	-	352	391
PM Peak	-	-	15:00	14:00	17:00	17:00	-	-	-	-	-	-	-	-	17:00	14:00
Vol.	-	-	542	951	530	492	-	-	-	-	-	-	-	-	524	675

Comb. Total	0	11711	11286	0	0	0	0	11499

ADT ADT 11,498 AADT 11,498

Accurate Counts
978-664-2565

1614000M

Location : Flutie Pass
Location : East of Overflow Lot
City/State: Framingham, MA

Start	23-Jul-13	WB		Hour Totals		EB		Hour Totals		Combined Totals	
Time	Tue	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		0	78			12	80				
12:15		2	72			11	67				
12:30		0	78			7	103				
12:45		0	81	2	309	0	104	30	354	32	663
01:00		1	59			0	102				
01:15		1	77			0	101				
01:30		0	94			1	78				
01:45		1	56	3	286	1	91	2	372	5	658
02:00		0	95			0	74				
02:15		0	80			0	60				
02:30		0	85			0	92				
02:45		0	93	0	353	0	74	0	300	0	653
03:00		1	113			0	99				
03:15		1	97			0	78				
03:30		0	76			1	123				
03:45		2	103	4	389	0	90	1	390	5	779
04:00		0	97			0	64				
04:15		2	81			1	74				
04:30		0	106			0	72				
04:45		3	90	5	374	1	65	2	275	7	649
05:00		1	87			1	76				
05:15		1	110			0	66				
05:30		1	85			3	79				
05:45		5	96	8	378	14	101	18	322	26	700
06:00		3	88			13	96				
06:15		7	90			7	69				
06:30		7	79			8	84				
06:45		12	83	29	340	12	74	40	323	69	663
07:00		4	70			10	94				
07:15		13	72			23	68				
07:30		12	75			14	47				
07:45		12	65	41	282	10	84	57	293	98	575
08:00		11	77			21	41				
08:15		13	49			12	46				
08:30		11	73			20	39				
08:45		15	62	50	261	26	27	79	153	129	414
09:00		12	78			40	28				
09:15		18	50			34	39				
09:30		20	34			38	28				
09:45		24	24	74	186	62	24	174	119	248	305
10:00		24	18			72	33				
10:15		31	15			59	13				
10:30		39	5			71	3				
10:45		42	8	136	46	78	4	280	53	416	99
11:00		36	8			66	4				
11:15		80	2			88	2				
11:30		55	2			81	1				
11:45		50	0	221	12	95	6	330	13	551	25
Total		573	3216			1013	2967			1586	6183
Percent		15.1%	84.9%			25.5%	74.5%			20.4%	79.6%

Accurate Counts
978-664-2565

1614000M

Location : Flutie Pass
Location : East of Overflow Lot
City/State: Framingham, MA

Start Time	24-Jul-13 Wed	WB Morning	WB Afternoon	Hour Totals Morning	Hour Totals Afternoon	EB Morning	EB Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		0	76			5	114				
12:15		1	59			18	85				
12:30		0	70			8	96				
12:45		1	82	2	287	4	74	35	369	37	656
01:00		0	97			1	72				
01:15		0	90			0	77				
01:30		0	75			0	74				
01:45		0	79	0	341	0	66	1	289	1	630
02:00		0	74			1	68				
02:15		0	84			0	89				
02:30		1	81			1	70				
02:45		1	77	2	316	0	69	2	296	4	612
03:00		0	77			2	85				
03:15		0	89			0	77				
03:30		0	63			0	81				
03:45		0	78	0	307	2	85	4	328	4	635
04:00		0	76			1	51				
04:15		3	85			0	89				
04:30		3	72			0	71				
04:45		1	97	7	330	2	80	3	291	10	621
05:00		0	89			3	61				
05:15		2	96			0	75				
05:30		2	79			4	92				
05:45		3	84	7	348	9	80	16	308	23	656
06:00		4	85			9	107				
06:15		3	89			3	91				
06:30		11	98			6	91				
06:45		14	82	32	354	14	70	32	359	64	713
07:00		4	82			5	72				
07:15		5	74			6	90				
07:30		8	67			16	63				
07:45		9	61	26	284	9	77	36	302	62	586
08:00		11	65			18	54				
08:15		15	82			19	56				
08:30		20	69			17	31				
08:45		20	62	66	278	32	27	86	168	152	446
09:00		32	95			33	34				
09:15		21	57			34	21				
09:30		20	26			59	32				
09:45		19	32	92	210	62	28	188	115	280	325
10:00		33	25			59	23				
10:15		29	18			58	7				
10:30		42	12			80	1				
10:45		52	1	156	56	75	8	272	39	428	95
11:00		49	3			76	4				
11:15		51	2			88	4				
11:30		63	5			93	2				
11:45		73	1	236	11	90	5	347	15	583	26
Total		626	3122			1022	2879			1648	6001
Percent		16.7%	83.3%			26.2%	73.8%			21.5%	78.5%
Grand Total		1199	6338			2035	5846			3234	12184
Percent		15.9%	84.1%			25.8%	74.2%			21.0%	79.0%
ADT		ADT 7,709		AADT 7,709							

Accurate Counts
978-664-2565

1614000M

Location : Flutie Pass
Location : East of Overflow Lot
City/State: Framingham, MA

Start	22-Jul-13		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB
12:00 AM	*	*	2	30	2	35	*	*	*	*	*	*	*	*	2	32
01:00	*	*	3	2	0	1	*	*	*	*	*	*	*	*	2	2
02:00	*	*	0	0	2	2	*	*	*	*	*	*	*	*	1	1
03:00	*	*	4	1	0	4	*	*	*	*	*	*	*	*	2	2
04:00	*	*	5	2	7	3	*	*	*	*	*	*	*	*	6	2
05:00	*	*	8	18	7	16	*	*	*	*	*	*	*	*	8	17
06:00	*	*	29	40	32	32	*	*	*	*	*	*	*	*	30	36
07:00	*	*	41	57	26	36	*	*	*	*	*	*	*	*	34	46
08:00	*	*	50	79	66	86	*	*	*	*	*	*	*	*	58	82
09:00	*	*	74	174	92	188	*	*	*	*	*	*	*	*	83	181
10:00	*	*	136	280	156	272	*	*	*	*	*	*	*	*	146	276
11:00	*	*	**221**	**330**	**236**	**347**	*	*	*	*	*	*	*	*	**228**	**338**
12:00 PM	*	*	309	354	287	**369**	*	*	*	*	*	*	*	*	298	**362**
01:00	*	*	286	372	341	289	*	*	*	*	*	*	*	*	314	330
02:00	*	*	353	300	316	296	*	*	*	*	*	*	*	*	334	298
03:00	*	*	**389**	**390**	307	328	*	*	*	*	*	*	*	*	348	359
04:00	*	*	374	275	330	291	*	*	*	*	*	*	*	*	352	283
05:00	*	*	378	322	348	308	*	*	*	*	*	*	*	*	**363**	315
06:00	*	*	340	323	**354**	359	*	*	*	*	*	*	*	*	347	341
07:00	*	*	282	293	284	302	*	*	*	*	*	*	*	*	283	298
08:00	*	*	261	153	278	168	*	*	*	*	*	*	*	*	270	160
09:00	*	*	186	119	210	115	*	*	*	*	*	*	*	*	198	117
10:00	*	*	46	53	56	39	*	*	*	*	*	*	*	*	51	46
11:00	*	*	12	13	11	15	*	*	*	*	*	*	*	*	12	14
Lane	0	0	3789	3980	3748	3901	0	0	0	0	0	0	0	0	3770	3938
Day	0		7769		7649		0		0		0		0		7708	
AM Peak	-	-	11:00	11:00	11:00	11:00	-	-	-	-	-	-	-	-	11:00	11:00
Vol.	-	-	221	330	236	347	-	-	-	-	-	-	-	-	228	338
PM Peak	-	-	15:00	15:00	18:00	12:00	-	-	-	-	-	-	-	-	17:00	12:00
Vol.	-	-	389	390	354	369	-	-	-	-	-	-	-	-	363	362

Comb. Total	0	7769	7649	0	0	0	0	7708

ADT ADT 7,709 AADT 7,709

Accurate Counts
978-664-2565

N/S Street : Ring Road
E/W Street : Ring Road SE
City/State : Framingham, MA
Weather : Rain

File Name : 16140008
Site Code : 16140008
Start Date : 7/23/2013
Page No : 1

Groups Printed- Cars - Trucks

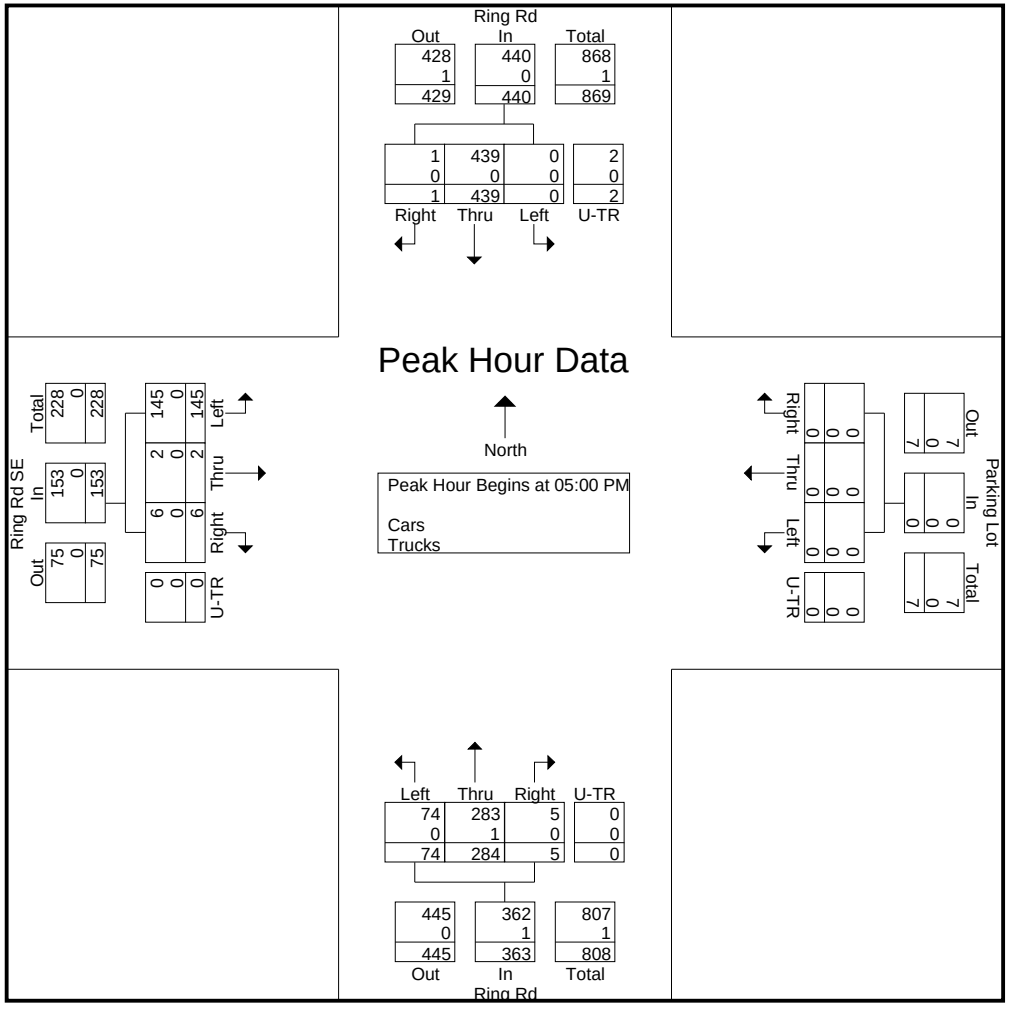
	Ring Rd From North				Parking Lot From East				Ring Rd From South				Ring Rd SE From West				
Start Time	Left	Thru	Right	U-TR	Left	Thru	Right	U-TR	Left	Thru	Right	U-TR	Left	Thru	Right	U-TR	Int. Total
04:00 PM	0	84	0	1	0	0	0	0	16	49	2	0	42	0	2	0	196
04:15 PM	0	94	0	0	0	0	0	0	19	83	1	0	44	0	0	0	241
04:30 PM	0	92	0	1	0	0	0	0	13	71	0	0	40	2	2	0	221
04:45 PM	0	96	0	0	0	0	1	0	11	64	0	0	22	1	0	0	195
Total	0	366	0	2	0	0	1	0	59	267	3	0	148	3	4	0	853
05:00 PM	0	118	0	0	0	0	0	0	13	86	0	0	37	1	3	0	258
05:15 PM	0	118	0	0	0	0	0	0	16	78	3	0	36	0	1	0	252
05:30 PM	0	106	1	1	0	0	0	0	27	64	2	0	29	1	1	0	232
05:45 PM	0	97	0	1	0	0	0	0	18	56	0	0	43	0	1	0	216
Total	0	439	1	2	0	0	0	0	74	284	5	0	145	2	6	0	958
Grand Total	0	805	1	4	0	0	1	0	133	551	8	0	293	5	10	0	1811
Apprch %	0	99.4	0.1	0.5	0	0	100	0	19.2	79.6	1.2	0	95.1	1.6	3.2	0	
Total %	0	44.5	0.1	0.2	0	0	0.1	0	7.3	30.4	0.4	0	16.2	0.3	0.6	0	
Cars	0	805	1	4	0	0	1	0	133	549	8	0	293	5	10	0	1809
% Cars	0	100	100	100	0	0	100	0	100	99.6	100	0	100	100	100	0	99.9
Trucks	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
% Trucks	0	0	0	0	0	0	0	0	0	0.4	0	0	0	0	0	0	0.1

	Ring Rd From North					Parking Lot From East					Ring Rd From South					Ring Rd SE From West					
Start Time	Left	Thru	Right	U-TR	App. Total	Left	Thru	Right	U-TR	App. Total	Left	Thru	Right	U-TR	App. Total	Left	Thru	Right	U-TR	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	**118**	0	0	**118**	0	0	0	0	0	13	**86**	0	0	**99**	37	**1**	**3**	0	41	**258**
05:15 PM	0	118	0	0	118	0	0	0	0	0	16	78	**3**	0	97	36	0	1	0	37	252
05:30 PM	0	106	**1**	**1**	108	0	0	0	0	0	**27**	64	2	0	93	29	1	1	0	31	232
05:45 PM	0	97	0	1	98	0	0	0	0	0	18	56	0	0	74	**43**	0	1	0	**44**	216
Total Volume	0	439	1	2	442	0	0	0	0	0	74	284	5	0	363	145	2	6	0	153	958
% App. Total	0	99.3	0.2	0.5		0	0	0	0		20.4	78.2	1.4	0		94.8	1.3	3.9	0		
PHF	.000	.930	.250	.500	.936	.000	.000	.000	.000	.000	.685	.826	.417	.000	.917	.843	.500	.500	.000	.869	.928
Cars	0	439	1	2	442	0	0	0	0	0	74	283	5	0	362	145	2	6	0	153	957
% Cars	0	100	100	100	100	0	0	0	0	0	100	99.6	100	0	99.7	100	100	100	0	100	99.9
Trucks	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0.4	0	0	0.3	0	0	0	0	0	0.1

Accurate Counts
978-664-2565

N/S Street : Ring Road
E/W Street : Ring Road SE
City/State : Framingham, MA
Weather : Rain

File Name : 16140008
Site Code : 16140008
Start Date : 7/23/2013
Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM					04:00 PM					04:45 PM					04:00 PM				
+0 mins.	0	**118**	0	0	**118**	0	0	0	0	0	11	64	0	0	75	42	0	**2**	0	**44**
+15 mins.	0	118	0	0	118	0	0	0	0	0	13	**86**	0	0	**99**	**44**	0	0	0	44
+30 mins.	0	106	**1**	**1**	108	0	0	0	0	0	16	78	**3**	0	97	40	**2**	2	0	44
+45 mins.	0	97	0	1	98	0	0	**1**	0	**1**	**27**	64	2	0	93	22	1	0	0	23
Total Volume	0	439	1	2	442	0	0	1	0	1	67	292	5	0	364	148	3	4	0	155
% App. Total	0	99.3	0.2	0.5		0	0	100	0		18.4	80.2	1.4	0		95.5	1.9	2.6	0	
PHF	.000	.930	.250	.500	.936	.000	.000	.250	.000	.250	.620	.849	.417	.000	.919	.841	.375	.500	.000	.881
Cars	0	439	1	2	442	0	0	1	0	1	67	290	5	0	362	148	3	4	0	155
% Cars	0	100	100	100	100	0	0	100	0	100	100	99.3	100	0	99.5	100	100	100	0	100
Trucks	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0

Accurate Counts
978-664-2565

Peak Hour Data

Ring Rd
In - Peak Hour: 05:00 PM

Right	Thru	Left	U-TR
1	439	0	2
0	0	0	0
1	439	0	2

440
0
440

Ring Rd SE
In - Peak Hour: 04:00 PM

Right	Thru	Left	U-TR
4	3	148	0
0	0	0	0
4	3	148	0

155
0
155

North

Cars
Trucks

Parking Lot
In - Peak Hour: 04:00 PM

Right	Thru	Left	U-TR
1	0	0	0
0	0	0	0
1	0	0	0

1
0
1

Ring Rd
In - Peak Hour: 04:45 PM

Left	Thru	Right	U-TR
67	290	5	0
0	2	0	0
67	292	5	0

362
2
364

Accurate Counts
978-664-2565

N/S Street : Ring Road
E/W Street : Ring Road SE
City/State : Framingham, MA
Weather : Rain

File Name : 16140008
Site Code : 16140008
Start Date : 7/23/2013
Page No : 1

Groups Printed- Cars

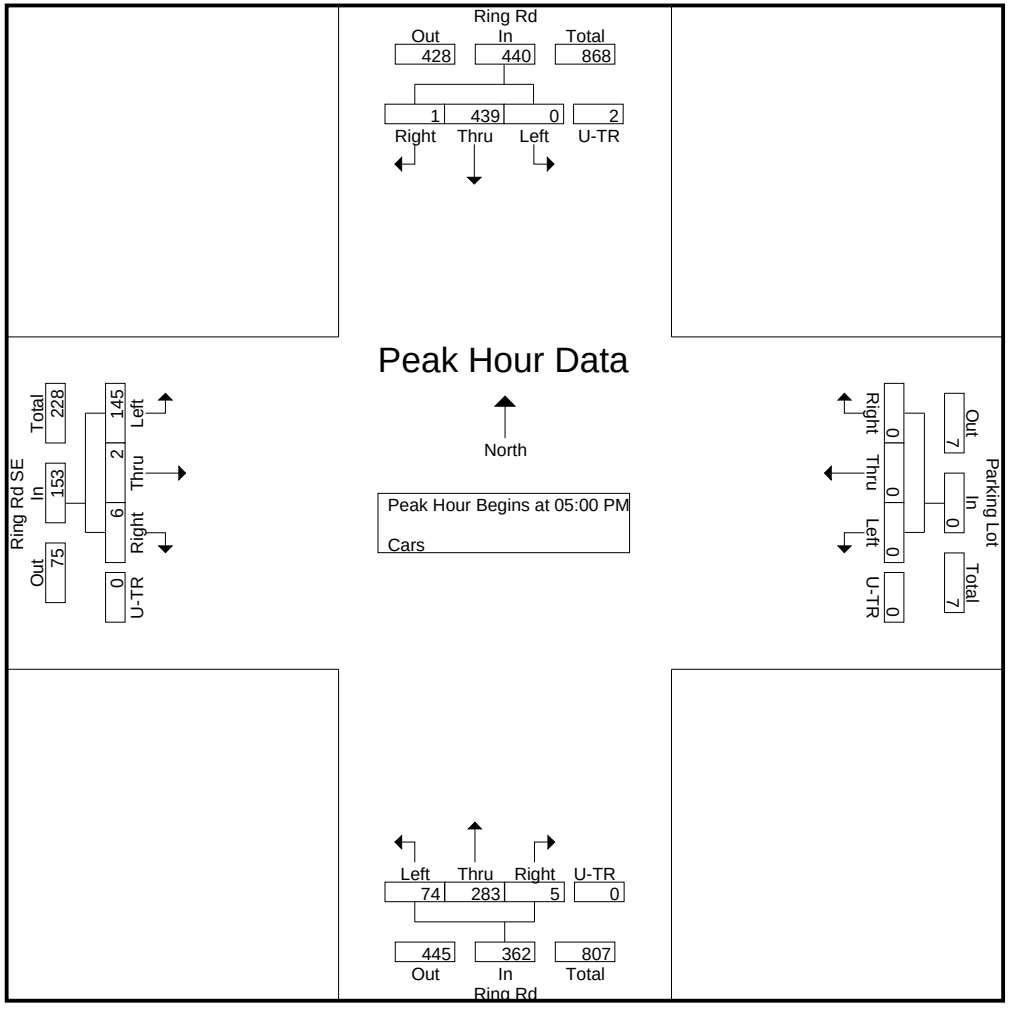
	Ring Rd From North				Parking Lot From East				Ring Rd From South				Ring Rd SE From West				
Start Time	Left	Thru	Right	U-TR	Left	Thru	Right	U-TR	Left	Thru	Right	U-TR	Left	Thru	Right	U-TR	Int. Total
04:00 PM	0	84	0	1	0	0	0	0	16	49	2	0	42	0	2	0	196
04:15 PM	0	94	0	0	0	0	0	0	19	83	1	0	44	0	0	0	241
04:30 PM	0	92	0	1	0	0	0	0	13	71	0	0	40	2	2	0	221
04:45 PM	0	96	0	0	0	0	1	0	11	63	0	0	22	1	0	0	194
Total	0	366	0	2	0	0	1	0	59	266	3	0	148	3	4	0	852
05:00 PM	0	118	0	0	0	0	0	0	13	86	0	0	37	1	3	0	258
05:15 PM	0	118	0	0	0	0	0	0	16	78	3	0	36	0	1	0	252
05:30 PM	0	106	1	1	0	0	0	0	27	63	2	0	29	1	1	0	231
05:45 PM	0	97	0	1	0	0	0	0	18	56	0	0	43	0	1	0	216
Total	0	439	1	2	0	0	0	0	74	283	5	0	145	2	6	0	957
Grand Total	0	805	1	4	0	0	1	0	133	549	8	0	293	5	10	0	1809
Apprch %	0	99.4	0.1	0.5	0	0	100	0	19.3	79.6	1.2	0	95.1	1.6	3.2	0	
Total %	0	44.5	0.1	0.2	0	0	0.1	0	7.4	30.3	0.4	0	16.2	0.3	0.6	0	

	Ring Rd From North					Parking Lot From East					Ring Rd From South					Ring Rd SE From West					
Start Time	Left	Thru	Right	U-TR	App. Total	Left	Thru	Right	U-TR	App. Total	Left	Thru	Right	U-TR	App. Total	Left	Thru	Right	U-TR	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	**118**	0	0	**118**	0	0	0	0	0	13	**86**	0	0	**99**	37	**1**	**3**	0	41	**258**
05:15 PM	0	118	0	0	118	0	0	0	0	0	16	78	**3**	0	97	36	0	1	0	37	252
05:30 PM	0	106	**1**	**1**	108	0	0	0	0	0	**27**	63	2	0	92	29	1	1	0	31	231
05:45 PM	0	97	0	1	98	0	0	0	0	0	18	56	0	0	74	**43**	0	1	0	**44**	216
Total Volume	0	439	1	2	442	0	0	0	0	0	74	283	5	0	362	145	2	6	0	153	957
% App. Total	0	99.3	0.2	0.5		0	0	0	0		20.4	78.2	1.4	0		94.8	1.3	3.9	0		
PHF	.000	.930	.250	.500	.936	.000	.000	.000	.000	.000	.685	.823	.417	.000	.914	.843	.500	.500	.000	.869	.927

Accurate Counts
978-664-2565

N/S Street : Ring Road
E/W Street : Ring Road SE
City/State : Framingham, MA
Weather : Rain

File Name : 16140008
Site Code : 16140008
Start Date : 7/23/2013
Page No : 2



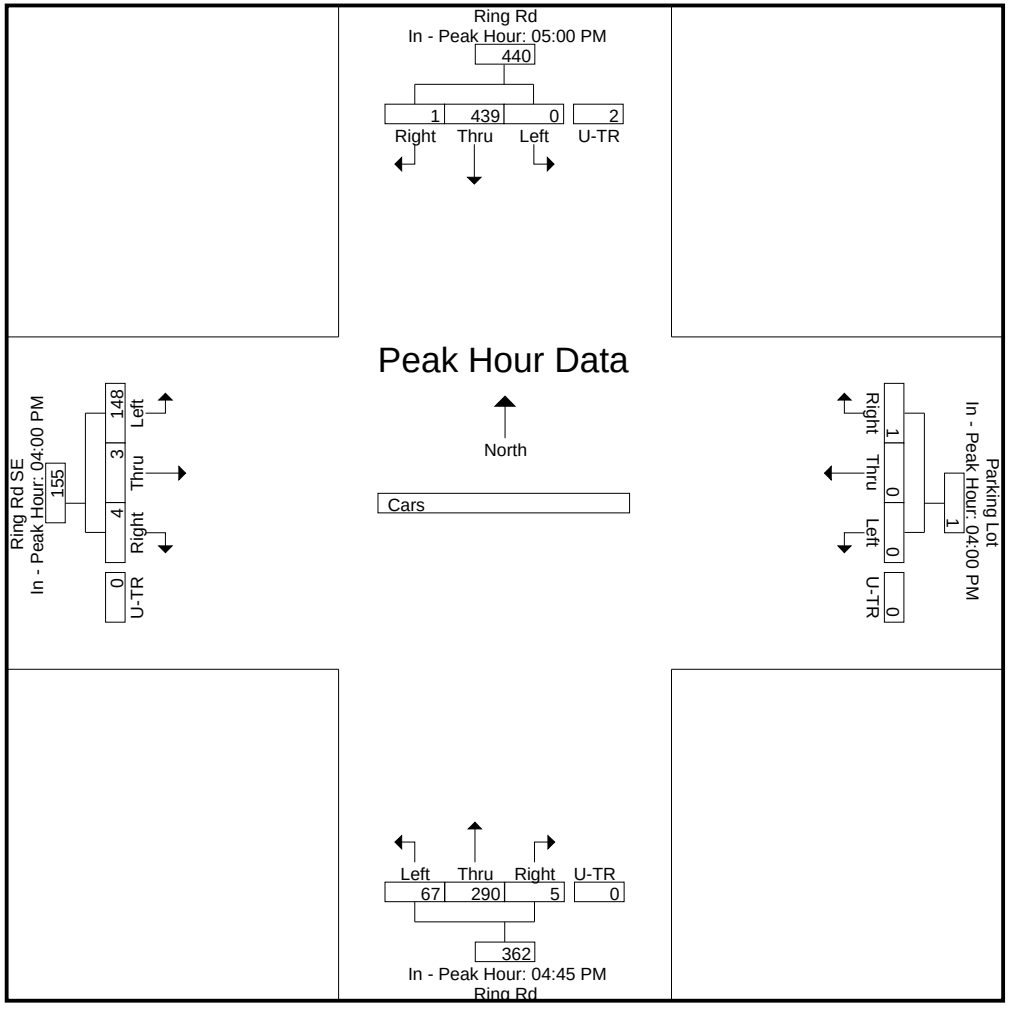
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM					04:00 PM					04:45 PM					04:00 PM				
+0 mins.	0	**118**	0	0	**118**	0	0	0	0	0	11	63	0	0	74	42	0	**2**	0	**44**
+15 mins.	0	118	0	0	118	0	0	0	0	0	13	**86**	0	0	**99**	**44**	0	0	0	44
+30 mins.	0	106	**1**	**1**	108	0	0	0	0	0	16	78	**3**	0	97	40	**2**	2	0	44
+45 mins.	0	97	0	1	98	0	0	**1**	0	**1**	**27**	63	2	0	92	22	1	0	0	23
Total Volume	0	439	1	2	442	0	0	1	0	1	67	290	5	0	362	148	3	4	0	155
% App. Total	0	99.3	0.2	0.5		0	0	100	0		18.5	80.1	1.4	0		95.5	1.9	2.6	0	
PHF	.000	.930	.250	.500	.936	.000	.000	.250	.000	.250	.620	.843	.417	.000	.914	.841	.375	.500	.000	.881

Accurate Counts
978-664-2565

N/S Street : Ring Road
E/W Street : Ring Road SE
City/State : Framingham, MA
Weather : Rain

File Name : 16140008
Site Code : 16140008
Start Date : 7/23/2013
Page No : 3



Accurate Counts
978-664-2565

N/S Street : Ring Road
E/W Street : Ring Road SE
City/State : Framingham, MA
Weather : Rain

File Name : 16140008
Site Code : 16140008
Start Date : 7/23/2013
Page No : 1

Groups Printed- Trucks

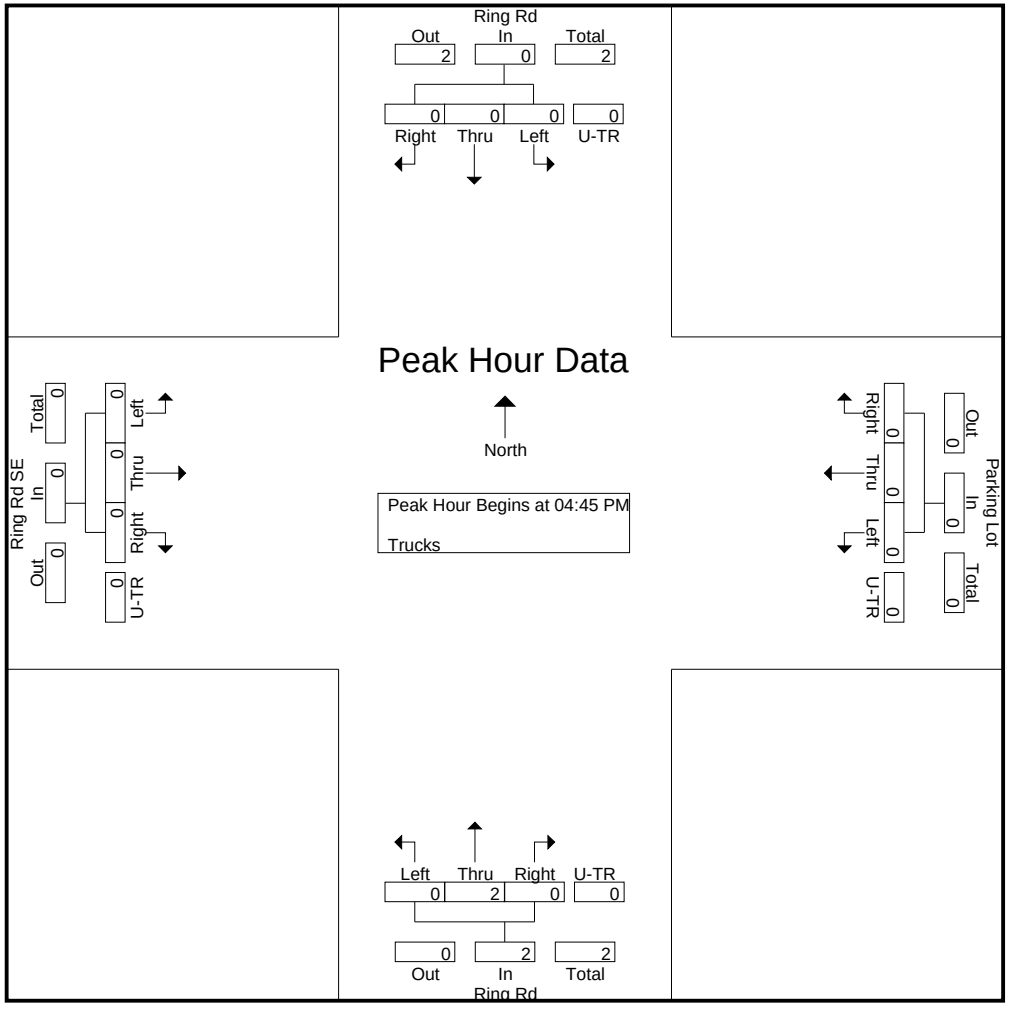
	Ring Rd From North				Parking Lot From East				Ring Rd From South				Ring Rd SE From West				
Start Time	Left	Thru	Right	U-TR	Left	Thru	Right	U-TR	Left	Thru	Right	U-TR	Left	Thru	Right	U-TR	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
Apprch %	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	
Total %	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	

	Ring Rd From North					Parking Lot From East					Ring Rd From South					Ring Rd SE From West					
Start Time	Left	Thru	Right	U-TR	App. Total	Left	Thru	Right	U-TR	App. Total	Left	Thru	Right	U-TR	App. Total	Left	Thru	Right	U-TR	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	**1**	0	0	**1**	0	0	0	0	0	**1**
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
% App. Total	0	0	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.000	.500	.000	.000	.000	.000	.000	.500

Accurate Counts
978-664-2565

N/S Street : Ring Road
E/W Street : Ring Road SE
City/State : Framingham, MA
Weather : Rain

File Name : 16140008
Site Code : 16140008
Start Date : 7/23/2013
Page No : 2



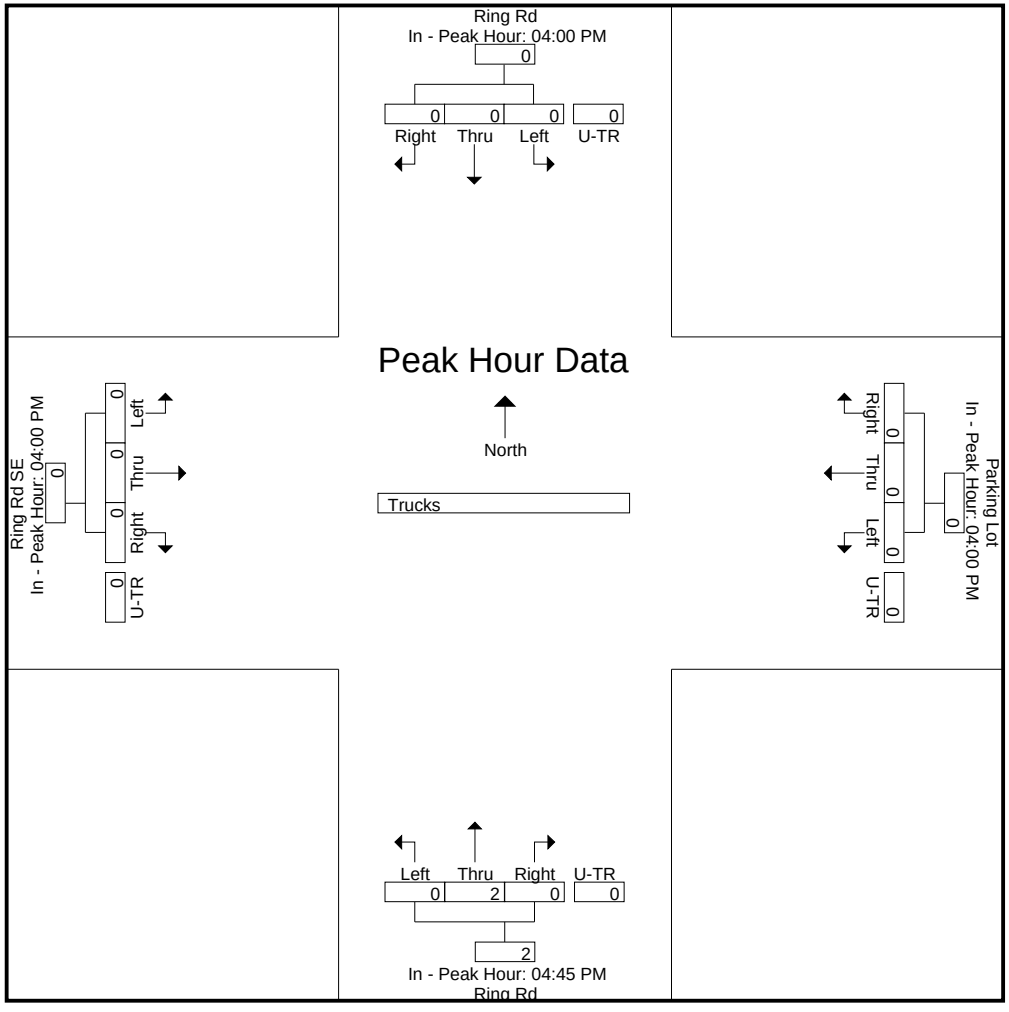
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM					04:00 PM					04:45 PM					04:00 PM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	**1**	0	0	**1**	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	100	0	0		0	0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.000	.500	.000	.000	.000	.000	.000

Accurate Counts
978-664-2565

N/S Street : Ring Road
E/W Street : Ring Road SE
City/State : Framingham, MA
Weather : Rain

File Name : 16140008
Site Code : 16140008
Start Date : 7/23/2013
Page No : 3



Accurate Counts
978-664-2565

N/S Street : Ring Road
E/W Street : Ring Road SE
City/State : Framingham, MA
Weather : Rain

File Name : 16140008
Site Code : 16140008
Start Date : 7/23/2013
Page No : 1

Groups Printed- Bikes Peds

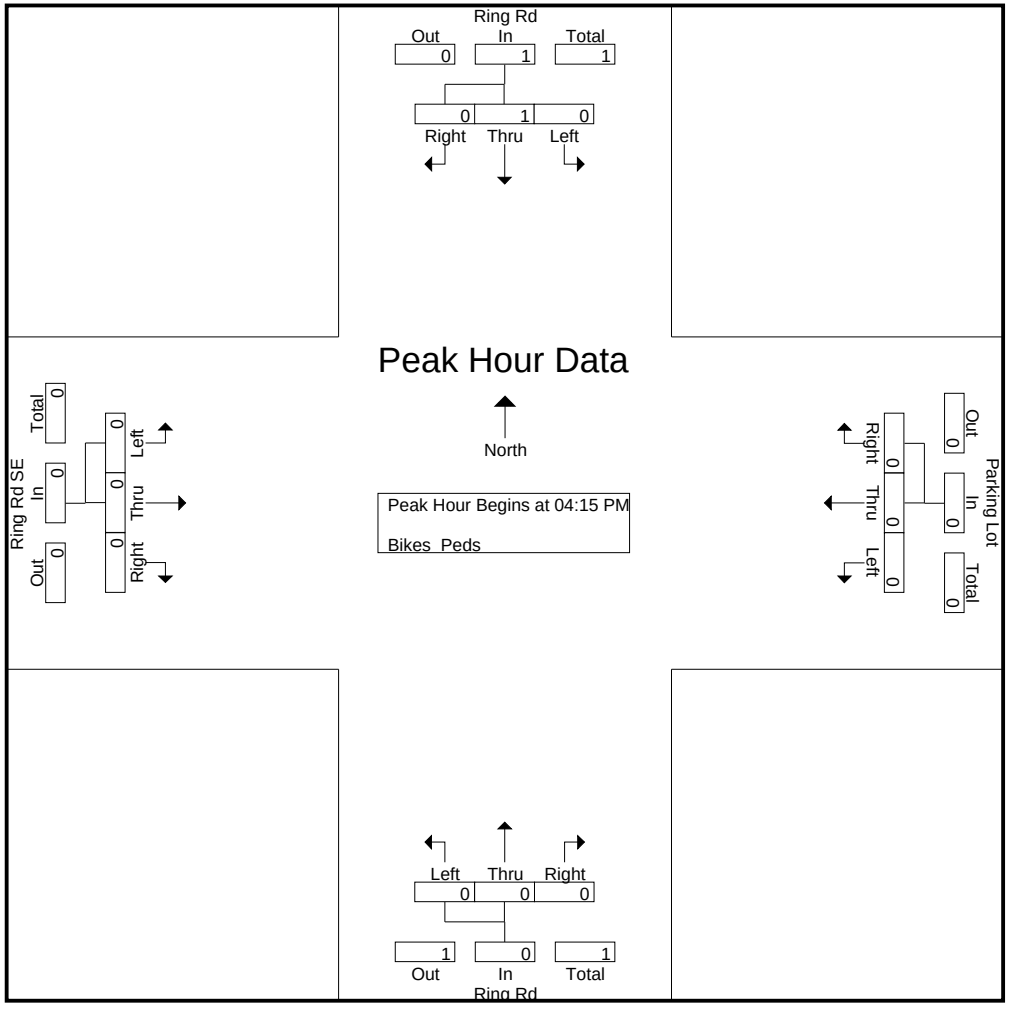
	Ring Rd From North				Parking Lot From East				Ring Rd From South				Ring Rd SE From West						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1
05:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Grand Total	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1	2
Apprch %	0	100	0		0	0	0		0	0	0		0	0	0				
Total %	0	100	0		0	0	0		0	0	0		0	0	0		50	50	

	Ring Rd From North				Parking Lot From East				Ring Rd From South				Ring Rd SE From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**1**
Total Volume	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	100	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250

Accurate Counts
978-664-2565

N/S Street : Ring Road
E/W Street : Ring Road SE
City/State : Framingham, MA
Weather : Rain

File Name : 16140008
Site Code : 16140008
Start Date : 7/23/2013
Page No : 2



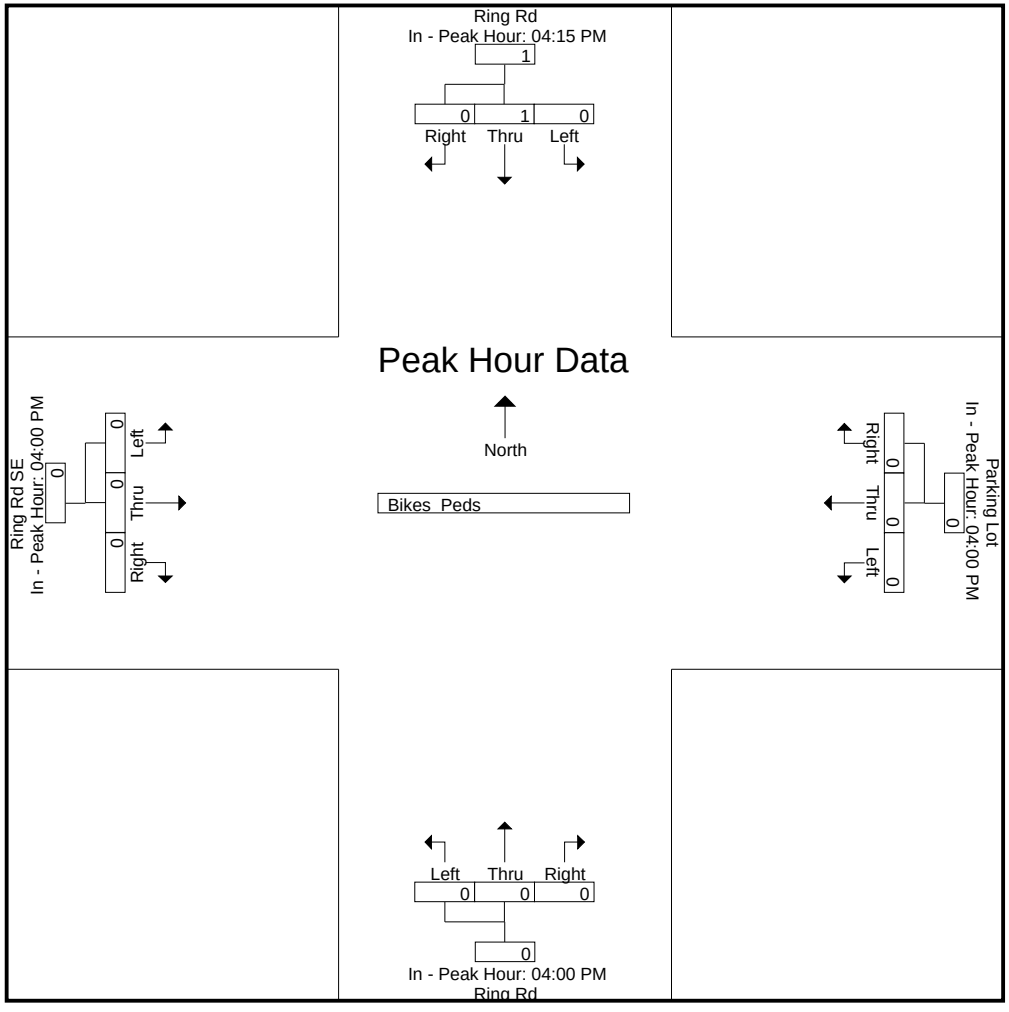
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	100	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts
978-664-2565

N/S Street : Ring Road
E/W Street : Ring Road SE
City/State : Framingham, MA
Weather : Rain

File Name : 16140008
Site Code : 16140008
Start Date : 7/23/2013
Page No : 3



Accurate Counts
978-664-2565

N/S Street : Ring Road East / Plaza Dr
E/W Street: Worcester Road (Route 9)
City/State : Framingham, MA
Weather : Rain

File Name : 16140009
Site Code : 16140009
Start Date : 7/23/2013
Page No : 1

Groups Printed- Cars - Trucks

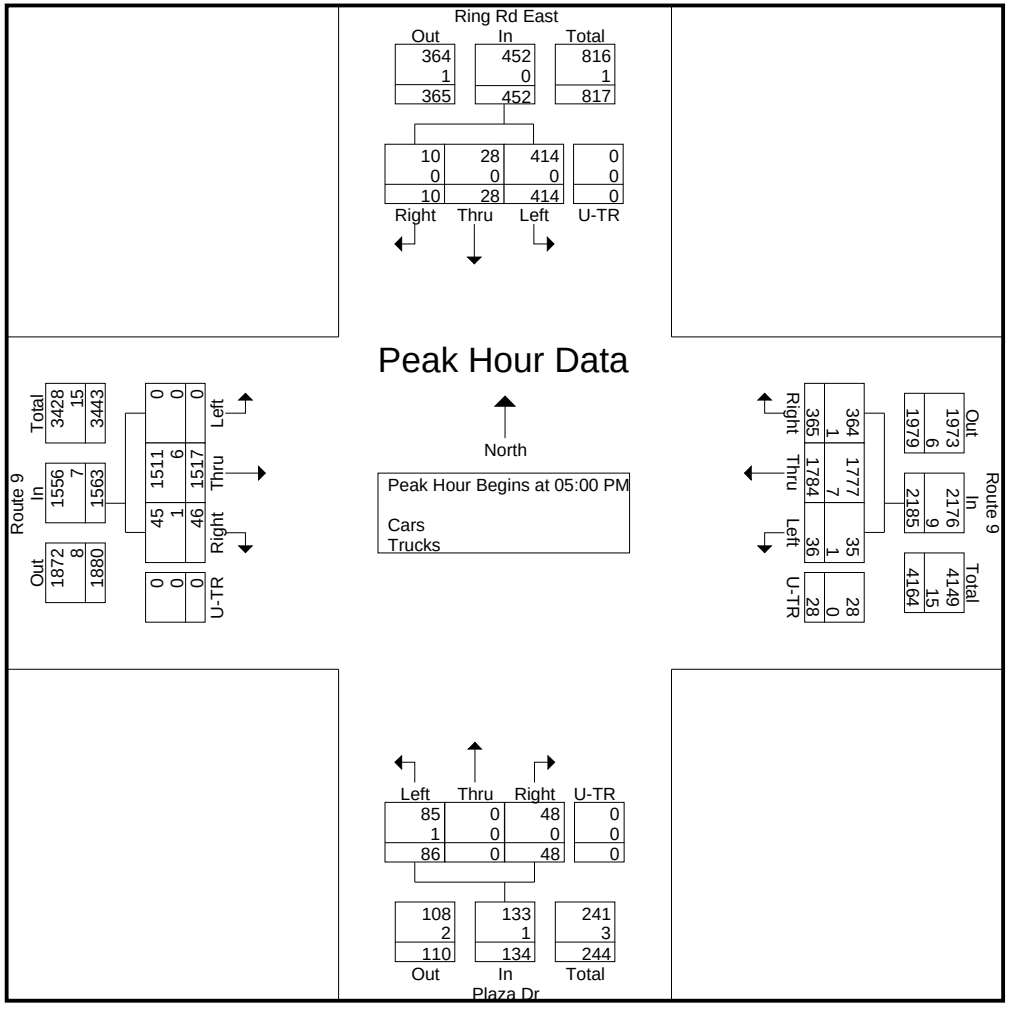
	Ring Rd East From North				Route 9 From East				Plaza Dr From South				Route 9 From West				
Start Time	Left	Thru	Right	U-TR	Left	Thru	Right	U-TR	Left	Thru	Right	U-TR	Left	Thru	Right	U-TR	Int. Total
04:00 PM	73	9	4	0	11	472	69	10	24	0	11	0	0	376	13	0	1072
04:15 PM	79	10	2	0	12	405	98	2	15	0	20	0	0	344	10	0	997
04:30 PM	80	9	7	0	9	424	84	2	17	0	4	0	0	356	13	0	1005
04:45 PM	83	9	2	0	14	369	78	7	23	0	9	0	0	360	9	0	963
Total	315	37	15	0	46	1670	329	21	79	0	44	0	0	1436	45	0	4037
05:00 PM	115	6	4	0	8	430	95	9	24	0	13	0	0	374	15	0	1093
05:15 PM	101	8	3	0	10	466	99	3	16	0	5	0	0	409	10	0	1130
05:30 PM	101	7	2	0	10	452	90	7	26	0	12	0	0	374	11	0	1092
05:45 PM	97	7	1	0	8	436	81	9	20	0	18	0	0	360	10	0	1047
Total	414	28	10	0	36	1784	365	28	86	0	48	0	0	1517	46	0	4362
Grand Total	729	65	25	0	82	3454	694	49	165	0	92	0	0	2953	91	0	8399
Apprch %	89	7.9	3.1	0	1.9	80.7	16.2	1.1	64.2	0	35.8	0	0	97	3	0	
Total %	8.7	0.8	0.3	0	1	41.1	8.3	0.6	2	0	1.1	0	0	35.2	1.1	0	
Cars	728	65	25	0	81	3436	692	49	164	0	92	0	0	2931	90	0	8353
% Cars	99.9	100	100	0	98.8	99.5	99.7	100	99.4	0	100	0	0	99.3	98.9	0	99.5
Trucks	1	0	0	0	1	18	2	0	1	0	0	0	0	22	1	0	46
% Trucks	0.1	0	0	0	1.2	0.5	0.3	0	0.6	0	0	0	0	0.7	1.1	0	0.5

	Ring Rd East From North					Route 9 From East					Plaza Dr From South					Route 9 From West					
Start Time	Left	Thru	Right	U-TR	App. Total	Left	Thru	Right	U-TR	App. Total	Left	Thru	Right	U-TR	App. Total	Left	Thru	Right	U-TR	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	**115**	6	**4**	0	**125**	8	430	95	**9**	542	24	0	13	0	37	0	374	**15**	0	389	1093
05:15 PM	101	**8**	3	0	112	**10**	**466**	**99**	3	**578**	16	0	5	0	21	0	**409**	10	0	**419**	**1130**
05:30 PM	101	7	2	0	110	10	452	90	7	559	**26**	0	12	0	**38**	0	374	11	0	385	1092
05:45 PM	97	7	1	0	105	8	436	81	9	534	20	0	**18**	0	38	0	360	10	0	370	1047
Total Volume	414	28	10	0	452	36	1784	365	28	2213	86	0	48	0	134	0	1517	46	0	1563	4362
% App. Total	91.6	6.2	2.2	0		1.6	80.6	16.5	1.3		64.2	0	35.8	0		0	97.1	2.9	0		
PHF	.900	.875	.625	.000	.904	.900	.957	.922	.778	.957	.827	.000	.667	.000	.882	.000	.927	.767	.000	.933	.965
Cars	414	28	10	0	452	35	1777	364	28	2204	85	0	48	0	133	0	1511	45	0	1556	4345
% Cars	100	100	100	0	100	97.2	99.6	99.7	100	99.6	98.8	0	100	0	99.3	0	99.6	97.8	0	99.6	99.6
Trucks	0	0	0	0	0	1	7	1	0	9	1	0	0	0	1	0	6	1	0	7	17
% Trucks	0	0	0	0	0	2.8	0.4	0.3	0	0.4	1.2	0	0	0	0.7	0	0.4	2.2	0	0.4	0.4

Accurate Counts
978-664-2565

N/S Street : Ring Road East / Plaza Dr
E/W Street: Worcester Road (Route 9)
City/State : Framingham, MA
Weather : Rain

File Name : 16140009
Site Code : 16140009
Start Date : 7/23/2013
Page No : 2

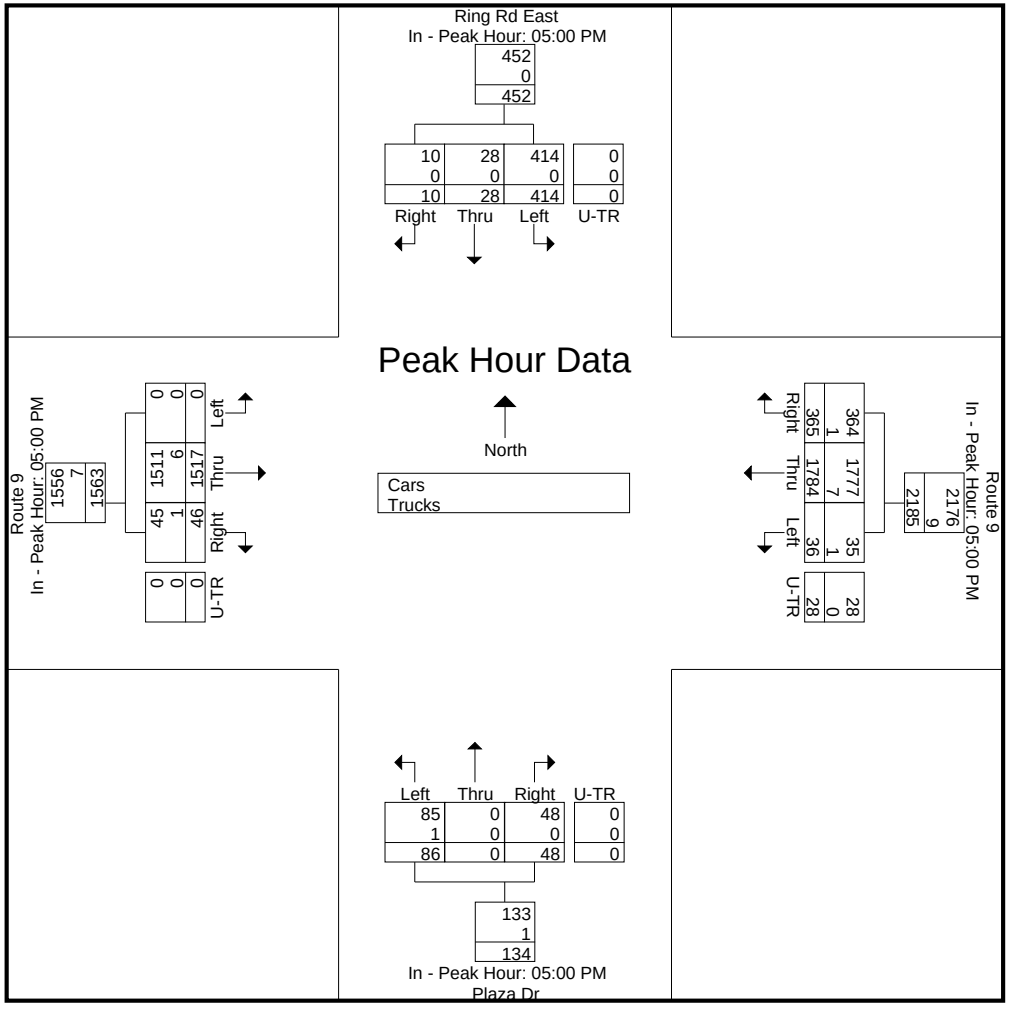


Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM					05:00 PM					05:00 PM					05:00 PM				
+0 mins.	**115**	6	**4**	0	**125**	8	430	95	**9**	542	24	0	13	0	37	0	374	**15**	0	389
+15 mins.	101	**8**	3	0	112	**10**	**466**	**99**	3	**578**	16	0	5	0	21	0	**409**	10	0	**419**
+30 mins.	101	7	2	0	110	10	452	90	7	559	**26**	0	12	0	**38**	0	374	11	0	385
+45 mins.	97	7	1	0	105	8	436	81	9	534	20	0	**18**	0	38	0	360	10	0	370
Total Volume	414	28	10	0	452	36	1784	365	28	2213	86	0	48	0	134	0	1517	46	0	1563
% App. Total	91.6	6.2	2.2	0		1.6	80.6	16.5	1.3		64.2	0	35.8	0		0	97.1	2.9	0	
PHF	.900	.875	.625	.000	.904	.900	.957	.922	.778	.957	.827	.000	.667	.000	.882	.000	.927	.767	.000	.933
Cars	414	28	10	0	452	35	1777	364	28	2204	85	0	48	0	133	0	1511	45	0	1556
% Cars	100	100	100	0	100	97.2	99.6	99.7	100	99.6	98.8	0	100	0	99.3	0	99.6	97.8	0	99.6
Trucks	0	0	0	0	0	1	7	1	0	9	1	0	0	0	1	0	6	1	0	7

Accurate Counts
978-664-2565

Peak Hour Data



Accurate Counts
978-664-2565

N/S Street : Ring Road East / Plaza Dr
E/W Street: Worcester Road (Route 9)
City/State : Framingham, MA
Weather : Rain

File Name : 16140009
Site Code : 16140009
Start Date : 7/23/2013
Page No : 1

Groups Printed- Cars

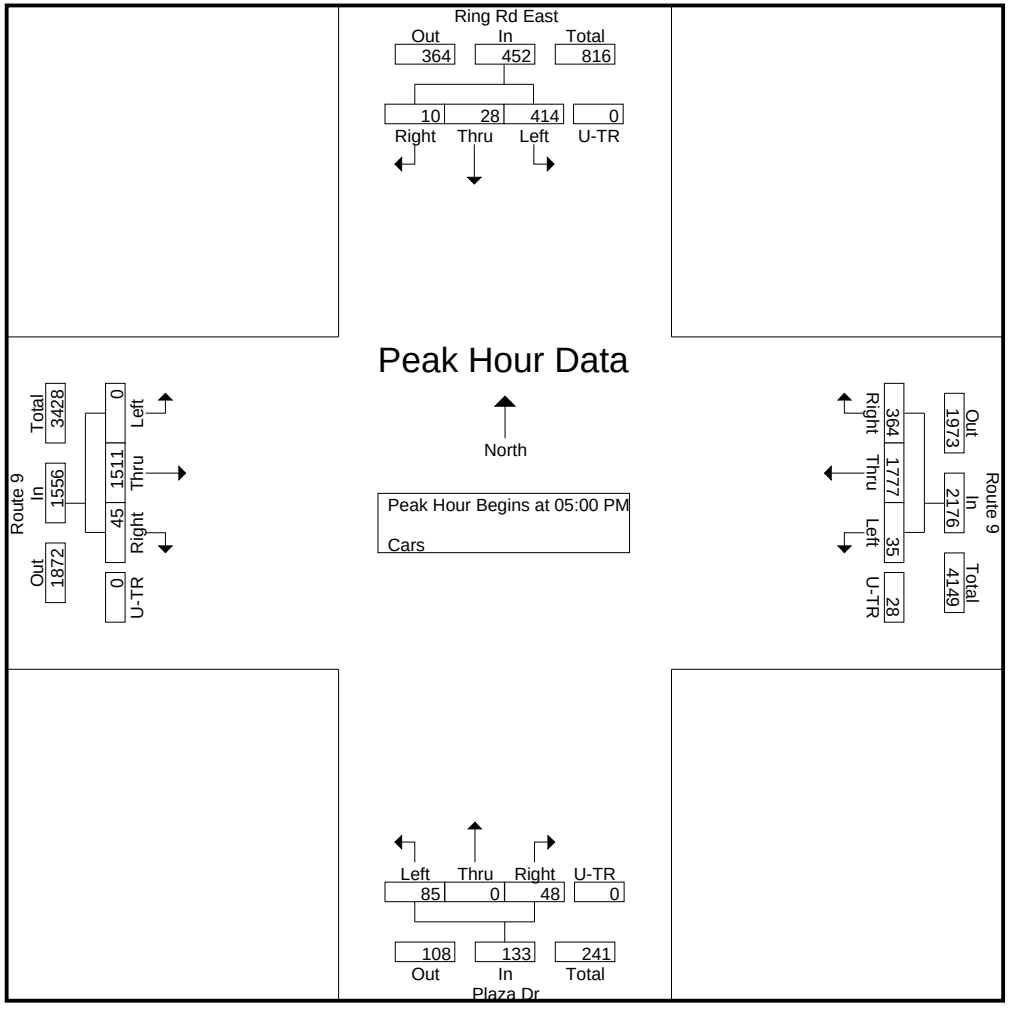
	Ring Rd East From North				Route 9 From East				Plaza Dr From South				Route 9 From West				
Start Time	Left	Thru	Right	U-TR	Left	Thru	Right	U-TR	Left	Thru	Right	U-TR	Left	Thru	Right	U-TR	Int. Total
04:00 PM	73	9	4	0	11	469	69	10	24	0	11	0	0	372	13	0	1065
04:15 PM	79	10	2	0	12	402	98	2	15	0	20	0	0	337	10	0	987
04:30 PM	79	9	7	0	9	421	84	2	17	0	4	0	0	354	13	0	999
04:45 PM	83	9	2	0	14	367	77	7	23	0	9	0	0	357	9	0	957
Total	314	37	15	0	46	1659	328	21	79	0	44	0	0	1420	45	0	4008
05:00 PM	115	6	4	0	8	429	95	9	23	0	13	0	0	373	14	0	1089
05:15 PM	101	8	3	0	9	463	99	3	16	0	5	0	0	407	10	0	1124
05:30 PM	101	7	2	0	10	450	89	7	26	0	12	0	0	371	11	0	1086
05:45 PM	97	7	1	0	8	435	81	9	20	0	18	0	0	360	10	0	1046
Total	414	28	10	0	35	1777	364	28	85	0	48	0	0	1511	45	0	4345
Grand Total	728	65	25	0	81	3436	692	49	164	0	92	0	0	2931	90	0	8353
Apprch %	89	7.9	3.1	0	1.9	80.7	16.3	1.2	64.1	0	35.9	0	0	97	3	0	
Total %	8.7	0.8	0.3	0	1	41.1	8.3	0.6	2	0	1.1	0	0	35.1	1.1	0	

	Ring Rd East From North					Route 9 From East					Plaza Dr From South					Route 9 From West					
Start Time	Left	Thru	Right	U-TR	App. Total	Left	Thru	Right	U-TR	App. Total	Left	Thru	Right	U-TR	App. Total	Left	Thru	Right	U-TR	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	**115**	6	**4**	0	**125**	8	429	95	**9**	541	23	0	13	0	36	0	373	**14**	0	387	1089
05:15 PM	101	**8**	3	0	112	9	**463**	**99**	3	**574**	16	0	5	0	21	0	**407**	10	0	**417**	**1124**
05:30 PM	101	7	2	0	110	**10**	450	89	7	556	**26**	0	12	0	**38**	0	371	11	0	382	1086
05:45 PM	97	7	1	0	105	8	435	81	9	533	20	0	**18**	0	38	0	360	10	0	370	1046
Total Volume	414	28	10	0	452	35	1777	364	28	2204	85	0	48	0	133	0	1511	45	0	1556	4345
% App. Total	91.6	6.2	2.2	0		1.6	80.6	16.5	1.3		63.9	0	36.1	0		0	97.1	2.9	0		
PHF	.900	.875	.625	.000	.904	.875	.960	.919	.778	.960	.817	.000	.667	.000	.875	.000	.928	.804	.000	.933	.966

Accurate Counts
978-664-2565

N/S Street : Ring Road East / Plaza Dr
E/W Street: Worcester Road (Route 9)
City/State : Framingham, MA
Weather : Rain

File Name : 16140009
Site Code : 16140009
Start Date : 7/23/2013
Page No : 2



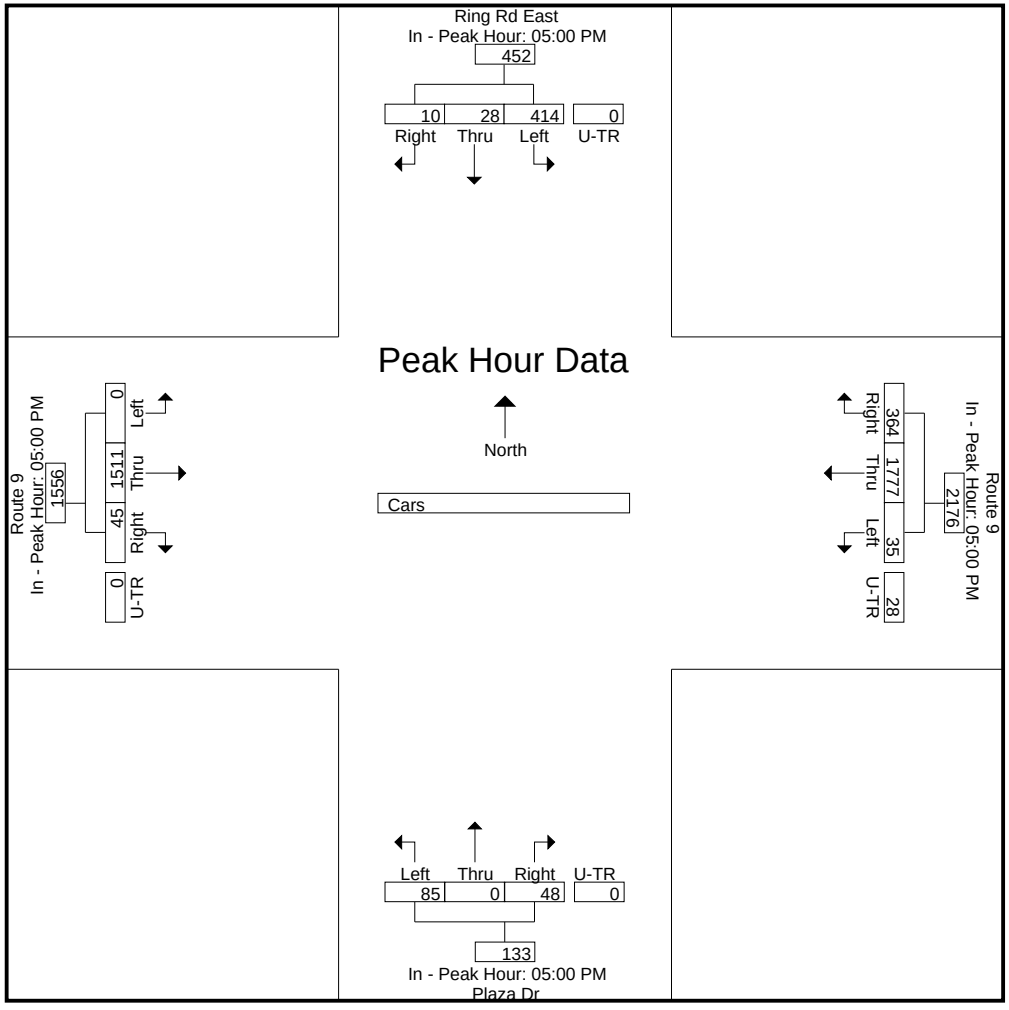
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM					05:00 PM					05:00 PM					05:00 PM				
+0 mins.	**115**	6	**4**	0	**125**	8	429	95	**9**	541	23	0	13	0	36	0	373	**14**	0	387
+15 mins.	101	**8**	3	0	112	9	**463**	**99**	3	**574**	16	0	5	0	21	0	**407**	10	0	**417**
+30 mins.	101	7	2	0	110	**10**	450	89	7	556	**26**	0	12	0	**38**	0	371	11	0	382
+45 mins.	97	7	1	0	105	8	435	81	9	533	20	0	**18**	0	38	0	360	10	0	370
Total Volume	414	28	10	0	452	35	1777	364	28	2204	85	0	48	0	133	0	1511	45	0	1556
% App. Total	91.6	6.2	2.2	0		1.6	80.6	16.5	1.3		63.9	0	36.1	0		0	97.1	2.9	0	
PHF	.900	.875	.625	.000	.904	.875	.960	.919	.778	.960	.817	.000	.667	.000	.875	.000	.928	.804	.000	.933

Accurate Counts
978-664-2565

N/S Street : Ring Road East / Plaza Dr
E/W Street: Worcester Road (Route 9)
City/State : Framingham, MA
Weather : Rain

File Name : 16140009
Site Code : 16140009
Start Date : 7/23/2013
Page No : 3



Accurate Counts
978-664-2565

N/S Street : Ring Road East / Plaza Dr
E/W Street: Worcester Road (Route 9)
City/State : Framingham, MA
Weather : Rain

File Name : 16140009
Site Code : 16140009
Start Date : 7/23/2013
Page No : 1

Groups Printed- Trucks

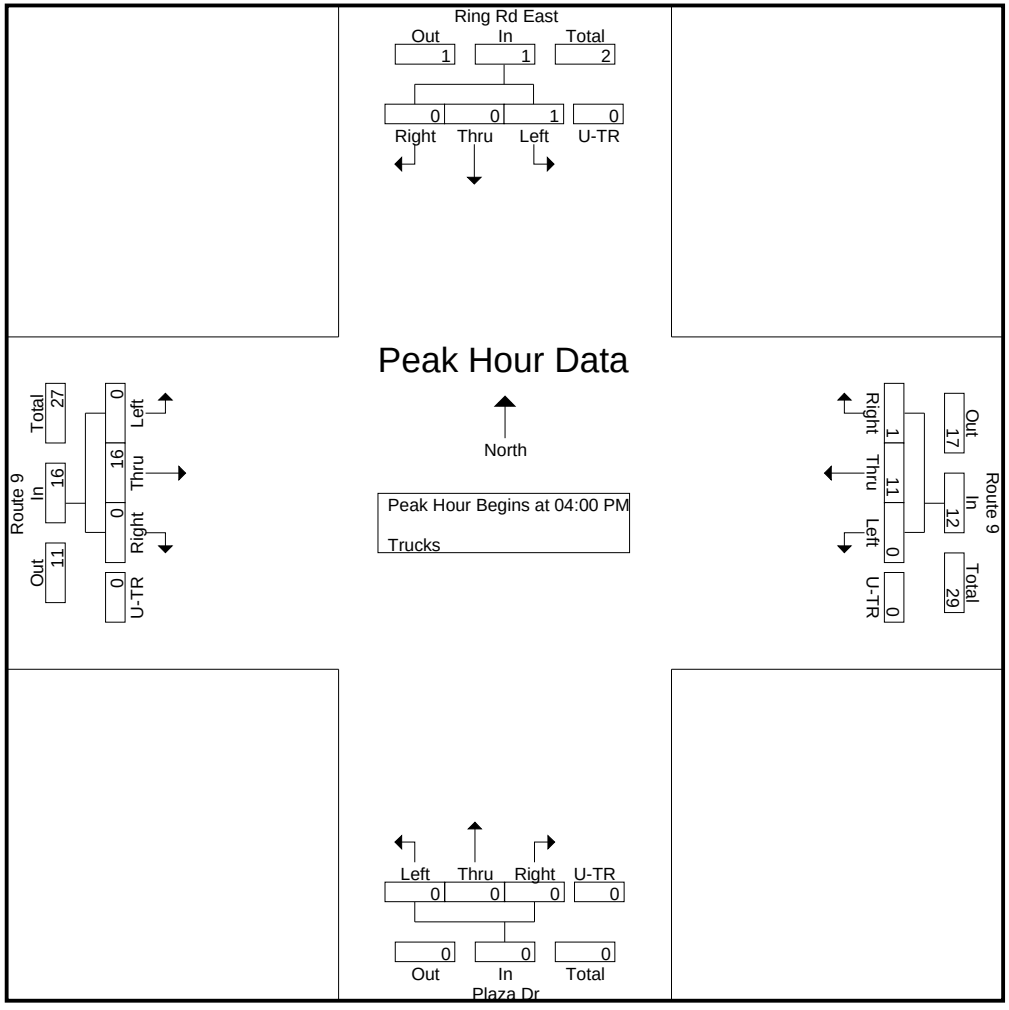
	Ring Rd East From North				Route 9 From East				Plaza Dr From South				Route 9 From West				
Start Time	Left	Thru	Right	U-TR	Left	Thru	Right	U-TR	Left	Thru	Right	U-TR	Left	Thru	Right	U-TR	Int. Total
04:00 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	4	0	0	7
04:15 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	7	0	0	10
04:30 PM	1	0	0	0	0	3	0	0	0	0	0	0	0	2	0	0	6
04:45 PM	0	0	0	0	0	2	1	0	0	0	0	0	0	3	0	0	6
Total	1	0	0	0	0	11	1	0	0	0	0	0	0	16	0	0	29
05:00 PM	0	0	0	0	0	1	0	0	1	0	0	0	0	1	1	0	4
05:15 PM	0	0	0	0	1	3	0	0	0	0	0	0	0	2	0	0	6
05:30 PM	0	0	0	0	0	2	1	0	0	0	0	0	0	3	0	0	6
05:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	1	7	1	0	1	0	0	0	0	6	1	0	17
Grand Total	1	0	0	0	1	18	2	0	1	0	0	0	0	22	1	0	46
Apprch %	100	0	0	0	4.8	85.7	9.5	0	100	0	0	0	0	95.7	4.3	0	
Total %	2.2	0	0	0	2.2	39.1	4.3	0	2.2	0	0	0	0	47.8	2.2	0	

	Ring Rd East From North					Route 9 From East					Plaza Dr From South					Route 9 From West					
Start Time	Left	Thru	Right	U-TR	App. Total	Left	Thru	Right	U-TR	App. Total	Left	Thru	Right	U-TR	App. Total	Left	Thru	Right	U-TR	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	0	0	0	0	**3**	0	0	**3**	0	0	0	0	0	0	4	0	0	4	7
04:15 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	**7**	0	0	**7**	**10**
04:30 PM	**1**	0	0	0	**1**	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	6
04:45 PM	0	0	0	0	0	0	2	**1**	0	3	0	0	0	0	0	0	3	0	0	3	6
Total Volume	1	0	0	0	1	0	11	1	0	12	0	0	0	0	0	0	16	0	0	16	29
% App. Total	100	0	0	0		0	91.7	8.3	0		0	0	0	0		0	100	0	0		
PHF	.250	.000	.000	.000	.250	.000	.917	.250	.000	1.00	.000	.000	.000	.000	.000	.000	.571	.000	.000	.571	.725

Accurate Counts
978-664-2565

N/S Street : Ring Road East / Plaza Dr
E/W Street: Worcester Road (Route 9)
City/State : Framingham, MA
Weather : Rain

File Name : 16140009
Site Code : 16140009
Start Date : 7/23/2013
Page No : 2



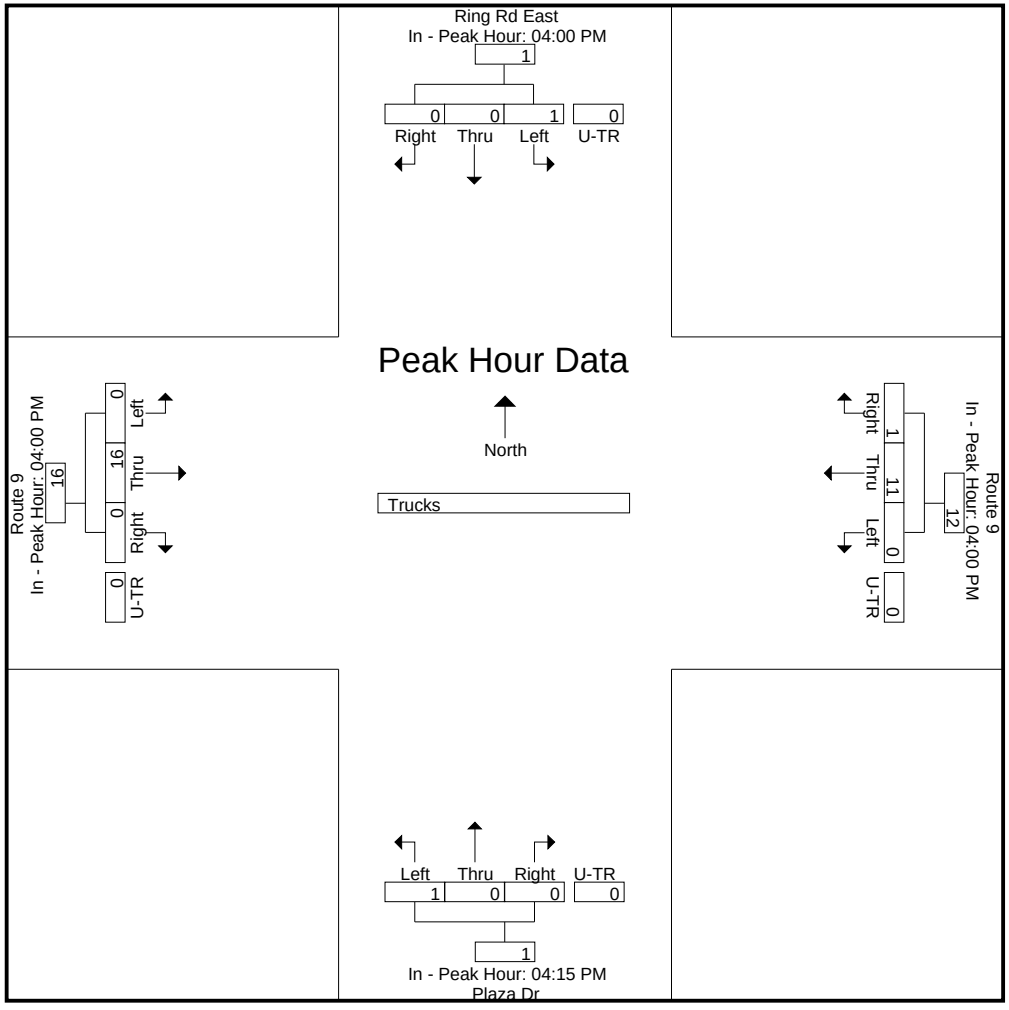
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM					04:00 PM					04:15 PM					04:00 PM				
+0 mins.	0	0	0	0	0	0	**3**	0	0	**3**	0	0	0	0	0	0	4	0	0	4
+15 mins.	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	**7**	0	0	**7**
+30 mins.	**1**	0	0	0	**1**	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2
+45 mins.	0	0	0	0	0	0	2	**1**	0	3	**1**	0	0	0	**1**	0	3	0	0	3
Total Volume	1	0	0	0	1	0	11	1	0	12	1	0	0	0	1	0	16	0	0	16
% App. Total	100	0	0	0		0	91.7	8.3	0		100	0	0	0		0	100	0	0	
PHF	.250	.000	.000	.000	.250	.000	.917	.250	.000	1.000	.250	.000	.000	.000	.250	.000	.571	.000	.000	.571

Accurate Counts
978-664-2565

N/S Street : Ring Road East / Plaza Dr
E/W Street: Worcester Road (Route 9)
City/State : Framingham, MA
Weather : Rain

File Name : 16140009
Site Code : 16140009
Start Date : 7/23/2013
Page No : 3



Accurate Counts
978-664-2565

N/S Street : Ring Road East / Plaza Dr
E/W Street: Worcester Road (Route 9)
City/State : Framingham, MA
Weather : Rain

File Name : 16140009
Site Code : 16140009
Start Date : 7/23/2013
Page No : 1

Groups Printed- Bikes Peds

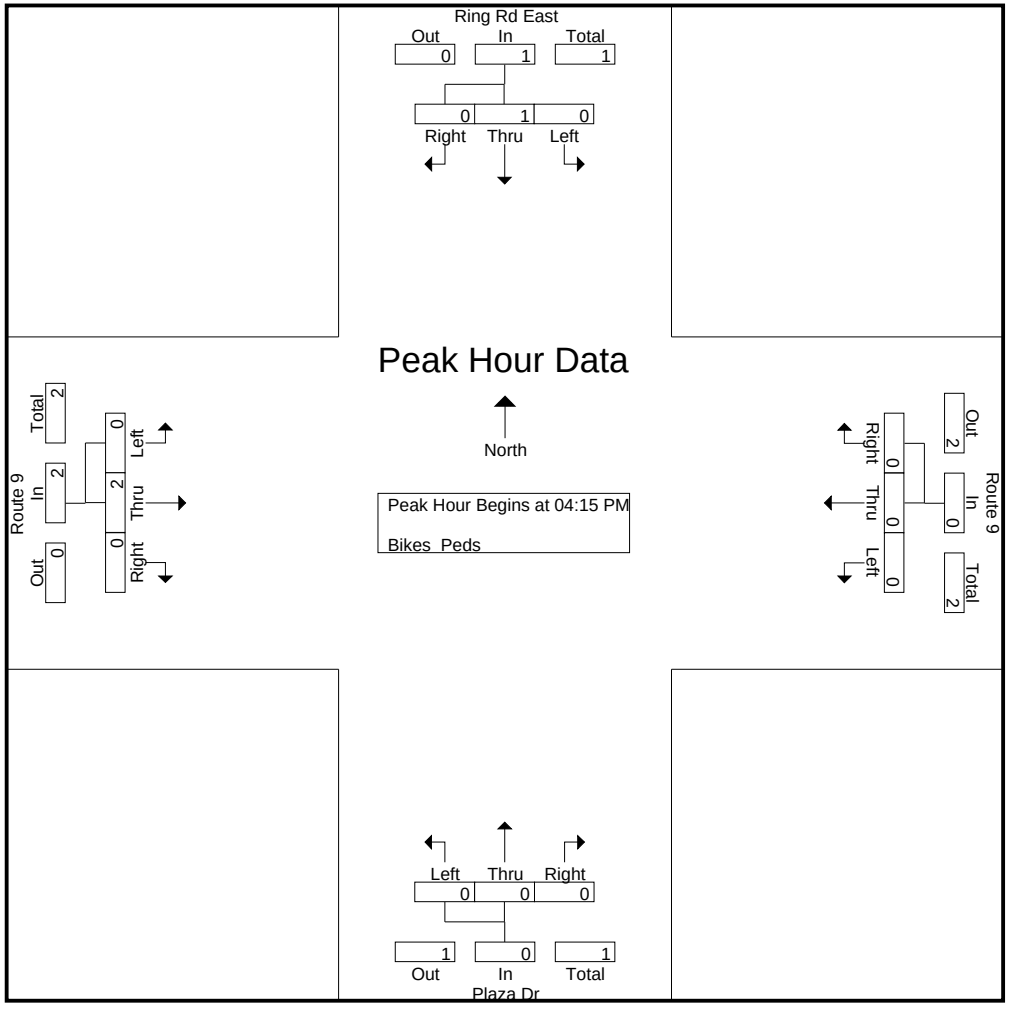
	Ring Rd East From North				Route 9 From East				Plaza Dr From South				Route 9 From West						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1
04:15 PM	0	0	0	10	0	0	0	0	0	0	0	2	0	1	0	0	12	1	13
04:30 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1
Total	0	0	0	12	0	0	0	0	0	0	0	4	0	1	0	0	16	1	17
05:00 PM	0	1	0	2	0	0	0	0	0	0	0	0	0	1	0	0	2	2	4
05:15 PM	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	2	0	2
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Total	0	1	0	3	0	0	0	0	0	0	0	2	0	2	0	0	5	3	8
Grand Total	0	1	0	15	0	0	0	0	0	0	0	6	0	3	0	0	21	4	25
Apprch %	0	100	0		0	0	0		0	0	0		0	100	0				
Total %	0	25	0		0	0	0		0	0	0		0	75	0		84	16	

	Ring Rd East From North				Route 9 From East				Plaza Dr From South				Route 9 From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	1	0	1	**2**
Total Volume	0	1	0	1	0	0	0	0	0	0	0	0	0	2	0	2	3
% App. Total	0	100	0		0	0	0		0	0	0		0	100	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.500	.375

Accurate Counts
978-664-2565

N/S Street : Ring Road East / Plaza Dr
E/W Street: Worcester Road (Route 9)
City/State : Framingham, MA
Weather : Rain

File Name : 16140009
Site Code : 16140009
Start Date : 7/23/2013
Page No : 2



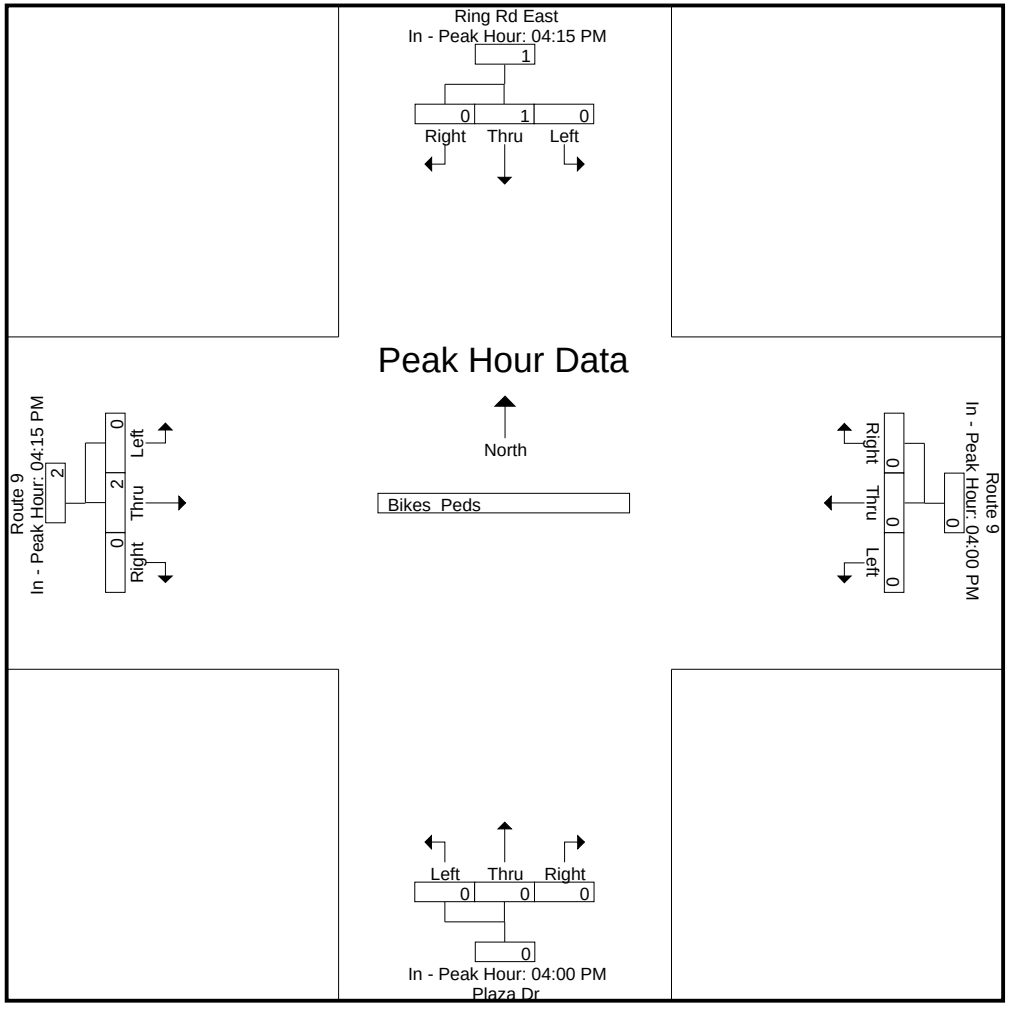
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:00 PM				04:00 PM				04:15 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	1	0	1
Total Volume	0	1	0	1	0	0	0	0	0	0	0	0	0	2	0	2
% App. Total	0	100	0		0	0	0		0	0	0		0	100	0	
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.500

Accurate Counts
978-664-2565

N/S Street : Ring Road East / Plaza Dr
E/W Street: Worcester Road (Route 9)
City/State : Framingham, MA
Weather : Rain

File Name : 16140009
Site Code : 16140009
Start Date : 7/23/2013
Page No : 3



Accurate Counts
978-664-2565

N/S Street : Ring Road Central
E/W Street : Worcester Road (Route 9)
City/State : Framingham, MA
Weather : Rain

File Name : 16140010
Site Code : 16140010
Start Date : 7/23/2013
Page No : 1

Groups Printed- Cars - Trucks

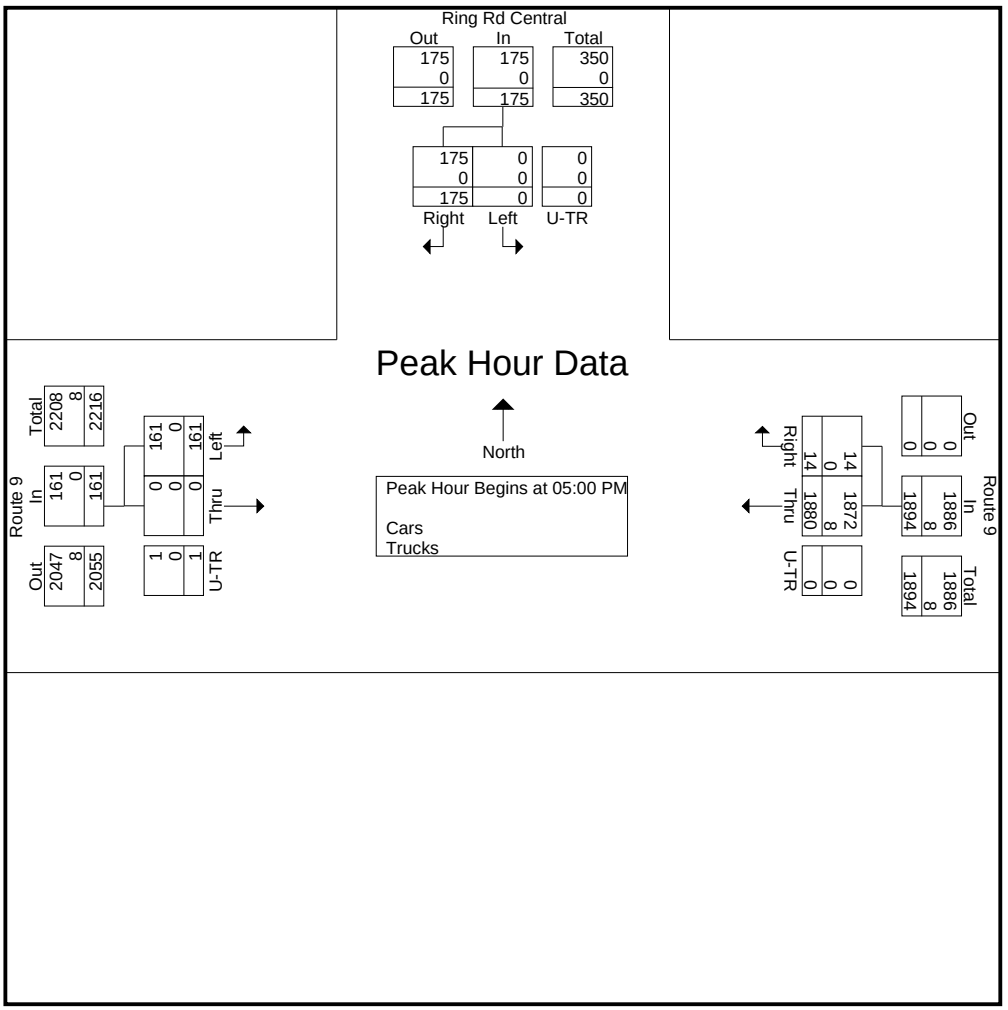
	Ring Rd Central From North			Route 9 From East			Route 9 From West			
Start Time	Left	Right	U-TR	Thru	Right	U-TR	Left	Thru	U-TR	Int. Total
04:00 PM	0	37	0	465	3	0	41	0	1	547
04:15 PM	0	43	0	461	1	0	52	0	1	558
04:30 PM	0	29	0	428	4	0	43	0	2	506
04:45 PM	0	43	0	421	1	0	31	0	2	498
Total	0	152	0	1775	9	0	167	0	6	2109
05:00 PM	0	44	0	434	3	0	48	0	1	530
05:15 PM	0	43	0	506	3	0	38	0	0	590
05:30 PM	0	41	0	459	3	0	34	0	0	537
05:45 PM	0	47	0	481	5	0	41	0	0	574
Total	0	175	0	1880	14	0	161	0	1	2231
Grand Total	0	327	0	3655	23	0	328	0	7	4340
Apprch %	0	100	0	99.4	0.6	0	97.9	0	2.1	
Total %	0	7.5	0	84.2	0.5	0	7.6	0	0.2	
Cars	0	326	0	3636	23	0	328	0	7	4320
% Cars	0	99.7	0	99.5	100	0	100	0	100	99.5
Trucks	0	1	0	19	0	0	0	0	0	20
% Trucks	0	0.3	0	0.5	0	0	0	0	0	0.5

	Ring Rd Central From North				Route 9 From East				Route 9 From West				
Start Time	Left	Right	U-TR	App. Total	Thru	Right	U-TR	App. Total	Left	Thru	U-TR	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	0	44	0	44	434	3	0	437	**48**	0	**1**	**49**	530
05:15 PM	0	43	0	43	**506**	3	0	**509**	38	0	0	38	**590**
05:30 PM	0	41	0	41	459	3	0	462	34	0	0	34	537
05:45 PM	0	**47**	0	**47**	481	**5**	0	486	41	0	0	41	574
Total Volume	0	175	0	175	1880	14	0	1894	161	0	1	162	2231
% App. Total	0	100	0		99.3	0.7	0		99.4	0	0.6		
PHF	.000	.931	.000	.931	.929	.700	.000	.930	.839	.000	.250	.827	.945
Cars	0	175	0	175	1872	14	0	1886	161	0	1	162	2223
% Cars	0	100	0	100	99.6	100	0	99.6	100	0	100	100	99.6
Trucks	0	0	0	0	8	0	0	8	0	0	0	0	8
% Trucks	0	0	0	0	0.4	0	0	0.4	0	0	0	0	0.4

Accurate Counts
978-664-2565

N/S Street : Ring Road Central
E/W Street : Worcester Road (Route 9)
City/State : Framingham, MA
Weather : Rain

File Name : 16140010
Site Code : 16140010
Start Date : 7/23/2013
Page No : 2



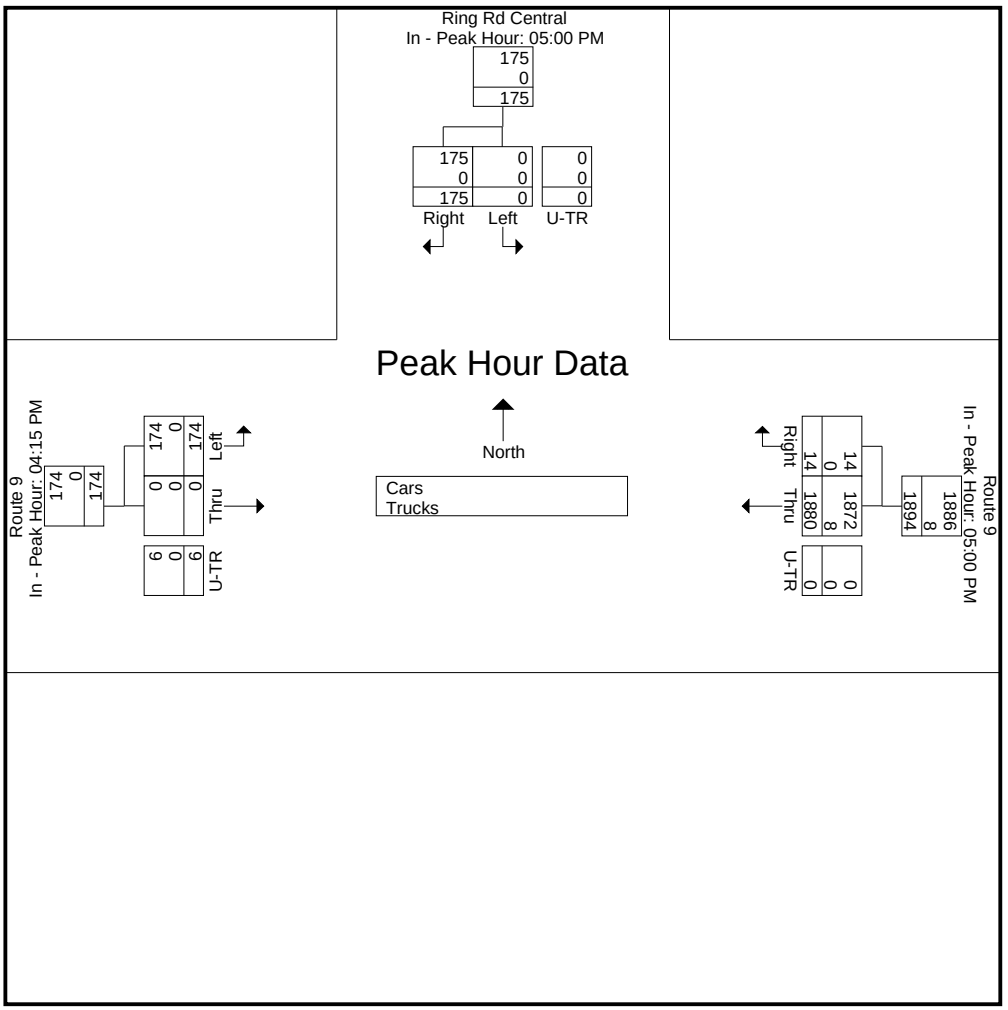
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				04:15 PM			
+0 mins.	0	44	0	44	434	3	0	437	**52**	0	1	**53**
+15 mins.	0	43	0	43	**506**	3	0	**509**	43	0	**2**	45
+30 mins.	0	41	0	41	459	3	0	462	31	0	2	33
+45 mins.	0	**47**	0	**47**	481	**5**	0	486	48	0	1	49
Total Volume	0	175	0	175	1880	14	0	1894	174	0	6	180
% App. Total	0	100	0		99.3	0.7	0		96.7	0	3.3	
PHF	.000	.931	.000	.931	.929	.700	.000	.930	.837	.000	.750	.849
Cars	0	175	0	175	1872	14	0	1886	174	0	6	180
% Cars	0	100	0	100	99.6	100	0	99.6	100	0	100	100
Trucks	0	0	0	0	8	0	0	8	0	0	0	0
% Trucks	0	0	0	0	0.4	0	0	0.4	0	0	0	0

Accurate Counts
978-664-2565

N/S Street : Ring Road Central
E/W Street : Worcester Road (Route 9)
City/State : Framingham, MA
Weather : Rain

File Name : 16140010
Site Code : 16140010
Start Date : 7/23/2013
Page No : 3



Accurate Counts
978-664-2565

N/S Street : Ring Road Central
E/W Street : Worcester Road (Route 9)
City/State : Framingham, MA
Weather : Rain

File Name : 16140010
Site Code : 16140010
Start Date : 7/23/2013
Page No : 1

Groups Printed- Cars

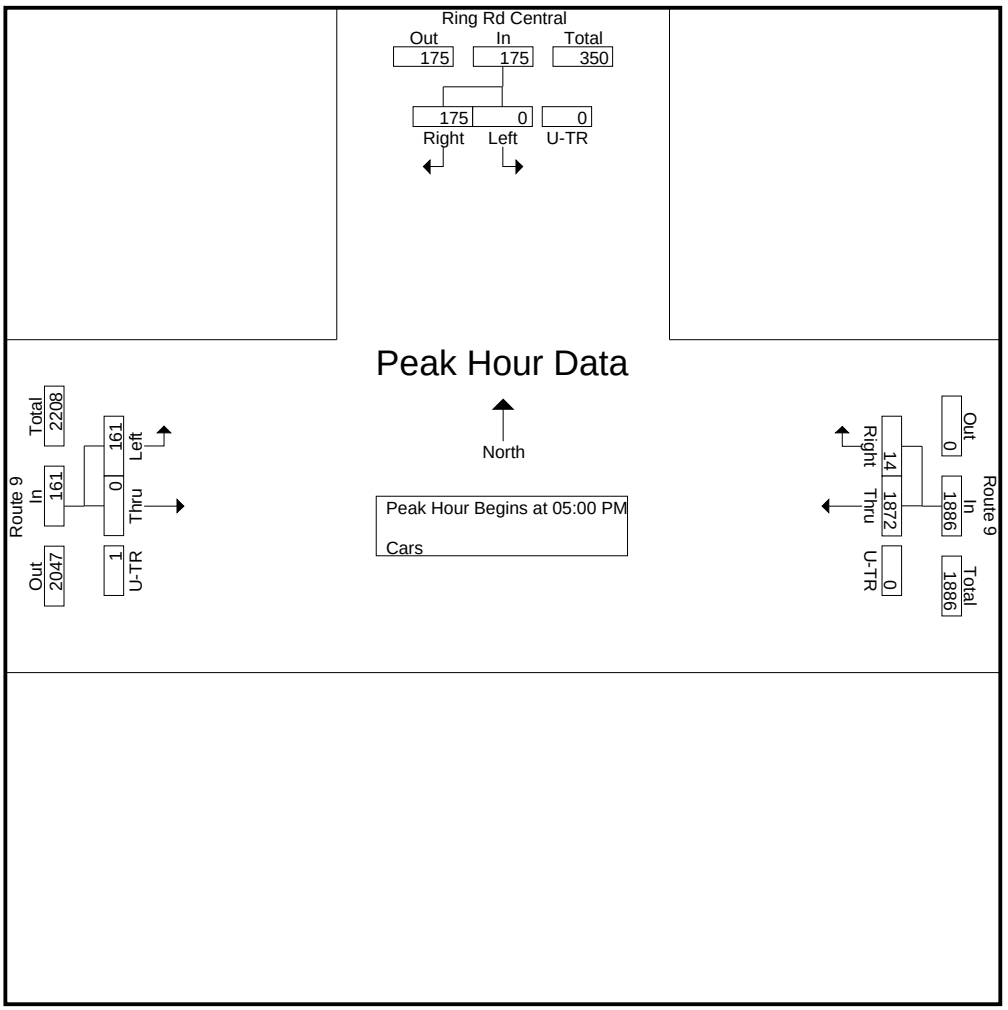
	Ring Rd Central From North			Route 9 From East			Route 9 From West			
Start Time	Left	Right	U-TR	Thru	Right	U-TR	Left	Thru	U-TR	Int. Total
04:00 PM	0	37	0	462	3	0	41	0	1	544
04:15 PM	0	42	0	458	1	0	52	0	1	554
04:30 PM	0	29	0	425	4	0	43	0	2	503
04:45 PM	0	43	0	419	1	0	31	0	2	496
Total	0	151	0	1764	9	0	167	0	6	2097
05:00 PM	0	44	0	432	3	0	48	0	1	528
05:15 PM	0	43	0	503	3	0	38	0	0	587
05:30 PM	0	41	0	457	3	0	34	0	0	535
05:45 PM	0	47	0	480	5	0	41	0	0	573
Total	0	175	0	1872	14	0	161	0	1	2223
Grand Total	0	326	0	3636	23	0	328	0	7	4320
Apprch %	0	100	0	99.4	0.6	0	97.9	0	2.1	
Total %	0	7.5	0	84.2	0.5	0	7.6	0	0.2	

	Ring Rd Central From North				Route 9 From East				Route 9 From West				
Start Time	Left	Right	U-TR	App. Total	Thru	Right	U-TR	App. Total	Left	Thru	U-TR	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	0	44	0	44	432	3	0	435	**48**	0	**1**	**49**	528
05:15 PM	0	43	0	43	**503**	3	0	**506**	38	0	0	38	**587**
05:30 PM	0	41	0	41	457	3	0	460	34	0	0	34	535
05:45 PM	0	**47**	0	**47**	480	**5**	0	485	41	0	0	41	573
Total Volume	0	175	0	175	1872	14	0	1886	161	0	1	162	2223
% App. Total	0	100	0		99.3	0.7	0		99.4	0	0.6		
PHF	.000	.931	.000	.931	.930	.700	.000	.932	.839	.000	.250	.827	.947

Accurate Counts
978-664-2565

N/S Street : Ring Road Central
E/W Street : Worcester Road (Route 9)
City/State : Framingham, MA
Weather : Rain

File Name : 16140010
Site Code : 16140010
Start Date : 7/23/2013
Page No : 2



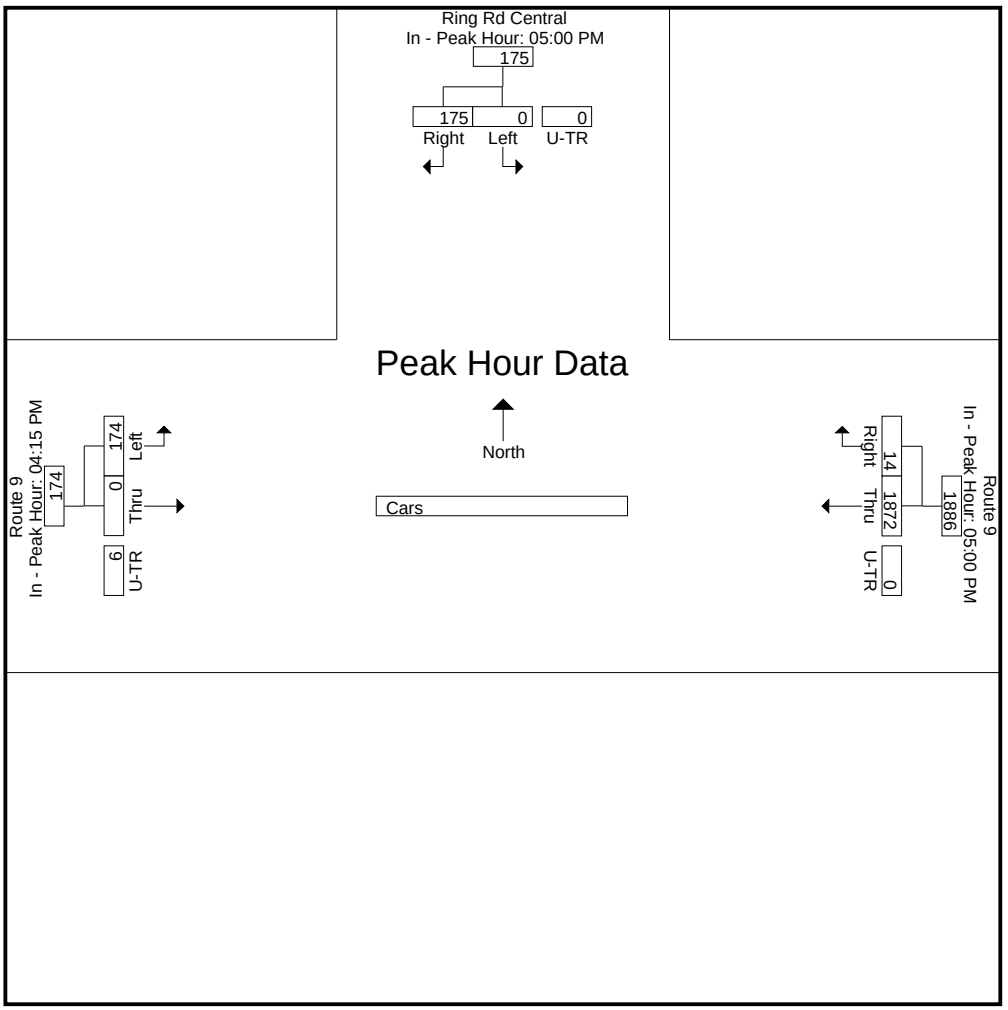
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				04:15 PM			
+0 mins.	0	44	0	44	432	3	0	435	**52**	0	1	**53**
+15 mins.	0	43	0	43	**503**	3	0	**506**	43	0	**2**	45
+30 mins.	0	41	0	41	457	3	0	460	31	0	2	33
+45 mins.	0	**47**	0	**47**	480	**5**	0	485	48	0	1	49
Total Volume	0	175	0	175	1872	14	0	1886	174	0	6	180
% App. Total	0	100	0		99.3	0.7	0		96.7	0	3.3	
PHF	.000	.931	.000	.931	.930	.700	.000	.932	.837	.000	.750	.849

Accurate Counts
978-664-2565

N/S Street : Ring Road Central
E/W Street : Worcester Road (Route 9)
City/State : Framingham, MA
Weather : Rain

File Name : 16140010
Site Code : 16140010
Start Date : 7/23/2013
Page No : 3



Accurate Counts
978-664-2565

N/S Street : Ring Road Central
E/W Street : Worcester Road (Route 9)
City/State : Framingham, MA
Weather : Rain

File Name : 16140010
Site Code : 16140010
Start Date : 7/23/2013
Page No : 1

Groups Printed- Trucks

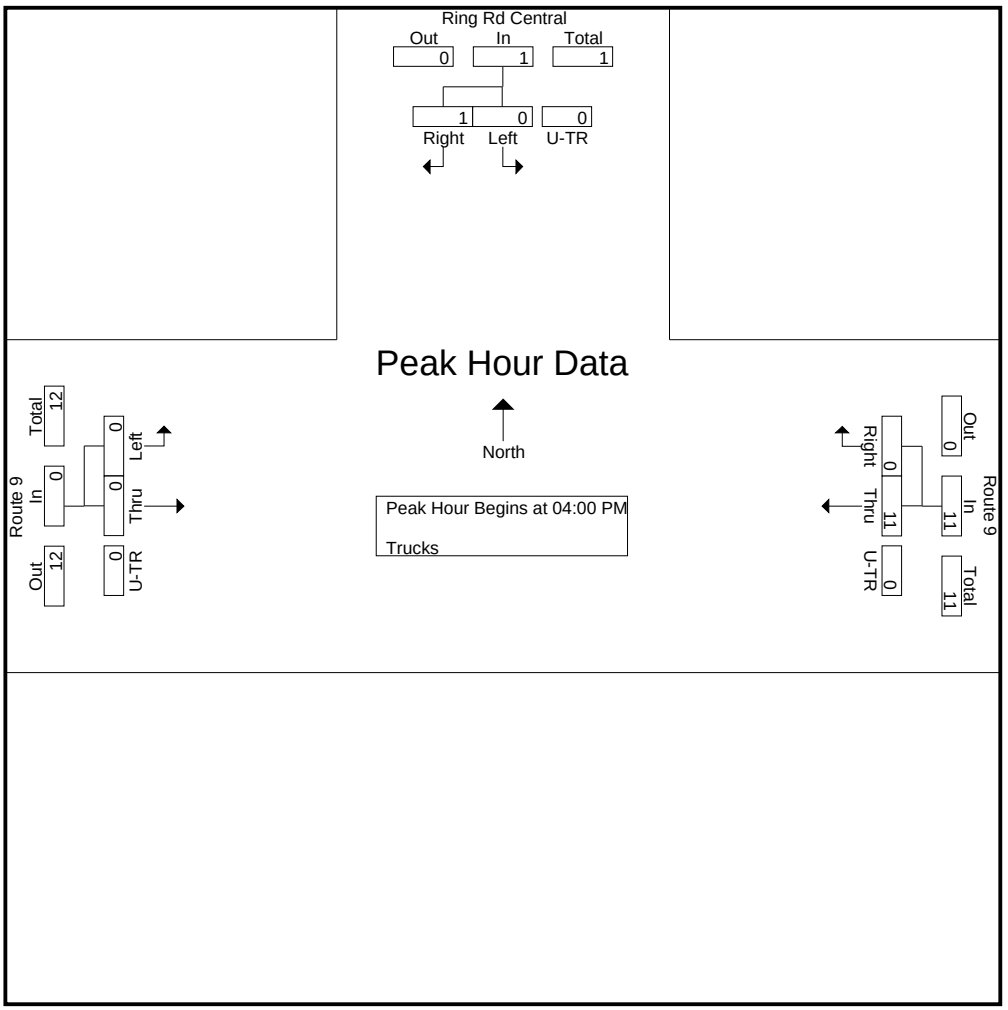
	Ring Rd Central From North			Route 9 From East			Route 9 From West			
Start Time	Left	Right	U-TR	Thru	Right	U-TR	Left	Thru	U-TR	Int. Total
04:00 PM	0	0	0	3	0	0	0	0	0	3
04:15 PM	0	1	0	3	0	0	0	0	0	4
04:30 PM	0	0	0	3	0	0	0	0	0	3
04:45 PM	0	0	0	2	0	0	0	0	0	2
Total	0	1	0	11	0	0	0	0	0	12
05:00 PM	0	0	0	2	0	0	0	0	0	2
05:15 PM	0	0	0	3	0	0	0	0	0	3
05:30 PM	0	0	0	2	0	0	0	0	0	2
05:45 PM	0	0	0	1	0	0	0	0	0	1
Total	0	0	0	8	0	0	0	0	0	8
Grand Total	0	1	0	19	0	0	0	0	0	20
Apprch %	0	100	0	100	0	0	0	0	0	
Total %	0	5	0	95	0	0	0	0	0	

	Ring Rd Central From North				Route 9 From East				Route 9 From West				
Start Time	Left	Right	U-TR	App. Total	Thru	Right	U-TR	App. Total	Left	Thru	U-TR	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:00 PM													
04:00 PM	0	0	0	0	**3**	0	0	**3**	0	0	0	0	3
04:15 PM	0	**1**	0	**1**	3	0	0	3	0	0	0	0	**4**
04:30 PM	0	0	0	0	3	0	0	3	0	0	0	0	3
04:45 PM	0	0	0	0	2	0	0	2	0	0	0	0	2
Total Volume	0	1	0	1	11	0	0	11	0	0	0	0	12
% App. Total	0	100	0		100	0	0		0	0	0		
PHF	.000	.250	.000	.250	.917	.000	.000	.917	.000	.000	.000	.000	.750

Accurate Counts
978-664-2565

N/S Street : Ring Road Central
E/W Street : Worcester Road (Route 9)
City/State : Framingham, MA
Weather : Rain

File Name : 16140010
Site Code : 16140010
Start Date : 7/23/2013
Page No : 2



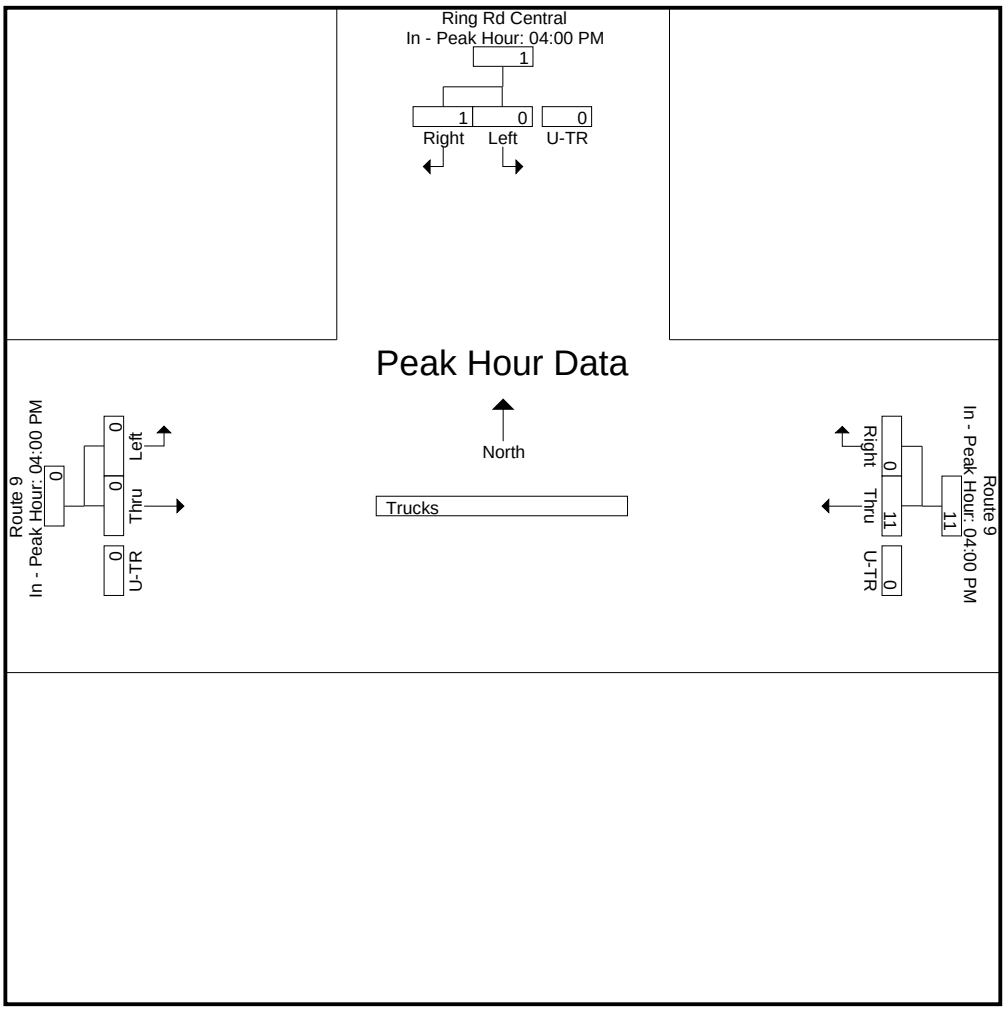
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	**3**	0	0	**3**	0	0	0	0
+15 mins.	0	**1**	0	**1**	3	0	0	3	0	0	0	0
+30 mins.	0	0	0	0	3	0	0	3	0	0	0	0
+45 mins.	0	0	0	0	2	0	0	2	0	0	0	0
Total Volume	0	1	0	1	11	0	0	11	0	0	0	0
% App. Total	0	100	0		100	0	0		0	0	0	
PHF	.000	.250	.000	.250	.917	.000	.000	.917	.000	.000	.000	.000

Accurate Counts
978-664-2565

N/S Street : Ring Road Central
E/W Street : Worcester Road (Route 9)
City/State : Framingham, MA
Weather : Rain

File Name : 16140010
Site Code : 16140010
Start Date : 7/23/2013
Page No : 3



Accurate Counts
978-664-2565

N/S Street : Ring Road Central
E/W Street : Worcester Road (Route 9)
City/State : Framingham, MA
Weather : Rain

File Name : 16140010
Site Code : 16140010
Start Date : 7/23/2013
Page No : 1

Groups Printed- Bikes Peds

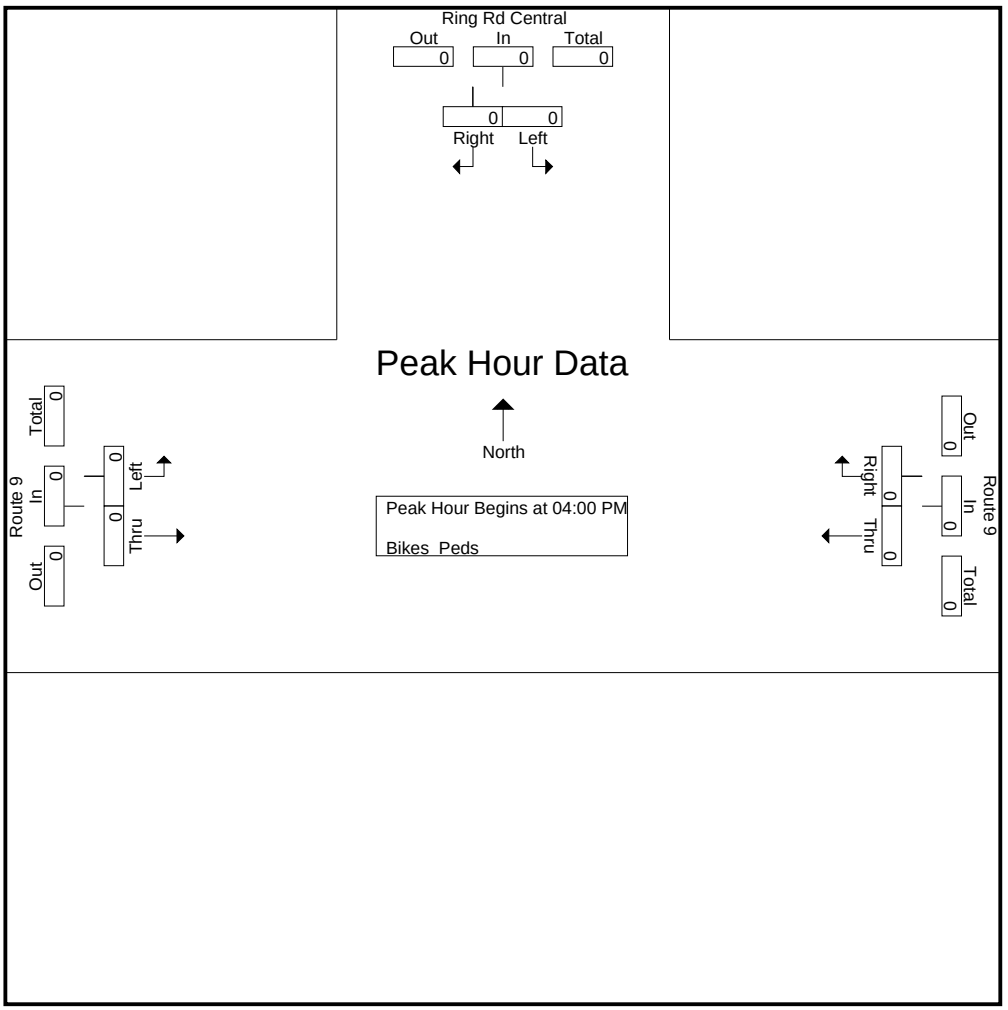
	Ring Rd Central From North			Route 9 From East			Route 9 From West					
Start Time	Left	Right	Peds	Thru	Right	Peds	Left	Thru	Peds	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	9	0	0	0	0	0	0	9	0	9
04:30 PM	0	0	1	0	0	0	0	0	0	1	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	10	0	0	0	0	0	0	10	0	10
05:00 PM	0	0	2	0	0	1	0	0	0	3	0	3
05:15 PM	0	0	0	0	0	1	0	0	0	1	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	2	0	0	2	0	0	0	4	0	4
Grand Total	0	0	12	0	0	2	0	0	0	14	0	14
Apprch %	0	0		0	0		0	0				
Total %										100	0	

	Ring Rd Central From North			Route 9 From East			Route 9 From West			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts
978-664-2565

N/S Street : Ring Road Central
E/W Street : Worcester Road (Route 9)
City/State : Framingham, MA
Weather : Rain

File Name : 16140010
Site Code : 16140010
Start Date : 7/23/2013
Page No : 2



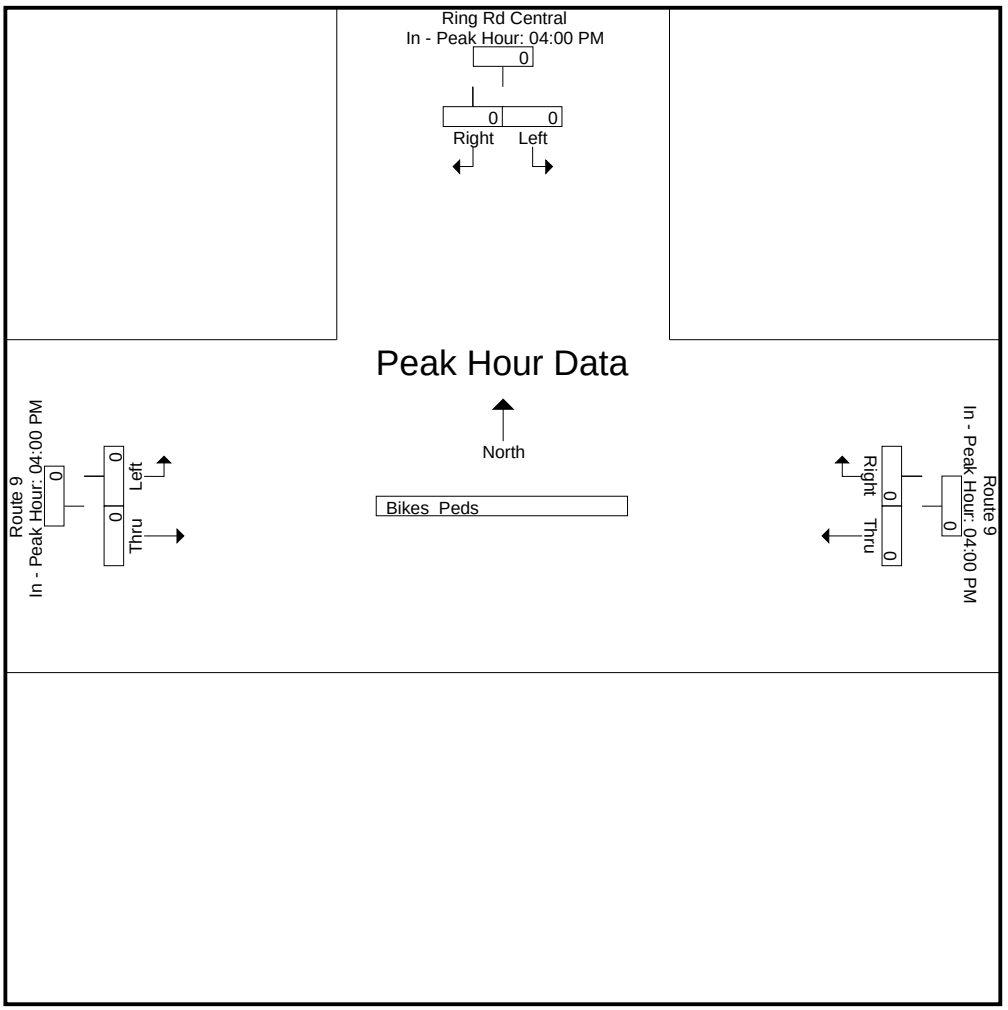
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts
978-664-2565

N/S Street : Ring Road Central
E/W Street : Worcester Road (Route 9)
City/State : Framingham, MA
Weather : Rain

File Name : 16140010
Site Code : 16140010
Start Date : 7/23/2013
Page No : 3



Public Transportation Schedules

ROUTE 1 AM

EASTBOUND	Central Hub	5:30 AM	5:55 AM													
	Concord & Howard	5:32 AM	5:57 AM													
	Flutie Pass	5:42 AM	6:05 AM													
	Natick Mall	**5:43 AM**	**6:06 AM**	**6:18 AM**	**6:46 AM**	**6:58 AM**	**7:25 AM**	**7:41 AM**	**8:08 AM**	**8:27 AM**	**8:53 AM**	**9:22 AM**	**9:46 AM**	**10:07 AM**	**10:53 AM**	**11:35 AM**
	MathWorks	5:47 AM	6:10 AM	6:22 AM	6:50 AM	7:02 AM	7:29 AM	7:45 AM	8:12 AM	8:31 AM	8:57 AM	9:26 AM	9:50 AM	10:11 AM	10:57 AM	11:39 AM
	Woodland	**6:00 AM**	**6:25 AM**	**6:35 AM**	**7:03 AM**	**7:19 AM**	**7:47 AM**	**8:04 AM**	**8:31 AM**	**8:52 AM**	**9:16 AM**	**9:42 AM**	**10:09 AM**	**10:27 AM**	**11:12 AM**	**11:54 AM**
WESTBOUND	**Woodland**	**6:00 AM**	**6:28 AM**	**6:40 AM**	**7:08 AM**	**7:24 AM**	**7:52 AM**	**8:09 AM**	**8:35 AM**	**9:02 AM**	**9:26 AM**	**9:47 AM**	**10:14 AM**	**10:32 AM**	**11:17 AM**	**11:59 AM**
	Natick Mall	**6:18 AM**	**6:46 AM**	**6:56 AM**	**7:24 AM**	**7:40 AM**	**8:08 AM**	**8:27 AM**	**8:53 AM**	**9:22 AM**	**9:46 AM**	**10:05 AM**	**10:32 AM**	**10:52 AM**	**11:35 AM**	**12:17 PM**
	Central Hub												10:37 AM			

ROUTE 1 PM

EASTBOUND	Central Hub			1:35 PM			3:35 PM											
	Concord & Howard																	
	Flutie Pass																	
	Natick Mall	**12:18 PM**	**1:00 PM**	**1:50 PM**	**2:35 PM**	**3:20 PM**	**3:50 PM**	**4:05 PM**	**4:35 PM**	**4:50 PM**	**5:20 PM**	**5:35 PM**	**6:05 PM**	**6:20 PM**	**6:50 PM**	**7:05 PM**	**7:35 PM**	**7:50 PM**
	MathWorks	12:22 PM	1:04 PM	1:54 PM	2:39 PM	3:24 PM	3:54 PM	4:09 PM	4:39 PM	4:54 PM	5:24 PM	5:39 PM	6:09 PM	6:24 PM	6:54 PM	7:09 PM	7:39 PM	7:54 PM
	Woodland	**12:37 PM**	**1:19 PM**	**2:09 PM**	**2:54 PM**	**3:39 PM**	**4:09 PM**	**4:24 PM**	**4:54 PM**	**5:12 PM**	**5:39 PM**	**5:54 PM**	**6:24 PM**	**6:39 PM**	**7:09 PM**	**7:24 PM**	**7:54 PM**	**8:09 PM**
WESTBOUND	**Woodland**	**12:42 PM**	**1:22 PM**	**2:14 PM**	**2:59 PM**	**3:44 PM**	**4:14 PM**	**4:29 PM**	**4:59 PM**	**5:17 PM**	**5:44 PM**	**5:59 PM**	**6:29 PM**	**6:44 PM**	**7:14 PM**	**7:29 PM**	**7:59 PM**	**8:14 PM**
	Natick Mall	**1:00 PM**	**1:36 PM**	**2:32 PM**	**3:17 PM**	**4:02 PM**	**4:32 PM**	**4:47 PM**	**5:17 PM**	**5:35 PM**	**6:02 PM**	**6:17 PM**	**6:47 PM**	**7:02 PM**	**7:32 PM**	**7:47 PM**	**8:17 PM**	**8:27 PM**
	Central Hub		1:43 PM														8:23 PM	8:32 PM

Please note:

Shaded areas are approximate arrival times only. The bus may leave these locations prior to the listed time. Riders should be at these time points at least ten minutes prior to the time listed. The bus will not leave the **bolded** locations prior to listed times.

If you have any questions, please contact Customer Service at (508) 935-2222.

2 ROUTE 2 Weekday (Monday-Friday Service) 2

	AM						PM					
Central Hub (37 Waverly St.)	6:30							1:55				
Banana Lot**	6:35	7:35	8:35	9:35	10:35	11:35	12:49	2:04	3:19	4:34	5:49	7:00
MetroWest Medical Center	6:36	7:36	8:36	9:36	10:36	11:36	12:50	2:05	3:20	4:35	5:50	7:01
Callahan Center	R	R	R	R	R	R	R	R	R	R	R	R
Framingham Center	6:39	7:39	8:39	9:39	10:39	11:44	12:58	2:13	3:28	4:43	5:58	7:04
Vernon/Pleasant Sts.	R	R	R	R	R	R	R	R	R	R	R	R
Edmands House	R	R	R	R	R	R	R	R	R	R	R	R
Shillman House	R	R	R	R	R	R	R	R	R	R	R	R
Nobscot Shopping Center	6:46	7:46	8:46	9:46	10:46	11:51	1:05	2:20	3:35	4:50	6:05	7:11
Pinefield Shopping Center	6:50	7:50	8:50	9:50	10:50	11:55	1:09	2:24	3:39	4:54	6:09	7:15
Framingham High School	6:52	7:52	8:52	9:52	10:52	11:57	1:11	2:26	3:41	4:56	6:11	7:17
Super Stop & Shop	6:55	7:55	8:55	9:55	10:55	12:05 P	1:14	2:29	3:44	4:59	6:14	7:20
Target/Whittier Sts. [2]	6:58	7:58	8:58	9:58	10:58	12:06 P	1:17	2:32	3:47	5:02	6:17	7:23
Shoppers World East	6:59	7:59	8:59	9:59	10:59	12:07 P	1:18	2:33	3:48	5:03	6:18	7:24
Natick Mall (Macy's) [1]	7:06	8:06	9:06	10:06	11:06	12:11 P	1:25	2:40	3:55	5:10	6:25	7:31
Shoppers World Shelter	7:09	8:09	9:09	10:09	11:09	12:14 P	1:28	2:43	3:58	5:13	6:28	7:34
Kohl's	7:10	8:10	9:10	10:10	11:10	12:15 P	1:29	2:44	3:59	5:14	6:29	7:35
Rt. 30/Rt. 126, Concord Street	7:12	8:12	9:12	10:12	11:12	12:17 P	1:31	2:46	4:01	5:16	6:31	7:37
Arsenal Road Bus Stop	7:14	8:14	9:14	10:14	11:14	12:22 P	1:35	2:50	4:05	5:20	6:35	7:39
MassBay Community College			9:15	10:15	11:15	12:23 P	1:36	2:51	4:06			
Rose Kennedy Lane*			9:16	10:16	11:16	12:24 P	1:37	2:52	4:07			
Lincoln/Pearl Sts.	7:19	8:19	9:19	10:19	11:19	12:29 P	1:44	2:59	4:14	5:29	6:44	7:44
Central Hub (37 Waverly St.)												7:55

Scheduled Times

Scheduled times are only approximate; please wait for the MWRTA ten minutes in advance of scheduled times to assure not missing the bus.

For up to the minute bus information call the MWRTA at 508.935.2222 or 888.996.9782, or visit www.mwrta.com for GPS tracking.

The MWRTA uses the Flag Down System which allows buses to stop anywhere along their routes to pick up passengers, where it is safe to do so. Passengers can hail MWRTA buses by waving.

MetroWest Regional Transit Authority
Public Transportation System

Transfers

[1] Route 2 passengers can make the following transfers: Routes 1, 4, 8, 9, 10, and 11 at Natick Mall (Macy's) and Route 7 at the Banana Lot.

[2] Route 2 passengers may get picked up or dropped off via Shoppers World for Logan Express.

Key

R- Request only- riders must call ahead to Customer Service at 508-935-2222 or notify the bus driver if onboard to request that the bus stop at the location.

*Stop may NOT be serviced due to snow/ice.

** Banana Lot is the Framingham MBTA Commuter Rail Station Northside Parking Lot

2 Saturday

ROUTE 2 Saturday Service (Clockwise)

2 Saturday

	AM			PM				
Central Hub (37 Waverly St.)	9:30							
Banana Lot**	9:35	10:35	11:35	12:35	1:35	2:35	3:35	4:35
MetroWest Medical Center	9:36	10:36	11:36	12:36	1:36	2:36	3:36	4:36
Framingham Center	9:39	10:39	11:39	12:39	1:39	2:39	3:39	4:39
Vernon Street/Edgell Road	R	R	R	R	R	R	R	R
Edmands House	R	R	R	R	R	R	R	R
Shillman House	R	R	R	R	R	R	R	R
Nobscot Shopping Center	9:46	10:46	11:46	12:46	1:46	2:46	3:46	4:46
Pinefield/Water Street	9:50	10:50	11:50	12:50	1:50	2:50	3:50	4:50
Framingham High School	9:52	10:52	11:52	12:52	1:52	2:52	3:52	4:52
Super Stop & Shop	9:55	10:55	11:55	12:55	1:55	2:55	3:55	4:55
Target/Whittier Street	9:58	10:58	11:58	12:58	1:58	2:58	3:58	4:58
Shoppers World East	9:59	10:59	11:59	12:59	1:59	2:59	3:59	4:59
Natick Mall (Macy's)	10:06	11:06	12:06	1:06	2:06	3:06	4:06	5:06
Shoppers World Shelter	10:09	11:09	12:09	1:09	2:09	3:09	4:09	5:09
Kohl's	10:10	11:10	12:10	1:10	2:10	3:10	4:10	5:10
Rt. 30/Rt. 126 Concord Street	10:12	11:12	12:12	1:12	2:12	3:12	4:12	5:12
Arsenal Road Bus Stop	10:16	11:16	12:16	1:16	2:16	3:16	4:16	5:16
Rose Kennedy Lane*	10:19	11:19	12:19	1:19	2:19	3:19	4:19	5:19
Lincoln & Pearl Streets	10:23	11:23	12:23	1:23	2:23	3:23	4:23	5:23
Central Hub (37 Waverly St.)								5:30

Scheduled Times

Scheduled times are only approximate; please wait for the MWRTA ten minutes in advance of scheduled times to assure not missing the bus.

For up to the minute bus information call the MWRTA at 508.935.2222 or 888.996.9782, or visit www.mwrta.com for GPS tracking.

The MWRTA uses the Flag Down System which allows buses to stop anywhere along their routes to pick up passengers, where it is safe to do so. Passengers can hail MWRTA buses by waving.

MetroWest Regional Transit Authority
Public Transportation System

Key

[1] Route 2 Saturday passengers can make the following transfers:

Route 7 at the Banana Lot; 4, 10, and 11 at the Natick Mall (Macy's).

*Stop may NOT be serviced due to snow/ice.

R - Request Only

***Banana Lot is the Framingham MBTA Commuter Rail Station Northside Parking Lot*

3 ROUTE 3 Weekday Counter Clockwise (Monday-Friday Service) 3

	AM						PM					
Central Hub (37 Waverly St.)	6:15						12:45					
Banana Lot***	6:25	7:35	8:35	9:35	10:35	11:35	12:56	2:09	3:24	4:39	5:54	7:05
MassBay Community College				9:41	10:41	11:41	1:04	2:19	3:34	4:49		
Rose Kennedy Lane*				9:42	10:42	11:42	1:05	2:20	3:35	4:50		
Rt. 30/Rt. 126 Concord Street	6:35	7:46	8:46	9:46	10:46	11:46	1:11	2:26	3:41	4:56	6:11	7:16
Walmart	6:37	7:48	8:48	9:48	10:48	11:48	1:14	2:29	3:44	4:59	6:14	7:18
Sherwood Plaza	6:39	7:51	8:51	9:51	10:51	11:51	1:17	2:32	3:47	5:02	6:17	7:21
Natick Mall (Macy's)[1]	6:41	7:56	8:56	9:56	10:56	11:56	1:22	2:37	3:52	5:07	6:22	7:26
Shoppers World East	6:43	7:57	8:57	9:57	10:57	11:57	1:23	2:38	3:53	5:08	6:23	7:27
Target/Whittier Sts. [2]	6:44	7:58	8:58	9:58	10:58	11:58	1:24	2:39	3:54	5:09	6:24	7:28
Super Stop & Shop	6:45	8:03	9:03	10:03	11:03	12:03 P	1:29	2:44	3:59	5:14	6:29	7:33
Framingham High School/A St.	6:47	8:05	9:05	10:05	11:05	12:05 P	1:31	2:46	4:01	5:16	6:31	7:35
Pinefield/Water Sts.	6:50	8:07	9:07	10:07	11:07	12:07 P	1:33	2:48	4:03	5:18	6:33	7:37
Nobscot Fire Station	6:55	8:12	9:12	10:12	11:12	12:12 P	1:38	2:53	4:08	5:23	6:38	7:42
Edmands House	R	R	R	R	R	R	R	R	R	R	R	R
Shillman House	R	R	R	R	R	R	R	R	R	R	R	R
Framingham Center [1]	7:00	8:16	9:16	10:16	11:16	12:16 P	1:42	2:57	4:12	5:27	6:42	7:46
Callahan Center	R	R	R	R	R	R	R	R	R	R	R	R
MetroWest Medical Center		8:21	9:21	10:21	11:21	12:21 P	1:46	3:01	4:16	5:31	6:46	7:51
Lincoln/Pearl Sts.	7:04	8:22	9:22	10:22	11:22	12:22 P	1:47	3:02	4:17	5:32	6:47	7:52
Danforth Museum	7:05	8:23	9:23	10:23	11:23	12:23 P	1:48	3:03	4:18	5:33	6:48	7:53
Central Hub (37 Waverly St.)												8:00

Scheduled Times

Scheduled times are only approximate; please wait for the MWRTA ten minutes in advance of scheduled times to assure not missing the bus.

For up to the minute bus information call the MWRTA at 508.935.2222 or 888.996.9782, or visit www.mwrta.com for GPS tracking.

The MWRTA uses the Flag Down System which allows buses to stop anywhere along their routes to pick up passengers, where it is safe to do so. Passengers can hail MWRTA buses by waving.

Key

[1] Route 3 passengers can make the following transfers:

1, 4, 8, 9, 10, and 11 at the Natick Mall (Macy's); and Route 7 at the Banana Lot.

[2] Route 3 passengers may get picked up or dropped off alongside Logan Express at Shoppers World East.

*Stop may NOT be serviced due to snow/ice.

R - Request Only

*** *Banana Lot is the Framingham MBTA Commuter Rail Station Northside Parking Lot*

MetroWest Regional Transit Authority
Public Transportation System

3 Saturday

ROUTE 3 Saturday Service (Counter Clockwise)

3 Saturday

	AM			PM			
Central Hub (37 Waverly St.)	9:00						
Banana Lot***	9:05	10:05	11:05	12:05	1:20	2:35	3:50
Rose Kennedy Lane	9:07	10:07	11:07	12:10	1:25	2:40	3:55
Rt 30 & Rt 126 Concord Street	9:12	10:12	11:12	12:15	1:30	2:45	4:00
Wal-Mart	9:15	10:15	11:15	12:18	1:33	2:48	4:03
Sherwood Plaza	9:20	10:20	11:20	12:21	1:36	2:51	4:06
Natick Mall (Macy's)	9:25	10:25	11:25	12:26	1:41	2:56	4:11
Shoppers World East	9:27	10:27	11:27	12:29	1:44	2:59	4:14
Target/Whittier Street	9:29	10:29	11:29	12:31	1:46	3:01	4:16
Super Stop & Shop	9:30	10:30	11:30	12:35	1:51	3:06	4:21
Concord & A Street	9:35	10:35	11:35	12:40	1:56	3:11	4:26
Pinefield & Water Street	9:40	10:40	11:40	12:45	2:01	3:16	4:31
Nobscot Fire Station	9:45	10:45	11:45	12:50	2:06	3:21	4:36
Edmands House	R	R	R	R	R	R	R
Shillman House	R	R	R	R	R	R	R
Framingham Center	9:49	10:49	11:49	12:55	2:11	3:26	4:41
MetroWest Medical Center	9:51	10:51	11:51	12:59	2:15	3:30	4:45
Lincoln & Pearl Streets	9:52	10:52	11:52	1:00	2:16	3:31	4:46
Danforth Museum	9:53	10:53	11:53	1:01	2:17	3:32	4:47
Central Hub (37 Waverly St.)							5:00

Scheduled Times

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MetroWest Regional Transit Authority
Public Transportation System

Key

[1] Route 3 Saturday passengers can make the following transfers: Routes 4, 7, 7C, 10, and 11 at the Central Hub, 37 Waverly St.; 4, 10, and 11 at the Natick Mall (Macy's).

[2] Route 3 Saturday passengers may get picked up or dropped off alongside Logan Express at Shoppers World East.

*Stop may NOT be serviced due to snow/ice.

R - Request Only

****Banana Lot is the Framingham MBTA Commuter Rail Station Northside Parking Lot*

4 ROUTE 4 Weekday (Monday-Friday Service) 4

	AM				PM				
Central Hub (37 Waverly St.)	6:10								
MCI / Adesa	6:18								
Central Hub (37 Waverly St.)	6:25								
MBTA Station (Framingham)	6:31								
Central Hub (37 Waverly St.)	6:36	8:00	9:25	10:45	12:10	1:30	2:50	4:10	5:30
Beaver St. / Leland St.	6:40	8:04	9:29	10:49	12:14	1:34	2:54	4:14	5:34
Irving St. / Arlington St.	6:47	8:11	9:36	10:56	12:21	1:41	3:01	4:21	5:41
Hollis St. / Market Basket (Stop at Big Lots)	6:53	8:17	9:42	11:02	12:27	1:47	3:07	4:27	5:47
Second St. / Beaver Park Rd.	7:01	8:25	9:50	11:10	12:35	1:55	3:15	4:35	5:55
Tarelli Ter. / Waverly St.	7:02	8:26	9:51	11:11	12:36	1:56	3:16	4:36	5:56
Central Hub (37 Waverly St.)	7:04	8:28	9:53	11:13	12:38	1:58	3:18	4:38	5:58
Central Hub (37 Waverly St.)	7:05	8:30	9:55	11:15	12:40	2:00	3:20	4:40	6:00
Howard St. / Concord St.	7:10	8:35	10:00	11:20	12:45	2:05	3:25	4:45	6:05
Union Ave. / Lincoln St.	7:12	8:37	10:02	11:22	12:47	2:07	3:27	4:47	6:07
MetroWest Medical Center	7:13	8:38	10:03	11:23	12:48	2:08	3:28	4:48	6:08
Concord St. / Hartford St.	7:18	8:43	10:08	11:28	12:53	2:13	3:33	4:53	6:13
Hartford St. / Speen St.	7:23	8:48	10:13	11:33	12:58	2:18	3:38	4:58	6:18
Macy's	7:29	8:54	10:19	11:39	1:04	2:24	3:44	5:04	6:24
Shopper's World Bus Shelter	7:33	8:58	10:23	11:43	1:08	2:28	3:48	5:08	6:28
Kohl's Bus Shelter	7:34	8:59	10:24	11:44	1:09	2:29	3:49	5:09	6:29
Target	7:36	9:01	10:26	11:46	1:11	2:31	3:51	5:11	6:31
BJ's Wholesale Club	7:37	9:02	10:27	11:47	1:12	2:32	3:52	5:12	6:32
Walmart	7:42	9:07	10:32	11:52	1:17	2:37	3:57	5:17	6:37
Sherwood Plaza	7:45	9:10	10:35	11:55	1:20	2:40	4:00	5:20	6:40
Kendall Plaza (Rte 135-Next to West Natick MBTA)	7:52	9:17	10:42	12:02 P	1:27	2:47	4:07	5:27	6:47
Central Hub (37 Waverly St.)	7:54	9:19	10:44	12:04 P	1:29	2:49	4:09	5:29	6:49

Scheduled Times

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Transfers

Route 4 passengers can make the following transfers:

Routes 2, 3, 5, 6, 7, 10, 11, and Shuttle Services at the Central Hub, 37 Waverly St.; Routes 2, 3, 8, 9, 10, and 11 at Macy's at the Natick Mall.

**MWRTA will deviate (D) from its Route 4 fixed route service for ADA Certified riders. Please call 508-935-2222 for more information.

ROUTE 4 (Saturday Service)

	AM			PM		
Market Basket / Shaw's						
Central Hub (37 Waverly St.)		9:26	11:00	12:40	2:15	3:52
Second St./ Beaver Park Rd.		9:28	11:02	12:42	2:17	3:54
Beaver St. / Leland St.		9:30	11:06	12:44	2:19	3:56
Irving St. / Hollis St.		9:34	11:12	12:48	2:23	4:00
Market Basket (Stop @ Big Lots)		9:40	11:18	12:54	2:29	4:06
Shaw's Ashland		9:44	11:22	12:58	2:33	4:10
Hollis St. / Irving St		9:51	11:29	1:05	2:40	4:17
Leland St./ Beaver St		9:55	11:33	1:09	2:44	4:21
Second St / Beaver Park Rd		9:57	11:35	1:11	2:46	4:23
Central Hub (37 Waverly St.)		10:00	11:38	1:14	2:49	4:26
Natick Mall / Shopper's World / Target/ BJs / Walmart / Sherwood Plaza						
Central Hub (37 Waverly St.)	8:30	10:02	11:40	1:16	2:52	4:30
Howard St. / Concord St.	8:35	10:07	11:45	1:21	2:57	4:35
Rose Kennedy Lane	8:41	10:13	11:51	1:27	3:03	4:39
Arsenal Road	8:43	10:15	11:53	1:29	3:05	4:41
Hartford St. / Speen St.	8:48	10:20	11:58	1:34	3:10	4:46
Speen St. / Mall Rd.	8:52	10:24	12:02	1:38	3:14	4:50
Natick Mall (Macy's)	8:56	10:28	12:06	1:42	3:18	4:54
Shoppers World Bus Shelter	9:00	10:32	12:10	1:46	3:22	4:58
Kohl's Bus Shelter	9:02	10:34	12:12	1:48	3:24	5:00
Target / BJ's	9:04	10:36	12:14	1:50	3:26	5:02
Lowe's Bus Shelter	9:06	10:38	12:16	1:52	3:28	5:04
Walmart	9:10	10:42	12:20	1:56	3:32	5:06
Sherwood Plaza	9:14	10:46	12:24	2:00	3:36	5:10
Mill St. Sherwood Village	9:18	10:50	12:28	2:04	3:40	5:14
Central Hub (37 Waverly St.)	9:24	10:56	12:34	2:10	3:46	5:20

Scheduled Times

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Transfers

Route 4 Saturday passengers can make the following transfers:
Routes 2,3,7, and 10 at the Central Hub, 37 Waverly St.

MWRTA will deviate from its fixed route service for ADA Certified riders. Please call 508-935-2222 for more information.

ROUTE 9 AM

WESTBOUND	Central Hub	5:50 AM		6:20 AM												
	Concord & Howard	5:52 AM		6:23 AM												
	Natick Mall		**6:18 AM**		**6:46 AM**	**6:58 AM**	**7:25 AM**	**7:40 AM**	**8:07 AM**	**8:28 AM**	**8:53 AM**	**9:22 AM**	**9:46 AM**	**10:07 AM**	**10:52 AM**	**11:35 AM**
	Flutie Pass		6:19 AM		6:47 AM	6:59 AM	7:26 AM	7:42 AM	8:09 AM	8:30 AM	8:55 AM	9:24 AM	9:48 AM	10:09 AM	10:54 AM	11:37 AM
	Shoppers World		6:20 AM		6:48 AM	7:00 AM	7:27 AM	7:43 AM	8:10 AM	8:31 AM	8:56 AM	9:25 AM	9:49 AM	10:10 AM	10:55 AM	11:38 AM
	Framingham Center				6:50 AM	7:05 AM	7:32 AM	7:48 AM	8:15 AM	8:36 AM	9:01 AM	9:30 AM		10:25 AM	11:10 AM	11:53 AM
	Jefferson Hills	6:04 AM	6:28 AM	6:35 AM	6:53 AM	7:07 AM	7:34 AM	7:51 AM	8:18 AM	8:40 AM	9:05 AM	9:34 AM		10:31 AM	11:16 AM	11:59 AM
	Staples Drive				**6:58 AM**	**7:12 AM**	**7:39 AM**	**7:56 AM**	**8:23 AM**	**8:45 AM**	**9:10 AM**	**9:39 AM**	**10:01 AM**			
	Westborough		6:38 AM										10:11 AM			
EASTBOUND	**Staples Drive**				**6:58 AM**	**7:12 AM**	**7:39 AM**	**7:56 AM**	**8:23 AM**	**8:45 AM**	**9:10 AM**	**9:39 AM**				
	California Ave				7:02 AM	7:15 AM	7:42 AM	7:59 AM	8:26 AM	8:48 AM	9:13 AM	9:42 AM				
	Jefferson Hills		6:48 AM											10:31 AM	11:16 AM	11:59 AM
	FSU (High St)	6:07 AM		6:38 AM	7:10 AM	7:23 AM	7:50 AM	8:09 AM	8:36 AM	8:58 AM	9:23 AM	9:52 AM	10:24 AM	10:38 AM	11:23 AM	12:06 PM
	Flutie	6:13 AM	6:55 AM	6:44 AM	7:20 AM	7:33 AM	8:00 AM	8:19 AM	8:46 AM	9:08 AM	9:33 AM	9:59 AM		10:48 AM	11:33 AM	12:16 PM
	Natick Mall	**6:14 AM**	**6:56 AM**	**6:45 AM**	**7:21 AM**	**7:35 AM**	**8:02 AM**	**8:21 AM**	**8:48 AM**	**9:10 AM**	**9:35 AM**	**10:00 AM**		**10:50 AM**	**11:35 AM**	**12:18 PM**
	Framingham MBTA												10:32 AM			
	Central Hub												10:37 AM			

ROUTE 9 PM

WESTBOUND	Central Hub			1:35 PM		2:50 PM													
	Concord & Howard																		
	Natick Mall	**12:18 PM**	**1:01 PM**	**1:50 PM**	**2:35 PM**		**3:20 PM**	**3:50 PM**	**4:05 PM**	**4:35 PM**	**4:50 PM**	**5:20 PM**	**5:35 PM**	**6:05 PM**	**6:20 PM**	**6:50 PM**	**7:05 PM**	**7:35 PM**	**7:50 PM**
	Flutie Pass	12:20 PM	1:03 PM	1:52 PM	2:37 PM		3:22 PM	3:52 PM	4:07 PM	4:37 PM	4:52 PM	5:22 PM	5:37 PM	6:07 PM	6:22 PM	6:52 PM	7:07 PM	7:37 PM	7:52 PM
	Shoppers World	12:21 PM	1:04 PM	1:53 PM	2:38 PM		3:23 PM	3:53 PM	4:08 PM	4:38 PM	4:53 PM	5:23 PM	5:38 PM	6:08 PM	6:23 PM	6:53 PM	7:08 PM	7:38 PM	7:53 PM
	Framingham Center	12:36 PM	1:19 PM	2:08 PM	2:53 PM		3:38 PM	3:58 PM	4:13 PM	4:43 PM	4:58 PM	5:28 PM	5:43 PM	6:13 PM	6:28 PM	6:58 PM	7:13 PM	7:46 PM	7:58 PM
	Jefferson Hills	12:42 PM	1:25 PM	2:14 PM	2:59 PM		3:44 PM											7:51 PM	
	Staples Drive							**4:09 PM**	**4:24 PM**	**4:54 PM**	**5:09 PM**	**5:39 PM**	**5:54 PM**	**6:24 PM**	**6:39 PM**	**7:09 PM**	**7:24 PM**		**8:09 PM**
	Westborough					3:14 PM												8:03 PM	
EASTBOUND	**Staples Drive**					**3:24 PM**		**4:09 PM**	**4:24 PM**	**4:54 PM**	**5:09 PM**	**5:39 PM**	**5:54 PM**	**6:24 PM**	**6:39 PM**	**7:09 PM**	**7:24 PM**		**8:09 PM**
	California Ave					3:27 PM		4:13 PM	4:27 PM	4:57 PM	5:12 PM	5:42 PM	5:57 PM	6:27 PM	6:42 PM	7:12 PM	7:27 PM		8:12 PM
	Jefferson Hills	12:42 PM	1:25 PM	2:14 PM	2:59 PM	3:32 PM	3:49 PM	4:18 PM	4:32 PM	5:02 PM	5:17 PM	5:47 PM	6:02 PM	6:32 PM	6:47 PM	7:17 PM	7:32 PM		8:17 PM
	FSU (High St)	12:49 PM	1:32 PM	2:21 PM	3:06 PM	3:37 PM	3:51 PM	4:23 PM	4:37 PM	5:07 PM	5:22 PM	5:52 PM	6:07 PM	6:37 PM	6:52 PM	7:22 PM	7:37 PM	8:13 PM	8:22 PM
	Flutie	12:59 PM	1:42 PM	2:31 PM	3:16 PM	3:47 PM	4:01 PM	4:33 PM	4:47 PM	5:17 PM	5:32 PM	6:02 PM	6:17 PM	6:47 PM	7:02 PM	7:32 PM	7:47 PM		8:32 PM
	Natick Mall	**1:01 PM**	**1:44 PM**	**2:33 PM**	**3:18 PM**	**3:49 PM**	**4:03 PM**	**4:35 PM**	**4:49 PM**	**5:19 PM**	**5:34 PM**	**6:04 PM**	**6:19 PM**	**6:49 PM**	**7:04 PM**	**7:34 PM**	**7:49 PM**		**8:34 PM**
	Framingham MBTA																	8:19 PM	
	Central Hub		1:50 PM															8:23 PM	8:40 PM

Commuter Shuttle - Please note:

Shaded areas are approximate arrival times only. The bus may leave these locations prior to the listed time. Riders should be at these time points at least ten minutes prior to the time listed. The bus will not leave the **bolded** locations prior to listed times.

If you have any questions, please contact Customer Service at (508) 935-2222.

10 ROUTE 10 Weekday (Monday-Friday Service) 10

	AM				PM					
Central Hub (37 Waverly Street)	6:30	7:55	9:20	10:45	12:10	1:35	3:00	4:25	5:50	7:15
Roche Bros.	6:35	8:00	9:25	10:50	12:15	1:40	3:05	4:30	5:55	7:20
Cedar Terrace Upper Lot	6:42	8:07	9:32	10:57	12:22	1:47	3:12	4:37	6:02	7:27
Cedar Gardens Bus Shelter	6:44	8:09	9:34	10:59	12:24	1:49	3:14	4:39	6:04	7:29
Coolidge Gardens	6:48	8:13	9:38	11:03	12:28	1:53	3:18	4:43	6:08	7:33
Natick Common Bus Shelter	6:50	8:15	9:40	11:05	12:30	1:55	3:20	4:45	6:10	7:35
Leonard Morse Hospital	6:53	8:18	9:43	11:08	12:33	1:58	3:23	4:48	6:13	7:38
Eliot Church / South Natick	6:58	8:23	9:48	11:13	12:38	2:03	3:28	4:53	6:18	7:43
Natick Senior Center	7:06	8:31	9:56	11:21	12:46	2:11	3:36	5:01	6:26	7:51
Moran Park (Downtown MBTA)	7:10	8:35	10:00	11:25	12:50	2:15	3:40	5:05	6:30	7:55
Rte 27 @ Kansas St.	7:12	8:37	10:02	11:27	12:52	2:17	3:42	5:07	6:32	7:57
9 / 27 Plaza @ Panera Bread	7:18	8:43	10:08	11:33	12:58	2:23	3:48	5:13	6:38	8:03
Dairy Queen	7:23	8:48	10:13	11:38	1:03	2:28	3:53	5:18	6:43	8:08
Bradford St. Shelter	7:27	8:52	10:17	11:42	1:07	2:32	3:57	5:22	6:47	8:12
Wayland- Bent Park	7:29	8:54	10:19	11:44	1:09	2:34	3:59	5:24	6:49	8:14
West Plain @ 126	7:30	8:55	10:20	11:45	1:10	2:35	4:00	5:25	6:50	8:15
Speen St. @ Rte. 30 TJX	7:35	9:00	10:25	11:50	1:15	2:41	4:05	5:30	6:55	8:20
Natick Mall @ Macy's Rear	7:39	9:04	10:29	11:54	1:19	2:44	4:09	5:34	6:59	8:24
Sherwood Plaza	7:42	9:07	10:32	11:57	1:22	2:47	4:12	5:37	7:02	8:27
Sherwood Village (Mill St.)	7:46	9:11	10:36	12:01 P	1:26	2:51	4:16	5:41	7:06	8:31
Natick Crossings Plaza (near Natick MBTA)	7:50	9:15	10:40	12:05 P	1:30	2:54	4:20	5:45	7:10	8:35
Central Hub (37 Waverly Street)	7:52	9:17	10:42	12:07 P	1:32	2:57	4:22	5:47	7:12	8:37

Scheduled Times

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Transfers

Route 10 passengers can make the following transfers:
Routes 4, 5, 6, 11 and Shuttle Service at the Central Hub, 37 Waverly St.; 2, 3, 4, 9, and 11 at the Natick Mall (Macy's Bus Shelter)

MetroWest Regional Transit Authority
Public Transportation System

10 Saturday

ROUTE 10 Saturday Service (Counter Clockwise)

10 Saturday

	AM		PM			
Central Hub (37 Waverly Street)	9:20	10:45	12:10	1:35	3:00	4:25
Roche Bros.	9:25	10:50	12:15	1:40	3:05	4:30
Cedar Terrace Upper Lot*	9:32	10:57	12:22	1:47	3:12	4:37
Cedar Gardens Bus Shelter	9:34	10:59	12:24	1:49	3:14	4:39
Coolidge Gardens	9:38	11:03	12:28	1:53	3:18	4:43
Natick Common Bus Shelter	9:40	11:05	12:30	1:55	3:20	4:45
Leonard Morse Hospital	9:43	11:08	12:33	1:58	3:23	4:48
Eliot Church / South Natick	9:48	11:13	12:38	2:03	3:28	4:53
Natick Community Center	9:56	11:21	12:46	2:11	3:36	5:01
Moran Park (Downtown MBTA)	10:00	11:25	12:50	2:15	3:40	5:05
Rte 27 @ Kansas St.	10:02	11:27	12:52	2:17	3:42	5:07
9 / 27 Plaza @ Panera Bread	10:08	11:33	12:58	2:23	3:48	5:13
Dairy Queen	10:13	11:38	1:03	2:28	3:53	5:18
Bradford St. Shelter	10:17	11:42	1:07	2:32	3:57	5:22
Wayland- Bent Park	10:19	11:44	1:09	2:34	3:59	5:24
West Plain @ Rte. 126	10:20	11:45	1:10	2:35	4:00	5:25
Speen St. @ Rte. 30 TJX	10:25	11:50	1:15	2:40	4:05	5:30
Natick Mall (Macy's)	10:29	11:54	1:19	2:44	4:09	5:34
Sherwood Plaza	10:32	11:57	1:22	2:47	4:12	5:37
Sherwood Village (Mill St.)	10:36	12:01 P	1:26	2:51	4:16	5:41
Natick Crossings Plaza (near Natick MBTA)	10:40	12:05 P	1:30	2:55	4:20	5:45
Central Hub (37 Waverly Street)	10:42	12:07 P	1:32	2:57	4:22	5:47

Scheduled Times

Scheduled times are only approximate; please wait for the MWRTA ten minutes in advance of scheduled times to assure not missing the bus.

For up to the minute bus information call the MWRTA at 508.935.2222 or 888.996.9782, or visit www.mwrta.com for GPS tracking.

The MWRTA uses the Flag Down System which allows buses to stop anywhere along their routes to pick up passengers, where it is safe to do so. Passengers can hail MWRTA buses by waving.

**MWRTA will deviate (D) from its Route 10 fixed route service for ADA Certified riders.

Please call 508-935-2222 for more information.

Transfers

Route 10 Saturday passengers can make the following transfers:

Routes 2, 3, 4, 7 at the Central Hub, 37 Waverly St.; 2, 3, 4, at Macy's at the Natick Mall (Macy's).

*Stop may NOT be serviced due to snow/ice.

ROUTE 11 Weekday (Monday-Friday Service)

11

	AM				PM					
Central Hub (37 Waverly Street)	6:30	7:55	9:20	10:45	12:10	1:35	3:00	4:25	5:50	7:15
Sherwood Village (Mill St.)	6:36	8:01	9:26	10:51	12:16	1:41	3:06	4:31	5:56	7:21
Natick Mall @ Macy's Rear	6:44	8:09	9:34	10:59	12:24	1:49	3:14	4:39	6:04	7:29
Sherwood Plaza	6:47	8:12	9:37	11:02	12:27	1:52	3:17	4:42	6:07	7:32
Speen St. @ Rte. 30 (TJX)	6:52	8:17	9:42	11:07	12:32	1:57	3:22	4:47	6:12	7:37
Rte. 126 @ West Plain	6:57	8:22	9:47	11:12	12:37	2:02	3:27	4:52	6:17	7:42
Wayland Bent Park	6:58	8:23	9:48	11:13	12:38	2:03	3:28	4:53	6:18	7:43
Bradford St. Shelter	7:00	8:25	9:50	11:15	12:40	2:05	3:30	4:55	6:20	7:45
Rte. 27 @ Rte. 30	7:02	8:27	9:52	11:17	12:42	2:07	3:32	4:57	6:22	7:47
9/27 Plaza @ Panera Bread	7:10	8:35	10:00	11:25	12:50	2:15	3:40	5:05	6:30	7:55
Rte 27 @ Kansas St.	7:16	8:41	10:06	11:31	12:56	2:21	3:46	5:11	6:36	8:01
Rte. 27 @ Natick Federal/MBTA	7:18	8:43	10:08	11:33	12:58	2:23	3:48	5:13	6:38	8:03
Natick Common Bus Shelter	7:20	8:45	10:10	11:35	1:00	2:25	3:50	5:15	6:40	8:05
Leonard Morse Hospital	7:23	8:48	10:13	11:38	1:03	2:28	3:53	5:18	6:43	8:08
Natick Senior Center	7:26	8:51	10:16	11:41	1:06	2:31	3:56	5:21	6:46	8:11
Coolidge Gardens	7:31	8:56	10:21	11:46	1:11	2:36	4:01	5:26	6:51	8:16
Cedar Terrace Upper Lot*	7:37	9:02	10:27	11:52	1:17	2:42	4:07	5:32	6:57	8:22
Cedar Gardens Bus Shelter	7:39	9:04	10:29	11:54	1:19	2:44	4:09	5:34	6:59	8:24
Roche Bros.	7:46	9:11	10:36	12:01 P	1:26	2:51	4:16	5:41	7:06	8:31
Natick Crossings Plaza (near Natick MBTA)	7:50	9:15	10:40	12:05 P	1:30	2:55	4:20	5:45	7:10	8:35
Central Hub (37 Waverly Street)	7:52	9:17	10:42	12:07 P	1:32	2:57	4:22	5:47	7:12	8:37

Scheduled Times

Scheduled times are only approximate; please wait for the MWRTA ten minutes in advance of scheduled times to assure not missing the bus.

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Transfers

Route 11 passengers can make the following transfers: Routes 1, 2, 3, 4, 5, 6, and 7 at the Central Hub, 37 Waverly St.; 1, 2, 3, 4, 8, and 9 at the Natick Mall (Macy's).

*Stop may NOT be serviced due to snow/ice.

Seasonal Adjustment Factors

MASSACHUSETTS HIGHWAY DEPARTMENT - STATEWIDE TRAFFIC DATA COLLECTION

2011 WEEKDAY SEASONAL FACTORS *

* Note: These are weekday factors. The average of the factors for the year will not equal 1, as weekend data are not considered.

FACTOR GROUP	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
GROUP 1 - WEST INTERSTATE	0.98	0.93	0.90	0.89	0.90	0.88	0.91	0.90	0.89	0.89	0.93	0.95
Use group 2 for R5, R6, & R0 GROUP 2 - RURAL MAJOR COLLECTOR (R-5)	1.12	1.12	1.07	0.99	0.91	0.90	0.86	0.86	0.92	0.93	1.01	1.05
GROUP 3A - RECREATIONAL **(1-4) See below	1.26	1.25	1.20	1.06	0.96	0.89	0.76	0.76	0.92	0.99	1.08	1.14
GROUP 3B - RECREATIONAL ***(5) See below	1.22	1.26	1.22	1.06	0.96	0.90	0.72	0.74	0.97	1.02	1.14	1.15
GROUP 4 - I-495 INTERSTATE	1.02	1.00	1.00	0.96	0.92	0.89	0.85	0.83	0.93	0.96	1.01	1.03
GROUP 5 - EAST INTERSTATE	1.04	1.00	0.96	0.93	0.92	0.91	0.91	0.89	0.93	0.93	0.96	1.01
Use group 6 for U2, U3, U5, U6, U0, R2, & R3 GROUP 6 - URBAN ARTERIALS, COLLECTORS & RURAL ARTERIALS (R-2, R-3)	1.03	1.01	0.96	0.92	0.91	0.90	0.92	0.92	0.93	0.92	0.97	0.97
GROUP 7 - I-84 PROXIMITY (STAS. 17,3921)	1.24	1.24	1.15	1.04	0.99	1.00	0.93	0.89	1.05	1.05	1.05	1.12
GROUP 8 - I-295 PROXIMITY (STA. 6590)	1.00	0.99	0.95	0.92	0.94	0.91	0.93	0.92	0.95	0.94	0.97	0.95
GROUP 9 - I-195 PROXIMITY (STA. 7)	1.13	1.05	1.03	0.95	0.89	0.87	0.86	0.79	0.88	0.91	0.99	1.03

RECREATIONAL: (ALL YEARS)

****GROUP 3A:**

1. CAPE COD (ALL TOWNS)
2.PLYMOUTH(SOUTH OF RTE.3A)

7014, 7079,7080,7090,7091,7092,7093,7094,7095,7096,7097,7108,7178

3.MARTHA'S VINEYARD
4.NANTUCKET

*****GROUP 3B:**

5.PERMANENTS 2 & 189
1066,1067,1083,1084,1085,1086,1087,1088,1089,1090,1091,1092,
1093,1094,1095,1096,1097,1098,1099,1100,1101,1102,1103,1104,
1105,1106,1107,1108,1113,1114,1116,2196,2197,2198

2011 AXLE CORRECTION FACTORS

ROAD INVENTORY FUNCTIONAL CLASSIFICATION	AXLE CORRECTION FACTOR
RURAL	
1	0.95
2	0.97
3	0.98
0,5,6	0.98
URBAN	
1	0.96
2	0.98
3	0.98
5	0.98
0,6	0.99
I-84	0.90

Apply I-84 factor to stations: 3290,3929

ROUND OFF

0 - 999.....10
> 1,000.....100

Crash Analysis Data

Crash ID	Town	Crash Date	Crash Time	Crash Severity	Total Vehicles	Total Injured	Total Fatals	Collision manner	Road Surface	Lighting	Weather	Street	Intersection	Distance From Nearest Intersection	Vehicles Travel Directions	Most Harmful Events	Distance from Nearest Landmark	Vehicle Action Prior to Crash	Vehicle Configuration	Non Motorist Type
Route 30 (Cochituate Road) at Whittier Street/Shoppers World Drive																				
2523234	FRAMINGHAM	9/26/2009	3:51 PM	Non-fatal injury	2	3	0	Angle	Dry	Daylight	Clear			5 WHITTIER STREET / COCHITUATE ROAD Rte 30 E	V1:Northbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Turning left / V2:Travelling straight ahead	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2432594	FRAMINGHAM	2/17/2009	2:35 AM	Non-fatal injury	2	1	0	Angle	Dry	Daylight	Clear/Clear	COCHITUATE ROAD / RING ROAD	COCHITUATE ROAD / RING ROAD		V1:Southbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2481766	FRAMINGHAM	6/12/2009	12:22 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear			WHITTIER STREET	V1:Northbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2484936	FRAMINGHAM	7/1/2009	5:43 PM	Property damage only (none injured)	3	0	0	Rear-end	Wet	Daylight	Rain	COCHITUATE ROAD Rte 30 W / WHITTER ST	COCHITUATE ROAD Rte 30 W / WHITTER ST	375 COCHITUATE ROAD	V1:Westbound / V2:Westbound / V3:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic / V3:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car / V3:Passenger car	
2493428	FRAMINGHAM	7/14/2009	12:04 PM	Non-fatal injury	2	2	0	Rear-end	Dry	Daylight	Clear	COCHITUATE ROAD Rte 30 / RING ROAD	COCHITUATE ROAD Rte 30 / RING ROAD		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Slowing or stopped in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2511319	FRAMINGHAM	9/4/2009	9:44 AM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear			COCHITUATE ROAD Rte 30 / WHITTIER STREET	V1:Northbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Turning left / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2525597	FRAMINGHAM	10/9/2009	10:16 PM	Non-fatal injury	1	2	0	Rear-end	Wet	Dark - lighted roadway	Rain	RING ROAD / COCHITUATE ROAD	RING ROAD / COCHITUATE ROAD		V1:Northbound	V1: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic	V1: Passenger car	
2536623	FRAMINGHAM	11/13/2009	10:21 AM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear			WHITTIER STREET	V1:Southbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	SOVEREIGN BANK	V1: Turning right / V2:Travelling straight ahead	V1: Single-unit truck (2-axle, 6-tire) / V2:Passenger car	
2551040	FRAMINGHAM	11/16/2009	11:43 AM	Non-fatal injury	2	1	0	Rear-end	Dry	Daylight	Clear	COCHITUATE ROAD Rte 30 W / WHITTIER STREET	COCHITUATE ROAD Rte 30 W / WHITTIER STREET		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Slowing or stopped in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
2542039	FRAMINGHAM	11/30/2009	12:50 PM	Property damage only (none injured)	2	0	0	Angle	Wet	Daylight	Rain			WHITTIER STREET	V1:Eastbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Turning left / V2:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
2551620	FRAMINGHAM	12/18/2009	11:10 AM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	Clear			COCHITUATE ROAD Rte 30 W / WHITTER STREET	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Slowing or stopped in traffic	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2567113	FRAMINGHAM	2/14/2010	11:58 AM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	Clear	COCHITUATE ROAD Rte 30 W / WHITTIER STREET / RING ROAD	COCHITUATE ROAD Rte 30 W / WHITTIER STREET / RING ROAD		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Slowing or stopped in traffic	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2567119	FRAMINGHAM	2/15/2010	3:30 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear	COCHITUATE ROAD Rte 30 E / RING ROAD	COCHITUATE ROAD Rte 30 E / RING ROAD		V1:Eastbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2578548	FRAMINGHAM	3/17/2010	6:42 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear	COCHITUATE ROAD Rte 30 E / WHITTIER	COCHITUATE ROAD Rte 30 E / WHITTIER		V1:Southbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor		V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2581588	FRAMINGHAM	3/30/2010	9:35 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Dark - lighted roadway	Rain	COCHITUATE ROAD Rte 30 W / WHITTIER STREET	COCHITUATE ROAD Rte 30 W / WHITTIER STREET		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic	V1: Passenger car / V2:Passenger car	
2605417	FRAMINGHAM	6/4/2010	1:40 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	Dry	Dark - lighted roadway	Clear/Clear	400 COCHITUATE ROAD Rte 30 W / RING ROAD	400 COCHITUATE ROAD Rte 30 W / RING ROAD		V1:Westbound	V1: Collision with median barrier		V1: Travelling straight ahead	V1: Passenger car	
2614028	FRAMINGHAM	6/24/2010	2:00 PM	Non-fatal injury	2	1	0	Angle	Dry	Daylight	Clear			WHITTIER RD	V1:Westbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Entering traffic lane / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2615173	FRAMINGHAM	7/1/2010	5:07 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	Cloudy	COCHITUATE ROAD / WHITTIER STREET	COCHITUATE ROAD / WHITTIER STREET		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Turning left / V2:Backing	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2618103	FRAMINGHAM	7/9/2010	7:12 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	Clear	COCHITUATE ROAD / SHOPPERS WORLD RD	COCHITUATE ROAD / SHOPPERS WORLD RD	SHOPPERS WORLD ROAD	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Slowing or stopped in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
2618106	FRAMINGHAM	7/12/2010	9:32 AM	Non-fatal injury	2	1	0	Rear-end	Dry	Daylight	Clear			COCHITUATE ROAD	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	REI	V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2622627	FRAMINGHAM	7/21/2010	9:45 AM	Unknown	2	0	0	Unknown	Dry	Daylight	Clear			COCHITUATE RD Rte 30 E	V1:Northbound / V2:Not reported	V1: Collision with parked motor vehicle / V2: Not reported		V1: Parked / V2:Unknown	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Not reported	
2627635	FRAMINGHAM	7/26/2010	10:57 AM	Non-fatal injury	2	2	0	Angle	Dry	Daylight	Clear			WHITTIER	V1:Unknown / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Turning left / V2:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2627647	FRAMINGHAM	8/4/2010	6:49 PM	Property damage only (none injured)	1	0	0	Sideswipe, same direction	Dry	Daylight	Cloudy			COCHITUATE RD. Rte 30 W	V1:Westbound	V1: Collision with motor vehicle in traffic	SOVEREIGN BANK	V1: Travelling straight ahead	V1: Passenger car	
2674267	FRAMINGHAM	11/18/2010	5:31 PM	Property damage only (none injured)	1	0	0	Sideswipe, same direction	Dry	Dark - roadway not lighted	Clear/Clear	COCHITUATE RD / WHITTIER ST	COCHITUATE RD / WHITTIER ST		V1:Eastbound	V1: Collision with motor vehicle in traffic		V1: Travelling straight ahead	V1: Not reported	
2673295	FRAMINGHAM	12/3/2010	5:24 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Dry	Dark - lighted roadway	Cloudy/Clear	COCHITUATE ROAD / WHITTIER STREET	COCHITUATE ROAD / WHITTIER STREET		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Turning left	V1: Passenger car / V2:Truck/trailer	
2680503	FRAMINGHAM	1/7/2011	7:50 AM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	Clear	COCHITUATE RD / RING RD	COCHITUATE RD / RING RD		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
2684966	FRAMINGHAM	1/22/2011	3:11 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear	COCHITUATE RD Rte 30 W / WHITTIER ST	COCHITUATE RD Rte 30 W / WHITTIER ST		V1:Westbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Turning left	V1: Passenger car / V2:Passenger car	

Crash ID	Town	Crash Date	Crash Time	Crash Severity	Total Vehicles	Total Injured	Total Fatals	Collision manner	Road Surface	Lighting	Weather	Street	Intersection	Distance From Nearest Intersection	Vehicles Travel Directions	Most Harmful Events	Distance from Nearest Landmark	Vehicle Action Prior to Crash	Vehicle Configuration	Non Motorist Type
2704319	FRAMINGHAM	3/10/2011	10:15 AM	Non-fatal injury	2	1	0	Angle	Dry	Daylight	Clear/Clear	COCHITUATE RD Rte 30 / WHITTIER ST	COCHITUATE RD Rte 30 / WHITTIER ST		V1:Westbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2747542	FRAMINGHAM	7/25/2011	10:48 AM	Property damage only (none injured)	1	0	0	Unknown	Dry	Daylight	Clear/Clear			WHITTIER ST	V1:Northbound	V1: Collision with parked motor vehicle	SOVEREIGN BANK	V1: Parked	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2760529	FRAMINGHAM	8/26/2011	12:27 PM	Non-fatal injury	2	1	0	Angle	Dry	Daylight	Clear/Clear			WHITTIER ST	V1:Eastbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2760647	FRAMINGHAM	9/6/2011	4:15 PM	Property damage only (none injured)	2	0	0	Angle	Wet	Daylight	Rain			COCHITUATE ROAD Rte 30 E	V1:Eastbound / V2:Not reported	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	DRIVEWAY REI INC	V1: Travelling straight ahead / V2:Entering traffic lane	V1: Passenger car / V2:Passenger car	
2760739	FRAMINGHAM	9/6/2011	5:00 PM	Property damage only (none injured)	2	0	0	Rear-end	Wet	Daylight	Rain	COCHITUATE ROAD Rte 30 W / WHITTIER STREET	COCHITUATE ROAD Rte 30 W / WHITTIER STREET		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
2815276	FRAMINGHAM	11/28/2011	4:20 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear/Clear	RING RD / ACCESS RD / COCHITUATE RD	RING RD / ACCESS RD / COCHITUATE RD		V1:Northbound / V2:Northbound / V3:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic		V1: Turning right / V2:Travelling straight ahead / V3:Travelling straight ahead	V1: Truck/trailer / V2:Passenger car / V3:Passenger car	
2836645	FRAMINGHAM	12/23/2011	11:48 AM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	Cloudy	COCHITUATE RD Rte 30 E / RING RD	COCHITUATE RD Rte 30 E / RING RD		V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
3116348	FRAMINGHAM	5/25/2012	7:50 PM	Non-fatal injury	2	4	0	Sideswipe, same direction	Dry	Daylight	Cloudy			COCHITUATE ROAD Rte 30 W / WHITTIER STREET	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Changing lanes / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
3215934	FRAMINGHAM	6/30/2012	11:55 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Dry	Dark - lighted roadway	Clear/Clear	COCHITUATE RD Rte 30 / WHITTIER ST	COCHITUATE RD Rte 30 / WHITTIER ST		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Changing lanes	V1: Passenger car / V2:Passenger car	
3245384	FRAMINGHAM	8/21/2012	6:50 AM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Cloudy	COCHITUATE RD Rte 30 E / WHITTIER ST	COCHITUATE RD Rte 30 E / WHITTIER ST		V1:Eastbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Turning left	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
3288595	FRAMINGHAM	11/3/2012	3:30 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	Clear	COCHITUATE ROAD Rte 30 W / WHITTIER STREET	COCHITUATE ROAD Rte 30 W / WHITTIER STREET		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
3289903	FRAMINGHAM	11/9/2012	2:40 AM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear/Clear	COCHITUATE RD / WHITTIER ST	COCHITUATE RD / WHITTIER ST		V1:Westbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Turning left / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
3292339	FRAMINGHAM	11/16/2012	00:00 AM	Property damage only (none injured)	2	0	0	Angle	Dry	Dark - lighted roadway	Clear/Clear	COCHITUATE RD Rte 30 W / WHITTIER ST	COCHITUATE RD Rte 30 W / WHITTIER ST		V1:Northbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
3322618	FRAMINGHAM	12/8/2012	9:02 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Dark - lighted roadway	Clear	COCHITUATE RD Rte 30 E / WHITTIER ST	COCHITUATE RD Rte 30 E / WHITTIER ST		V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Slowing or stopped in traffic	V1: Passenger car / V2:Passenger car	
3322620	FRAMINGHAM	12/22/2012	12:34 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear/Clear			WHITTIER ST	V1:Southbound / V2:Southbound	V1: Collision with parked motor vehicle / V2: Collision with parked motor vehicle	SOVEREIGN BANK LOT	V1: Parked / V2:Backing	V1: Passenger car / V2:Passenger car	
3328455	FRAMINGHAM	1/5/2013	10:22 AM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Cloudy	COCHITUATE RD Rte 30 E / RING RD / WHITTIER ST	COCHITUATE RD Rte 30 E / RING RD / WHITTIER ST		V1:Southbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Turning left / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
3366651	FRAMINGHAM	3/7/2013	6:20 PM	Property damage only (none injured)	1	0	0	Rear-end	Wet	Dark - lighted roadway	Rain/Snow	COCHITUATE ROAD / WHITTIER STREET	COCHITUATE ROAD / WHITTIER STREET		V1:Westbound	V1: Collision with motor vehicle in traffic		V1: Turning left	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
3416570	FRAMINGHAM	4/7/2013	11:45 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Dark - lighted roadway	Clear/Clear	COCHITUATE RD Rte 30 W / WHITTIER ST	COCHITUATE RD Rte 30 W / WHITTIER ST		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Changing lanes	V1: Passenger car / V2:Passenger car	
3394005	FRAMINGHAM	4/8/2013	5:20 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear	COCHITUATE ROAD Rte 30 E / RING ROAD	COCHITUATE ROAD Rte 30 E / RING ROAD		V1:Northbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	FEEDER ROAD	V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
3484534	FRAMINGHAM	6/22/2013	1:39 PM	Non-fatal injury	3	1	0	Angle	Dry	Daylight	Cloudy	COCHITUATE ROAD Rte 30 E / RING ROAD	COCHITUATE ROAD Rte 30 E / RING ROAD		V1:Eastbound / V2:Southbound / V3:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Turning left / V3:Slowing or stopped in traffic	V1: Passenger car / V2:Passenger car / V3:Bus (seats for 7-15 people, including driver)	
3498369	FRAMINGHAM	7/2/2013	3:00 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	Clear/Clear			30 feet E from Intersection COCHITUATE RD Rte 30 W / 490 WHITTIER STREET	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
3659057	FRAMINGHAM	11/7/2013	10:50 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Dark - lighted roadway	Clear			COCHITUATE RD	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	REI	V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
3711084	FRAMINGHAM	11/27/2013	10:49 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	Wet	Dark - lighted roadway	Rain	SHOPPERS WORLD DRIVE / COCHITUATE ROAD Rte 30	SHOPPERS WORLD DRIVE / COCHITUATE ROAD Rte 30		V1:Southbound	V1: Collision with median barrier		V1: Turning right	V1: Passenger car	
3675218	FRAMINGHAM	11/29/2013	3:38 AM	Non-fatal injury	2	4	0	Angle	Dry	Dark - lighted roadway	Clear/Clear	COCHITUATE RD Rte 30 W / WHITTIER ST	COCHITUATE RD Rte 30 W / WHITTIER ST		V1:Westbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
3709502	FRAMINGHAM	12/20/2013	6:50 PM	Non-fatal injury	1	1	0	Single vehicle crash	Snow	Daylight	Clear	COCHITUATE RD / RING RD	COCHITUATE RD / RING RD		V1:Eastbound	V1: Other		V1: Travelling straight ahead	V1: Passenger car	
3711068	FRAMINGHAM	12/31/2013	4:13 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear			COCHITUATE RD	V1:Eastbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
Shoppers World Drive at Fluite Pass/Shoppers World Driveway																				
2538058	FRAMINGHAM	11/18/2009	8:00 PM	Non-fatal injury	3	1	0	Rear-end	Dry	Dark - lighted roadway	Clear	RING RD / FLUTIE PASS	RING RD / FLUTIE PASS		V1:Southbound / V2:Southbound / V3:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic / V3:Slowing or stopped in traffic	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V3:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	

Crash ID	Town	Crash Date	Crash Time	Crash Severity	Total Vehicles	Total Injured	Total Fatals	Collision manner	Road Surface	Lighting	Weather	Street	Intersection	Distance From Nearest Intersection	Vehicles Travel Directions	Most Harmful Events	Distance from Nearest Landmark	Vehicle Action Prior to Crash	Vehicle Configuration	Non Motorist Type
2732196	FRAMINGHAM	2/5/2010	3:10 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Dry	Daylight	Clear			RING ROAD / FLUTIE PASS	V1:Southbound / V2:Southbound	V1: Not reported / V2: Not reported		V1: Travelling straight ahead / V2:Changing lanes	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2601056	FRAMINGHAM	5/20/2010	4:31 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Dry	Daylight	Clear			RING ROAD / FLUTIE PASS	V1:Northbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	SHOPPERS WORLD	V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
2611167	FRAMINGHAM	6/20/2010	12:13 PM	Non-fatal injury	2	1	0	Angle	Dry	Daylight	Clear/Clear	RING ROAD / FLUTIE PASS	RING ROAD / FLUTIE PASS		V1:Northbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2618518	FRAMINGHAM	7/13/2010	1:59 PM	Property damage only (none injured)	1	0	0	Sideswipe, opposite direction	Dry	Daylight	Clear	FLUTIE PASS / RING RD	FLUTIE PASS / RING RD		V1:Eastbound	V1: Collision with motor vehicle in traffic		V1: Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2637546	FRAMINGHAM	9/4/2010	7:10 PM	Not Reported	1	0	0	Sideswipe, opposite direction	Dry	Daylight	Clear			FLUTIE PASS	V1:Reported but invalid	V1: Collision with parked motor vehicle	AMC MOVIES	V1: Parked	V1: Passenger car	
2650094	FRAMINGHAM	10/12/2010	11:55 AM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear/Clear	RING ROAD / ACCESS ROAD-SHOPPERS WORL	RING ROAD / ACCESS ROAD-SHOPPERS WORL		V1:Northbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Turning left	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2677192	FRAMINGHAM	1/2/2011	9:53 AM	Property damage only (none injured)	2	0	0	Angle	Wet	Daylight	Rain/Rain	RING ROAD / FLUTIE PASS	RING ROAD / FLUTIE PASS		V1:Northbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Turning right / V2:Travelling straight ahead	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2681949	FRAMINGHAM	1/16/2011	4:30 PM	Property damage only (none injured)	1	0	0	Sideswipe, same direction	Dry	Daylight	Clear/Clear	FLUTIE PASS / SHOPPERS WORLD DRIVE	FLUTIE PASS / SHOPPERS WORLD DRIVE		V1:Westbound	V1: Collision with motor vehicle in traffic		V1: Travelling straight ahead	V1: Passenger car	
2751360	FRAMINGHAM	8/5/2011	1:57 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear			RING ROAD	V1:Eastbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	DSW SHOES SHOPPERS WORLD	V1: Entering traffic lane / V2:Travelling straight ahead	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
3116353	FRAMINGHAM	5/29/2012	2:00 PM	Non-fatal injury	2	1	0	Angle	Dry	Daylight	Clear/Clear	RING ROAD / FLUTIE PASS	RING ROAD / FLUTIE PASS		V1:Southbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	SHOPPER WORLD EXIT	V1: Travelling straight ahead / V2:Turning right	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
3138744	FRAMINGHAM	6/9/2012	1:45 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Dry	Daylight	Clear/Clear	FLUTIE PASS / RING RD	FLUTIE PASS / RING RD		V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Entering traffic lane / V2:Travelling straight ahead	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
3202933	FRAMINGHAM	6/21/2012	10:18 AM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Dry	Daylight	Clear/Clear	SHOPPERS WORLD DRIVE / FLUTIE PASS Rte 9	SHOPPERS WORLD DRIVE / FLUTIE PASS Rte 9		V1:Southbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Entering traffic lane / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
3268219	FRAMINGHAM	10/2/2012	12:29 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Dry	Daylight	Clear	RING ROAD / FLUTIE PASS	RING ROAD / FLUTIE PASS	RING RD	V1:Southbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	TOYS R US	V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
Flutie Pass at AMC Main Driveway/AMC South Lot																				
3548228	FRAMINGHAM	8/2/2013	11:40 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Dark - lighted roadway	Clear/Clear				V1:Westbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	AMC CINEMA ENTRANCE	V1: Travelling straight ahead / V2:Turning left	V1: Passenger car / V2:Passenger car	
East Couplet at Ring Road/AMC South Lot																				
2431014	FRAMINGHAM	2/3/2009	1:51 PM	Property damage only (none injured)	2	0	0	Rear-end	Snow	Daylight	Snow	RING ROAD / SHOPPERS WORLD DRIVE	RING ROAD / SHOPPERS WORLD DRIVE		V1:Southbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Slowing or stopped in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2467843	FRAMINGHAM	5/17/2009	7:07 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Cloudy	SHOPPERS WORLD WAY / SHOPPERS WORLD DRIVEWAY	SHOPPERS WORLD WAY / SHOPPERS WORLD DRIVEWAY		V1:Northbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	AMC THEATRE OVERFLOW LOT ENTRANC	V1: Travelling straight ahead / V2:Turning left	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2562819	FRAMINGHAM	2/4/2010	9:15 PM	Non-fatal injury	1	1	0	Single vehicle crash	Dry	Dark - lighted roadway	Clear/Clear			RING ROAD	V1:Eastbound	V1: Collision with motor vehicle in traffic	PARKING LOT ACROSS FROM AMC	V1: Turning left	V1: Passenger car	
2856375	FRAMINGHAM	1/7/2012	10:01 AM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear/Clear	SHOPPERS WORLD DRIVE / RING ROAD	SHOPPERS WORLD DRIVE / RING ROAD	FLUTIE PASS	V1:Westbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	AMC PARKING LOT	V1: Turning left / V2:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
3354765	FRAMINGHAM	2/10/2013	3:30 PM	Non-fatal injury	2	1	0	Angle	Wet	Daylight	Clear	SHOPPERS WORLD DRIVE / RING ROAD	SHOPPERS WORLD DRIVE / RING ROAD		V1:Northbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Turning left / V2:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
Route 9 (Worcester Street) at East Couplet/Michael's Driveway																				
2417182	NATICK	1/8/2009	10:09 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Dark - lighted roadway	Clear			WORCESTER STREET	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2417193	NATICK	1/11/2009	9:00 AM	Property damage only (none injured)	2	0	0	Angle	Snow	Daylight	Snow	WORCESTER STREET Rte 9 E / RING ROAD SOUTHEAST CONNECTOR	WORCESTER STREET Rte 9 E / RING ROAD SOUTHEAST CONNECTOR		V1:Southbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Making U-turn / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2441438	NATICK	3/1/2009	9:58 AM	Property damage only (none injured)	3	0	0	Sideswipe, same direction	Snow	Daylight	Snow/Blowing sand, snow			WORCESTER STREET	V1:Eastbound / V2:Eastbound / V3:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Travelling straight ahead / V3:Travelling straight ahead	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V3:Passenger car	
2469902	NATICK	5/21/2009	8:17 AM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	Clear			WORCESTER STREET	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic	V1: Passenger car / V2:Passenger car	
2550966	NATICK	10/27/2009	4:37 PM	Non-fatal injury	2	1	0	Angle	Wet	Daylight	Rain	WORCESTER STREET Rte 9 W / RING RD	WORCESTER STREET Rte 9 W / RING RD		V1:Southbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Slowing or stopped in traffic	V1: Passenger car / V2:Passenger car	
2550958	NATICK	10/28/2009	6:33 PM	Property damage only (none injured)	1	0	0	Rear-end	Wet	Dusk	Rain/Cloudy			WORCESTER STREET Rte 9 E	V1:Eastbound	V1: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic	V1: Passenger car	
2550814	NATICK	12/30/2009	3:32 PM	Property damage only (none injured)	3	0	0	Rear-end	Dry	Daylight	Clear	WORCESTER STREET Rte 9 E / RING ROAD	WORCESTER STREET Rte 9 E / RING ROAD		V1:Eastbound / V2:Eastbound / V3:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic	1238 WORCESTER ST	V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic / V3:Slowing or stopped in traffic	V1: Passenger car / V2:Passenger car / V3:Passenger car	

Crash ID	Town	Crash Date	Crash Time	Crash Severity	Total Vehicles	Total Injured	Total Fatals	Collision manner	Road Surface	Lighting	Weather	Street	Intersection	Distance From Nearest Intersection	Vehicles Travel Directions	Most Harmful Events	Distance from Nearest Landmark	Vehicle Action Prior to Crash	Vehicle Configuration	Non Motorist Type
2579778	NATICK	3/13/2010	12:54 PM	Property damage only (none injured)	2	0	0	Rear-end	Wet	Daylight	Rain			WORCESTER STREET	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2579763	NATICK	3/10/2010	1:15 PM	Non-fatal injury	2	1	0	Rear-end	Dry	Daylight	Clear	WORCESTER STREET / RING ROAD SOUTHEAST CONNECTOR	WORCESTER STREET / RING ROAD SOUTHEAST CONNECTOR		V1:Westbound / V2:Not reported	V1: Collision with motor vehicle in traffic / V2: Not reported		V1: Changing lanes / V2:Not reported	V1: Passenger car / V2:Tractor/semi-trailer	
2834426	NATICK	6/15/2010	6:08 PM	Property damage only (none injured)	2	0	0	Single vehicle crash	Dry	Daylight	Clear			WORCESTER STREET	V1:Eastbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2754044	NATICK	6/15/2010	6:30 PM	Property damage only (none injured)	3	0	0	Rear-end	Dry	Daylight	Clear			1400 WORCESTER STREET Rte 9 E	V1:Eastbound / V2:Eastbound / V3:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Slowing or stopped in traffic / V3:Slowing or stopped in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car / V3:Passenger car	
2834537	NATICK	6/19/2010	3:03 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	Clear			WORCESTER STREET	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
2834547	NATICK	6/27/2010	10:20 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Dry	Dark - lighted roadway	Clear			WORCESTER STREET Rte 9 E	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Changing lanes	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2834549	NATICK	6/29/2010	1:03 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	Clear			WORCESTER STREET	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2834491	NATICK	8/7/2010	2:40 PM	Non-fatal injury	3	1	0	Rear-end	Dry	Daylight	Clear			WORCESTER STREET	V1:Eastbound / V2:Eastbound / V3:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic	300 feet N from MICHAEL'S	V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic / V3:Travelling straight ahead	V1: Passenger car / V2:Passenger car / V3:Passenger car	
2834630	NATICK	8/9/2010	7:07 PM	Property damage only (none injured)	3	0	0	Rear-end	Dry	Daylight	Clear	WORCESTER STREET Rte 9 E / RING ROAD	WORCESTER STREET Rte 9 E / RING ROAD		V1:Eastbound / V2:Eastbound / V3:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic	ENTRANCE TO MICHAELS	V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic / V3:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Bus (seats for 7-15 people, including driver) / V3:Passenger car	
2834499	NATICK	8/11/2010	9:30 PM	Non-fatal injury	3	2	0	Rear-end	Dry	Dark - lighted roadway	Clear			WORCESTER STREET Rte 9 E	V1:Eastbound / V2:Eastbound / V3:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Travelling straight ahead / V3:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car / V3:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2834815	NATICK	9/25/2010	4:44 PM	Property damage only (none injured)	3	0	0	Single vehicle crash	Dry	Daylight	Clear			WORCESTER STREET	V1:Westbound / V2:Westbound / V3:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic / V3:Travelling straight ahead	V1: Passenger car / V2:Passenger car / V3:Passenger car	
2834769	NATICK	9/12/2010	8:44 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Dark - lighted roadway	Rain			WORCESTER STREET	V1:Northbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Turning left / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2834925	NATICK	12/1/2010	3:23 PM	Property damage only (none injured)	2	0	0	Rear-end	Wet	Daylight	Rain			WORCESTER STREET	V1:Eastbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2834678	NATICK	12/2/2010	4:14 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Dusk	Clear	WORCESTER STREET Rte 9 E / RING ROAD	WORCESTER STREET Rte 9 E / RING ROAD		V1:Northbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	NEAR 1400 WORCESTER ST	V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2834693	NATICK	12/11/2010	9:42 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Dark - lighted roadway	Clear			WORCESTER STREET	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2834964	NATICK	12/19/2010	2:15 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	Clear			WORCESTER STREET	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2834979	NATICK	12/23/2010	1:50 PM	Property damage only (none injured)	2	0	0	Rear-end	Wet	Daylight	Clear	WORCESTER STREET Rte 9 E / RING ROAD	WORCESTER STREET Rte 9 E / RING ROAD		V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	NEAR 1398 WORCESTER ST	V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
2835538	NATICK	1/8/2011	2:36 PM	Non-fatal injury	2	1	0	Rear-end	Wet	Daylight	Cloudy	WORCESTER STREET Rte 9 W / RING ROAD	WORCESTER STREET Rte 9 W / RING ROAD		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2835752	NATICK	1/17/2011	2:43 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	Clear	RING ROAD / WORCESTER STREET Rte 9	RING ROAD / WORCESTER STREET Rte 9		V1:Southbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic	V1: Passenger car / V2:Passenger car	
2835386	NATICK	1/29/2011	7:18 PM	Property damage only (none injured)	2	0	0	Angle	Wet	Dark - lighted roadway	Clear			WORCESTER STREET	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Turning left	V1: Passenger car / V2:Passenger car	
2835562	NATICK	2/27/2011	6:15 PM	Non-fatal injury	2	1	0	Rear-end	Dry	Dark - lighted roadway	Clear			WORCESTER STREET	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2835566	NATICK	3/2/2011	7:22 AM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	Clear			WORCESTER STREET	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2835587	NATICK	3/18/2011	7:59 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Dark - lighted roadway	Clear	WORCESTER STREET Rte 9 E / RING ROAD	WORCESTER STREET Rte 9 E / RING ROAD		V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	ENTRANCE TO MICHAELS	V1: Travelling straight ahead / V2:Turning right	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
2835599	NATICK	3/31/2011	9:24 PM	Property damage only (none injured)	2	0	0	Angle	Wet	Dark - lighted roadway	Snow	WORCESTER STREET Rte 9 E / RING ROAD	WORCESTER STREET Rte 9 E / RING ROAD		V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	MICHAELS ENTRANCE	V1: Turning left / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2835632	NATICK	4/28/2011	8:49 AM	Non-fatal injury	2	1	0	Rear-end	Dry	Daylight	Cloudy	WORCESTER STREET Rte 9 W / RING ROAD	WORCESTER STREET Rte 9 W / RING ROAD		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2835646	NATICK	5/7/2011	12:57 PM	Property damage only (none injured)	3	0	0	Rear-end	Wet	Daylight	Cloudy/Rain	WORCESTER STREET Rte 9 W / RING ROAD	WORCESTER STREET Rte 9 W / RING ROAD		V1:Westbound / V2:Westbound / V3:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Slowing or stopped in traffic / V3:Slowing or stopped in traffic	V1: Passenger car / V2:Passenger car / V3:Passenger car	
2836742	NATICK	7/9/2011	3:32 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Dry	Daylight	Clear			WORCESTER ST	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	

Crash ID	Town	Crash Date	Crash Time	Crash Severity	Total Vehicles	Total Injured	Total Fatals	Collision manner	Road Surface	Lighting	Weather	Street	Intersection	Distance From Nearest Intersection	Vehicles Travel Directions	Most Harmful Events	Distance from Nearest Landmark	Vehicle Action Prior to Crash	Vehicle Configuration	Non Motorist Type
2836663	NATICK	7/16/2011	2:19 PM	Property damage only (none injured)	3	0	0	Rear-end	Dry	Daylight	Clear			WORCESTER ST	V1:Eastbound / V2:Eastbound / V3:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic / V3:Travelling straight ahead	V1: Passenger car / V2:Passenger car / V3:Passenger car	
2835050	NATICK	7/26/2011	3:31 PM	Non-fatal injury	6	1	0	Rear-end	Dry	Daylight	Clear	WORCESTER STREET Rte 9 W / RING ROAD	WORCESTER STREET Rte 9 W / RING ROAD		V1:Westbound / V2:Westbound / V3:Westbound / V4:Westbound / V5:Westbound / V6:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic / V4: Collision with motor vehicle in traffic / V5: Collision with motor vehicle in traffic / V6: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic / V3:Slowing or stopped in traffic / V4:Slowing or stopped in traffic / V5:Slowing or stopped in traffic / V6:Changing lanes	V1: Passenger car / V2:Passenger car / V3:Passenger car / V4:Passenger car / V5:Passenger car / V6:Passenger car	
2835098	NATICK	8/24/2011	2:43 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear			WORCESTER STREET	V1:Eastbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	500 feet N from MICHAEL'S	V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2835099	NATICK	8/24/2011	8:21 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Dark - lighted roadway	Clear			WORCESTER STREET	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic	V1: Passenger car / V2:Passenger car	
2835262	NATICK	9/27/2011	3:00 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	Clear			WORCESTER STREET	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2852992	NATICK	12/18/2011	6:31 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Dark - lighted roadway	Clear			WORCESTER STREET	V1:Southbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Turning left / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2835226	NATICK	12/4/2011	7:56 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Dark - lighted roadway	Clear			WORCESTER STREET Rte 9 E	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2852984	NATICK	12/14/2011	1:09 PM	Property damage only (none injured)	3	0	0	Rear-end	Snow	Daylight	Cloudy			WORCESTER STREET	V1:Eastbound / V2:Eastbound / V3:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic / V3:Slowing or stopped in traffic	V1: Passenger car / V2:Passenger car / V3:Passenger car	
3041162	NATICK	3/25/2012	11:36 AM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Cloudy			WORCESTER STREET	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Changing lanes / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
3027153	NATICK	3/28/2012	1:41 PM	Non-fatal injury	2	1	0	Angle	Dry	Daylight	Cloudy	WORCESTER ST / RING RD	WORCESTER ST / RING RD		V1:Southbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
3139918	NATICK	6/6/2012	8:09 AM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	Cloudy			1362 WORCESTER STREET Rte 9 E	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
3247242	NATICK	8/25/2012	10:25 PM	Non-fatal injury	3	1	0	Rear-end	Dry	Dark - lighted roadway	Clear			1400 WORCESTER STREET	V1:Eastbound / V2:Eastbound / V3:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic / V3:Travelling straight ahead	V1: Passenger car / V2:Passenger car / V3:Passenger car	
3289308	NATICK	9/21/2012	4:44 PM	Property damage only (none injured)	3	0	0	Rear-end	Dry	Daylight	Clear			1364 WORCESTER STREET	V1:Westbound / V2:Westbound / V3:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic / V3:Travelling straight ahead	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V3:Passenger car	
3289436	NATICK	10/10/2012	9:48 PM	Property damage only (none injured)	2	0	0	Rear-end	Wet	Dark - lighted roadway	Clear	WORCESTER STREET Rte 9 E / DRIVE WAY	WORCESTER STREET Rte 9 E / DRIVE WAY	1449 WORCESTER STREET	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Slowing or stopped in traffic	V1: Passenger car / V2:Passenger car	
3457902	NATICK	2/16/2013	11:16 AM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Wet	Daylight	Snow	WORCESTER STREET Rte 9 E / SHOPPERS WORLD DRIVE	WORCESTER STREET Rte 9 E / SHOPPERS WORLD DRIVE		V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	MICHAELS PARKING LOT	V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
3457903	NATICK	2/17/2013	6:02 PM	Property damage only (none injured)	2	0	0	Rear-end	Wet	Dark - lighted roadway	Clear	WORCESTER STREET Rte 9 W / RING ROAD	WORCESTER STREET Rte 9 W / RING ROAD		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
3457836	NATICK	5/17/2013	9:11 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Dark - lighted roadway	Clear	WORCESTER STREET Rte 9 E / SHOPPERS WORLD DRIVE	WORCESTER STREET Rte 9 E / SHOPPERS WORLD DRIVE		V1:Northbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	NEXT TO LENSCRAFTERS	V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
3457697	NATICK	6/7/2013	9:20 PM	Property damage only (none injured)	2	0	0	Angle	Wet	Dark - lighted roadway	Rain			WORCESTER STREET	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Making U-turn	V1: Passenger car / V2:Passenger car	
3457699	NATICK	6/8/2013	10:50 PM	Non-fatal injury	2	2	0	Sideswipe, same direction	Dry	Dark - lighted roadway	Clear			WORCESTER ST	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with pedestrian		V1: Travelling straight ahead / V2:Leaving traffic lane	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
3660828	NATICK	9/20/2013	6:05 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	Clear			1398 WORCESTER STREET Rte 9 W / SHOPPERS WORLD WAY	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
3660934	NATICK	9/22/2013	6:19 PM	Non-fatal injury	2	3	0	Sideswipe, opposite direction	Dry	Daylight	Clear			1399 WORCESTER STREET Rte 9 W / RING ROAD	V1:Eastbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	SHOPPERS WORLD DR	V1: Turning left / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
3660950	NATICK	10/18/2013	3:35 PM	Non-fatal injury	2	1	0	Angle	Dry	Daylight	Clear			1398 WORCESTER STREET Rte 9 E / RING ROAD	V1:Northbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	MICHAELS LOT EXIT	V1: Turning left / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
3660969	NATICK	10/27/2013	6:13 PM	Property damage only (none injured)	2	0	0	Rear-end	Wet	Dark - lighted roadway	Clear	WORCESTER ST Rte 9 W / RING RD	WORCESTER ST Rte 9 W / RING RD		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
3709287	NATICK	11/23/2013	10:38 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Dark - lighted roadway	Clear			WORCESTER STREET Rte 9 E	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
3709292	NATICK	11/25/2013	5:53 PM	Property damage only (none injured)	2	0	0	Single vehicle crash	Dry	Dark - lighted roadway	Clear			1398 WORCESTER STREET Rte 9 W / RING ROAD	V1:Southbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	MICHAELS ENTRANCE	V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
3709298	NATICK	11/27/2013	4:30 PM	Property damage only (none injured)	3	0	0	Rear-end	Wet	Dark - lighted roadway	Rain	WORCESTER ST Rte 9 W / RING RD	WORCESTER ST Rte 9 W / RING RD		V1:Westbound / V2:Westbound / V3:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic / V3:Changing lanes	V1: Passenger car / V2:Passenger car / V3:Passenger car	
3709309	NATICK	12/2/2013	11:35 AM	Property damage only (none injured)	2	0	0	Rear-end	Wet	Daylight	Rain			1400 WORCESTER STREET Rte 9 E	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic	V1: Passenger car / V2:Unknown heavy truck, cannot classify	
3714895	NATICK	12/19/2013	5:14 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Dark - lighted roadway	Clear			1400 WORCESTER STREET Rte 9 E / RING ROAD	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	

Route 9 (Worcester Street) at West Couplet

Crash ID	Town	Crash Date	Crash Time	Crash Severity	Total Vehicles	Total Injured	Total Fatals	Collision manner	Road Surface	Lighting	Weather	Street	Intersection	Distance From Nearest Intersection	Vehicles Travel Directions	Most Harmful Events	Distance from Nearest Landmark	Vehicle Action Prior to Crash	Vehicle Configuration	Non Motorist Type
2416332	FRAMINGHAM	1/7/2009	2:29 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	Clear			WORCESTER ROAD Rte 9 E	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	SHOPPERS WORLD	V1: Changing lanes / V2:Slowing or stopped in traffic	V1: Passenger car / V2:Passenger car	
2424812	FRAMINGHAM	1/31/2009	2:33 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear			WORCESTER ROAD	V1:Eastbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	SHOPPERS WORLD PLAZA	V1: Entering traffic lane / V2:Slowing or stopped in traffic	V1: Passenger car / V2:Passenger car	
2551025	FRAMINGHAM	12/30/2009	1:57 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	Clear			WORCESTER ROAD Rte 9 W	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	SHOPPERS WORLD	V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2553913	FRAMINGHAM	3/1/2009	9:55 AM	Property damage only (none injured)	2	0	0	Angle	Snow	Daylight	Snow/Other	FLUTIE PASS Rte 9 / WORCESTER ROAD	FLUTIE PASS Rte 9 / WORCESTER ROAD	1 WORCESTER ROAD	V1:Northbound / V2:Northbound	V1: Not reported / V2: Not reported		V1: Turning left / V2:Turning left	V1: Passenger car / V2:Passenger car	
2456417	FRAMINGHAM	4/19/2009	00:00 AM	Property damage only (none injured)	2	0	0	Rear-end	Wet	Dark - lighted roadway	Rain	WORCESTER ROAD Rte 9 W / RING ROAD	WORCESTER ROAD Rte 9 W / RING ROAD		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Not reported	
2480921	FRAMINGHAM	6/18/2009	2:50 PM	Property damage only (none injured)	2	0	0	Angle	Wet	Daylight	Rain	Rte 9 E	Rte 9 E	1 WORCESTER ROAD / Rte 9	V1:Southbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	SHOPPERS WORLD DRIVE	V1: Travelling straight ahead / V2:Turning left	V1: Passenger car / V2:Passenger car	
2481783	FRAMINGHAM	6/20/2009	5:09 PM	Property damage only (none injured)	2	0	0	Rear-to-rear	Dry	Daylight	Clear			WORCESTER ROAD	V1:Unknown / V2:Unknown	V1: Collision with other movable object / V2: Collision with other movable object	SHOPPERS WORLD DSW SHOES	V1: Backing / V2:Backing	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
2493412	FRAMINGHAM	7/14/2009	10:35 AM	Non-fatal injury	2	1	0	Rear-end	Dry	Daylight	Clear	WORCESTER ROAD Rte 9 W / RING ROAD	WORCESTER ROAD Rte 9 W / RING ROAD		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Slowing or stopped in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2511327	FRAMINGHAM	9/6/2009	12:32 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear			WORCESTER ROAD	V1:Southbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	KOHLS	V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2515320	FRAMINGHAM	9/21/2009	3:45 AM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Dark - lighted roadway	Clear/Clear			1 WORCESTER ROAD Rte 9 W	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	SHOPPERS WORLD	V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2523635	FRAMINGHAM	10/4/2009	3:17 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear			WORCESTER ROAD	V1:Eastbound / V2:Reported but invalid	V1: Collision with parked motor vehicle / V2: Collision with motor vehicle in traffic	OFFICE DEPOT	V1: Travelling straight ahead / V2:Parked	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
2528058	FRAMINGHAM	10/12/2009	7:00 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Dry	Dark - lighted roadway	Clear	RING ROAD / WORCESTER ROAD Rte 9 W	RING ROAD / WORCESTER ROAD Rte 9 W		V1:Southbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Turning right	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
2527155	FRAMINGHAM	10/17/2009	2:50 PM	Non-fatal injury	1	1	0	Single vehicle crash	Dry	Daylight	Cloudy			WORCESTER ROAD	V1:Eastbound	V1: Collision with pedestrian	JOE'S AMERICAN BAR & GRILL	V1: Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	P1:Pedestrian
2546962	FRAMINGHAM	12/18/2009	2:43 PM	Non-fatal injury	1	1	0	Single vehicle crash	Dry	Daylight	Clear			WORCESTER ROAD	V1:Northbound	V1: Collision with pedestrian	TOYS R US	V1: Turning left	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	P1:Pedestrian
2546964	FRAMINGHAM	12/18/2009	9:20 PM	Non-fatal injury	1	1	0	Single vehicle crash	Dry	Dark - lighted roadway	Clear			WORCESTER ROAD	V1:Eastbound	V1: Collision with pedestrian	JOE'S AMERICAN BAR AND GRILL	V1: Turning right	V1: Passenger car	P1:Pedestrian
2548896	FRAMINGHAM	12/26/2009	2:10 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Dry	Daylight	Cloudy			WORCESTER ROAD Rte 9 W / RING ROAD	V1:Southbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Turning right / V2:Turning right	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2559223	FRAMINGHAM	1/22/2010	1:03 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	Wet	Dark - lighted roadway	Clear			RING ROAD	V1:Northbound	V1: Collision with utility pole		V1: Turning left	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2568663	FRAMINGHAM	2/21/2010	5:05 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear			WORCESTER ROAD	V1:Eastbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	CHIPOTLE	V1: Entering traffic lane / V2:Travelling straight ahead	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2575274	FRAMINGHAM	3/4/2010	6:15 PM	Property damage only (none injured)	3	0	0	Rear-end	Wet	Dark - lighted roadway	Rain			WORCESTER ROAD Rte 9 W	V1:Westbound / V2:Westbound / V3:Not reported	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Slowing or stopped in traffic / V3:Slowing or stopped in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car / V3:Passenger car	
2601058	FRAMINGHAM	5/21/2010	4:11 PM	Property damage only (none injured)	2	0	0	Sideswipe, opposite direction	Dry	Daylight	Clear			WORCESTER RD.	V1:Northbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	BOBS STORE	V1: Turning right / V2:Backing	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2606475	FRAMINGHAM	6/2/2010	4:53 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear			1 WORCESTER ROAD Rte 9	V1:Westbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	SHOPPERS WORLD	V1: Travelling straight ahead / V2:Turning left	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2606485	FRAMINGHAM	6/4/2010	3:08 PM	Non-fatal injury	1	1	0	Angle	Dry	Daylight	Clear			WORCESTER ROAD	V1:Westbound	V1: Collision with cyclist (bicycle, tricycle, unicycle, pedal car)	SHOPPERS WORLD	V1: Travelling straight ahead	V1: Passenger car	P2:Pedalcyclist (bicycle, tricycle, unicycle, pedal car)
2610089	FRAMINGHAM	6/10/2010	2:15 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	Clear			WORCESTER ROAD	V1:Unknown / V2:Unknown	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	SHOPPER'S WORLD	V1: Backing / V2:Backing	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
2632399	FRAMINGHAM	8/24/2010	6:01 AM	Property damage only (none injured)	2	0	0	Angle	Wet	Daylight	Rain			WORCESTER ROAD Rte 9 W / RING ROAD	V1:Westbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Entering traffic lane / V2:Travelling straight ahead	V1: Passenger car / V2:Truck/trailer	
2640188	FRAMINGHAM	9/10/2010	9:13 AM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear			WORCESTER ROAD	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	T.G.I.FRIDAYS	V1: Overtaking/passing / V2:Turning right	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2645007	FRAMINGHAM	9/17/2010	12:29 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear			WORCESTER ROAD	V1:Unknown / V2:Unknown	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	MARSHALLS	V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
2648270	FRAMINGHAM	10/4/2010	7:49 AM	Property damage only (none injured)	2	0	0	Angle	Wet	Daylight	Rain			WORCESTER ROAD	V1:Eastbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	BEST BUY REAR LOT	V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2667861	FRAMINGHAM	11/17/2010	11:35 AM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear	WORCESTER ROAD Rte 9 W / RING ROAD	WORCESTER ROAD Rte 9 W / RING ROAD		V1:Westbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Turning right	V1: Passenger car / V2:Passenger car	
2662834	FRAMINGHAM	11/20/2010	5:40 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Dark - lighted roadway	Clear	WORCESTER ROAD Rte 9 W / RING ROAD	WORCESTER ROAD Rte 9 W / RING ROAD		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic	V1: Not reported / V2:Not reported	
2670168	FRAMINGHAM	12/8/2010	2:24 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	Dry	Daylight	Clear/Clear			WORCESTER RD	V1:Southbound	V1: Collision with pedestrian		V1: Travelling straight ahead	V1: Passenger car	

Crash ID	Town	Crash Date	Crash Time	Crash Severity	Total Vehicles	Total Injured	Total Fatals	Collision manner	Road Surface	Lighting	Weather	Street	Intersection	Distance From Nearest Intersection	Vehicles Travel Directions	Most Harmful Events	Distance from Nearest Landmark	Vehicle Action Prior to Crash	Vehicle Configuration	Non Motorist Type
2673676	FRAMINGHAM	12/20/2010	2:14 PM	Non-fatal injury	1	1	0	Single vehicle crash	Snow	Daylight	Snow/Snow			WORCESTER ROAD Rte 9 W	V1:Westbound	V1: Collision with motor vehicle in traffic	TGI FRIDAYS	V1: Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	P2:Pedestrian
2675757	FRAMINGHAM	12/23/2010	4:58 PM	Property damage only (none injured)	1	0	0	Angle	Dry	Dark - lighted roadway	Cloudy			WORCESTER RD Rte 9 N	V1:Northbound	V1: Collision with parked motor vehicle		V1: Parked	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2685359	FRAMINGHAM	1/29/2011	11:33 AM	Property damage only (none injured)	3	0	0	Rear-end	Dry	Daylight	Clear			WORCESTER ROAD Rte 9 W	V1:Westbound / V2:Westbound / V3:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic	SHOPPERS WORLD	V1: Travelling straight ahead / V2:Slowing or stopped in traffic / V3:Slowing or stopped in traffic	V1: Passenger car / V2:Passenger car / V3:Passenger car	
2693844	FRAMINGHAM	2/17/2011	10:19 AM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear			WORCESTER RD	V1:Northbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	5 feet S from BRUEGGERS BAGELS	V1: Backing / V2:Backing	V1: Passenger car / V2:Passenger car	
2696141	FRAMINGHAM	2/27/2011	1:26 PM	Property damage only (none injured)	2	0	0	Rear-to-rear	Snow	Daylight	Snow			WORCESTER RD	V1:Southbound / V2:Northbound	V1: Collision with parked motor vehicle / V2: Collision with motor vehicle in traffic	KOHL'S	V1: Backing / V2:Parked	V1: Not reported / V2:Not reported	
2711835	FRAMINGHAM	3/30/2011	9:00 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Dark - lighted roadway	Cloudy			WORCESTER RD Rte 9 E	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Not reported / V2:Passenger car	
2713993	FRAMINGHAM	4/11/2011	6:30 PM	Property damage only (none injured)	3	0	0	Rear-end	Dry	Daylight	Clear/Clear			WORCESTER RD Rte 9 W	V1:Westbound / V2:Westbound / V3:Not reported	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Slowing or stopped in traffic / V3:Slowing or stopped in traffic	V1: Not reported / V2:Not reported / V3:Not reported	
2715264	FRAMINGHAM	4/12/2011	12:57 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	Clear			WORCESTER RD Rte 9 E	V1:Eastbound / V2:Not reported	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	SHOPPERS WORLD	V1: Turning left / V2:Slowing or stopped in traffic	V1: Passenger car / V2:Passenger car	
2721790	FRAMINGHAM	4/29/2011	8:00 AM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear/Clear			WORCESTER RD	V1:Northbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Turning left / V2:Turning left	V1: Passenger car / V2:Passenger car	
2721798	FRAMINGHAM	5/5/2011	5:30 PM	Property damage only (none injured)	2	0	0	Rear-end	Wet	Daylight	Cloudy/Rain			WORCESTER RD	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Not reported / V2:Not reported	
2724662	FRAMINGHAM	5/15/2011	00:00 AM	Property damage only (none injured)	1	0	0	Rear-end	Wet	Dark - lighted roadway	Rain			WORCESTER RD	V1:Eastbound	V1: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic	V1: Passenger car	
2725314	FRAMINGHAM	5/15/2011	11:26 AM	Non-fatal injury	2	2	0	Angle	Wet	Daylight	Rain	WORCESTER ROAD Rte 9 W / RING ROAD	WORCESTER ROAD Rte 9 W / RING ROAD		V1:Northbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Turning left / V2:Travelling straight ahead	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2724627	FRAMINGHAM	5/19/2011	8:41 PM	Property damage only (none injured)	1	0	0	Angle	Wet	Dark - lighted roadway	Rain			WORCESTER RD	V1:Not reported	V1: Collision with motor vehicle in traffic	10 feet W from TGI FRIDAY'S RESTAURANT	V1: Parked	V1: Not reported	
2732109	FRAMINGHAM	6/9/2011	4:45 PM	Property damage only (none injured)	2	0	0	Rear-to-rear	Dry	Daylight	Cloudy			WORCESTER ROAD Rte 9 S	V1:Southbound / V2:Southbound	V1: Collision with parked motor vehicle / V2: Collision with parked motor vehicle	MARSHALLS PARKIG LOT	V1: Parked / V2:Other	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2732112	FRAMINGHAM	6/11/2011	3:09 PM	Property damage only (none injured)	2	0	0	Angle	Wet	Daylight	Rain			WORCESTER RD	V1:Southbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	25 feet E from BARNES AND NOBLE BOOKSELL	V1: Turning left / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2734554	FRAMINGHAM	6/20/2011	6:30 PM	Non-fatal injury	2	1	0	Rear-end	Dry	Daylight	Clear/Clear	WORCESTER ROAD Rte 9 W / RING RD WEST	WORCESTER ROAD Rte 9 W / RING RD WEST		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Not reported / V2:Not reported	
2756738	FRAMINGHAM	8/13/2011	11:00 PM	Unknown	0	0	0	Sideswipe, same direction	Unknown	Dark - unknown roadway lighting	Unknown/Unknown	Rte 9 /	Rte 9 /	1 WORCESTER ROAD			BEHIND BEST BUY			
2760746	FRAMINGHAM	9/9/2011	5:17 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	Dry	Daylight	Clear			WORCESTER RD	V1:Eastbound	V1: Collision with pedestrian	LOT 1 WORCESTER RD	V1: Backing	V1: Passenger car	
2785668	FRAMINGHAM	10/19/2011	7:29 PM	Property damage only (none injured)	1	0	0	Sideswipe, opposite direction	Wet	Dark - lighted roadway	Rain			WORCESTER RD Rte 9	V1:Northbound	V1: Collision with parked motor vehicle	BOB'S STORE	V1: Parked	V1: Passenger car	
2792140	FRAMINGHAM	11/2/2011	10:12 AM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	Clear/Clear			WORCESTER RD Rte 9 W	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	AT SHOPPERS WORLD	V1: Travelling straight ahead / V2:Slowing or stopped in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
2821231	FRAMINGHAM	11/21/2011	00:00 AM	Non-fatal injury	1	1	0	Single vehicle crash	Dry	Dark - lighted roadway	Clear/Clear			WORCESTER RD Rte 9 W	V1:Westbound	V1: Collision with guardrail		V1: Travelling straight ahead	V1: Passenger car	
2812185	FRAMINGHAM	11/26/2011	10:36 PM	Non-fatal injury	2	1	0	Rear-end	Dry	Dark - lighted roadway	Clear/Clear			SHOPPERS WORLD WAY	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	NEAR OLIVE GARDEN RESTAURANT	V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Not reported / V2:Not reported	
2826783	FRAMINGHAM	12/5/2011	5:58 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Dark - lighted roadway	Clear/Clear			WORCESTER RD	V1:Westbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	SHOPPERSWORLD MALL	V1: Turning right / V2:Travelling straight ahead	V1: Passenger car / V2:Not reported	
2832799	FRAMINGHAM	12/15/2011	3:56 PM	Unknown	1	0	0	Unknown	Unknown	Daylight	Unknown			WORCESTER RD	V1:Not reported	V1: Unknown	OFFICE DEPOT	V1: Parked	V1: Passenger car	
2836525	FRAMINGHAM	12/16/2011	11:20 AM	Property damage only (none injured)	1	0	0	Unknown	Dry	Daylight	Clear/Clear			WORCESTER RD	V1:Not reported	V1: Collision with parked motor vehicle	LOGAN EXPRESS	V1: Parked	V1: Passenger car	
2856456	FRAMINGHAM	1/5/2012	10:46 AM	Non-fatal injury	2	1	0	Head-on	Dry	Daylight	Clear			WORCESTER RD	V1:Not reported / V2:Not reported	V1: Collision with light pole or other post/support / V2: Collision with motor vehicle in traffic	LOGAN EXPRESS	V1: Backing / V2:Parked	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
2872444	FRAMINGHAM	1/18/2012	6:15 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Dry	Dark - lighted roadway	Clear			WORCESTER ROAD Rte 9 W	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	TGIF	V1: Changing lanes / V2:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
2875644	FRAMINGHAM	1/22/2012	6:55 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Dark - lighted roadway	Cloudy/Clear			WORCESTER RD	V1:Westbound / V2:Not reported	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	OLIVE GARDEN	V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
2957774	FRAMINGHAM	3/10/2012	4:37 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Dry	Daylight	Clear/Clear	WORCESTER ROAD Rte 9 W / RING ROAD	WORCESTER ROAD Rte 9 W / RING ROAD		V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Turning right / V2:Turning right	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
3010457	FRAMINGHAM	3/31/2012	5:30 PM	Non-fatal injury	3	1	0	Sideswipe, same direction	Dry	Daylight	Clear			WORCESTER RD	V1:Not reported / V2:Not reported / V3:Not reported	V1: Collision with parked motor vehicle / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic	TJ MAXX	V1: Backing / V2:Parked / V3:Parked	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V3:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
3116346	FRAMINGHAM	5/18/2012	11:19 AM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear			WORCESTER RD	V1:Southbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with parked motor vehicle	LOGAN EXPRESS TERMINAL	V1: Parked / V2:Backing	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	

Crash ID	Town	Crash Date	Crash Time	Crash Severity	Total Vehicles	Total Injured	Total Fatals	Collision manner	Road Surface	Lighting	Weather	Street	Intersection	Distance From Nearest Intersection	Vehicles Travel Directions	Most Harmful Events	Distance from Nearest Landmark	Vehicle Action Prior to Crash	Vehicle Configuration	Non Motorist Type
3128672	FRAMINGHAM	6/7/2012	12:30 PM	Property damage only (none injured)	1	0	0	Angle	Dry	Daylight	Cloudy			WORCESTER RD	V1:Southbound	V1: Collision with motor vehicle in traffic	SHOPPERS WORLD	V1: Parked	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
3170943	FRAMINGHAM	7/3/2012	6:49 AM	Non-fatal injury	2	1	0	Single vehicle crash	Dry	Daylight	Clear			WORCESTER ROAD	V1:Northbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	OFFICE DEPOT	V1: Overtaking/passing / V2:Turning left	V1: Passenger car / V2:Unknown heavy truck, cannot classify	
3244830	FRAMINGHAM	7/24/2012	8:59 PM	Property damage only (none injured)	1	0	0	Rear-end	Wet	Dark - lighted roadway	Cloudy				V1:Westbound	V1: Collision with motor vehicle in traffic	NATICK TOWN LINE	V1: Slowing or stopped in traffic	V1: Single-unit truck (2-axle, 6-tire)	
3247171	FRAMINGHAM	8/8/2012	5:00 PM	Property damage only (none injured)	1	0	0	Angle	Dry	Daylight	Clear			WORCESTER RD	V1:Northbound	V1: Collision with motor vehicle in traffic	NORSTROM STORE	V1: Parked	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
3252037	FRAMINGHAM	9/11/2012	7:51 PM	Non-fatal injury	2	1	0	Rear-end	Dry	Dark - lighted roadway	Clear/Clear			WORCESTER RD Rte 9 W	V1:Westbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Travelling straight ahead / V2:Slowing or stopped in traffic	V1: Passenger car / V2:Passenger car	
3266138	FRAMINGHAM	9/19/2012	5:51 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	Clear			RING ROAD	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
3266145	FRAMINGHAM	9/28/2012	8:15 PM	Non-fatal injury	1	1	0	Single vehicle crash	Wet	Dark - lighted roadway	Rain/Rain			WORCESTER RD	V1:Southbound	V1: Collision with light pole or other post/support	OFFICE DEPOT	V1: Other	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
3277653	FRAMINGHAM	10/6/2012	11:00 AM	Property damage only (none injured)	3	0	0	Rear-to-rear	Dry	Daylight	Clear/Clear			WORCESTER RD	V1:Southbound / V2:Not reported / V3:Not reported	V1: Collision with parked motor vehicle / V2: Collision with parked motor vehicle / V3: Collision with parked motor vehicle		V1: Backing / V2:Parked / V3:Parked	V1: Passenger car / V2:Passenger car / V3:Passenger car	
3290320	FRAMINGHAM	11/12/2012	6:15 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Dark - lighted roadway	Clear			WORCESTER RD Rte 9 W	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	SHOPPERS WORLD	V1: Travelling straight ahead / V2:Travelling straight ahead	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
3295715	FRAMINGHAM	11/22/2012	7:30 AM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Dry	Daylight	Clear				V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	NATICK TOWN LINE	V1: Overtaking/passing / V2:Slowing or stopped in traffic	V1: Passenger car / V2:Passenger car	
3301947	FRAMINGHAM	12/5/2012	9:21 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Dark - lighted roadway	Clear			1 WORCESTER ROAD Rte 9 W	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	SHOPPERS WORLD	V1: Travelling straight ahead / V2:Turning right	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	
3301781	FRAMINGHAM	12/6/2012	6:47 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Dark - lighted roadway	Clear			1 WORCESTER ROAD Rte 9 W	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
3305656	FRAMINGHAM	12/9/2012	8:45 PM	Property damage only (none injured)	2	0	0	Rear-end	Wet	Dark - lighted roadway	Rain			1 WORCESTER ROAD Rte 9 E	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	SHOPPERS WORLD	V1: Changing lanes / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
3322144	FRAMINGHAM	12/22/2012	2:35 PM	Property damage only (none injured)	2	0	0	Unknown	Dry	Daylight	Cloudy			WORCESTER RD	V1:Not reported / V2:Not reported	V1: Collision with motor vehicle in traffic / V2: Collision with parked motor vehicle	DSW SHOE WAREHOUSE	V1: Parked / V2:Unknown	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Unknown vehicle configuration	
3325799	FRAMINGHAM	12/24/2012	12:40 PM	Non-fatal injury	3	1	0	Rear-end	Dry	Daylight	Clear/Clear			WORCESTER RD Rte 9 W	V1:Westbound / V2:Westbound / V3:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic / V3:Travelling straight ahead	V1: Passenger car / V2:Passenger car / V3:Passenger car	
3348043	FRAMINGHAM	1/28/2013	5:56 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	Snow	Dark - lighted roadway	Snow			WORCESTER RD	V1:Northbound	V1: Collision with guardrail		V1: Travelling straight ahead	V1: Passenger car	
3680679	FRAMINGHAM	2/27/2013	1:19 PM	Property damage only (none injured)	2	0	0	Rear-end	Wet	Daylight	Rain/Rain			WORCESTER RD	V1:Southbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	CHIPOTLE	V1: Backing / V2:Backing	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Unknown vehicle configuration	
3376858	FRAMINGHAM	3/12/2013	7:00 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Dry	Dark - lighted roadway	Clear/Clear			WORCESTER RD	V1:Northbound / V2:Not reported	V1: Collision with parked motor vehicle / V2: Collision with parked motor vehicle	KHOLS	V1: Parked / V2:Unknown	V1: Passenger car / V2:Passenger car	
3376861	FRAMINGHAM	3/18/2013	5:04 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	Cloudy/Cloudy			WORCESTER RD Rte 9 E	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	SHOPPERS WORLD	V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic	V1: Passenger car / V2:Passenger car	
3377789	FRAMINGHAM	3/22/2013	2:06 PM	Property damage only (none injured)	2	0	0	Unknown	Dry	Daylight	Clear/Clear			WORCESTER RD	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with parked motor vehicle	SHOPPERS WORLD	V1: Parked / V2:Unknown	V1: Passenger car / V2:Unknown vehicle configuration	
3412931	FRAMINGHAM	5/2/2013	1:00 PM	Not Reported	1	0	0	Angle	Dry	Daylight	Clear/Clear			WORCESTER RD Rte 9 W	V1:Not reported	V1: Collision with motor vehicle in traffic	OLD NAVY, SHOPPERS WORLD	V1: Parked	V1: Passenger car	
3498367	FRAMINGHAM	6/29/2013	6:04 PM	Property damage only (none injured)	2	0	0	Rear-end	Dry	Daylight	Clear/Clear			WORCESTER RD	V1:Eastbound / V2:Northbound	V1: Collision with parked motor vehicle / V2: Collision with parked motor vehicle	PETSMART	V1: Making U-turn / V2:Parked	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
3608551	FRAMINGHAM	10/11/2013	1:36 PM	Property damage only (none injured)	1	0	0	Sideswipe, same direction	Dry	Daylight	Clear			WORCESTER RD	V1:Southbound	V1: Collision with parked motor vehicle		V1: Turning right	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	
3671683	FRAMINGHAM	11/29/2013	4:51 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Dark - lighted roadway	Clear			1 WORCESTER ROAD	V1:Westbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	SHOPPER'S WORLD - RING ROAD	V1: Turning left / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
3688937	FRAMINGHAM	12/11/2013	8:10 AM	Non-fatal injury	1	1	0	Single vehicle crash	Dry	Daylight	Clear			1 WORCESTER ROAD Rte 9 W	V1:Westbound	V1: Collision with median barrier	SHOPPERS WORLD	V1: Travelling straight ahead	V1: Passenger car	
3714050	FRAMINGHAM	12/22/2013	7:50 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Dark - lighted roadway	Clear			WORCESTER RD	V1:Northbound / V2:Not reported	V1: Collision with parked motor vehicle / V2: Collision with parked motor vehicle	0 feet N from PARKING LOT	V1: Parked / V2:Turning left	V1: Passenger car / V2:Unknown vehicle configuration	
2579771	NATICK	3/12/2010	00:00 AM	Property damage only (none injured)	3	0	0	Rear-end	Wet	Dark - lighted roadway	Rain			300 feet W from Intersection RING ROAD	V1:Westbound / V2:Westbound / V3:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic	AT NATICK FRAMINGHAM TOWN LINE	V1: Travelling straight ahead / V2:Slowing or stopped in traffic / V3:Slowing or stopped in traffic	V1: Passenger car / V2:Passenger car / V3:Passenger car	
3289309	NATICK	9/22/2012	3:35 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear			1400 WORCESTER STREET	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1: Passenger car / V2:Passenger car	
Flutie Pass at Mall Road																				
2835022	NATICK	6/7/2011	8:50 PM	Non-fatal injury	2	1	0	Rear-end	Dry	Dark - lighted roadway	Clear			50 feet E from Intersection NATICK MALL ROAD / FLUTIE PASS	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic	V1: Passenger car / V2:Passenger car	
2975243	NATICK	3/13/2012	9:46 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	Dry	Dark - lighted roadway	Clear			NATICK MALL ROAD / FLUTIE PASS	V1:Southbound	V1: Collision with guardrail		V1: Other	V1: Passenger car	
3293908	NATICK	11/16/2012	8:36 PM	Property damage only (none injured)	2	0	0	Sideswipe, same direction	Dry	Dark - lighted roadway	Clear			TRAFFIC CIRCLE	V1:Eastbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic		V1: Other / V2:Other	V1: Passenger car / V2:Passenger car	

Crash ID	Town	Crash Date	Crash Time	Crash Severity	Total Vehicles	Total Injured	Total Fatals	Collision manner	Road Surface	Lighting	Weather	Street	Intersection	Distance From Nearest Intersection	Vehicles Travel Directions	Most Harmful Events	Distance from Nearest Landmark	Vehicle Action Prior to Crash	Vehicle Configuration	Non Motorist Type
3527708	NATICK	7/14/2013	1:16 PM	Property damage only (none injured)	2	0	0	Angle	Dry	Daylight	Clear			NATICK MALL ROAD / FLUTIE PASS ROUNDABOUT	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	500 feet W from F DECK	V1: Other / V2:Entering traffic lane	V1: Passenger car / V2:Passenger car	

Crash Rate Worksheets

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Framingham COUNT DATE : 2015

DISTRICT : 3 UNSIGNALIZED : [ ] 0.65 SIGNALIZED : [X] 0.90

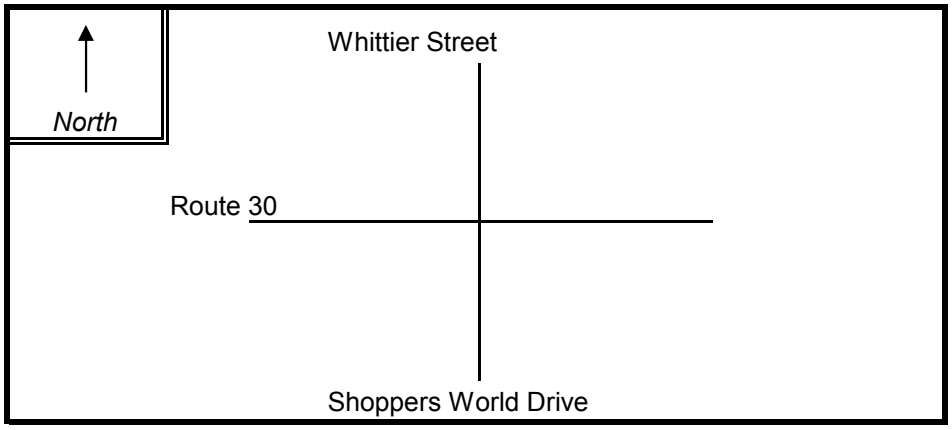
~ INTERSECTION DATA ~

MAJOR STREET : Route 30 (Cochituate Road)

MINOR STREET(S) : Whittier Street

Shoppers World Drive

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (AM/PM) :	460	645	690	1,580		**3,375**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **37,500**

TOTAL # OF CRASHES : 53 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **10.60**

CRASH RATE CALCULATION : 0.77

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

Comments : MassDOT Accident Data (2009-2013)

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Framingham COUNT DATE : 2015

DISTRICT : 3 UNSIGNALIZED : [ ] 0.65 SIGNALIZED : [X] 0.90

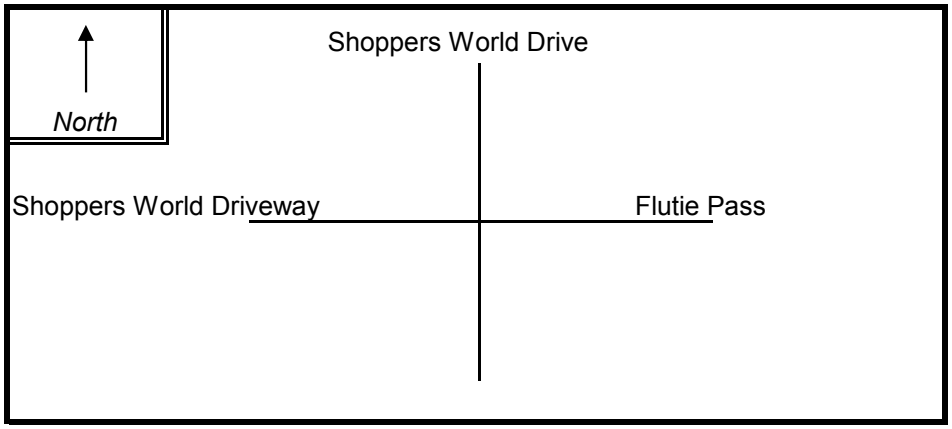
~ INTERSECTION DATA ~

MAJOR STREET : Shoppers World Drive

MINOR STREET(S) : Flutie Pass

Shoppers World Driveway

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (AM/PM) :	480	670	200	395		**1,745**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **19,389**

TOTAL # OF CRASHES : 14 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **2.80**

CRASH RATE CALCULATION : 0.40

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

Comments : MassDOT Accident Data (2009-2013)

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Framingham COUNT DATE : 2015

DISTRICT : 3 UNSIGNALIZED : [ ] 0.65 SIGNALIZED : [X] 0.90

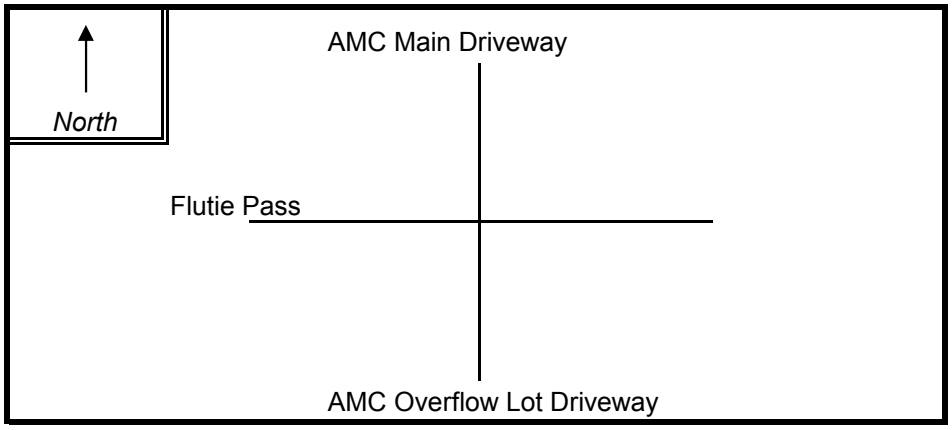
~ INTERSECTION DATA ~

MAJOR STREET : Flutie Pass

MINOR STREET(S) : AMC Main Driveway

AMC Overflow Lot Driveway/Park and Ride Driveway

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (AM/PM) :	25	25	340	350		**740**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **8,222**

TOTAL # OF CRASHES : 1 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **0.20**

CRASH RATE CALCULATION : 0.07

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

Comments : MassDOT Accident Data (2009-2013)

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Framingham COUNT DATE : 2015

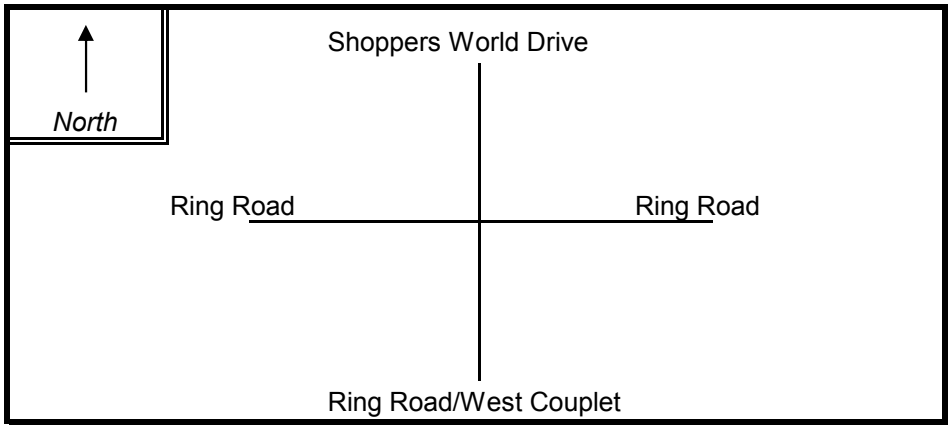
DISTRICT : 3 UNSIGNALIZED : [ ] 0.65 SIGNALIZED : [X] 0.90

~ INTERSECTION DATA ~

MAJOR STREET : Shoppers World Drive/Ring Road/West Couplet

MINOR STREET(S) : Ring Road

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (AM/PM) :	30	190	45	85		**350**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **3,889**

TOTAL # OF CRASHES : 0 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **0.00**

CRASH RATE CALCULATION : 0.00

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

Comments : MassDOT Accident Data (2009-2013)

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Framingham COUNT DATE : 2015

DISTRICT : 3 UNSIGNALIZED : [ ] 0.65 SIGNALIZED : [X] 0.90

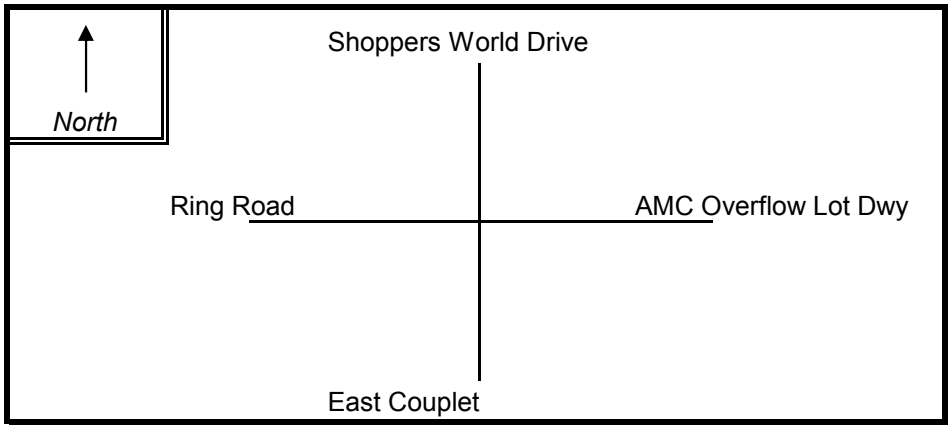
~ INTERSECTION DATA ~

MAJOR STREET : Shoppers World Drive/East Couplet

MINOR STREET(S) : Ring Road

AMC Overflow Lot Driveway/Park and Ride Driveway

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (AM/PM) :	405	480	170			1,055

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **11,722**

TOTAL # OF CRASHES : 5 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **1.00**

CRASH RATE CALCULATION : 0.23

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

Comments : MassDOT Accident Data (2009-2013)

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Natick COUNT DATE : 2015

DISTRICT : 3 UNSIGNALIZED : [ ] 0.65 SIGNALIZED : [X] 0.90

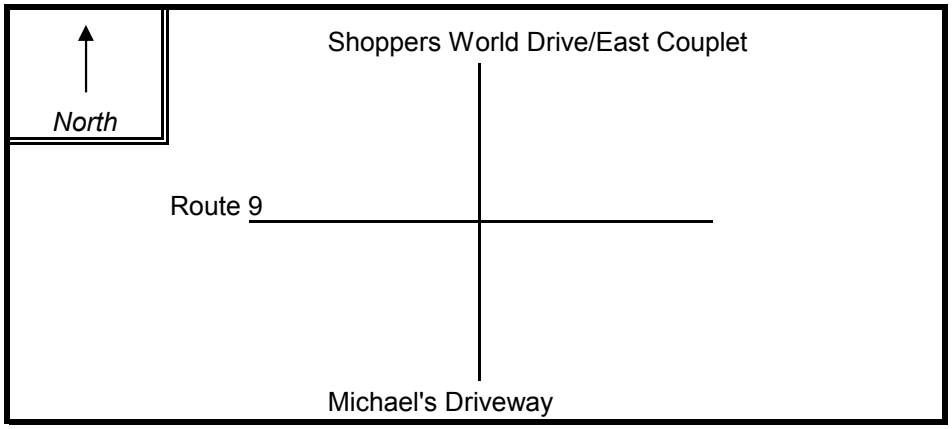
~ INTERSECTION DATA ~

MAJOR STREET : Route 9 (Worcester Street)

MINOR STREET(S) : Shoppers World Drive/East Couplet

Michael's Driveway

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (AM/PM) :	135	485	1,590	2,310		**4,520**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **50,222**

TOTAL # OF CRASHES : 62 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **12.40**

CRASH RATE CALCULATION : 0.68

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

Comments : MassDOT Accident Data (2009-2013)

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Framingham COUNT DATE : 2015

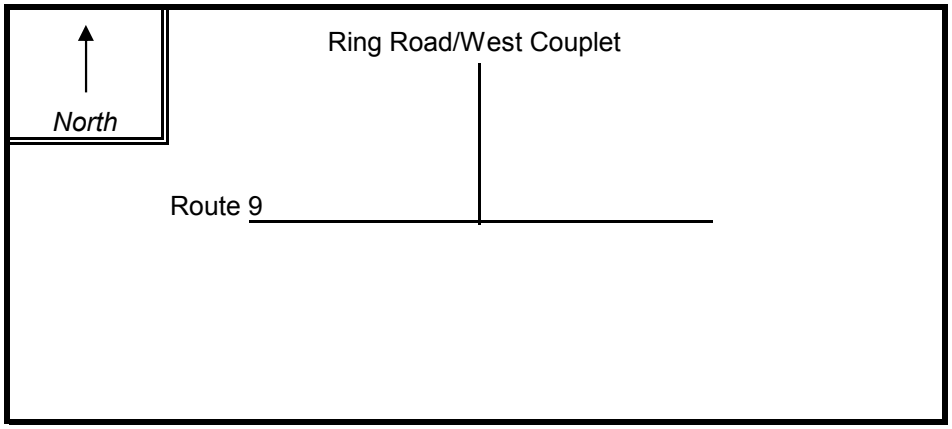
DISTRICT : 3 UNSIGNALIZED : [ ] 0.65 SIGNALIZED : [X] 0.90

~ INTERSECTION DATA ~

MAJOR STREET : Route 9 (Worcester Street)

MINOR STREET(S) : Ring Road/West Couplet

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (AM/PM) :		180	1,650	1,935		**3,765**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **41,833**

TOTAL # OF CRASHES : 89 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **17.80**

CRASH RATE CALCULATION : 1.17

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

Comments : MassDOT Accident Data (2009-2013)

Project Title & Date:

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Natick COUNT DATE : 2015

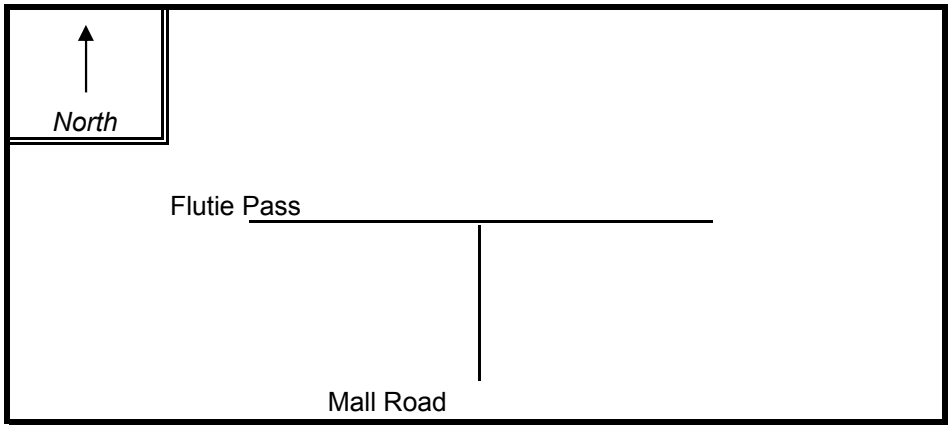
DISTRICT : 3 UNSIGNALIZED : X (0.65) SIGNALIZED : (0.90)

~ INTERSECTION DATA ~

MAJOR STREET : Flutie Pass

MINOR STREET(S) : Mall Road

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (AM/PM) :	220		335	370		**925**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **10,278**

TOTAL # OF CRASHES : 4 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **0.80**

CRASH RATE CALCULATION : 0.21

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

Comments : MassDOT Accident Data (2009-2013)

Project Title & Date:

Background Development Data

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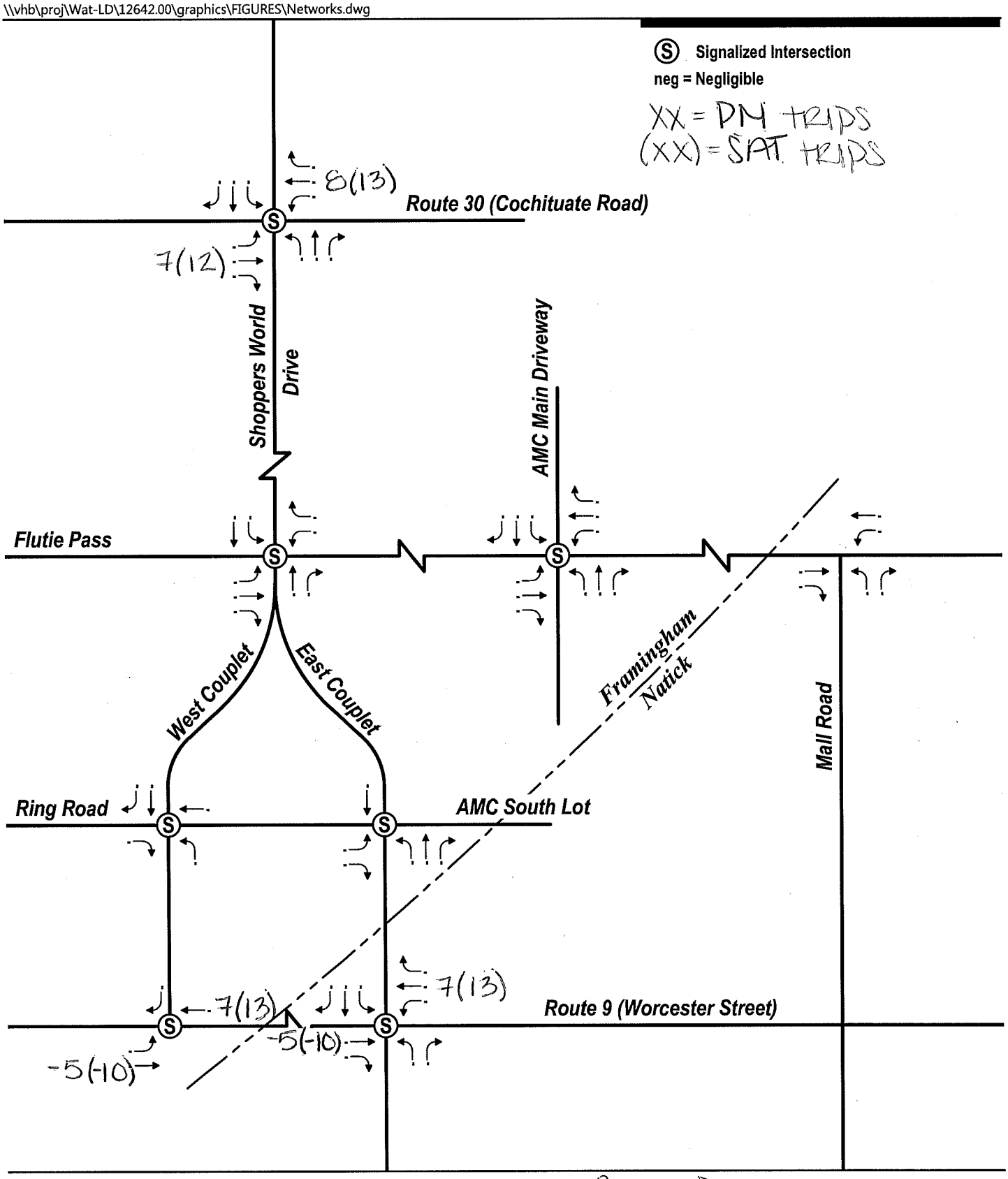

Chick-Fil-A
Background Project

vhb

Not to Scale

AMC South Lot Redevelopment
Framingham, Massachusetts

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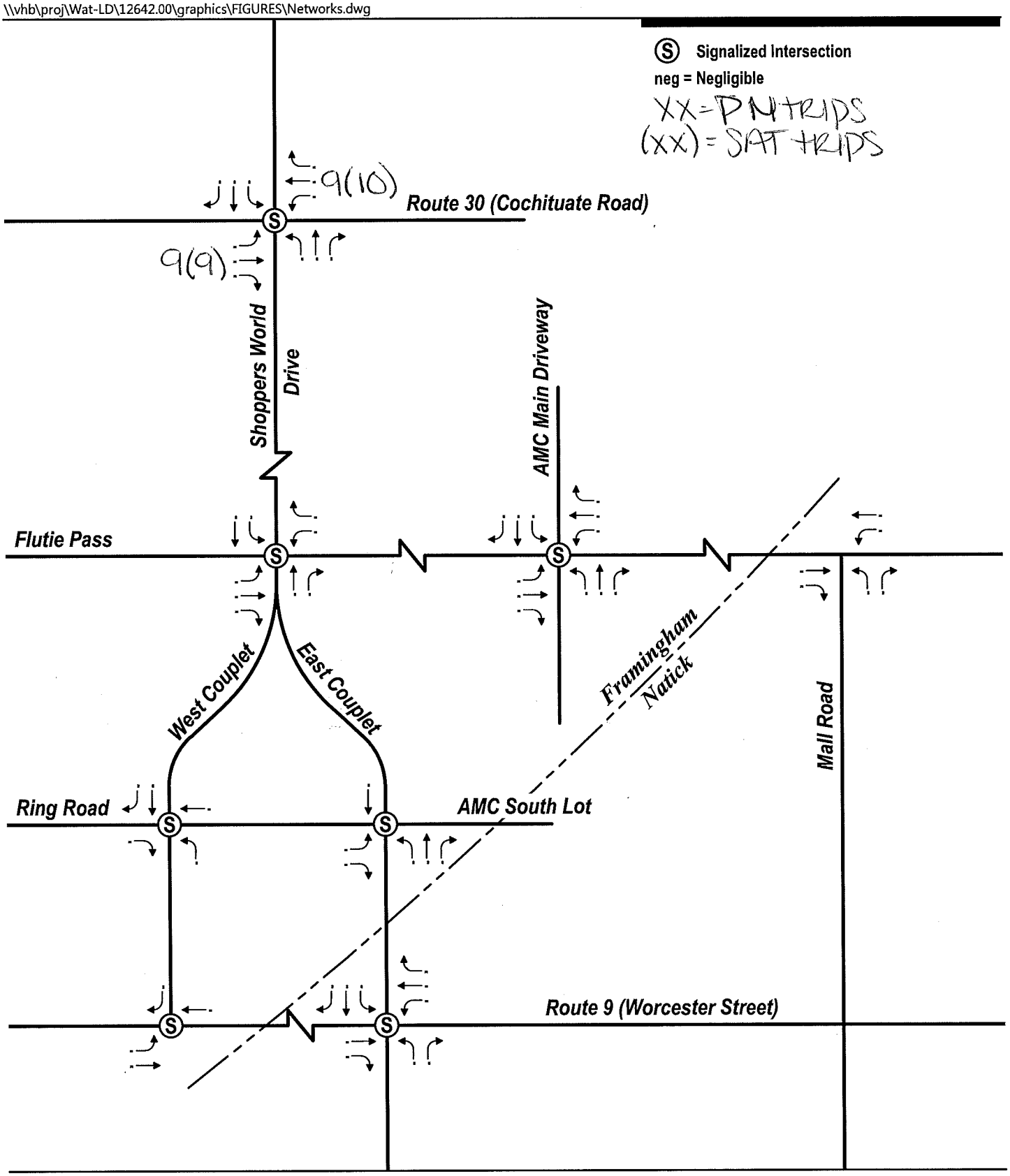

Not to Scale

vhb

Avicka Bank
222 & 236 Cochituate Road
Background Project

AMC South Lot Redevelopment
Framingham, Massachusetts

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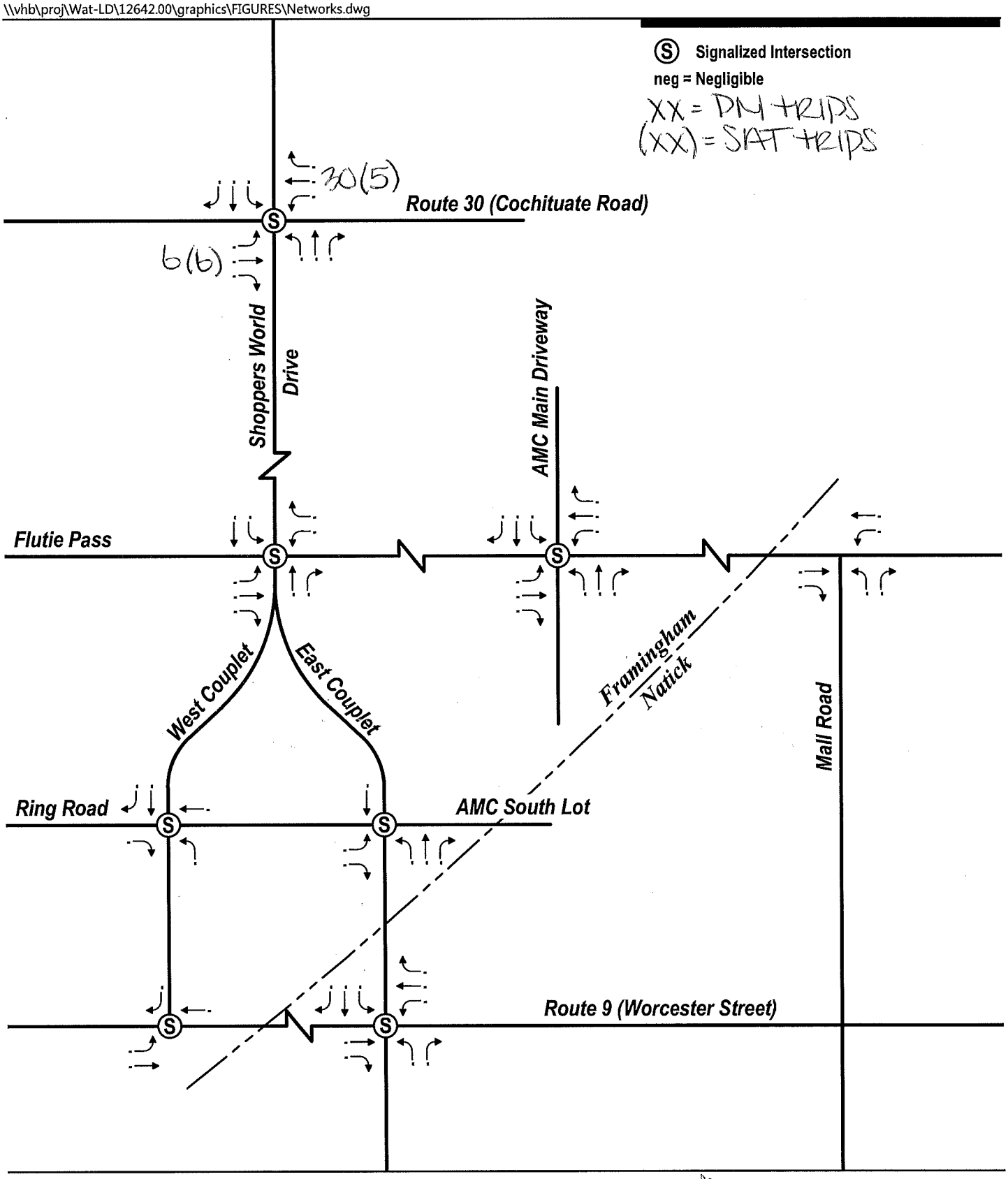

Not to Scale

vhb

TJX Office Expansion
740-770 Cochituate Road
Background Project

AMC South Lot Redevelopment
Framingham, Massachusetts

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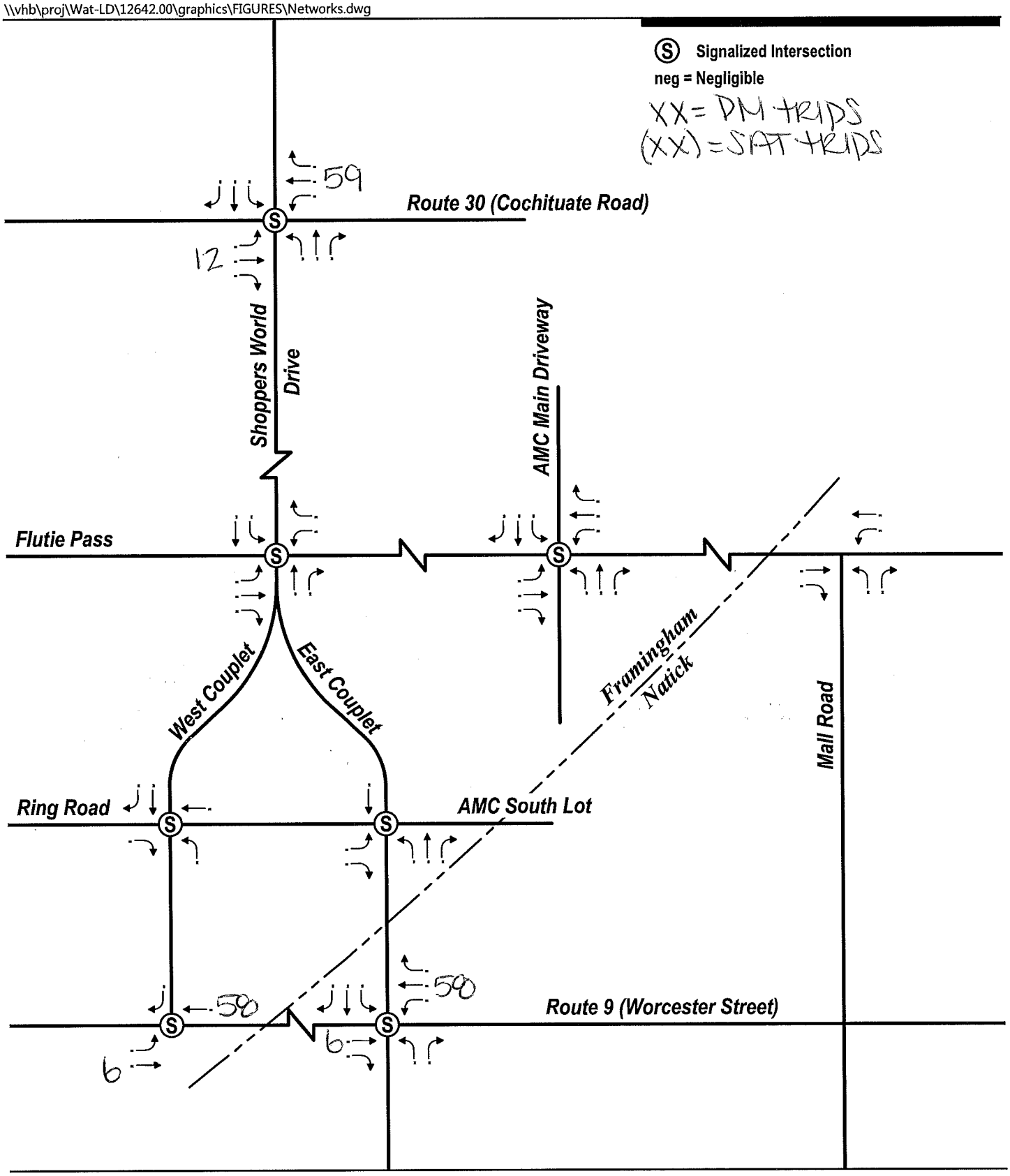

Not to Scale

vhb

Mathworks Parking Garage
19 Superior Drive
Background Project

AMC South Lot Redevelopment
Framingham, Massachusetts

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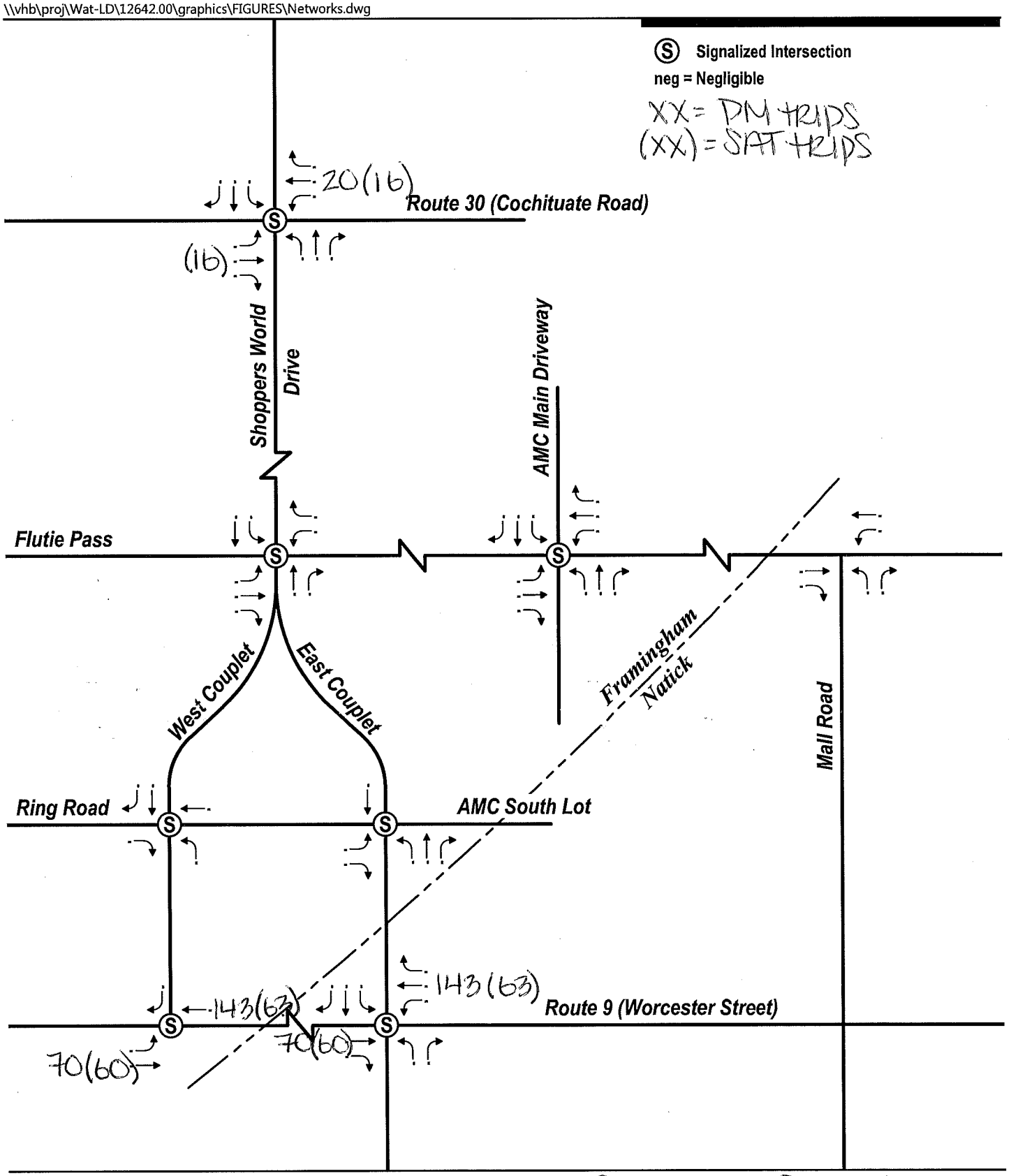

Not to Scale

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Sherwood Plaza South Redevelopment Background Project

AMC South Lot Redevelopment
Framingham, Massachusetts

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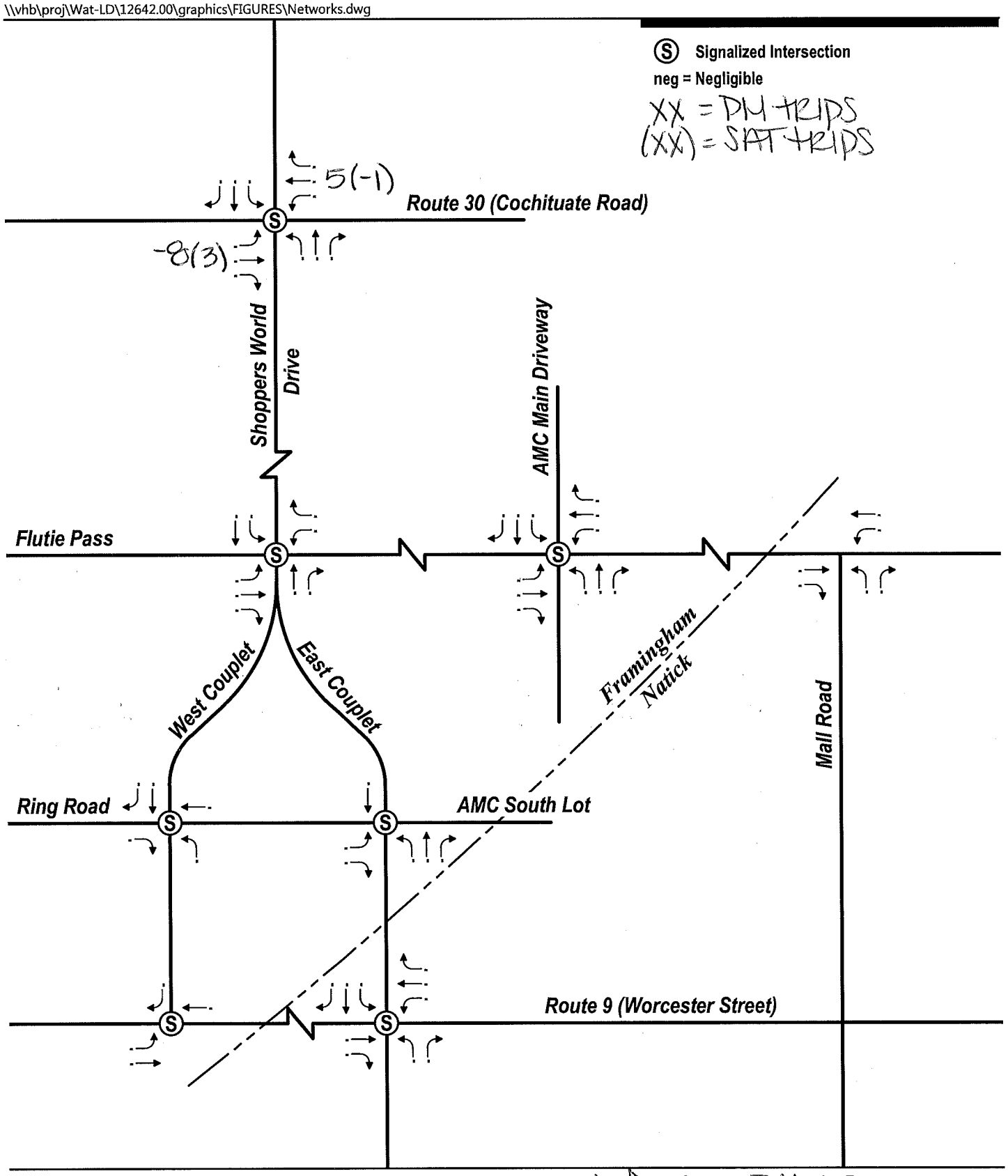

Life Time Fitness
Background Project

vhb

Not to Scale

AMC South Lot Redevelopment
Framingham, Massachusetts

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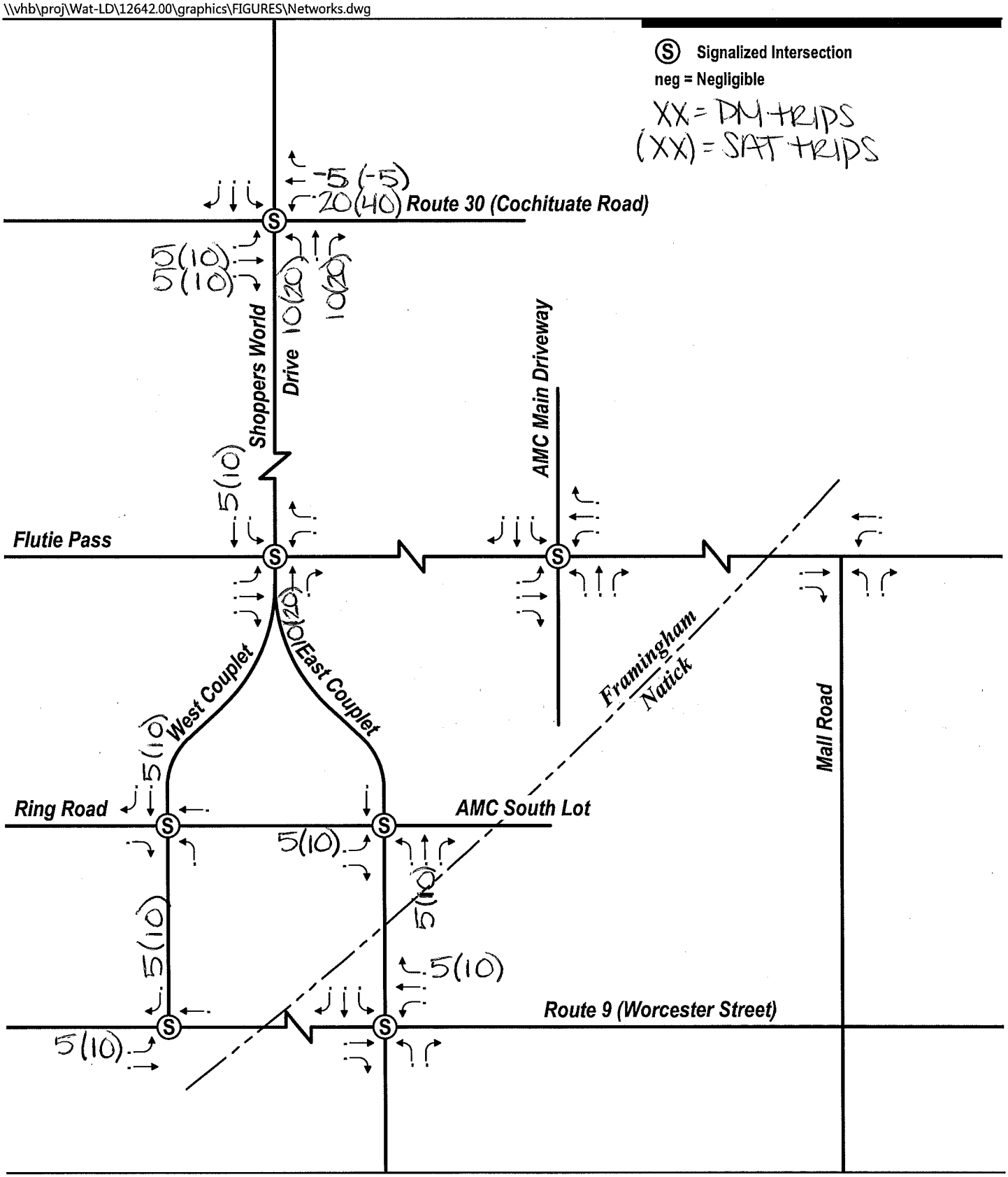

Not to Scale

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Logan Express
Background Project

AMC South Lot Redevelopment
Framingham, Massachusetts

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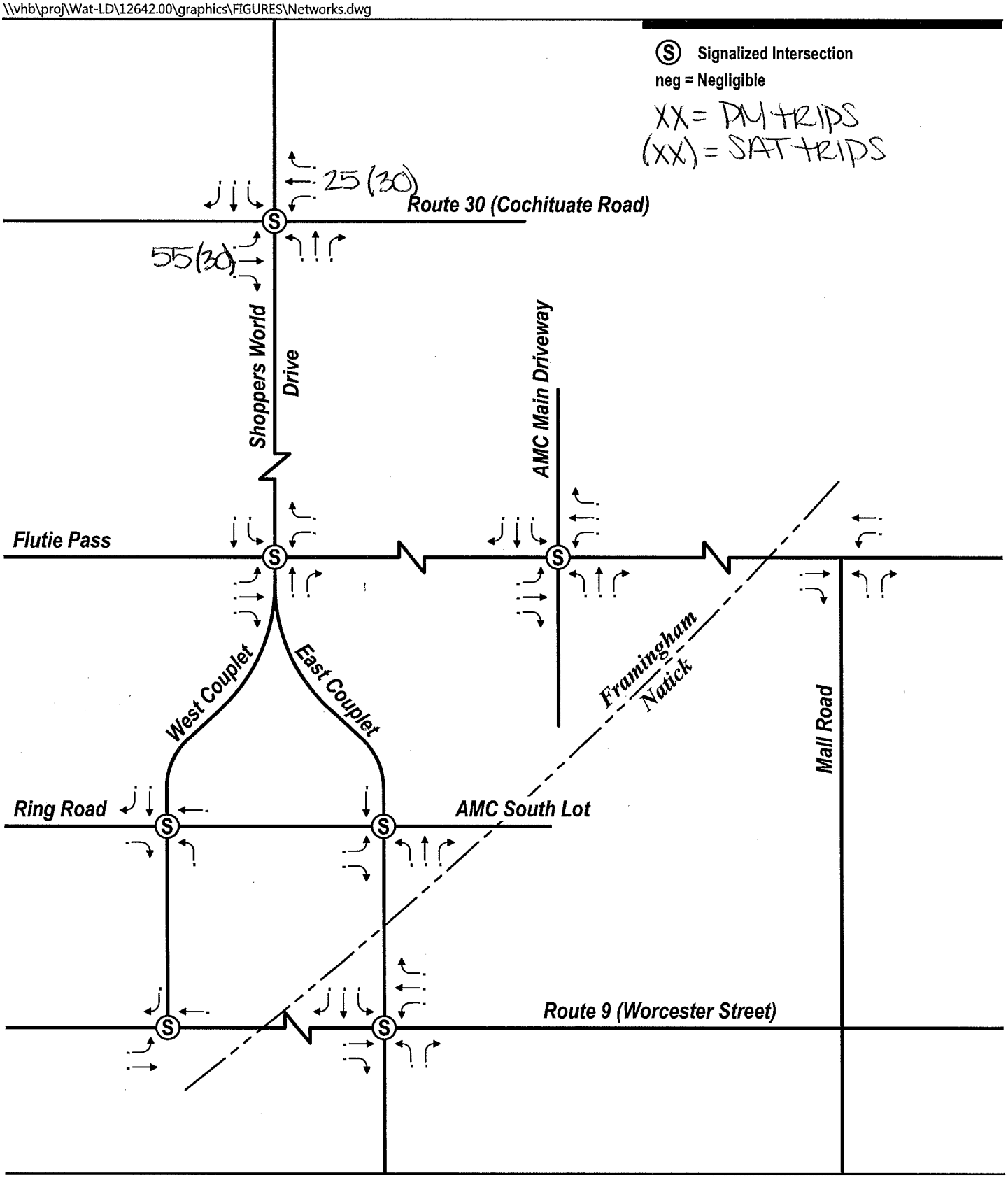

Natick Mall Residences
Background Project

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Not to Scale

AMC South Lot Redevelopment
Framingham, Massachusetts

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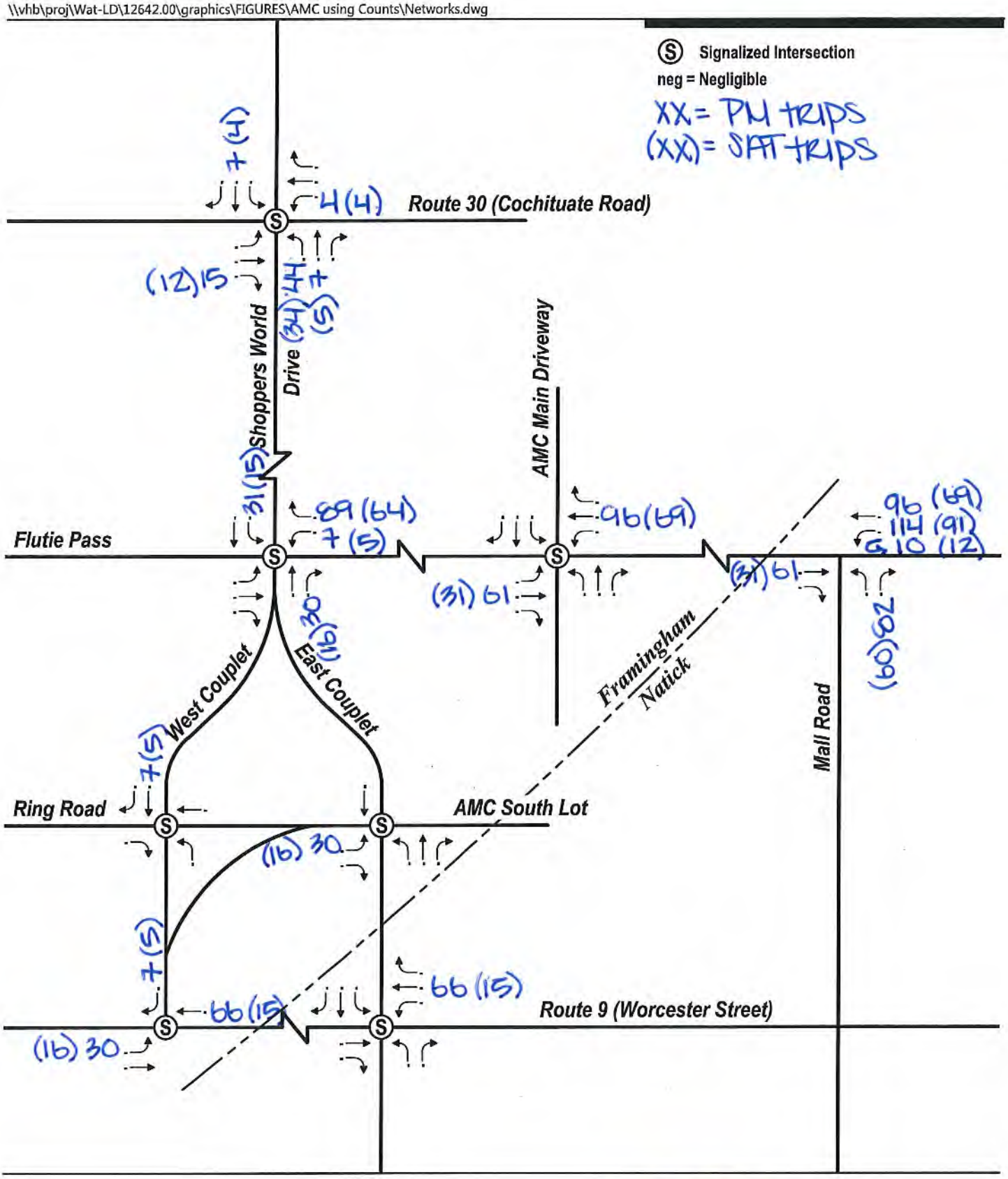

Not to Scale

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Wegmans Background Project

AMC South Parking Lot Redevelopment
Framingham, Massachusetts

TRAFFIC GROWTH CALCULATIONS

Project Name: AMC
Project No: 12642.00

		BACKGROUND DEVELOPMENTS																									
		CHICK-FIL-A		AVIDIA BANK (222 AND 236 COCHITUATE ROAD)		TJX OFFICE EXPANSION (740-770 COCHITUATE ROAD)		MATHWORKS PARKING GARAGE (19 SUPERIOR DRIVE)		SHERWOOD PLAZA SOUTH REDEVELOPMENT		LIFE TIME FITNESS		LOGAN EXPRESS		DANFORTH GREEN, RIVERPATH DRIVE APARTMENTS		NATICK MALL RESIDENCES		WAYLAND TOWN CENTER		MCCAULIFFE SCHOOL - NEWBURY STREET		492 OLD CONNECTICUT PATH IN-FILL		WEGMANS		TOTAL BACKGROUND	
INTERSECTION	MOVEMENT	PM	SAT	PM	SAT	PM	SAT	PM	SAT	PM	SAT	PM	SAT	PM	SAT	PM	SAT	PM	SAT	PM	SAT	PM	SAT	PM	SAT	PM	SAT	PM	SAT
1. ROUTE 30 (COCHITUATE ROAD) AT SHOPPERS WORLD DRIVE/WHITTIER STREET																													
Route 30 (Cochituate Road)	EB U																												
	EB L																												
	EB T	7	12	9	9	6	6	12			16	-8	3	5	10			55	30									86	86
	EB R													5	10											15	12	20	22
Route 30 (Cochituate Road)	WB U																												
	WB L													20	40											4	4	24	44
	WB T	8	13	9	10	30	5	59		20	16	5	-1	-5	-5			25	30									151	68
	WB R																												
Shoppers World Drive	NB L													10	20											44	34	54	54
	NB T																									7	5	7	5
	NB R													10	20													10	20
Whittier Street	SB L																												
	SB T																									7	4	7	4
	SB R																												
2. SHOPPERS WORLD DRIVE AT FLUTIE PASS/SHOPPERS WORLD DRIVEWAY																													
Shoppers World Driveway	EB L																												
	EB T																												
	EB R																												
Flutie Pass	WB L																									7	5	7	5
	WB R																									89	64	89	64
Shoppers World Drive	NB T													10	20													10	20
	NB R																									30	16	30	16
Shoppers World Drive	SB U																												
	SB L																									31	15	31	15
	SB T													5	10													5	10
3. FLUITE PASS AT AMC MAIN DRIVEWAY/AMC SOUTH LOT																													
Flutie Pass	EB L																												
	EB T																									61	31	61	31
	EB R																												
Flutie Pass	WB U																												
	WB L																												
	WB T																									96	69	96	69
	WB R																												
AMC South Lot	NB L																												
	NB T																												
	NB R																												
AMC Main Driveway	SB L																												
	SB T																												
	SB R																												
4. WEST COUPLET AT RING ROAD																													
Ring Road	EB U																												
	EB R																												
Ring Road	WB L																												
	WB T																												
West Couplet	NB U																												
	NB L																												
West Couplet	SB T													5	10											7	5	12	15
	SB R																												
5. EAST COUPLET AT RING ROAD/AMC SOUTH LOT																													
Ring Road	EB L													5	10											30	16	35	26
	EB T																												
	EB R																												
Site Drive	WB L																												
	WB T																												
	WB R																												
East Couplet	NB U																												
	NB L																												
	NB T													5	10													5	10
	NB R																												
East Couplet	SB U																												
	SB L																												
	SB T																												
	SB R																												
6. ROUTE 9 (WORCESTER STREET) AT EAST COUPLET/MICHAEL'S PLAZA																													
Route 9 (Worcester Street)	EB U																												
	EB T	-5	-10					6		70	60																	71	50
	EB R																												
Route 9 (Worcester Street)	WB U																												
	WB L																												
	WB T	7	13					58		143	63															66	15	274	91
	WB R													5	10													5	10
Michael's Plaza	NB L																												
	NB R																												
East Couplet	SB L																												
	SB T																												
	SB R																												
7. ROUTE 9 (WORCESTER STREET) AT WEST COUPLET/BOB'S FURNITURE DRIVEWAY																													
Route 9 (Worcester Street)	EB U																												
	EB L													5	10											30	16	35	26
	EB T	-5	-10					6		70	60																	71	50
Route 9 (Worcester Street)	WB T	7	13					58		143	63															66	15	274	91
	WB R																												
West Couplet	SB U																												
	SB R													5	10											7	5	12	15
8. FLUTIE PASS AT MALL ROAD																													
Flutie Pass	EB U																												
	EB T																									61	31	61	31
	EB R																												
Flutie Pass	WB U																									10	12	10	12
	WB L																									114	91	114	91
	WB T																									96	69	96	69
Mall Road	NB U																												
	NB L																												
	NB R																									82	60	82	60

Trip Distribution

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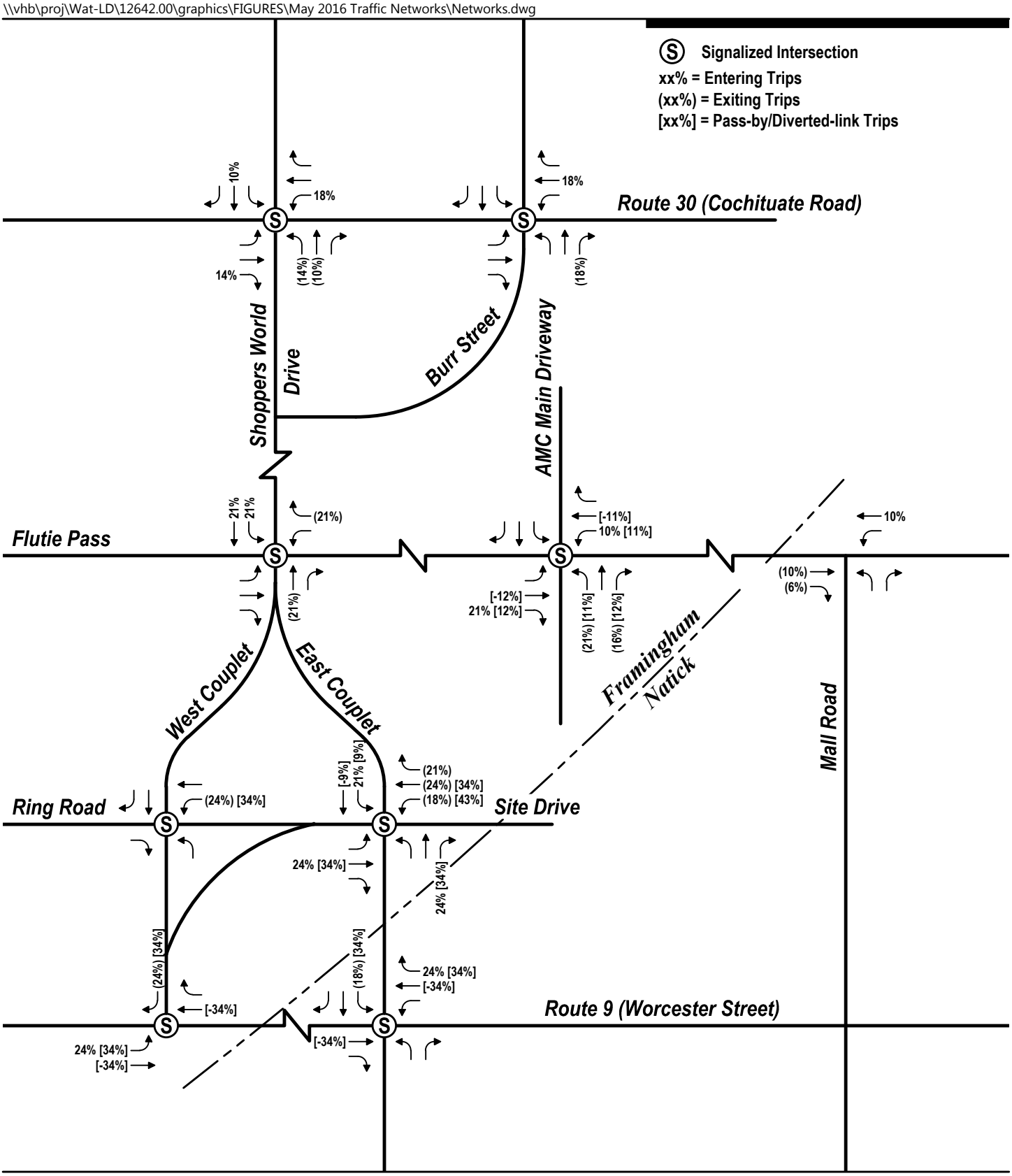

Not to Scale

Trip Distribution
Restaurant, Retail, & Entertainment Land Uses
AMC South Parking Lot Redevelopment
Framingham, Massachusetts

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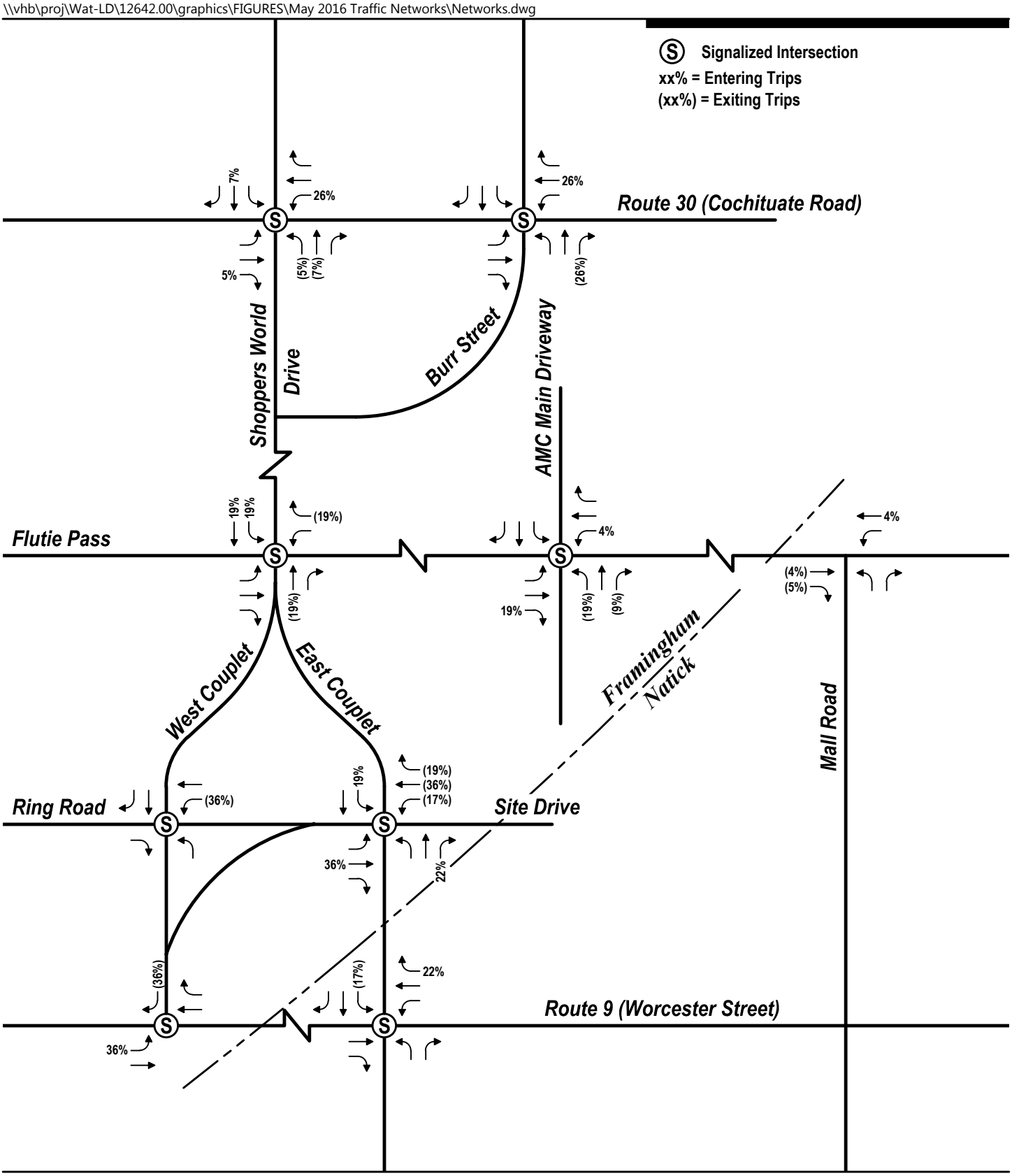

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Trip Distribution
Residential Land Uses
AMC South Parking Lot Redevelopment
Framingham, Massachusetts

Home to Work

Workplace						Total of Residence								Cumulative Total						
State/U.S. Island Area/Foreign Country	County	MCD	Count	Percent of Total	Cumulative Total	Route 30 (to/from west)	Route 30 (to/from east)	Route 9 (to/from west)	Route 9 (to/from east)	Flutie Pass (to/from east)	Whittier Street (to/from north)	Total	CHECK	Route 30 (to/from west)	Route 30 (to/from east)	Route 9 (to/from west)	Route 9 (to/from east)	Flutie Pass (to/from east)	Whittier Street (to/from north)	Total
Massachusetts	Middlesex County	Framingham town	11,820	38.6%	38.6%	10%	10%	70%			10%	100%		3.9%	3.9%	27.0%	0.0%	0.0%	3.9%	38.6%
Massachusetts	Suffolk County	Boston city	3,152	10.3%	48.8%		75%		25%			100%		0.0%	7.7%	0.0%	2.6%	0.0%	0.0%	10.3%
Massachusetts	Middlesex County	Natick town	3,151	10.3%	59.1%		5%		70%	25%		100%		0.0%	0.5%	0.0%	7.2%	2.6%	0.0%	10.3%
Massachusetts	Middlesex County	Newton city	1,352	4.4%	63.5%		50%		50%			100%		0.0%	2.2%	0.0%	2.2%	0.0%	0.0%	4.4%
Massachusetts	Norfolk County	Wellesley town	1,095	3.6%	67.1%				100%			100%		0.0%	0.0%	0.0%	3.6%	0.0%	0.0%	3.6%
Massachusetts	Middlesex County	Waltham city	1,089	3.6%	70.7%		75%		25%			100%		0.0%	2.7%	0.0%	0.9%	0.0%	0.0%	3.6%
Massachusetts	Middlesex County	Marlborough city	1,011	3.3%	74.0%	25%	10%	65%				100%		0.8%	0.3%	2.1%	0.0%	0.0%	0.0%	3.3%
Massachusetts	Middlesex County	Cambridge city	907	3.0%	76.9%		75%		25%			100%		0.0%	2.2%	0.0%	0.7%	0.0%	0.0%	3.0%
Massachusetts	Middlesex County	Sudbury town	780	2.5%	79.5%					25%	75%	100%		0.0%	0.0%	0.0%	0.0%	0.6%	1.9%	2.5%
Massachusetts	Middlesex County	Wayland town	573	1.9%	81.3%				25%	25%	50%	100%		0.0%	0.0%	0.0%	0.5%	0.5%	0.9%	1.9%
Massachusetts	Middlesex County	Ashland town	557	1.8%	83.1%			100%				100%		0.0%	0.0%	1.8%	0.0%	0.0%	0.0%	1.8%
Massachusetts	Worcester County	Westborough town	533	1.7%	84.9%		10%	90%				100%		0.0%	0.2%	1.6%	0.0%	0.0%	0.0%	1.7%
Massachusetts	Worcester County	Southborough town	470	1.5%	86.4%		10%	90%				100%		0.0%	0.2%	1.4%	0.0%	0.0%	0.0%	1.5%
Massachusetts	Worcester County	Worcester city	466	1.5%	87.9%		100%					100%		0.0%	1.5%	0.0%	0.0%	0.0%	0.0%	1.5%
Massachusetts	Middlesex County	Hopkinton town	449	1.5%	89.4%		30%	70%				100%		0.0%	0.4%	1.0%	0.0%	0.0%	0.0%	1.5%
Massachusetts	Norfolk County	Needham town	421	1.4%	90.8%				100%			100%		0.0%	0.0%	0.0%	1.4%	0.0%	0.0%	1.4%
Massachusetts	Middlesex County	Watertown Town city	344	1.1%	91.9%		75%		25%			100%		0.0%	0.8%	0.0%	0.3%	0.0%	0.0%	1.1%
Massachusetts	Middlesex County	Weston town	336	1.1%	93.0%				34%	33%	33%	100%		0.0%	0.0%	0.0%	0.4%	0.4%	0.4%	1.1%
Massachusetts	Norfolk County	Norwood town	329	1.1%	94.1%		25%		75%			100%		0.0%	0.3%	0.0%	0.8%	0.0%	0.0%	1.1%
Massachusetts	Middlesex County	Lexington town	316	1.0%	95.1%		75%		25%			100%		0.0%	0.8%	0.0%	0.3%	0.0%	0.0%	1.0%
Massachusetts	Middlesex County	Billerica town	305	1.0%	96.1%		75%		25%			100%		0.0%	0.7%	0.0%	0.2%	0.0%	0.0%	1.0%
Massachusetts	Middlesex County	Woburn city	301	1.0%	97.1%		75%		25%			100%		0.0%	0.7%	0.0%	0.2%	0.0%	0.0%	1.0%
Massachusetts	Middlesex County	Somerville city	230	0.8%	97.8%		75%		25%			100%		0.0%	0.6%	0.0%	0.2%	0.0%	0.0%	0.8%
Massachusetts	Middlesex County	Holliston town	229	0.7%	98.6%			100%				100%		0.0%	0.0%	0.7%	0.0%	0.0%	0.0%	0.7%
Massachusetts	Norfolk County	Westwood town	222	0.7%	99.3%		25%		75%			100%		0.0%	0.2%	0.0%	0.5%	0.0%	0.0%	0.7%
Massachusetts	Middlesex County	Burlington town	216	0.7%	100.0%		75%		25%			100%		0.0%	0.5%	0.0%	0.2%	0.0%	0.0%	0.7%
Totals			30,654	100.0%	#REF!									4.7%	26.4%	35.7%	22.1%	4.0%	7.1%	100.0%
														5.0%	**26.0%**	**36.0%**	**22.0%**	**4.0%**	**7.0%**	**100.0%**

Site-Generated Traffic

Project Information	
Project Name:	South Lot / AMC Outparcel - Internal - May 2016
No:	
Date:	5/2/2016
City:	Framingham
State/Province:	
Zip/Postal Code:	
Country:	
Client Name:	DDR
Analyst's Name:	KBK
Edition:	ITE-TGM 9th Edition

Land Use	Size	Weekday		Weekday, Peak Hour of Adjacent Street Traffic, One Hour		Saturday		Saturday, Peak Hour of Generator	
		Entry	Exit	Entry	Exit	Entry	Exit	Entry	Exit
932 - High-Turnover Rest - SF	5.4 1000 Sq. Feet Gross Floor Area	344	343	32	21	428	427	40	36
Reduction		0	0	0	0	0	0	0	0
Internal		0	0	5	6	0	0	7	9
Pass-by		0	0	0	0	0	0	0	0
Non-pass-by		344	343	27	15	428	427	33	27
437 - Bowling Alley - Lanes	16 Bowling Lanes	267	266	15	9	534	533	15	24
Reduction		0	0	0	0	0	0	0	0
Internal		0	0	2	2	0	0	3	2
Pass-by		0	0	0	0	0	0	0	0
Non-pass-by		267	266	13	7	534	533	12	22
932 - High-Turnover out parcel - SF	9.5 1000 Sq. Feet Gross Floor Area	604	604	56	38	753	752	71	63
Reduction		0	0	0	0	0	0	0	0
Internal		0	0	9	10	0	0	10	11
Pass-by		0	0	20	12	0	0	26	23
Non-pass-by		604	604	27	16	753	752	35	29
220 - Apartment	140 Dwelling Units	486	486	62	33	448	447	37	36
Reduction		0	0	0	0	0	0	0	0
Internal		0	0	16	12	0	0	17	15
Pass-by		0	0	0	0	0	0	0	0
Non-pass-by		486	486	46	21	448	447	20	21
826 - Specialty Retail Center	4.5 1000 Sq. Feet Gross Leasable Area	100	99	5	7	95	94	13	10
Reduction		0	0	0	0	0	0	0	0
Internal		0	0	1	2	0	0	1	3
Pass-by		0	0	1	2	0	0	3	2
Non-pass-by		100	99	3	3	95	94	9	5

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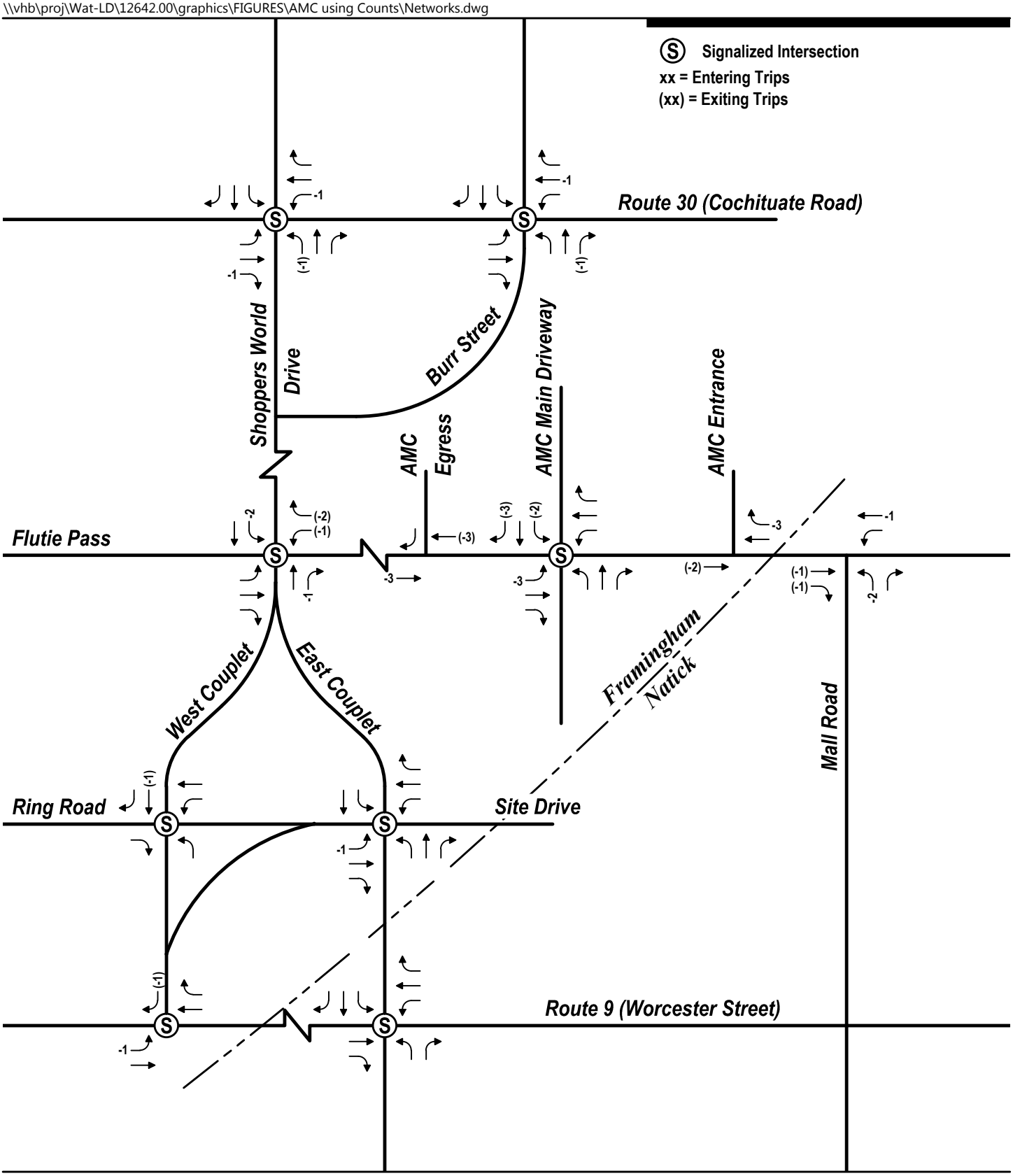

Not to Scale

AMC Cinema Trip Reduction
Weekday Evening Peak Hour Traffic Volumes
AMC South Parking Lot Redevelopment
Framingham, Massachusetts

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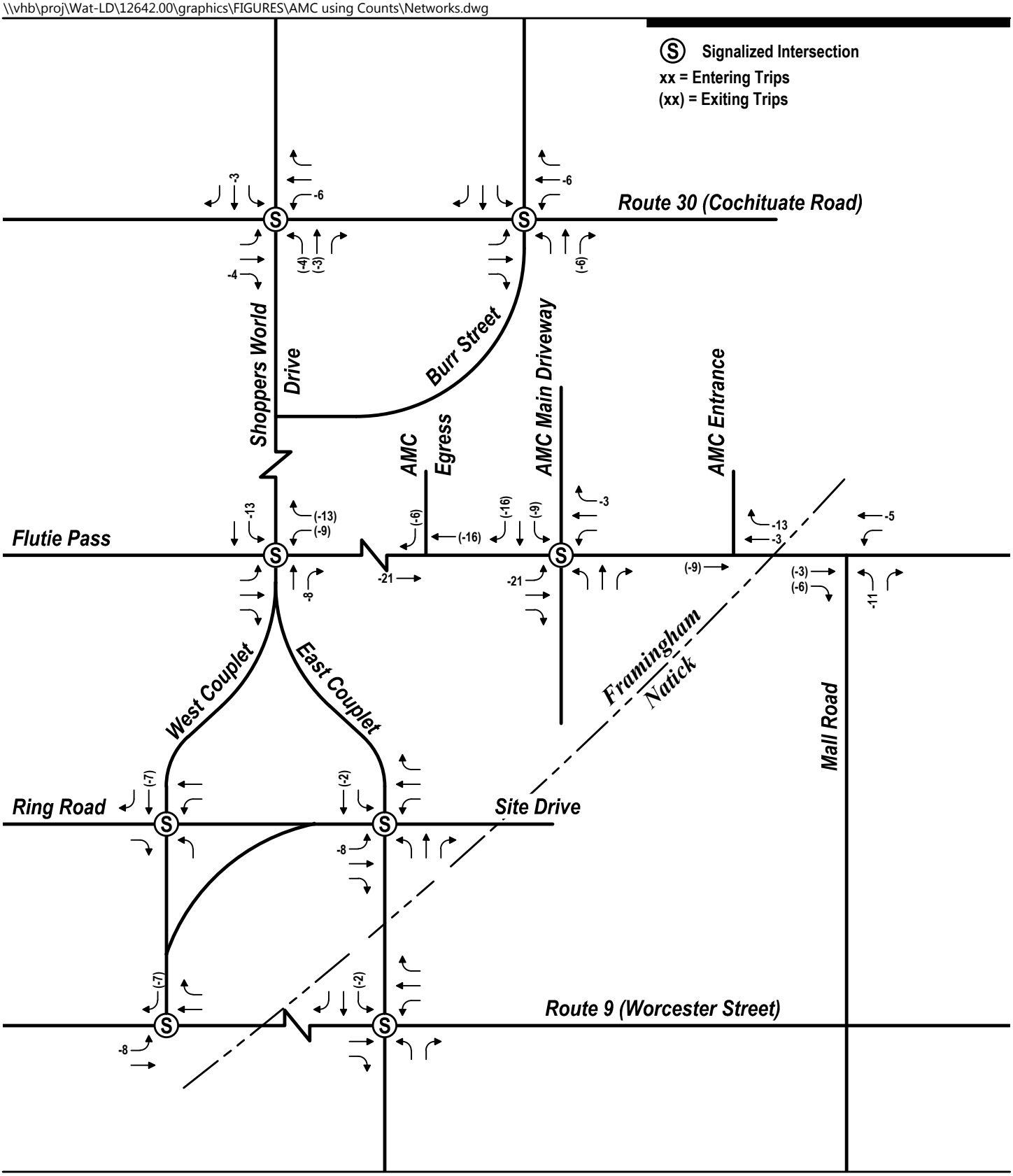

Not to Scale

AMC Cinema Trip Reduction
Saturday Midday Peak Hour Traffic Volumes
AMC South Parking Lot Redevelopment
Framingham, Massachusetts

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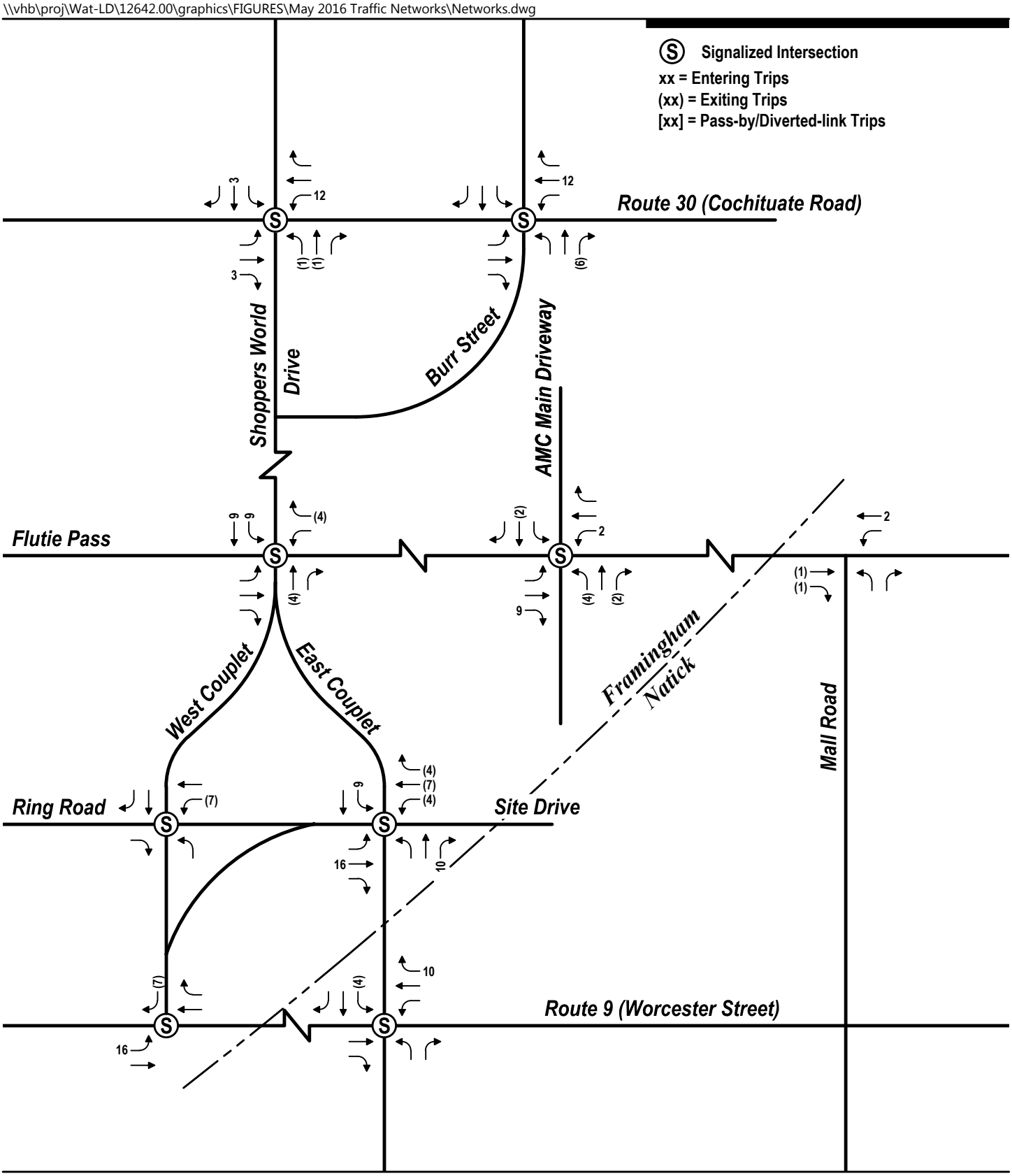

Not to Scale

Site-Generated Trips - Residential
Weekday Evening Peak Hour Traffic Volumes
AMC South Parking Lot Redevelopment
Framingham, Massachusetts

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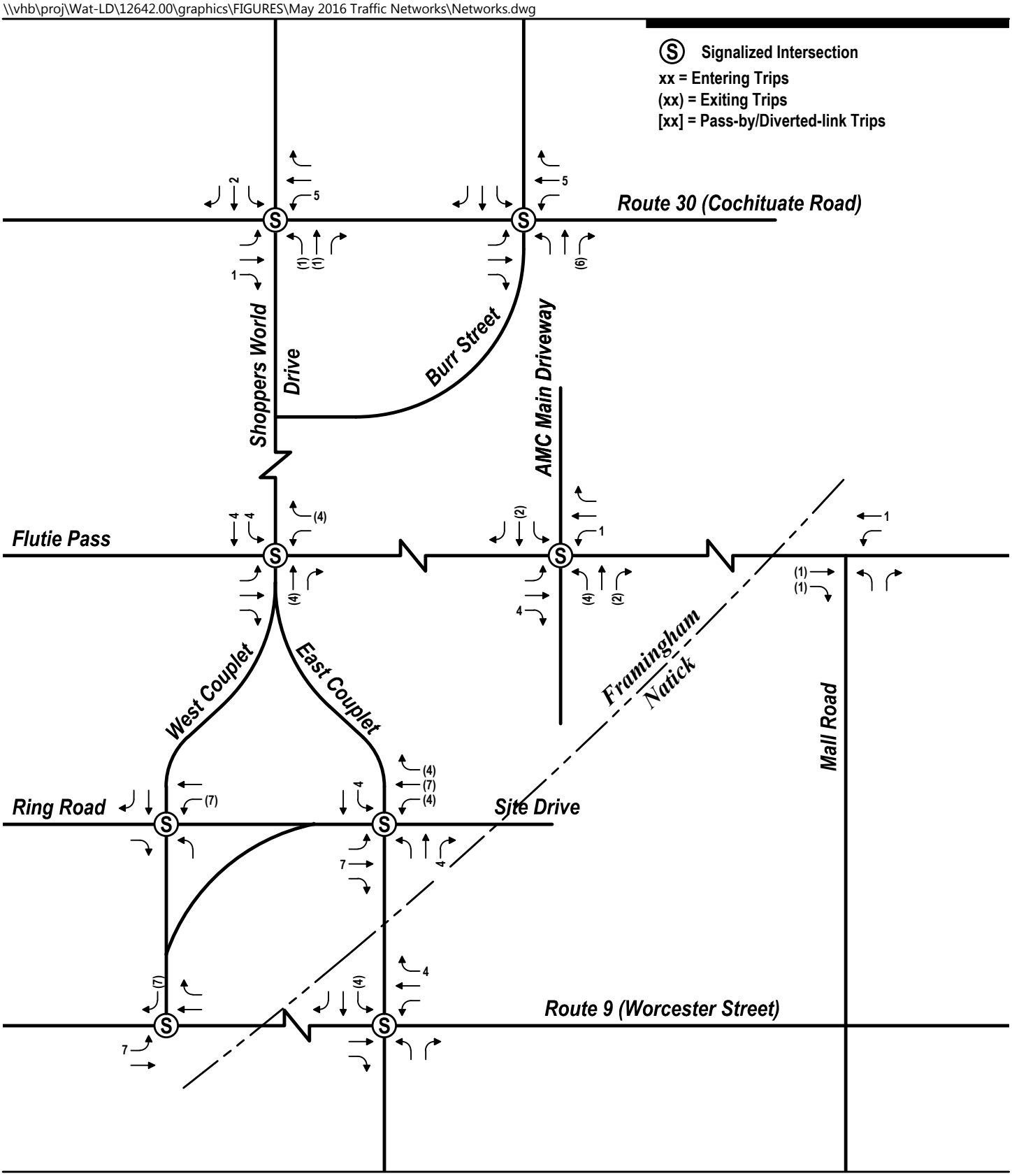

Not to Scale

Site-Generated Trips - Residential
Saturday Midday Peak Hour Traffic Volumes
AMC South Parking Lot Redevelopment
Framingham, Massachusetts

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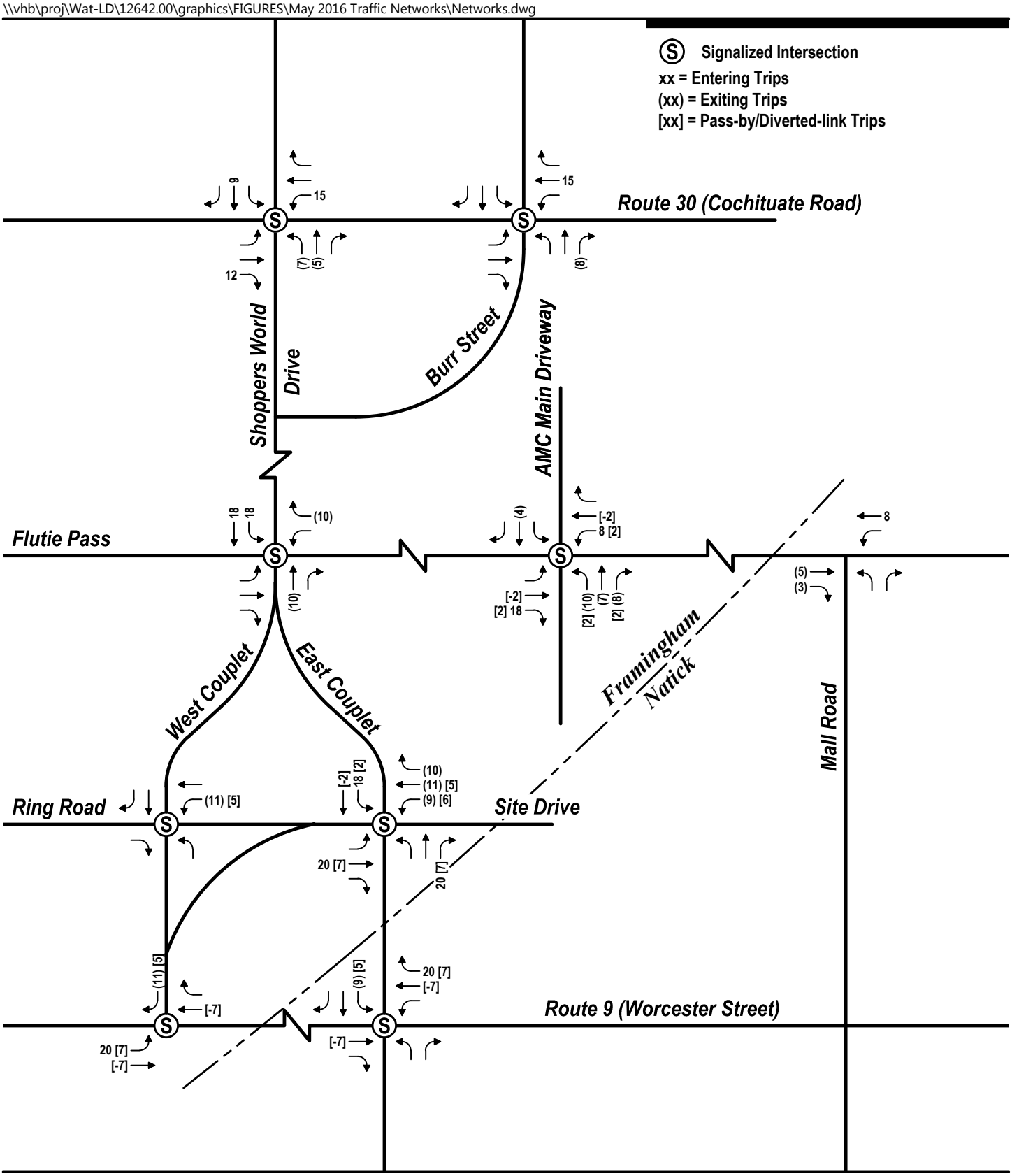

Not to Scale

Site-Generated Trips - Restaurant, Retail, & Entertainment
Weekday Evening Peak Hour Traffic Volumes
AMC South Parking Lot Redevelopment
Framingham, Massachusetts

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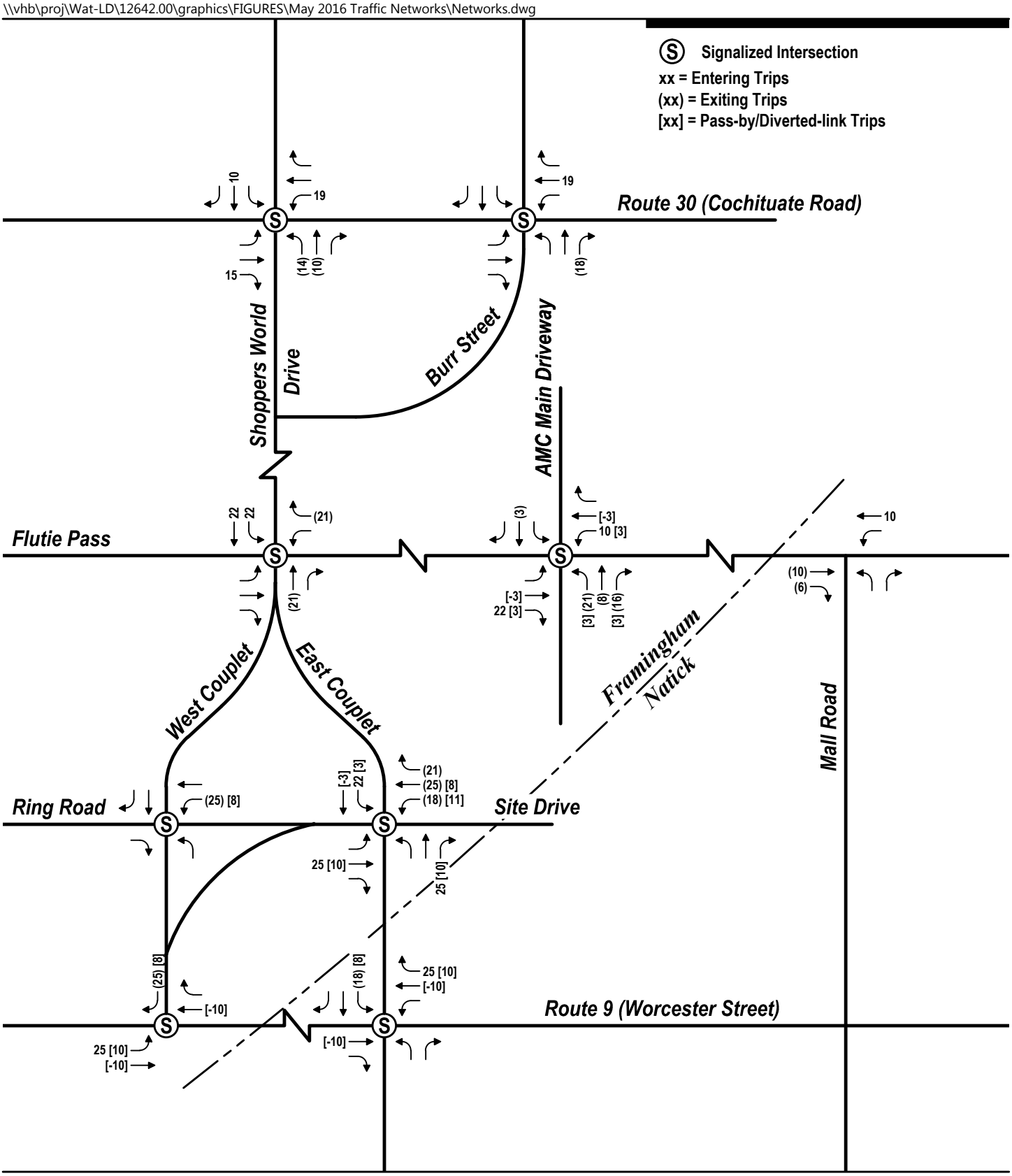


Not to Scale

Site-Generated Trips - Restaurant, Retail, & Entertainment
Saturday Midday Peak Hour Traffic Volumes
AMC South Parking Lot Redevelopment
Framingham, Massachusetts

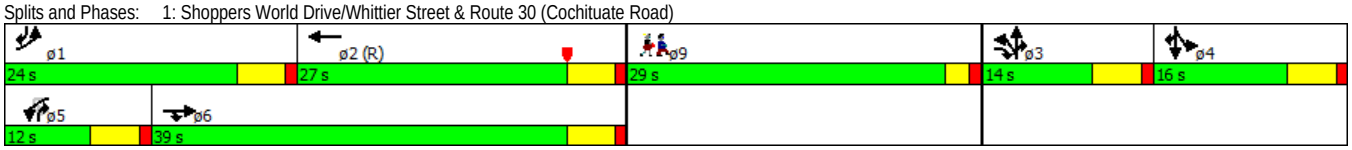
Intersection Capacity Analyses

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Lane Configurations														
Volume (vph)	20	570	105	45	315	1035	205	125	235	105	230	335	95	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	250		250		300		0	300		0	200		200	
Storage Lanes	1		2		1		0	1		1	1		2	
Taper Length (ft)	25				25			25			25			
Right Turn on Red			Yes				Yes			No			Yes	
Link Speed (mph)		30				30			30			30		
Link Distance (ft)		941				1103			1733			939		
Travel Time (s)		21.4				25.1			39.4			21.3		
Confl. Peds. (#/hr)	4		1		1		4	3					3	
Confl. Bikes (#/hr)													1	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.96	0.96	0.96	0.94	0.94	0.94	
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	
Shared Lane Traffic (%)											21%			
Lane Group Flow (vph)	24	679	125	0	429	1476	0	0	375	109	194	407	101	
Turn Type	Prot	NA	pt+ov	custom	Prot	NA		Split	NA	pt+ov	Split	NA	pt+ov	
Protected Phases	1	6	3 6		5	2		3	3	3 5!	4	4	1 4	9
Permitted Phases				5!										
Detector Phase	1	6	3 6	5	5	2		3	3	3 5	4	4	1 4	
Switch Phase														
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0		6.0	6.0		6.0	6.0		4.0
Minimum Split (s)	11.0	11.0		11.0	11.0	11.0		11.0	11.0		11.0	11.0		28.0
Total Split (s)	24.0	39.0		12.0	12.0	27.0		14.0	14.0		16.0	16.0		29.0
Total Split (%)	21.8%	35.5%		10.9%	10.9%	24.5%		12.7%	12.7%		14.5%	14.5%		26%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	4.0		2.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0		1.0	1.0		1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0			0.0		0.0	0.0		
Total Lost Time (s)	5.0	5.0			5.0	5.0			5.0		5.0	5.0		
Lead/Lag	Lead	Lag		Lead	Lead	Lag		Lead	Lead		Lag	Lag		
Lead-Lag Optimize?														
Recall Mode	None	Min		None	None	C-Min		None	None		None	None		None
v/c Ratio	0.23	0.44	0.08		6.40	0.99			1.31	0.47	0.61	0.62	0.18	
Control Delay	54.1	24.5	2.0		2471.9	51.8			201.4	32.3	51.7	46.5	7.3	
Queue Delay	0.0	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	0.0	
Total Delay	54.1	24.5	2.0		2471.9	51.8			201.4	32.3	51.7	46.5	7.3	
Queue Length 50th (ft)	17	161	0		~582	481			~179	45	136	143	0	
Queue Length 95th (ft)	41	253	7		#722	#794			#276	97	#330	#284	43	
Internal Link Dist (ft)		861				1023			1653			859		
Turn Bay Length (ft)	250		250		300						200		200	
Base Capacity (vph)	308	1527	1592		67	1495			287	232	316	661	718	
Starvation Cap Reductn	0	0	0		0	0			0	0	0	0	0	
Spillback Cap Reductn	0	0	0		0	0			0	0	0	0	0	
Storage Cap Reductn	0	0	0		0	0			0	0	0	0	0	
Reduced v/c Ratio	0.08	0.44	0.08		6.40	0.99			1.31	0.47	0.61	0.62	0.14	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:WBT, Start of Yellow, Master Intersection
Natural Cycle: 100
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
! Phase conflict between lane groups.

Splits and Phases: 1: Shoppers World Drive/Whittier Street & Route 30 (Cochituate Road)



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Volume (vph)	20	570	105	45	315	1035	205	125	235	105	230	335	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		5.0	5.0			5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	0.88		1.00	0.95			0.95	1.00	0.91	0.91	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	0.98			1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00			0.98	1.00	0.95	0.99	1.00
Satd. Flow (prot)	1787	3574	2814		1768	3443			3513	1599	1626	3402	1599
Flt Permitted	0.95	1.00	1.00		0.57	1.00			0.98	1.00	0.95	0.99	1.00
Satd. Flow (perm)	1787	3574	2814		1063	3443			3513	1599	1626	3402	1599
Peak-hour factor, PHF	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.96	0.96	0.96	0.94	0.94	0.94
Adj. Flow (vph)	24	679	125	54	375	1232	244	130	245	109	245	356	101
RTOR Reduction (vph)	0	0	64	0	0	11	0	0	0	0	0	0	71
Lane Group Flow (vph)	24	679	61	0	429	1465	0	0	375	109	194	407	30
Confl. Peds. (#/hr)	4		1		1		4	3					3
Confl. Bikes (#/hr)													1
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA	pt+ov	custom	Prot	NA		Split	NA	pt+ov	Split	NA	pt+ov
Protected Phases	1	6	3 6		5	2		3	3	3 5!	4	4	1 4
Permitted Phases				5!									
Actuated Green, G (s)	6.6	44.6	53.6		7.0	45.0			9.0	16.0	21.4	21.4	33.0
Effective Green, g (s)	6.6	44.6	53.6		7.0	45.0			9.0	16.0	21.4	21.4	33.0
Actuated g/C Ratio	0.06	0.41	0.49		0.06	0.41			0.08	0.15	0.19	0.19	0.30
Clearance Time (s)	5.0	5.0			5.0	5.0			5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0			2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	107	1449	1371		67	1408			287	232	316	661	479
v/s Ratio Prot	0.01	0.19	0.02			c0.43			c0.11	0.07	0.12	c0.12	0.02
v/s Ratio Perm					c0.40								
v/c Ratio	0.22	0.47	0.04		6.40	1.04			1.31	0.47	0.61	0.62	0.06
Uniform Delay, d1	49.3	24.0	14.8		51.5	32.5			50.5	43.1	40.5	40.5	27.5
Progression Factor	1.00	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.1	0.0		2462.8	35.2			160.9	0.5	2.5	1.2	0.0
Delay (s)	49.6	24.1	14.8		2514.3	67.7			211.4	43.7	43.0	41.7	27.5
Level of Service	D	C	B		F	E			F	D	D	D	C
Approach Delay (s)		23.4				618.6			173.6			40.0	
Approach LOS		C				F			F			D	

Intersection Summary			
HCM 2000 Control Delay	334.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.33		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø3
Lane Configurations													
Volume (vph)	25	65	110	85	0	315	0	390	100	200	480	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0		0	120		0	0		125	120		0	
Storage Lanes	1		1	1		1	0		2	2		0	
Taper Length (ft)	25			25			25			25			
Right Turn on Red			Yes			Yes			Yes			Yes	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		732			745			212			1733		
Travel Time (s)		16.6			16.9			4.8			39.4		
Confl. Peds. (#/hr)	6		1	1		6							
Peak Hour Factor	0.89	0.89	0.89	0.92	0.92	0.92	0.84	0.84	0.84	0.90	0.90	0.90	
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	1%	1%	1%	1%	1%	1%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	28	73	124	92	0	342	0	464	119	222	533	0	
Turn Type	Split	NA	Prot	Prot		Prot		NA	Prot	Prot	NA		
Protected Phases	2	2	2	4		4		1	1	5	1 5		3
Permitted Phases													
Detector Phase	2	2	2	4		4		1	1	5	1 5		
Switch Phase													
Minimum Initial (s)	5.0	5.0	5.0	5.0		5.0		15.0	15.0	5.0			4.0
Minimum Split (s)	10.1	10.1	10.1	10.6		10.6		20.1	20.1	9.7			25.0
Total Split (s)	20.1	20.1	20.1	25.6		25.6		35.1	35.1	34.7			25.0
Total Split (%)	14.3%	14.3%	14.3%	18.2%		18.2%		25.0%	25.0%	24.7%			18%
Yellow Time (s)	3.0	3.0	3.0	3.0		3.0		3.0	3.0	3.0			3.0
All-Red Time (s)	2.1	2.1	2.1	2.6		2.6		2.1	2.1	1.7			0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0			
Total Lost Time (s)	5.1	5.1	5.1	5.6		5.6		5.1	5.1	4.7			
Lead/Lag	Lag	Lag	Lag	Lag		Lag		Lead	Lead				Lead
Lead-Lag Optimize?													
Recall Mode	None	None	None	None		None		Min	Min	None			None
v/c Ratio	0.15	0.36	0.44	0.26		0.73		0.44	0.13	0.39	0.28		
Control Delay	41.6	44.2	14.3	38.9		14.9		26.7	6.7	33.9	12.4		
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0		
Total Delay	41.6	44.2	14.3	38.9		14.9		26.7	6.7	33.9	12.4		
Queue Length 50th (ft)	10	28	0	18		0		76	0	41	54		
Queue Length 95th (ft)	53	108	59	63		94		221	22	123	192		
Internal Link Dist (ft)		652			665			132			1653		
Turn Bay Length (ft)				120					125	120			
Base Capacity (vph)	388	408	444	985		698		1537	1279	1491	2366		
Starvation Cap Reductn	0	0	0	0		0		0	0	0	0		
Spillback Cap Reductn	0	0	0	0		0		0	0	0	0		
Storage Cap Reductn	0	0	0	0		0		0	0	0	0		
Reduced v/c Ratio	0.07	0.18	0.28	0.09		0.49		0.30	0.09	0.15	0.23		

Intersection Summary

Area Type: Other
Cycle Length: 140.5
Actuated Cycle Length: 76.8
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Shoppers World Drive & Shoppers World Driveway/Flutie Pass

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	65	110	85	0	315	0	390	100	200	480	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.1	5.6		5.6		5.1	5.1	4.7	5.1	
Lane Util. Factor	1.00	1.00	1.00	0.97		1.00		0.95	0.88	0.97	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1900	1615	3433		1583		3574	2814	3467	3574	
Flt Permitted	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1805	1900	1615	3433		1583		3574	2814	3467	3574	
Peak-hour factor, PHF	0.89	0.89	0.89	0.92	0.92	0.92	0.84	0.84	0.84	0.90	0.90	0.90
Adj. Flow (vph)	28	73	124	92	0	342	0	464	119	222	533	0
RTOR Reduction (vph)	0	0	111	0	0	307	0	0	84	0	0	0
Lane Group Flow (vph)	28	73	13	92	0	35	0	464	35	222	533	0
Confl. Peds. (#/hr)	6		1	1		6						
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Split	NA	Prot	Prot		Prot		NA	Prot	Prot	NA	
Protected Phases	2	2	2	4		4		1	1	5	1 5	
Permitted Phases												
Actuated Green, G (s)	8.1	8.1	8.1	8.0		8.0		22.5	22.5	12.6	39.8	
Effective Green, g (s)	8.1	8.1	8.1	8.0		8.0		22.5	22.5	12.6	35.1	
Actuated g/C Ratio	0.10	0.10	0.10	0.10		0.10		0.29	0.29	0.16	0.45	
Clearance Time (s)	5.1	5.1	5.1	5.6		5.6		5.1	5.1	4.7		
Vehicle Extension (s)	2.0	2.0	2.0	2.0		2.0		3.5	3.5	2.0		
Lane Grp Cap (vph)	189	199	169	355		163		1040	819	565	1622	
v/s Ratio Prot	0.02	c0.04	0.01	c0.03		0.02		c0.13	0.01	c0.06	0.15	
v/s Ratio Perm												
v/c Ratio	0.15	0.37	0.08	0.26		0.22		0.45	0.04	0.39	0.33	
Uniform Delay, d1	31.5	32.2	31.2	31.9		31.8		22.3	19.7	28.9	13.5	
Progression Factor	1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.4	0.1	0.1		0.2		0.4	0.0	0.2	0.1	
Delay (s)	31.6	32.6	31.3	32.1		32.0		22.7	19.7	29.1	13.7	
Level of Service	C	C	C	C		C		C	B	C	B	
Approach Delay (s)		31.8			32.0			22.1			18.2	
Approach LOS		C			C			C			B	

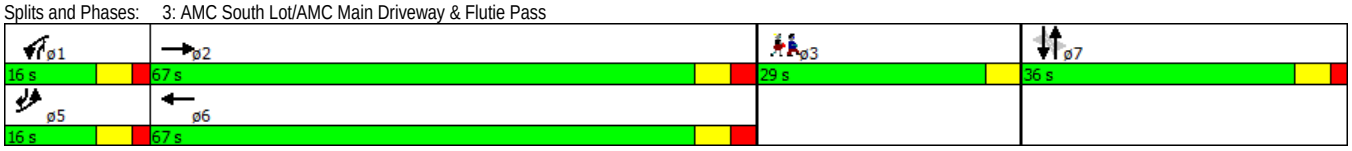
Intersection Summary			
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	77.3	Sum of lost time (s)	23.5
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø3
Lane Configurations													
Volume (vph)	20	325	0	0	345	5	20	1	5	10	0	15	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	250		0	100		200	0		0	0		260	
Storage Lanes	1		0	1		1	0		1	0		1	
Taper Length (ft)	25			25			25			25			
Right Turn on Red			Yes			Yes			Yes			Yes	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		745			451			225			539		
Travel Time (s)		16.9			10.3			5.1			12.3		
Confl. Peds. (#/hr)	4		1	1		4							
Confl. Bikes (#/hr)			1			1							
Peak Hour Factor	0.89	0.89	0.89	0.88	0.88	0.88	0.52	0.52	0.52	0.75	0.75	0.75	
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	14%	14%	14%	4%	4%	4%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	22	365	0	0	398	0	0	40	10	0	13	20	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Over	Perm	NA	Over	
Protected Phases	5	2		1	6			7	1		7	5	3
Permitted Phases							7			7			
Detector Phase	5	2		1	6		7	7	1	7	7	5	
Switch Phase													
Minimum Initial (s)	5.0	30.0		5.0	30.0		5.0	5.0	5.0	5.0	5.0	5.0	4.0
Minimum Split (s)	11.0	37.0		11.0	37.0		11.0	11.0	11.0	11.0	11.0	11.0	29.0
Total Split (s)	16.0	67.0		16.0	67.0		36.0	36.0	16.0	36.0	36.0	16.0	29.0
Total Split (%)	10.8%	45.3%		10.8%	45.3%		24.3%	24.3%	10.8%	24.3%	24.3%	10.8%	20%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	3.0		2.0	3.0		2.0	2.0	2.0	2.0	2.0	2.0	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	7.0		6.0	7.0			6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag				Lead			Lead	
Lead-Lag Optimize?													
Recall Mode	None	Min		None	Min		None	None	None	None	None	None	None
v/c Ratio	0.13	0.14			0.16			0.24	0.05		0.07	0.08	
Control Delay	34.3	9.1			11.0			33.9	0.4		31.6	0.7	
Queue Delay	0.0	0.0			0.0			0.0	0.0		0.0	0.0	
Total Delay	34.3	9.1			11.0			33.9	0.4		31.6	0.7	
Queue Length 50th (ft)	6	20			22			11	0		3	0	
Queue Length 95th (ft)	36	121			134			31	0		21	0	
Internal Link Dist (ft)		665			371			145			459		
Turn Bay Length (ft)	250											260	
Base Capacity (vph)	305	3286			3279			756	327		850	350	
Starvation Cap Reductn	0	0			0			0	0		0	0	
Spillback Cap Reductn	0	0			0			0	0		0	0	
Storage Cap Reductn	0	0			0			0	0		0	0	
Reduced v/c Ratio	0.07	0.11			0.12			0.05	0.03		0.02	0.06	

Intersection Summary

Area Type: Other
Cycle Length: 148
Actuated Cycle Length: 62.2
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: AMC South Lot/AMC Main Driveway & Flutie Pass



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	20	325	0	0	345	5	20	1	5	10	0	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0			7.0			6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	0.95			0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00			1.00			1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00		1.00	1.00
Frt	1.00	1.00			1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00			1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1787	3574			3565			1591	1417		1736	1553
Flt Permitted	0.95	1.00			1.00			0.89	1.00		0.91	1.00
Satd. Flow (perm)	1787	3574			3565			1477	1417		1661	1553
Peak-hour factor, PHF	0.89	0.89	0.89	0.88	0.88	0.88	0.52	0.52	0.52	0.75	0.75	0.75
Adj. Flow (vph)	22	365	0	0	392	6	38	2	10	13	0	20
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	10	0	0	19
Lane Group Flow (vph)	22	365	0	0	398	0	0	40	0	0	13	1
Confl. Peds. (#/hr)	4		1	1		4						
Confl. Bikes (#/hr)			1			1						
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	14%	14%	14%	4%	4%	4%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Over	Perm	NA	Over
Protected Phases	5	2		1	6			7	1		7	5
Permitted Phases							7			7		
Actuated Green, G (s)	2.1	41.6			40.1			4.4	0.6		4.4	2.1
Effective Green, g (s)	2.1	41.6			40.1			4.4	0.6		4.4	2.1
Actuated g/C Ratio	0.03	0.57			0.55			0.06	0.01		0.06	0.03
Clearance Time (s)	6.0	7.0			7.0			6.0	6.0		6.0	6.0
Vehicle Extension (s)	2.0	4.0			4.0			2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	51	2042			1963			89	11		100	44
v/s Ratio Prot	c0.01	0.10			c0.11				0.00			0.00
v/s Ratio Perm								c0.03			0.01	
v/c Ratio	0.43	0.18			0.20			0.45	0.01		0.13	0.01
Uniform Delay, d1	34.8	7.4			8.3			33.0	35.8		32.4	34.3
Progression Factor	1.00	1.00			1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	2.1	0.1			0.1			1.3	0.1		0.2	0.0
Delay (s)	36.9	7.5			8.3			34.3	35.9		32.6	34.4
Level of Service	D	A			A			C	D		C	C
Approach Delay (s)		9.2			8.3			34.7			33.7	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	72.8	Sum of lost time (s)	23.0
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		

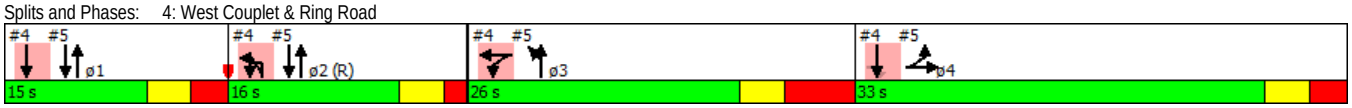
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR	ø1
Lane Configurations														
Volume (vph)	0	0	45	1	90	0	5	25	0	0	0	135	60	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Right Turn on Red			Yes			Yes				Yes			Yes	
Link Speed (mph)		30			30				30			30		
Link Distance (ft)		502			175				155			225		
Travel Time (s)		11.4			4.0				3.5			5.1		
Confl. Peds. (#/hr)								1					1	
Peak Hour Factor	0.68	0.68	0.68	0.73	0.73	0.73	0.86	0.86	0.86	0.86	0.96	0.96	0.96	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	2%	2%	2%	
Shared Lane Traffic (%)														
Lane Group Flow (vph)	0	0	66	0	124	0	0	35	0	0	0	203	0	
Turn Type			Perm	Split	NA		Prot	Prot				NA		
Protected Phases				3	3		2	2				1 4		1
Permitted Phases			4											
Detector Phase			4	3	3		2	2				1 4		
Switch Phase														
Minimum Initial (s)			10.0	10.0	10.0		10.0	10.0						5.0
Minimum Split (s)			15.6	22.8	22.8		14.6	14.6						16.5
Total Split (s)			33.0	26.0	26.0		16.0	16.0						15.0
Total Split (%)			36.7%	28.9%	28.9%		17.8%	17.8%						17%
Yellow Time (s)			3.0	3.0	3.0		3.0	3.0						3.0
All-Red Time (s)			2.6	4.8	4.8		1.6	1.6						2.5
Lost Time Adjust (s)			0.0		0.0			0.0						
Total Lost Time (s)			5.6		7.8			4.6						
Lead/Lag			Lag	Lead	Lead		Lag	Lag						Lead
Lead-Lag Optimize?														
Recall Mode			None	None	None		C-Min	C-Min						None
v/c Ratio			0.06		0.45			0.07				0.16		
Control Delay			0.1		14.4			25.1				12.3		
Queue Delay			0.0		0.4			0.0				0.0		
Total Delay			0.1		14.7			25.1				12.3		
Queue Length 50th (ft)			0		16			18				28		
Queue Length 95th (ft)			0		20			m50				41		
Internal Link Dist (ft)		422			95				75			145		
Turn Bay Length (ft)														
Base Capacity (vph)			1180		384			522				1269		
Starvation Cap Reductn			0		63			0				0		
Spillback Cap Reductn			0		0			0				0		
Storage Cap Reductn			0		0			0				0		
Reduced v/c Ratio			0.06		0.39			0.07				0.16		

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBL, Start of Green, Master Intersection
Natural Cycle: 70
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: West Couplet & Ring Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Volume (vph)	0	0	45	1	90	0	5	25	0	0	0	135	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.6		7.8			4.6				5.5	
Lane Util. Factor			1.00		1.00			1.00				0.95	
Frpb, ped/bikes			1.00		1.00			1.00				0.99	
Flpb, ped/bikes			1.00		1.00			1.00				1.00	
Frt			0.86		1.00			1.00				0.95	
Flt Protected			1.00		1.00			0.95				1.00	
Satd. Flow (prot)			1644		1899			1770				3352	
Flt Permitted			1.00		1.00			0.95				1.00	
Satd. Flow (perm)			1644		1899			1770				3352	
Peak-hour factor, PHF	0.68	0.68	0.68	0.73	0.73	0.73	0.86	0.86	0.86	0.86	0.96	0.96	0.96
Adj. Flow (vph)	0	0	66	1	123	0	6	29	0	0	0	141	62
RTOR Reduction (vph)	0	0	57	0	0	0	0	0	0	0	0	43	0
Lane Group Flow (vph)	0	0	9	0	124	0	0	35	0	0	0	160	0
Confl. Peds. (#/hr)								1					1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	2%	2%	2%
Turn Type			Perm	Split	NA		Prot	Prot				NA	
Protected Phases				3	3		2	2				1 4	
Permitted Phases			4										
Actuated Green, G (s)			12.2		13.0			26.6				32.5	
Effective Green, g (s)			12.2		13.0			26.6				26.9	
Actuated g/C Ratio			0.14		0.14			0.30				0.30	
Clearance Time (s)			5.6		7.8			4.6					
Vehicle Extension (s)			3.0		3.0			3.5					
Lane Grp Cap (vph)			222		274			523				1001	
v/s Ratio Prot					c0.07			c0.02				c0.05	
v/s Ratio Perm			0.01										
v/c Ratio			0.04		0.45			0.07				0.16	
Uniform Delay, d1			33.8		35.2			22.8				23.2	
Progression Factor			1.00		0.26			0.85				1.00	
Incremental Delay, d2			0.1		1.2			0.2				0.0	
Delay (s)			33.9		10.5			19.6				23.3	
Level of Service			C		B			B				C	
Approach Delay (s)		33.9			10.5				19.6			23.3	
Approach LOS		C			B				B			C	

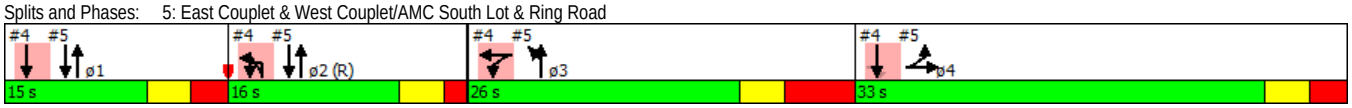
Intersection Summary			
HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.18		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	44.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	NBL	NBT	NBR	SBT	SBR	ø1	ø2
Lane Configurations										
Volume (vph)	165	2	5	90	325	5	480	1		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900		
Right Turn on Red			Yes			Yes				
Link Speed (mph)		30			30		30			
Link Distance (ft)		290			442		193			
Travel Time (s)		6.6			10.0		4.4			
Confl. Bikes (#/hr)								1		
Peak Hour Factor	0.87	0.87	0.87	0.92	0.92	0.92	0.94	0.94		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%		
Shared Lane Traffic (%)	48%									
Lane Group Flow (vph)	99	99	0	98	358	0	512	0		
Turn Type	Split	NA		Prot	NA		NA			
Protected Phases	4	4		3	1 2 3		1 2		1	2
Permitted Phases										
Detector Phase	4	4		3	1 2 3		1 2			
Switch Phase										
Minimum Initial (s)	10.0	10.0		10.0					5.0	10.0
Minimum Split (s)	15.6	15.6		22.8					16.5	14.6
Total Split (s)	33.0	33.0		26.0					15.0	16.0
Total Split (%)	36.7%	36.7%		28.9%					17%	18%
Yellow Time (s)	3.0	3.0		3.0					3.0	3.0
All-Red Time (s)	2.6	2.6		4.8					2.5	1.6
Lost Time Adjust (s)	0.0	0.0		0.0						
Total Lost Time (s)	5.6	5.6		7.8						
Lead/Lag	Lag	Lag		Lead					Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	None		None					None	C-Min
v/c Ratio	0.43	0.42		0.38	0.13		0.28			
Control Delay	63.4	61.9		39.7	4.1		14.3			
Queue Delay	0.0	0.0		0.0	0.0		0.0			
Total Delay	63.4	61.9		39.7	4.1		14.3			
Queue Length 50th (ft)	65	62		52	22		77			
Queue Length 95th (ft)	m85	m83		98	62		146			
Internal Link Dist (ft)		210			362		113			
Turn Bay Length (ft)										
Base Capacity (vph)	522	523		365	2835		1796			
Starvation Cap Reductn	0	0		0	0		0			
Spillback Cap Reductn	0	0		0	0		0			
Storage Cap Reductn	0	0		0	0		0			
Reduced v/c Ratio	0.19	0.19		0.27	0.13		0.29			

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBL, Start of Green, Master Intersection
Natural Cycle: 70
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: East Couplet & West Couplet/AMC South Lot & Ring Road



Movement	EBL	EBT	EBR	NBL	NBT	NBR	SBT	SBR
Lane Configurations								
Volume (vph)	165	2	5	90	325	5	480	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6		7.8	5.5		5.5	
Lane Util. Factor	0.95	0.95		1.00	0.95		0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	0.99		1.00	1.00		1.00	
Flt Protected	0.95	0.96		0.95	1.00		1.00	
Satd. Flow (prot)	1715	1710		1805	3602		3609	
Flt Permitted	0.95	0.96		0.95	1.00		1.00	
Satd. Flow (perm)	1715	1710		1805	3602		3609	
Peak-hour factor, PHF	0.87	0.87	0.87	0.92	0.92	0.92	0.94	0.94
Adj. Flow (vph)	190	2	6	98	353	5	511	1
RTOR Reduction (vph)	0	3	0	0	1	0	0	0
Lane Group Flow (vph)	99	96	0	98	357	0	512	0
Confl. Bikes (#/hr)								1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Split	NA		Prot	NA		NA	
Protected Phases	4	4		3	1 2 3		1 2	
Permitted Phases								
Actuated Green, G (s)	12.2	12.2		13.0	64.4		46.8	
Effective Green, g (s)	12.2	12.2		13.0	59.8		46.8	
Actuated g/C Ratio	0.14	0.14		0.14	0.66		0.52	
Clearance Time (s)	5.6	5.6		7.8				
Vehicle Extension (s)	3.0	3.0		3.0				
Lane Grp Cap (vph)	232	231		260	2393		1876	
v/s Ratio Prot	c0.06	0.06		c0.05	0.10		c0.14	
v/s Ratio Perm								
v/c Ratio	0.43	0.41		0.38	0.15		0.27	
Uniform Delay, d1	35.7	35.6		34.8	5.6		12.1	
Progression Factor	1.65	1.69		1.05	1.09		1.00	
Incremental Delay, d2	1.2	1.2		0.9	0.0		0.0	
Delay (s)	60.2	61.3		37.6	6.2		12.1	
Level of Service	E	E		D	A		B	
Approach Delay (s)		60.8			12.9		12.1	
Approach LOS		E			B		B	

Intersection Summary			
HCM 2000 Control Delay	20.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	44.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Volume (vph)	0	1565	45	30	35	1855	420	85	0	50	445	30	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0		280		280	0		90	0		0
Storage Lanes	0		0		1		1	1		1	1		0
Taper Length (ft)	25				25			25			25		
Right Turn on Red			Yes				Yes			Yes			Yes
Link Speed (mph)		30				30			30			30	
Link Distance (ft)		587				872			428			442	
Travel Time (s)		13.3				19.8			9.7			10.0	
Confl. Peds. (#/hr)	3		2		2		3						
Confl. Bikes (#/hr)			2										1
Peak Hour Factor	0.93	0.93	0.93	0.96	0.96	0.96	0.96	0.88	0.88	0.88	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Shared Lane Traffic (%)											46%		
Lane Group Flow (vph)	0	1731	0	0	67	1932	438	97	0	57	267	271	0
Turn Type		NA		Prot	Prot	NA	Prot	D.Pm		Prot	Perm	NA	
Protected Phases		2		1	1	1 2	1 2			3		3	
Permitted Phases								3			3		
Detector Phase		2		1	1	1 2	1 2	3		3	3	3	
Switch Phase													
Minimum Initial (s)		15.0		5.0	5.0			5.0		5.0	5.0	5.0	
Minimum Split (s)		21.0		10.5	10.5			11.5		11.5	11.5	11.5	
Total Split (s)		40.0		16.0	16.0			34.0		34.0	34.0	34.0	
Total Split (%)		44.4%		17.8%	17.8%			37.8%		37.8%	37.8%	37.8%	
Yellow Time (s)		3.0		3.0	3.0			3.0		3.0	3.0	3.0	
All-Red Time (s)		3.0		2.5	2.5			3.5		3.5	3.5	3.5	
Lost Time Adjust (s)		0.0			0.0			0.0		0.0	0.0	0.0	
Total Lost Time (s)		6.0			5.5			6.5		6.5	6.5	6.5	
Lead/Lag		Lag		Lead	Lead								
Lead-Lag Optimize?													
Recall Mode		C-Min		None	None			None		None	None	None	
v/c Ratio		0.88			0.18	0.57	0.36	0.64		0.13	0.73	0.73	
Control Delay		31.3			34.3	10.4	1.9	49.6		1.8	36.5	36.5	
Queue Delay		0.0			0.0	0.0	0.0	0.2		0.0	0.0	0.0	
Total Delay		31.3			34.3	10.4	1.9	49.7		1.8	36.5	36.5	
Queue Length 50th (ft)		330			32	199	0	50		0	160	162	
Queue Length 95th (ft)		256			76	311	39	91		7	256	260	
Internal Link Dist (ft)		507				792			348			362	
Turn Bay Length (ft)					280		280			90			
Base Capacity (vph)		1962			371	3380	1205	217		560	524	527	
Starvation Cap Reductn		0			0	0	0	0		0	0	0	
Spillback Cap Reductn		0			0	0	0	6		0	0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	0	
Reduced v/c Ratio		0.88			0.18	0.57	0.36	0.46		0.10	0.51	0.51	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 56 (62%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 6: Michael's Driveway/East Couplet & Route 9 (Worcester Street)

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Volume (vph)	0	1565	45	30	35	1855	420	85	0	50	445	30	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			5.5	5.5	5.5	6.5		6.5	6.5	6.5	
Lane Util. Factor		0.91			1.00	0.91	1.00	1.00		1.00	0.95	0.95	
Frpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt		1.00			1.00	1.00	0.85	1.00		0.85	1.00	0.99	
Flt Protected		1.00			0.95	1.00	1.00	0.95		1.00	0.95	0.96	
Satd. Flow (prot)		5162			1805	5187	1615	1787		1599	1715	1721	
Flt Permitted		1.00			0.95	1.00	1.00	0.38		1.00	0.95	0.96	
Satd. Flow (perm)		5162			1805	5187	1615	712		1599	1715	1721	
Peak-hour factor, PHF	0.93	0.93	0.93	0.96	0.96	0.96	0.96	0.88	0.88	0.88	0.90	0.90	0.90
Adj. Flow (vph)	0	1683	48	31	36	1932	438	97	0	57	494	33	11
RTOR Reduction (vph)	0	3	0	0	0	0	155	0	0	45	0	2	0
Lane Group Flow (vph)	0	1728	0	0	67	1932	283	97	0	12	267	269	0
Confl. Peds. (#/hr)	3		2		2		3						
Confl. Bikes (#/hr)			2										1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Turn Type		NA		Prot	Prot	NA	Prot	D.Pm		Prot	Perm	NA	
Protected Phases		2		1	1	1 2	1 2			3		3	
Permitted Phases								3			3		
Actuated Green, G (s)		34.2			18.5	58.2	58.2	19.3		19.3	19.3	19.3	
Effective Green, g (s)		34.2			18.5	58.2	58.2	19.3		19.3	19.3	19.3	
Actuated g/C Ratio		0.38			0.21	0.65	0.65	0.21		0.21	0.21	0.21	
Clearance Time (s)		6.0			5.5			6.5		6.5	6.5	6.5	
Vehicle Extension (s)		3.5			2.0			2.0		2.0	2.0	2.0	
Lane Grp Cap (vph)		1961			371	3354	1044	152		342	367	369	
v/s Ratio Prot		c0.33			0.04	c0.37	0.18			0.01			
v/s Ratio Perm								0.14			0.16	0.16	
v/c Ratio		0.88			0.18	0.58	0.27	0.64		0.04	0.73	0.73	
Uniform Delay, d1		26.0			29.5	9.0	6.8	32.2		28.0	32.9	32.9	
Progression Factor		0.96			1.00	1.00	1.00	1.00		1.00	0.78	0.78	
Incremental Delay, d2		5.8			0.1	0.2	0.1	6.3		0.0	5.9	6.1	
Delay (s)		30.8			29.6	9.1	6.9	38.5		28.0	31.7	31.9	
Level of Service		C			C	A	A	D		C	C	C	
Approach Delay (s)		30.8				9.3			34.6			31.8	
Approach LOS		C				A			C			C	

Intersection Summary			
HCM 2000 Control Delay	20.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	SWL	SWR	ø1	ø3
Lane Configurations								
Volume (vph)	185	1480	1935	15	0	185		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Storage Length (ft)	335			0	0	0		
Storage Lanes	2			0	0	2		
Taper Length (ft)	25				25			
Right Turn on Red				Yes		Yes		
Link Speed (mph)		30	30		30			
Link Distance (ft)		938	587		277			
Travel Time (s)		21.3	13.3		6.3			
Confl. Peds. (#/hr)	2			2				
Peak Hour Factor	0.83	0.83	0.93	0.93	0.93	0.93		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	223	1783	2097	0	0	199		
Turn Type	Prot	NA	NA			pt+ov		
Protected Phases	1 3	1 2	2			1 3	1	3
Permitted Phases								
Detector Phase	1	1 2	2			1		
Switch Phase								
Minimum Initial (s)			15.0				5.0	5.0
Minimum Split (s)			20.6				10.4	22.6
Total Split (s)			56.0				17.0	17.0
Total Split (%)			62.2%				19%	19%
Yellow Time (s)			3.2				3.2	3.2
All-Red Time (s)			2.4				2.2	3.4
Lost Time Adjust (s)			0.0					
Total Lost Time (s)			5.6					
Lead/Lag			Lag				Lead	
Lead-Lag Optimize?								
Recall Mode			C-Min				None	None
v/c Ratio	0.23	0.36	0.67			0.26		
Control Delay	25.0	1.3	23.0			17.1		
Queue Delay	0.0	0.0	0.4			0.0		
Total Delay	25.0	1.3	23.4			17.1		
Queue Length 50th (ft)	47	0	453			24		
Queue Length 95th (ft)	68	119	506			47		
Internal Link Dist (ft)		858	507		197			
Turn Bay Length (ft)	335							
Base Capacity (vph)	949	4929	3142			779		
Starvation Cap Reductn	0	0	454			0		
Spillback Cap Reductn	0	0	0			0		
Storage Cap Reductn	0	0	0			0		
Reduced v/c Ratio	0.23	0.36	0.78			0.26		

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 78 (87%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 7: Route 9 (Worcester Street) & West Couplet

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Volume (vph)	185	1480	1935	15	0	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.4	5.4	5.6			5.4
Lane Util. Factor	0.97	0.91	0.91			0.88
Frpb, ped/bikes	1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	1.00	1.00			0.85
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3502	5187	5181			2842
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3502	5187	5181			2842
Peak-hour factor, PHF	0.83	0.83	0.93	0.93	0.93	0.93
Adj. Flow (vph)	223	1783	2081	16	0	199
RTOR Reduction (vph)	0	0	1	0	0	8
Lane Group Flow (vph)	223	1783	2096	0	0	191
Confl. Peds. (#/hr)	2			2		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	NA			pt+ov
Protected Phases	1 3	1 2	2			1 3
Permitted Phases						
Actuated Green, G (s)	29.7	75.7	49.3			29.7
Effective Green, g (s)	23.1	75.7	49.3			23.1
Actuated g/C Ratio	0.26	0.84	0.55			0.26
Clearance Time (s)			5.6			
Vehicle Extension (s)			3.5			
Lane Grp Cap (vph)	898	4362	2838			729
v/s Ratio Prot	0.06	c0.34	c0.40			c0.07
v/s Ratio Perm						
v/c Ratio	0.25	0.41	0.74			0.26
Uniform Delay, d1	26.6	1.7	15.5			26.7
Progression Factor	1.00	1.00	1.73			0.71
Incremental Delay, d2	0.1	0.0	1.5			0.1
Delay (s)	26.6	1.8	28.2			19.0
Level of Service	C	A	C			B
Approach Delay (s)		4.5	28.2		19.0	
Approach LOS		A	C		B	

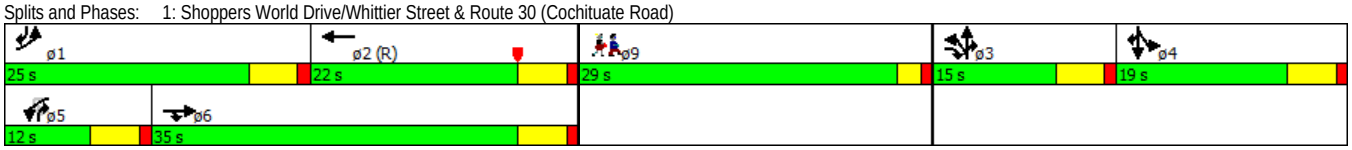
Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.6
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Lane Configurations														
Volume (vph)	50	695	180	45	350	915	245	160	320	165	355	435	85	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	250		250		300		0	300		0	200		200	
Storage Lanes	1		2		1		0	1		1	1		2	
Taper Length (ft)	25				25			25			25			
Right Turn on Red			Yes				Yes			No			Yes	
Link Speed (mph)		30				30			30			30		
Link Distance (ft)		941				1103			1733			939		
Travel Time (s)		21.4				25.1			39.4			21.3		
Confl. Peds. (#/hr)	3		1		1		3	3					3	
Confl. Bikes (#/hr)			1							1				
Peak Hour Factor	0.96	0.96	0.96	0.93	0.93	0.93	0.93	0.94	0.94	0.94	0.97	0.97	0.97	
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%	
Shared Lane Traffic (%)											28%			
Lane Group Flow (vph)	52	724	188	0	424	1247	0	0	510	176	264	550	88	
Turn Type	Prot	NA	pt+ov	custom	Prot	NA		Split	NA	pt+ov	Split	NA	pt+ov	
Protected Phases	1	6	3 6		5	2		3	3	3 5!	4	4	1 4	9
Permitted Phases				5!										
Detector Phase	1	6	3 6	5	5	2		3	3	3 5	4	4	1 4	
Switch Phase														
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0		6.0	6.0		6.0	6.0		4.0
Minimum Split (s)	11.0	11.0		11.0	11.0	11.0		11.0	11.0		11.0	11.0		28.0
Total Split (s)	25.0	35.0		12.0	12.0	22.0		15.0	15.0		19.0	19.0		29.0
Total Split (%)	22.7%	31.8%		10.9%	10.9%	20.0%		13.6%	13.6%		17.3%	17.3%		26%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	4.0		2.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0		1.0	1.0		1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0			0.0		0.0	0.0		
Total Lost Time (s)	5.0	5.0			5.0	5.0			5.0		5.0	5.0		
Lead/Lag	Lead	Lag		Lead	Lead	Lag		Lead	Lead		Lag	Lag		
Lead-Lag Optimize?														
Recall Mode	None	Min		None	None	C-Min		None	None		None	None		None
v/c Ratio	0.41	0.57	0.13		6.24	0.98			1.58	0.71	0.63	0.63	0.13	
Control Delay	57.6	31.5	2.0		2396.4	55.3			311.0	41.6	46.1	41.6	5.1	
Queue Delay	0.0	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	0.0	
Total Delay	57.6	31.5	2.0		2396.4	55.3			311.0	41.6	46.1	41.6	5.1	
Queue Length 50th (ft)	36	200	0		~574	426			~270	65	179	186	0	
Queue Length 95th (ft)	74	315	12		#769	#776			#379	#158	#427	#374	31	
Internal Link Dist (ft)		861				1023			1653			859		
Turn Bay Length (ft)	250		250		300						200		200	
Base Capacity (vph)	324	1263	1450		68	1275			322	249	421	879	828	
Starvation Cap Reductn	0	0	0		0	0			0	0	0	0	0	
Spillback Cap Reductn	0	0	0		0	0			0	0	0	0	0	
Storage Cap Reductn	0	0	0		0	0			0	0	0	0	0	
Reduced v/c Ratio	0.16	0.57	0.13		6.24	0.98			1.58	0.71	0.63	0.63	0.11	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:WBT, Start of Yellow, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
! Phase conflict between lane groups.

Splits and Phases: 1: Shoppers World Drive/Whittier Street & Route 30 (Cochituate Road)



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Volume (vph)	50	695	180	45	350	915	245	160	320	165	355	435	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		5.0	5.0			5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	0.88		1.00	0.95			0.95	1.00	0.91	0.91	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	0.97			1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00			0.98	1.00	0.95	0.99	1.00
Satd. Flow (prot)	1787	3574	2814		1786	3450			3551	1615	1626	3392	1599
Flt Permitted	0.95	1.00	1.00		0.57	1.00			0.98	1.00	0.95	0.99	1.00
Satd. Flow (perm)	1787	3574	2814		1074	3450			3551	1615	1626	3392	1599
Peak-hour factor, PHF	0.96	0.96	0.96	0.93	0.93	0.93	0.93	0.94	0.94	0.94	0.97	0.97	0.97
Adj. Flow (vph)	52	724	188	48	376	984	263	170	340	176	366	448	88
RTOR Reduction (vph)	0	0	109	0	0	17	0	0	0	0	0	0	56
Lane Group Flow (vph)	52	724	79	0	424	1230	0	0	510	176	264	550	32
Confl. Peds. (#/hr)	3		1		1		3	3					3
Confl. Bikes (#/hr)			1							1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Prot	NA	pt+ov	custom	Prot	NA		Split	NA	pt+ov	Split	NA	pt+ov
Protected Phases	1	6	3 6		5	2		3	3	3 5!	4	4	1 4
Permitted Phases				5!									
Actuated Green, G (s)	6.7	36.5	46.5		7.0	36.8			10.0	17.0	28.5	28.5	40.2
Effective Green, g (s)	6.7	36.5	46.5		7.0	36.8			10.0	17.0	28.5	28.5	40.2
Actuated g/C Ratio	0.06	0.33	0.42		0.06	0.33			0.09	0.15	0.26	0.26	0.37
Clearance Time (s)	5.0	5.0			5.0	5.0			5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0			2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	108	1185	1189		68	1154			322	249	421	878	584
v/s Ratio Prot	0.03	0.20	0.03			c0.36			c0.14	0.11	c0.16	0.16	0.02
v/s Ratio Perm					c0.39								
v/c Ratio	0.48	0.61	0.07		6.24	1.07			1.58	0.71	0.63	0.63	0.06
Uniform Delay, d1	50.0	30.8	18.9		51.5	36.6			50.0	44.1	36.0	36.0	22.6
Progression Factor	1.00	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	0.7	0.0		2387.0	45.8			277.1	7.3	2.1	1.0	0.0
Delay (s)	51.2	31.5	18.9		2438.5	82.4			327.1	51.4	38.2	37.1	22.6
Level of Service	D	C	B		F	F			F	D	D	D	C
Approach Delay (s)		30.1				680.3			256.4			36.0	
Approach LOS		C				F			F			D	

Intersection Summary			
HCM 2000 Control Delay	325.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.34		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	86.1%	ICU Level of Service	E
Analysis Period (min)	15		

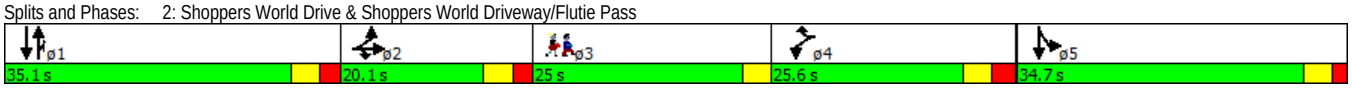
! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø3
Lane Configurations													
Volume (vph)	50	130	140	220	0	520	0	400	220	430	500	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0		0	120		0	0		125	120		0	
Storage Lanes	1		1	1		1	0		2	2		0	
Taper Length (ft)	25			25			25			25			
Right Turn on Red			Yes			Yes			Yes			Yes	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		732			745			212			1733		
Travel Time (s)		16.6			16.9			4.8			39.4		
Confl. Peds. (#/hr)	9					9							
Peak Hour Factor	0.89	0.89	0.89	0.87	0.87	0.87	0.98	0.98	0.98	0.94	0.94	0.94	
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	56	146	157	253	0	598	0	408	224	457	532	0	
Turn Type	Split	NA	Prot	Prot		Prot		NA	Prot	Prot	NA		
Protected Phases	2	2	2	4		4		1	1	5	1 5		3
Permitted Phases													
Detector Phase	2	2	2	4		4		1	1	5	1 5		
Switch Phase													
Minimum Initial (s)	5.0	5.0	5.0	5.0		5.0		15.0	15.0	5.0			4.0
Minimum Split (s)	10.1	10.1	10.1	10.6		10.6		20.1	20.1	9.7			25.0
Total Split (s)	20.1	20.1	20.1	25.6		25.6		35.1	35.1	34.7			25.0
Total Split (%)	14.3%	14.3%	14.3%	18.2%		18.2%		25.0%	25.0%	24.7%			18%
Yellow Time (s)	3.0	3.0	3.0	3.0		3.0		3.0	3.0	3.0			3.0
All-Red Time (s)	2.1	2.1	2.1	2.6		2.6		2.1	2.1	1.7			0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0			
Total Lost Time (s)	5.1	5.1	5.1	5.6		5.6		5.1	5.1	4.7			
Lead/Lag	Lag	Lag	Lag	Lag		Lag		Lead	Lead				Lead
Lead-Lag Optimize?													
Recall Mode	None	None	None	None		None		Min	Min	None			None
v/c Ratio	0.24	0.59	0.45	0.56		0.82		0.45	0.26	0.62	0.29		
Control Delay	46.8	54.4	12.8	46.6		14.4		34.0	7.8	40.0	14.6		
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0		
Total Delay	46.8	54.4	12.8	46.6		14.4		34.0	7.8	40.0	14.6		
Queue Length 50th (ft)	28	76	0	68		0		97	4	117	77		
Queue Length 95th (ft)	93	#225	65	152		97		231	47	256	203		
Internal Link Dist (ft)		652			665			132			1653		
Turn Bay Length (ft)				120					125	120			
Base Capacity (vph)	312	329	409	801		829		1239	1109	1202	2189		
Starvation Cap Reductn	0	0	0	0		0		0	0	0	0		
Spillback Cap Reductn	0	0	0	0		0		0	0	0	0		
Storage Cap Reductn	0	0	0	0		0		0	0	0	0		
Reduced v/c Ratio	0.18	0.44	0.38	0.32		0.72		0.33	0.20	0.38	0.24		

Intersection Summary

Area Type: Other
Cycle Length: 140.5
Actuated Cycle Length: 93.2
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Shoppers World Drive & Shoppers World Driveway/Flutie Pass



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	130	140	220	0	520	0	400	220	430	500	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.1	5.6		5.6		5.1	5.1	4.7	5.1	
Lane Util. Factor	1.00	1.00	1.00	0.97		1.00		0.95	0.88	0.97	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1900	1615	3467		1599		3574	2814	3467	3574	
Flt Permitted	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1805	1900	1615	3467		1599		3574	2814	3467	3574	
Peak-hour factor, PHF	0.89	0.89	0.89	0.87	0.87	0.87	0.98	0.98	0.98	0.94	0.94	0.94
Adj. Flow (vph)	56	146	157	253	0	598	0	408	224	457	532	0
RTOR Reduction (vph)	0	0	137	0	0	521	0	0	152	0	0	0
Lane Group Flow (vph)	56	146	20	253	0	77	0	408	72	457	532	0
Confl. Peds. (#/hr)	9					9						
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Split	NA	Prot	Prot		Prot		NA	Prot	Prot	NA	
Protected Phases	2	2	2	4		4		1	1	5	1 5	
Permitted Phases												
Actuated Green, G (s)	12.1	12.1	12.1	12.2		12.2		23.8	23.8	19.7	48.2	
Effective Green, g (s)	12.1	12.1	12.1	12.2		12.2		23.8	23.8	19.7	43.5	
Actuated g/C Ratio	0.13	0.13	0.13	0.13		0.13		0.25	0.25	0.21	0.46	
Clearance Time (s)	5.1	5.1	5.1	5.6		5.6		5.1	5.1	4.7		
Vehicle Extension (s)	2.0	2.0	2.0	2.0		2.0		3.5	3.5	2.0		
Lane Grp Cap (vph)	231	244	207	449		207		902	710	725	1650	
v/s Ratio Prot	0.03	c0.08	0.01	c0.07		0.05		c0.11	0.03	c0.13	0.15	
v/s Ratio Perm												
v/c Ratio	0.24	0.60	0.10	0.56		0.37		0.45	0.10	0.63	0.32	
Uniform Delay, d1	36.9	38.8	36.2	38.5		37.5		29.7	27.0	33.9	16.0	
Progression Factor	1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	2.6	0.1	1.0		0.4		0.4	0.1	1.3	0.1	
Delay (s)	37.1	41.4	36.3	39.5		37.9		30.1	27.1	35.3	16.2	
Level of Service	D	D	D	D		D		C	C	D	B	
Approach Delay (s)		38.5			38.4			29.0			25.0	
Approach LOS		D			D			C			C	

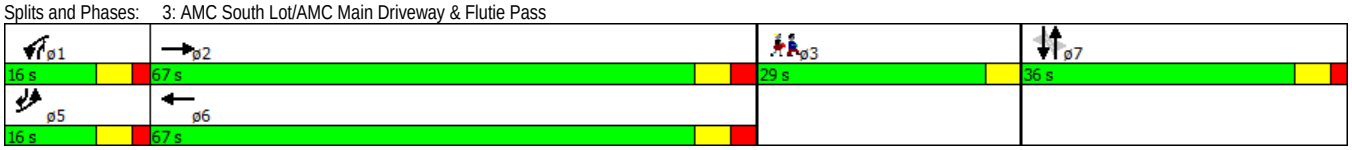
Intersection Summary			
HCM 2000 Control Delay	31.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	94.2	Sum of lost time (s)	23.5
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø3
Lane Configurations													
Volume (vph)	140	635	5	1	565	20	15	2	10	60	0	105	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	250		0	100		200	0		0	0		260	
Storage Lanes	1		0	1		1	0		1	0		1	
Taper Length (ft)	25			25			25			25			
Right Turn on Red			Yes			Yes			Yes			Yes	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		451			451			225			539		
Travel Time (s)		16.9			10.3			5.1			12.3		
Confl. Peds. (#/hr)	13					13							
Confl. Bikes (#/hr)						1							
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.48	0.48	0.48	0.86	0.86	0.86	
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	9%	9%	9%	1%	1%	1%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	156	712	0	1	636	0	0	35	21	0	70	122	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Over	Perm	NA	Over	
Protected Phases	5	2		1	6			7	1		7	5	3
Permitted Phases							7			7			
Detector Phase	5	2		1	6		7	7	1	7	7	5	
Switch Phase													
Minimum Initial (s)	5.0	30.0		5.0	30.0		5.0	5.0	5.0	5.0	5.0	5.0	4.0
Minimum Split (s)	11.0	37.0		11.0	37.0		11.0	11.0	11.0	11.0	11.0	11.0	29.0
Total Split (s)	16.0	67.0		16.0	67.0		36.0	36.0	16.0	36.0	36.0	16.0	29.0
Total Split (%)	10.8%	45.3%		10.8%	45.3%		24.3%	24.3%	10.8%	24.3%	24.3%	10.8%	20%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	3.0		2.0	3.0		2.0	2.0	2.0	2.0	2.0	2.0	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	7.0		6.0	7.0			6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag				Lead			Lead	
Lead-Lag Optimize?													
Recall Mode	None	Min		None	Min		None	None	None	None	None	None	None
v/c Ratio	0.60	0.31		0.01	0.40			0.25	0.10		0.44	0.36	
Control Delay	44.4	11.7		40.0	17.6			37.5	1.0		42.3	11.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0	
Total Delay	44.4	11.7		40.0	17.6			37.5	1.0		42.3	11.4	
Queue Length 50th (ft)	60	47		0	86			13	0		27	0	
Queue Length 95th (ft)	#228	256		7	244			27	0		84	48	
Internal Link Dist (ft)		665			371			145			459		
Turn Bay Length (ft)	250			100								260	
Base Capacity (vph)	262	3049		262	3033			537	305		607	338	
Starvation Cap Reductn	0	0		0	0			0	0		0	0	
Spillback Cap Reductn	0	0		0	0			0	0		0	0	
Storage Cap Reductn	0	0		0	0			0	0		0	0	
Reduced v/c Ratio	0.60	0.23		0.00	0.21			0.07	0.07		0.12	0.36	

Intersection Summary

Area Type: Other
Cycle Length: 148
Actuated Cycle Length: 71.6
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: AMC South Lot/AMC Main Driveway & Flutie Pass



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	140	635	5	1	565	20	15	2	10	60	0	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0		6.0	7.0			6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.99			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.95	1.00
Satd. Flow (prot)	1787	3570		1787	3551			1669	1482		1787	1599
Flt Permitted	0.95	1.00		0.95	1.00			0.70	1.00		0.73	1.00
Satd. Flow (perm)	1787	3570		1787	3551			1222	1482		1381	1599
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.48	0.48	0.48	0.86	0.86	0.86
Adj. Flow (vph)	156	706	6	1	614	22	31	4	21	70	0	122
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	21	0	0	106
Lane Group Flow (vph)	156	712	0	1	634	0	0	35	0	0	70	16
Confl. Peds. (#/hr)	13					13						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	9%	9%	9%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Over	Perm	NA	Over
Protected Phases	5	2		1	6			7	1		7	5
Permitted Phases							7			7		
Actuated Green, G (s)	10.5	44.8		1.7	36.0			6.9	1.7		6.9	10.5
Effective Green, g (s)	10.5	44.8		1.7	36.0			6.9	1.7		6.9	10.5
Actuated g/C Ratio	0.13	0.56		0.02	0.45			0.09	0.02		0.09	0.13
Clearance Time (s)	6.0	7.0		6.0	7.0			6.0	6.0		6.0	6.0
Vehicle Extension (s)	2.0	4.0		2.0	4.0			2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	235	2004		38	1601			105	31		119	210
v/s Ratio Prot	c0.09	0.20		0.00	c0.18				0.00			0.01
v/s Ratio Perm								0.03			c0.05	
v/c Ratio	0.66	0.36		0.03	0.40			0.33	0.01		0.59	0.08
Uniform Delay, d1	33.0	9.6		38.2	14.6			34.3	38.2		35.1	30.4
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	5.4	0.1		0.1	0.2			0.7	0.1		4.7	0.1
Delay (s)	38.3	9.7		38.3	14.9			35.0	38.3		39.8	30.5
Level of Service	D	A		D	B			C	D		D	C
Approach Delay (s)		14.9			14.9			36.2			33.9	
Approach LOS		B			B			D			C	

Intersection Summary			
HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	79.8	Sum of lost time (s)	23.0
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

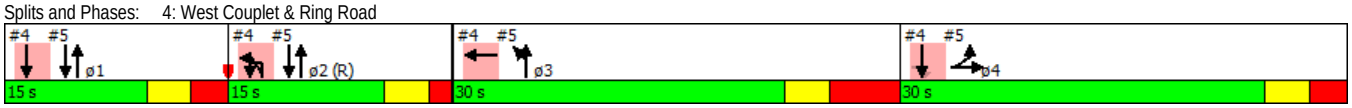
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR	ø1
Lane Configurations														
Volume (vph)	0	0	105	0	165	0	5	70	0	0	0	190	120	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Right Turn on Red			Yes			Yes				Yes			Yes	
Link Speed (mph)		30			30				30			30		
Link Distance (ft)		502			175				155			225		
Travel Time (s)		11.4			4.0				3.5			5.1		
Confl. Peds. (#/hr)			1	1			1	1					1	
Peak Hour Factor	0.89	0.89	0.89	0.88	0.88	0.88	0.77	0.77	0.77	0.77	0.85	0.85	0.85	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	
Shared Lane Traffic (%)														
Lane Group Flow (vph)	0	0	118	0	188	0	0	97	0	0	0	365	0	
Turn Type			Perm		NA		Prot	Prot				NA		
Protected Phases					3		2	2				1 4		1
Permitted Phases			4											
Detector Phase			4		3		2	2				1 4		
Switch Phase														
Minimum Initial (s)			10.0		10.0		10.0	10.0						5.0
Minimum Split (s)			15.6		22.8		14.6	14.6						16.5
Total Split (s)			30.0		30.0		15.0	15.0						15.0
Total Split (%)			33.3%		33.3%		16.7%	16.7%						17%
Yellow Time (s)			3.0		3.0		3.0	3.0						3.0
All-Red Time (s)			2.6		4.8		1.6	1.6						2.5
Lost Time Adjust (s)			0.0		0.0			0.0						
Total Lost Time (s)			5.6		7.8			4.6						
Lead/Lag			Lag		Lead		Lag	Lag						Lead
Lead-Lag Optimize?														
Recall Mode			None		None		C-Min	C-Min						None
v/c Ratio			0.11		0.54			0.26				0.25		
Control Delay			0.2		8.2			32.9				10.2		
Queue Delay			0.0		0.2			0.0				0.0		
Total Delay			0.2		8.4			32.9				10.2		
Queue Length 50th (ft)			0		5			58				36		
Queue Length 95th (ft)			0		6			m93				61		
Internal Link Dist (ft)		422			95				75			145		
Turn Bay Length (ft)														
Base Capacity (vph)			1131		468			373				1444		
Starvation Cap Reductn			0		33			0				0		
Spillback Cap Reductn			0		0			0				0		
Storage Cap Reductn			0		0			0				0		
Reduced v/c Ratio			0.10		0.43			0.26				0.25		

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBL, Start of Green, Master Intersection
Natural Cycle: 70
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: West Couplet & Ring Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Volume (vph)	0	0	105	0	165	0	5	70	0	0	0	190	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.6		7.8			4.6				5.5	
Lane Util. Factor			1.00		1.00			1.00				0.95	
Frpb, ped/bikes			0.99		1.00			1.00				0.99	
Flpb, ped/bikes			1.00		1.00			1.00				1.00	
Frt			0.86		1.00			1.00				0.94	
Flt Protected			1.00		1.00			0.95				1.00	
Satd. Flow (prot)			1621		1900			1787				3336	
Flt Permitted			1.00		1.00			0.95				1.00	
Satd. Flow (perm)			1621		1900			1787				3336	
Peak-hour factor, PHF	0.89	0.89	0.89	0.88	0.88	0.88	0.77	0.77	0.77	0.77	0.85	0.85	0.85
Adj. Flow (vph)	0	0	118	0	188	0	6	91	0	0	0	224	141
RTOR Reduction (vph)	0	0	96	0	0	0	0	0	0	0	0	92	0
Lane Group Flow (vph)	0	0	22	0	188	0	0	97	0	0	0	273	0
Confl. Peds. (#/hr)			1	1			1	1					1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%
Turn Type			Perm		NA		Prot	Prot				NA	
Protected Phases					3		2	2				1 4	
Permitted Phases			4										
Actuated Green, G (s)			16.4		16.5			18.8				36.8	
Effective Green, g (s)			16.4		16.5			18.8				31.2	
Actuated g/C Ratio			0.18		0.18			0.21				0.35	
Clearance Time (s)			5.6		7.8			4.6					
Vehicle Extension (s)			3.0		3.0			3.5					
Lane Grp Cap (vph)			295		348			373				1156	
v/s Ratio Prot					c0.10			c0.05				c0.08	
v/s Ratio Perm			0.01										
v/c Ratio			0.07		0.54			0.26				0.24	
Uniform Delay, d1			30.5		33.3			29.8				20.9	
Progression Factor			1.00		0.09			0.89				1.00	
Incremental Delay, d2			0.1		1.6			1.6				0.0	
Delay (s)			30.6		4.5			28.1				21.0	
Level of Service			C		A			C				C	
Approach Delay (s)		30.6			4.5				28.1			21.0	
Approach LOS		C			A				C			C	

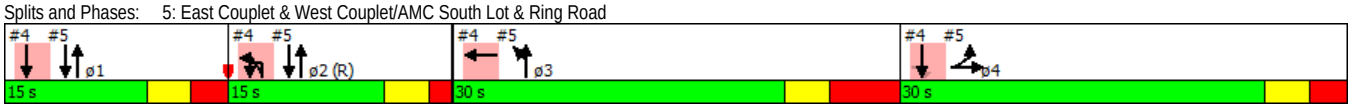
Intersection Summary			
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	36.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	NBL	NBT	NBR	SBT	ø1	ø2
Lane Configurations									
Volume (vph)	290	2	5	165	330	1	550		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900		
Right Turn on Red			Yes			Yes			
Link Speed (mph)		30			30		30		
Link Distance (ft)		290			442		193		
Travel Time (s)		6.6			10.0		4.4		
Confl. Peds. (#/hr)				1					
Peak Hour Factor	0.96	0.96	0.96	0.86	0.86	0.86	0.90		
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	1%		
Shared Lane Traffic (%)	49%								
Lane Group Flow (vph)	154	155	0	192	385	0	611		
Turn Type	Split	NA		Prot	NA		NA		
Protected Phases	4	4		3	1 2 3		1 2	1	2
Permitted Phases									
Detector Phase	4	4		3	1 2 3		1 2		
Switch Phase									
Minimum Initial (s)	10.0	10.0		10.0				5.0	10.0
Minimum Split (s)	15.6	15.6		22.8				16.5	14.6
Total Split (s)	30.0	30.0		30.0				15.0	15.0
Total Split (%)	33.3%	33.3%		33.3%				17%	17%
Yellow Time (s)	3.0	3.0		3.0				3.0	3.0
All-Red Time (s)	2.6	2.6		4.8				2.5	1.6
Lost Time Adjust (s)	0.0	0.0		0.0					
Total Lost Time (s)	5.6	5.6		7.8					
Lead/Lag	Lag	Lag		Lead				Lead	Lag
Lead-Lag Optimize?									
Recall Mode	None	None		None				None	C-Min
v/c Ratio	0.50	0.50		0.58	0.15		0.40		
Control Delay	40.4	39.9		39.1	5.2		21.4		
Queue Delay	0.0	0.0		0.0	0.0		0.0		
Total Delay	40.4	39.9		39.1	5.2		21.4		
Queue Length 50th (ft)	92	92		101	33		123		
Queue Length 95th (ft)	m53	m52		151	66		217		
Internal Link Dist (ft)		210			362		113		
Turn Bay Length (ft)									
Base Capacity (vph)	460	461		445	2735		1515		
Starvation Cap Reductn	0	0		0	0		0		
Spillback Cap Reductn	0	0		0	0		0		
Storage Cap Reductn	0	0		0	0		0		
Reduced v/c Ratio	0.33	0.34		0.43	0.14		0.40		

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBL, Start of Green, Master Intersection
Natural Cycle: 70
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: East Couplet & West Couplet/AMC South Lot & Ring Road



Movement	EBL	EBT	EBR	NBL	NBT	NBR	SBT
Lane Configurations							
Volume (vph)	290	2	5	165	330	1	550
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6		7.8	5.5		5.5
Lane Util. Factor	0.95	0.95		1.00	0.95		0.95
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00
Frt	1.00	1.00		1.00	1.00		1.00
Flt Protected	0.95	0.95		0.95	1.00		1.00
Satd. Flow (prot)	1698	1697		1805	3609		3574
Flt Permitted	0.95	0.95		0.95	1.00		1.00
Satd. Flow (perm)	1698	1697		1805	3609		3574
Peak-hour factor, PHF	0.96	0.96	0.96	0.86	0.86	0.86	0.90
Adj. Flow (vph)	302	2	5	192	384	1	611
RTOR Reduction (vph)	0	2	0	0	0	0	0
Lane Group Flow (vph)	154	153	0	192	385	0	611
Confl. Peds. (#/hr)				1			
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	1%
Turn Type	Split	NA		Prot	NA		NA
Protected Phases	4	4		3	1 2 3		1 2
Permitted Phases							
Actuated Green, G (s)	16.4	16.4		16.5	60.2		39.1
Effective Green, g (s)	16.4	16.4		16.5	55.6		39.1
Actuated g/C Ratio	0.18	0.18		0.18	0.62		0.43
Clearance Time (s)	5.6	5.6		7.8			
Vehicle Extension (s)	3.0	3.0		3.0			
Lane Grp Cap (vph)	309	309		330	2229		1552
v/s Ratio Prot	c0.09	0.09		c0.11	0.11		c0.17
v/s Ratio Perm							
v/c Ratio	0.50	0.50		0.58	0.17		0.39
Uniform Delay, d1	33.1	33.1		33.6	7.4		17.4
Progression Factor	1.10	1.10		0.99	0.94		1.00
Incremental Delay, d2	1.2	1.2		2.4	0.0		0.1
Delay (s)	37.6	37.6		35.8	6.9		17.4
Level of Service	D	D		D	A		B
Approach Delay (s)		37.6			16.5		17.4
Approach LOS		D			B		B

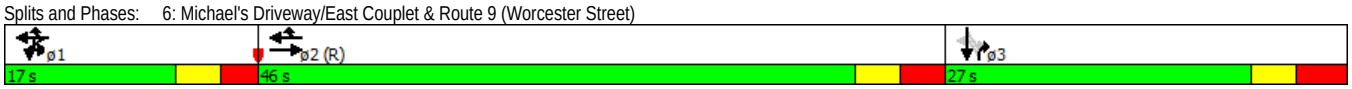
Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Volume (vph)	0	1625	75	55	55	1750	495	110	0	70	495	30	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0		280		280	0		90	0		0
Storage Lanes	0		0		1		1	1		1	1		0
Taper Length (ft)	25				25			25			25		
Right Turn on Red			Yes				Yes			Yes			Yes
Link Speed (mph)		30				30			30			30	
Link Distance (ft)		587				872			428			442	
Travel Time (s)		13.3				19.8			9.7			10.0	
Confl. Peds. (#/hr)	2		9		9		2						
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.79	0.79	0.79	0.90	0.90	0.90
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)											44%		
Lane Group Flow (vph)	0	1828	0	0	116	1842	521	139	0	89	308	308	0
Turn Type		NA		Prot	Prot	NA	Prot	D.Pm		Prot	Perm	NA	
Protected Phases		2		1	1	1 2	1 2			3		3	
Permitted Phases								3			3		
Detector Phase		2		1	1	1 2	1 2	3		3	3	3	
Switch Phase													
Minimum Initial (s)		15.0		5.0	5.0			5.0		5.0	5.0	5.0	
Minimum Split (s)		21.0		10.5	10.5			11.5		11.5	11.5	11.5	
Total Split (s)		46.0		17.0	17.0			27.0		27.0	27.0	27.0	
Total Split (%)		51.1%		18.9%	18.9%			30.0%		30.0%	30.0%	30.0%	
Yellow Time (s)		3.0		3.0	3.0			3.0		3.0	3.0	3.0	
All-Red Time (s)		3.0		2.5	2.5			3.5		3.5	3.5	3.5	
Lost Time Adjust (s)		0.0			0.0			0.0		0.0	0.0	0.0	
Total Lost Time (s)		6.0			5.5			6.5		6.5	6.5	6.5	
Lead/Lag		Lag		Lead	Lead								
Lead-Lag Optimize?													
Recall Mode		C-Min		None	None			None		None	None	None	
v/c Ratio		0.81			0.51	0.56	0.43	1.01		0.20	0.80	0.79	
Control Delay		23.6			45.2	10.0	1.8	117.2		6.0	56.5	55.3	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay		23.6			45.2	10.0	1.8	117.2		6.0	56.5	55.3	
Queue Length 50th (ft)		317			63	193	0	~80		0	202	200	
Queue Length 95th (ft)		380			117	231	33	#165		20	#327	#323	
Internal Link Dist (ft)		507				792			348			362	
Turn Bay Length (ft)					280		280			90			
Base Capacity (vph)		2269			228	3281	1209	138		443	386	390	
Starvation Cap Reductn		0			0	0	0	0		0	0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	0	
Reduced v/c Ratio		0.81			0.51	0.56	0.43	1.01		0.20	0.80	0.79	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 72 (80%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Michael's Driveway/East Couplet & Route 9 (Worcester Street)



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Volume (vph)	0	1625	75	55	55	1750	495	110	0	70	495	30	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			5.5	5.5	5.5	6.5		6.5	6.5	6.5	
Lane Util. Factor		0.91			1.00	0.91	1.00	1.00		1.00	0.95	0.95	
Frpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt		0.99			1.00	1.00	0.85	1.00		0.85	1.00	0.98	
Flt Protected		1.00			0.95	1.00	1.00	0.95		1.00	0.95	0.96	
Satd. Flow (prot)		5095			1787	5136	1599	1787		1599	1698	1692	
Flt Permitted		1.00			0.95	1.00	1.00	0.32		1.00	0.95	0.96	
Satd. Flow (perm)		5095			1787	5136	1599	608		1599	1698	1692	
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.79	0.79	0.79	0.90	0.90	0.90
Adj. Flow (vph)	0	1747	81	58	58	1842	521	139	0	89	550	33	33
RTOR Reduction (vph)	0	6	0	0	0	0	191	0	0	69	0	5	0
Lane Group Flow (vph)	0	1822	0	0	116	1842	330	139	0	20	308	303	0
Confl. Peds. (#/hr)	2		9		9		2						
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type		NA		Prot	Prot	NA	Prot	D.Pm		Prot	Perm	NA	
Protected Phases		2		1	1	1 2	1 2			3		3	
Permitted Phases								3			3		
Actuated Green, G (s)		40.0			11.5	57.0	57.0	20.5		20.5	20.5	20.5	
Effective Green, g (s)		40.0			11.5	57.0	57.0	20.5		20.5	20.5	20.5	
Actuated g/C Ratio		0.44			0.13	0.63	0.63	0.23		0.23	0.23	0.23	
Clearance Time (s)		6.0			5.5			6.5		6.5	6.5	6.5	
Vehicle Extension (s)		3.5			2.0			2.0		2.0	2.0	2.0	
Lane Grp Cap (vph)		2264			228	3252	1012	138		364	386	385	
v/s Ratio Prot		c0.36			0.06	c0.36	0.21			0.01			
v/s Ratio Perm								c0.23			0.18	0.18	
v/c Ratio		0.80			0.51	0.57	0.33	1.01		0.06	0.80	0.79	
Uniform Delay, d1		21.6			36.6	9.4	7.6	34.8		27.2	32.8	32.7	
Progression Factor		0.94			1.00	1.00	1.00	1.00		1.00	1.24	1.25	
Incremental Delay, d2		3.0			0.7	0.1	0.1	78.5		0.0	9.6	8.9	
Delay (s)		23.4			37.3	9.6	7.7	113.3		27.2	50.3	49.8	
Level of Service		C			D	A	A	F		C	D	D	
Approach Delay (s)		23.4				10.5			79.7			50.0	
Approach LOS		C				B			E			D	

Intersection Summary			
HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	79.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBU	EBL	EBT	WBT	WBR	SWL	SWR	ø1	ø3
Lane Configurations									
Volume (vph)	5	340	1730	1860	30	0	300		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900		
Storage Length (ft)		335			0	0	0		
Storage Lanes		2			0	0	2		
Taper Length (ft)		25				25			
Right Turn on Red					Yes		Yes		
Link Speed (mph)			30	30		30			
Link Distance (ft)			938	587		277			
Travel Time (s)			21.3	13.3		6.3			
Confl. Peds. (#/hr)		1			1				
Peak Hour Factor	0.92	0.98	0.98	0.97	0.97	0.92	0.92		
Heavy Vehicles (%)	2%	1%	1%	1%	1%	1%	1%		
Shared Lane Traffic (%)									
Lane Group Flow (vph)	0	352	1765	1949	0	0	326		
Turn Type	custom	Prot	NA	NA			pt+ov		
Protected Phases		1 3	1 2	2			1 3	1	3
Permitted Phases	1 3								
Detector Phase	1	1	1 2	2			1		
Switch Phase									
Minimum Initial (s)				15.0				5.0	5.0
Minimum Split (s)				20.6				10.4	22.6
Total Split (s)				49.0				22.0	19.0
Total Split (%)				54.4%				24%	21%
Yellow Time (s)				3.2				3.2	3.2
All-Red Time (s)				2.4				2.2	3.4
Lost Time Adjust (s)				0.0					
Total Lost Time (s)				5.6					
Lead/Lag				Lag				Lead	
Lead-Lag Optimize?									
Recall Mode				C-Min				None	None
v/c Ratio		0.29	0.36	0.72			0.33		
Control Delay		21.2	1.5	13.0			16.3		
Queue Delay		0.0	0.0	0.0			0.0		
Total Delay		21.2	1.5	13.0			16.3		
Queue Length 50th (ft)		68	0	344			47		
Queue Length 95th (ft)		99	151	m402			66		
Internal Link Dist (ft)			858	507		197			
Turn Bay Length (ft)		335							
Base Capacity (vph)		1202	4857	2725			979		
Starvation Cap Reductn		0	0	36			0		
Spillback Cap Reductn		0	0	0			0		
Storage Cap Reductn		0	0	0			0		
Reduced v/c Ratio		0.29	0.36	0.72			0.33		

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 83 (92%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Route 9 (Worcester Street) & West Couplet

Movement	EBU	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations							
Volume (vph)	5	340	1730	1860	30	0	300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.4	5.6			5.4
Lane Util. Factor		0.97	0.91	0.91			0.88
Frpb, ped/bikes		1.00	1.00	1.00			1.00
Flpb, ped/bikes		1.00	1.00	1.00			1.00
Frt		1.00	1.00	1.00			0.85
Flt Protected		0.95	1.00	1.00			1.00
Satd. Flow (prot)		3463	5136	5122			2814
Flt Permitted		0.95	1.00	1.00			1.00
Satd. Flow (perm)		3473	5136	5122			2814
Peak-hour factor, PHF	0.92	0.98	0.98	0.97	0.97	0.92	0.92
Adj. Flow (vph)	5	347	1765	1918	31	0	326
RTOR Reduction (vph)	0	0	0	2	0	0	5
Lane Group Flow (vph)	0	352	1765	1947	0	0	321
Confl. Peds. (#/hr)		1			1		
Heavy Vehicles (%)	2%	1%	1%	1%	1%	1%	1%
Turn Type	custom	Prot	NA	NA			pt+ov
Protected Phases		1 3	1 2	2			1 3
Permitted Phases	1 3						
Actuated Green, G (s)		36.5	75.3	42.5			36.5
Effective Green, g (s)		29.9	75.3	42.5			29.9
Actuated g/C Ratio		0.33	0.84	0.47			0.33
Clearance Time (s)				5.6			
Vehicle Extension (s)				3.5			
Lane Grp Cap (vph)		1153	4297	2418			934
v/s Ratio Prot			c0.34	c0.38			c0.11
v/s Ratio Perm		0.10					
v/c Ratio		0.31	0.41	0.81			0.34
Uniform Delay, d1		22.3	1.8	20.2			22.7
Progression Factor		1.00	1.00	0.68			0.76
Incremental Delay, d2		0.1	0.0	2.4			0.1
Delay (s)		22.4	1.9	16.1			17.3
Level of Service		C	A	B			B
Approach Delay (s)			5.3	16.1		17.3	
Approach LOS			A	B		B	

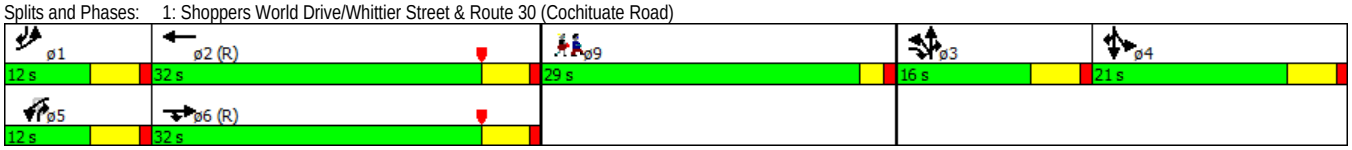
Intersection Summary			
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.6
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Lane Configurations														
Volume (vph)	20	695	135	50	360	1260	220	190	260	125	245	365	100	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	250		250		300		0	300		0	200		200	
Storage Lanes	1		2		1		0	1		1	1		2	
Taper Length (ft)	25				25			25			25			
Right Turn on Red			Yes				Yes			No			Yes	
Link Speed (mph)		30				30			30			30		
Link Distance (ft)		941				1103			1733			939		
Travel Time (s)		21.4				25.1			39.4			21.3		
Confl. Peds. (#/hr)	4		1		1		4	3					3	
Confl. Bikes (#/hr)													1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.96	0.94	0.94	0.94	
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	
Shared Lane Traffic (%)											19%			
Lane Group Flow (vph)	22	755	147	0	445	1609	0	0	469	130	211	438	106	
Turn Type	Prot	NA	pt+ov	custom	Prot	NA		Split	NA	pt+ov	Split	NA	pt+ov	
Protected Phases	1	6	3 6		5	2		3	3	3 5!	4	4	1 4	9
Permitted Phases				5!										
Detector Phase	1	6	3 6	5	5	2		3	3	3 5	4	4	1 4	
Switch Phase														
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0		6.0	6.0		6.0	6.0		4.0
Minimum Split (s)	11.0	11.0		11.0	11.0	11.0		11.0	11.0		11.0	11.0		28.0
Total Split (s)	12.0	32.0		12.0	12.0	32.0		16.0	16.0		21.0	21.0		29.0
Total Split (%)	10.9%	29.1%		10.9%	10.9%	29.1%		14.5%	14.5%		19.1%	19.1%		26%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	4.0		2.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0		1.0	1.0		1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0			0.0		0.0	0.0		
Total Lost Time (s)	5.0	5.0			5.0	5.0			5.0		5.0	5.0		
Lead/Lag	Lead	Lag		Lead	Lead	Lag		Lead	Lead		Lag	Lag		
Lead-Lag Optimize?														
Recall Mode	None	C-Max		None	None	C-Max		None	None		None	None		None
v/c Ratio	0.22	0.49	0.09		6.64	1.07			1.34	0.50	0.74	0.74	0.20	
Control Delay	54.5	26.6	2.1		2578.9	73.6			211.7	30.7	59.7	51.1	6.9	
Queue Delay	0.0	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	0.0	
Total Delay	54.5	26.6	2.1		2578.9	73.6			211.7	30.7	59.7	51.1	6.9	
Queue Length 50th (ft)	15	187	0		~606	571			~227	54	152	158	0	
Queue Length 95th (ft)	41	#367	11		#805	#1060			#334	101	#303	#250	42	
Internal Link Dist (ft)		861				1023			1653			859		
Turn Bay Length (ft)	250		250		300						200		200	
Base Capacity (vph)	113	1531	1653		67	1510			349	261	288	604	520	
Starvation Cap Reductn	0	0	0		0	0			0	0	0	0	0	
Spillback Cap Reductn	0	0	0		0	0			0	0	0	0	0	
Storage Cap Reductn	0	0	0		0	0			0	0	0	0	0	
Reduced v/c Ratio	0.19	0.49	0.09		6.64	1.07			1.34	0.50	0.73	0.73	0.20	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow, Master Intersection
Natural Cycle: 110
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
! Phase conflict between lane groups.

Splits and Phases: 1: Shoppers World Drive/Whittier Street & Route 30 (Cochituate Road)



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Volume (vph)	20	695	135	50	360	1260	220	190	260	125	245	365	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		5.0	5.0			5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	0.88		1.00	0.95			0.95	1.00	0.91	0.91	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	0.98			1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00			0.98	1.00	0.95	0.99	1.00
Satd. Flow (prot)	1787	3574	2814		1768	3453			3500	1599	1626	3404	1599
Flt Permitted	0.95	1.00	1.00		0.57	1.00			0.98	1.00	0.95	0.99	1.00
Satd. Flow (perm)	1787	3574	2814		1064	3453			3500	1599	1626	3404	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.96	0.94	0.94	0.94
Adj. Flow (vph)	22	755	147	54	391	1370	239	198	271	130	261	388	106
RTOR Reduction (vph)	0	0	73	0	0	10	0	0	0	0	0	0	77
Lane Group Flow (vph)	22	755	74	0	445	1599	0	0	469	130	211	438	29
Confl. Peds. (#/hr)	4		1		1		4	3					3
Confl. Bikes (#/hr)													1
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA	pt+ov	custom	Prot	NA		Split	NA	pt+ov	Split	NA	pt+ov
Protected Phases	1	6	3 6		5	2		3	3	3 5!	4	4	1 4
Permitted Phases				5!									
Actuated Green, G (s)	6.3	44.7	55.7		7.0	45.4			11.0	18.0	19.3	19.3	30.6
Effective Green, g (s)	6.3	44.7	55.7		7.0	45.4			11.0	18.0	19.3	19.3	30.6
Actuated g/C Ratio	0.06	0.41	0.51		0.06	0.41			0.10	0.16	0.18	0.18	0.28
Clearance Time (s)	5.0	5.0			5.0	5.0			5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0			2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	102	1452	1424		67	1425			350	261	285	597	444
v/s Ratio Prot	0.01	0.21	0.03			c0.46			c0.13	0.08	c0.13	0.13	0.02
v/s Ratio Perm					c0.42								
v/c Ratio	0.22	0.52	0.05		6.64	1.12			1.34	0.50	0.74	0.73	0.07
Uniform Delay, d1	49.5	24.6	13.8		51.5	32.3			49.5	41.9	43.0	42.9	29.2
Progression Factor	1.00	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	1.3	0.0		2570.0	64.8			171.1	0.5	8.7	4.0	0.0
Delay (s)	49.9	25.9	13.8		2621.5	97.1			220.6	42.4	51.7	46.9	29.2
Level of Service	D	C	B		F	F			F	D	D	D	C
Approach Delay (s)		24.5				644.0			182.0			45.8	
Approach LOS		C				F			F			D	

Intersection Summary			
HCM 2000 Control Delay	343.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.45		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø3
Lane Configurations													
Volume (vph)	25	65	110	100	0	425	0	435	135	245	525	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0		0	120		0	0		125	120		0	
Storage Lanes	1		1	1		1	0		2	2		0	
Taper Length (ft)	25			25			25			25			
Right Turn on Red			Yes			Yes			Yes			Yes	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		732			745			212			1733		
Travel Time (s)		16.6			16.9			4.8			39.4		
Confl. Peds. (#/hr)	6		1	1		6							
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	1%	1%	1%	1%	1%	1%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	27	71	120	109	0	462	0	473	147	266	571	0	
Turn Type	Split	NA	Prot	Prot		Prot		NA	Prot	Prot	NA		
Protected Phases	2	2	2	4		4		1	1	5	1 5		3
Permitted Phases													
Detector Phase	2	2	2	4		4		1	1	5	1 5		
Switch Phase													
Minimum Initial (s)	5.0	5.0	5.0	5.0		5.0		15.0	15.0	5.0			4.0
Minimum Split (s)	10.1	10.1	10.1	10.6		10.6		20.1	20.1	9.7			25.0
Total Split (s)	20.1	20.1	20.1	25.6		25.6		35.1	35.1	34.7			25.0
Total Split (%)	14.3%	14.3%	14.3%	18.2%		18.2%		25.0%	25.0%	24.7%			18%
Yellow Time (s)	3.0	3.0	3.0	3.0		3.0		3.0	3.0	3.0			3.0
All-Red Time (s)	2.1	2.1	2.1	2.6		2.6		2.1	2.1	1.7			0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0			
Total Lost Time (s)	5.1	5.1	5.1	5.6		5.6		5.1	5.1	4.7			
Lead/Lag	Lag	Lag	Lag	Lag		Lag		Lead	Lead				Lead
Lead-Lag Optimize?													
Recall Mode	None	None	None	None		None		Min	Min	None			None
v/c Ratio	0.15	0.37	0.44	0.29		0.79		0.44	0.16	0.45	0.30		
Control Delay	44.0	46.9	15.0	39.9		15.1		27.8	9.4	35.6	12.8		
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0		
Total Delay	44.0	46.9	15.0	39.9		15.1		27.8	9.4	35.6	12.8		
Queue Length 50th (ft)	11	29	0	23		0		82	4	54	60		
Queue Length 95th (ft)	53	111	61	73		112		256	42	149	215		
Internal Link Dist (ft)		652			665			132			1653		
Turn Bay Length (ft)				120					125	120			
Base Capacity (vph)	372	391	428	944		770		1474	1231	1430	2305		
Starvation Cap Reductn	0	0	0	0		0		0	0	0	0		
Spillback Cap Reductn	0	0	0	0		0		0	0	0	0		
Storage Cap Reductn	0	0	0	0		0		0	0	0	0		
Reduced v/c Ratio	0.07	0.18	0.28	0.12		0.60		0.32	0.12	0.19	0.25		

Intersection Summary

Area Type: Other
Cycle Length: 140.5
Actuated Cycle Length: 80.4
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Shoppers World Drive & Shoppers World Driveway/Flutie Pass

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	65	110	100	0	425	0	435	135	245	525	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.1	5.6		5.6		5.1	5.1	4.7	5.1	
Lane Util. Factor	1.00	1.00	1.00	0.97		1.00		0.95	0.88	0.97	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1900	1615	3433		1583		3574	2814	3467	3574	
Flt Permitted	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1805	1900	1615	3433		1583		3574	2814	3467	3574	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	71	120	109	0	462	0	473	147	266	571	0
RTOR Reduction (vph)	0	0	108	0	0	411	0	0	84	0	0	0
Lane Group Flow (vph)	27	71	12	109	0	51	0	473	63	266	571	0
Confl. Peds. (#/hr)	6		1	1		6						
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Split	NA	Prot	Prot		Prot		NA	Prot	Prot	NA	
Protected Phases	2	2	2	4		4		1	1	5	1 5	
Permitted Phases												
Actuated Green, G (s)	8.1	8.1	8.1	8.9		8.9		24.1	24.1	13.7	42.5	
Effective Green, g (s)	8.1	8.1	8.1	8.9		8.9		24.1	24.1	13.7	37.8	
Actuated g/C Ratio	0.10	0.10	0.10	0.11		0.11		0.30	0.30	0.17	0.47	
Clearance Time (s)	5.1	5.1	5.1	5.6		5.6		5.1	5.1	4.7		
Vehicle Extension (s)	2.0	2.0	2.0	2.0		2.0		3.5	3.5	2.0		
Lane Grp Cap (vph)	180	190	161	377		174		1064	838	587	1669	
v/s Ratio Prot	0.01	c0.04	0.01	0.03		c0.03		c0.13	0.02	c0.08	0.16	
v/s Ratio Perm												
v/c Ratio	0.15	0.37	0.07	0.29		0.29		0.44	0.07	0.45	0.34	
Uniform Delay, d1	33.3	34.0	33.0	33.1		33.1		23.0	20.4	30.2	13.7	
Progression Factor	1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.5	0.1	0.2		0.3		0.4	0.0	0.2	0.1	
Delay (s)	33.4	34.5	33.1	33.2		33.4		23.3	20.4	30.4	13.8	
Level of Service	C	C	C	C		C		C	C	C	B	
Approach Delay (s)		33.6			33.4			22.6			19.1	
Approach LOS		C			C			C			B	

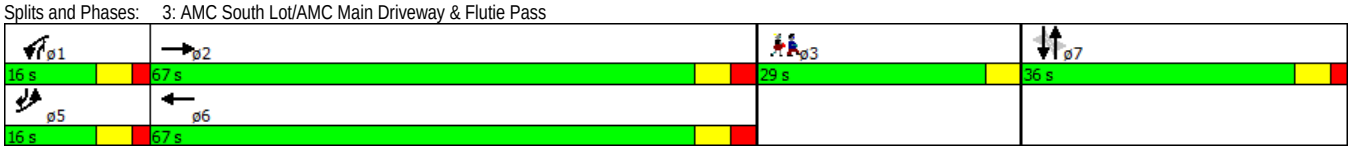
Intersection Summary			
HCM 2000 Control Delay	25.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	80.9	Sum of lost time (s)	23.5
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø3
Lane Configurations													
Volume (vph)	20	410	0	0	465	5	20	1	5	10	0	15	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	250		0	100		200	0		0	0		260	
Storage Lanes	1		0	1		1	0		1	0		1	
Taper Length (ft)	25			25			25			25			
Right Turn on Red			Yes			Yes			Yes			Yes	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		745			451			225			539		
Travel Time (s)		16.9			10.3			5.1			12.3		
Confl. Peds. (#/hr)	4		1	1		4							
Confl. Bikes (#/hr)			1			1							
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	14%	14%	14%	4%	4%	4%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	22	446	0	0	510	0	0	23	5	0	11	16	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Over	Perm	NA	Over	
Protected Phases	5	2		1	6			7	1		7	5	3
Permitted Phases							7			7			
Detector Phase	5	2		1	6		7	7	1	7	7	5	
Switch Phase													
Minimum Initial (s)	5.0	30.0		5.0	30.0		5.0	5.0	5.0	5.0	5.0	5.0	4.0
Minimum Split (s)	11.0	37.0		11.0	37.0		11.0	11.0	11.0	11.0	11.0	11.0	29.0
Total Split (s)	16.0	67.0		16.0	67.0		36.0	36.0	16.0	36.0	36.0	16.0	29.0
Total Split (%)	10.8%	45.3%		10.8%	45.3%		24.3%	24.3%	10.8%	24.3%	24.3%	10.8%	20%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	3.0		2.0	3.0		2.0	2.0	2.0	2.0	2.0	2.0	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	7.0		6.0	7.0			6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag				Lead			Lead	
Lead-Lag Optimize?													
Recall Mode	None	Min		None	Min		None	None	None	None	None	None	None
v/c Ratio	0.12	0.15			0.19			0.13	0.02		0.06	0.06	
Control Delay	32.3	7.8			9.8			31.9	0.2		31.4	0.5	
Queue Delay	0.0	0.0			0.0			0.0	0.0		0.0	0.0	
Total Delay	32.3	7.8			9.8			31.9	0.2		31.4	0.5	
Queue Length 50th (ft)	4	0			0			4	0		2	0	
Queue Length 95th (ft)	36	144			171			37	0		23	0	
Internal Link Dist (ft)		665			371			145			459		
Turn Bay Length (ft)	250											260	
Base Capacity (vph)	328	3312			3308			920	344		1009	369	
Starvation Cap Reductn	0	0			0			0	0		0	0	
Spillback Cap Reductn	0	0			0			0	0		0	0	
Storage Cap Reductn	0	0			0			0	0		0	0	
Reduced v/c Ratio	0.07	0.13			0.15			0.03	0.01		0.01	0.04	

Intersection Summary

Area Type: Other
Cycle Length: 148
Actuated Cycle Length: 59.2
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: AMC South Lot/AMC Main Driveway & Flutie Pass



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	20	410	0	0	465	5	20	1	5	10	0	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0			7.0			6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	0.95			0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00			1.00			1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00			1.00	1.00		1.00	1.00
Frt	1.00	1.00			1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00			1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1787	3574			3568			1591	1417		1736	1553
Flt Permitted	0.95	1.00			1.00			1.00	1.00		1.00	1.00
Satd. Flow (perm)	1787	3574			3568			1667	1417		1827	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	446	0	0	505	5	22	1	5	11	0	16
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	5	0	0	16
Lane Group Flow (vph)	22	446	0	0	510	0	0	23	0	0	11	0
Confl. Peds. (#/hr)	4		1	1		4						
Confl. Bikes (#/hr)			1			1						
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	14%	14%	14%	4%	4%	4%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Over	Perm	NA	Over
Protected Phases	5	2		1	6			7	1		7	5
Permitted Phases							7			7		
Actuated Green, G (s)	2.0	42.3			40.9			2.2	0.6		2.2	2.0
Effective Green, g (s)	2.0	42.3			40.9			2.2	0.6		2.2	2.0
Actuated g/C Ratio	0.03	0.59			0.57			0.03	0.01		0.03	0.03
Clearance Time (s)	6.0	7.0			7.0			6.0	6.0		6.0	6.0
Vehicle Extension (s)	2.0	4.0			4.0			2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	50	2120			2046			51	11		56	43
v/s Ratio Prot	c0.01	0.12			c0.14				0.00			0.00
v/s Ratio Perm								c0.01			0.01	
v/c Ratio	0.44	0.21			0.25			0.45	0.00		0.20	0.01
Uniform Delay, d1	34.1	6.7			7.6			34.0	35.1		33.7	33.7
Progression Factor	1.00	1.00			1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	2.2	0.1			0.1			2.3	0.1		0.6	0.0
Delay (s)	36.3	6.8			7.6			36.3	35.1		34.3	33.7
Level of Service	D	A			A			D	D		C	C
Approach Delay (s)		8.2			7.6			36.0			34.0	
Approach LOS		A			A			D			C	

Intersection Summary			
HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	71.3	Sum of lost time (s)	23.0
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		

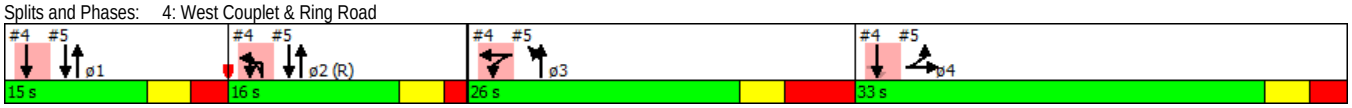
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR	ø1
Lane Configurations														
Volume (vph)	0	0	50	1	95	0	5	25	0	0	0	155	65	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Right Turn on Red			Yes			Yes				Yes			Yes	
Link Speed (mph)		30			30				30			30		
Link Distance (ft)		502			175				155			225		
Travel Time (s)		11.4			4.0				3.5			5.1		
Confl. Peds. (#/hr)								1					1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.96	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	2%	2%	2%	
Shared Lane Traffic (%)														
Lane Group Flow (vph)	0	0	54	0	104	0	0	32	0	0	0	229	0	
Turn Type			Perm	Split	NA		Prot	Prot				NA		
Protected Phases				3	3		2	2				1 4		1
Permitted Phases			4											
Detector Phase			4	3	3		2	2				1 4		
Switch Phase														
Minimum Initial (s)			10.0	10.0	10.0		10.0	10.0						5.0
Minimum Split (s)			15.6	22.8	22.8		14.6	14.6						16.5
Total Split (s)			33.0	26.0	26.0		16.0	16.0						15.0
Total Split (%)			36.7%	28.9%	28.9%		17.8%	17.8%						17%
Yellow Time (s)			3.0	3.0	3.0		3.0	3.0						3.0
All-Red Time (s)			2.6	4.8	4.8		1.6	1.6						2.5
Lost Time Adjust (s)			0.0		0.0			0.0						
Total Lost Time (s)			5.6		7.8			4.6						
Lead/Lag			Lag	Lead	Lead		Lag	Lag						Lead
Lead-Lag Optimize?														
Recall Mode			None	None	None		C-Min	C-Min						None
v/c Ratio			0.05		0.39			0.07				0.17		
Control Delay			0.1		7.3			26.7				11.7		
Queue Delay			0.0		0.2			0.0				0.0		
Total Delay			0.1		7.6			26.7				11.7		
Queue Length 50th (ft)			0		3			17				30		
Queue Length 95th (ft)			0		5			m49				45		
Internal Link Dist (ft)		422			95				75			145		
Turn Bay Length (ft)														
Base Capacity (vph)			1176		384			492				1341		
Starvation Cap Reductn			0		50			0				0		
Spillback Cap Reductn			0		0			0				0		
Storage Cap Reductn			0		0			0				0		
Reduced v/c Ratio			0.05		0.31			0.07				0.17		

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBL, Start of Green, Master Intersection
Natural Cycle: 70
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: West Couplet & Ring Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Volume (vph)	0	0	50	1	95	0	5	25	0	0	0	155	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.6		7.8			4.6				5.5	
Lane Util. Factor			1.00		1.00			1.00				0.95	
Frpb, ped/bikes			1.00		1.00			1.00				0.99	
Flpb, ped/bikes			1.00		1.00			1.00				1.00	
Frt			0.86		1.00			1.00				0.96	
Flt Protected			1.00		1.00			0.95				1.00	
Satd. Flow (prot)			1644		1899			1770				3357	
Flt Permitted			1.00		1.00			0.95				1.00	
Satd. Flow (perm)			1644		1899			1770				3357	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.96
Adj. Flow (vph)	0	0	54	1	103	0	5	27	0	0	0	161	68
RTOR Reduction (vph)	0	0	46	0	0	0	0	0	0	0	0	46	0
Lane Group Flow (vph)	0	0	8	0	104	0	0	32	0	0	0	183	0
Confl. Peds. (#/hr)								1					1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	2%	2%	2%
Turn Type			Perm	Split	NA		Prot	Prot				NA	
Protected Phases				3	3		2	2				1 4	
Permitted Phases			4										
Actuated Green, G (s)			13.4		12.7			25.0				34.4	
Effective Green, g (s)			13.4		12.7			25.0				28.8	
Actuated g/C Ratio			0.15		0.14			0.28				0.32	
Clearance Time (s)			5.6		7.8			4.6					
Vehicle Extension (s)			3.0		3.0			3.5					
Lane Grp Cap (vph)			244		267			491				1074	
v/s Ratio Prot					c0.05			c0.02				c0.05	
v/s Ratio Perm			0.00										
v/c Ratio			0.03		0.39			0.07				0.17	
Uniform Delay, d1			32.8		35.1			23.9				22.0	
Progression Factor			1.00		0.09			0.87				1.00	
Incremental Delay, d2			0.1		0.9			0.2				0.0	
Delay (s)			32.8		4.2			21.0				22.0	
Level of Service			C		A			C				C	
Approach Delay (s)		32.8			4.2				21.0			22.0	
Approach LOS		C			A				C			C	

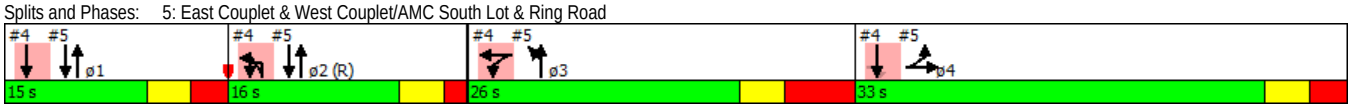
Intersection Summary			
HCM 2000 Control Delay	18.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.17		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	45.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	NBL	NBT	NBR	SBT	SBR	ø1	ø2
Lane Configurations										
Volume (vph)	215	3	5	95	355	5	515	1		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900		
Right Turn on Red			Yes			Yes				
Link Speed (mph)		30			30		30			
Link Distance (ft)		290			442		193			
Travel Time (s)		6.6			10.0		4.4			
Confl. Bikes (#/hr)								1		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%		
Shared Lane Traffic (%)	48%									
Lane Group Flow (vph)	122	120	0	103	391	0	549	0		
Turn Type	Split	NA		Prot	NA		NA			
Protected Phases	4	4		3	1 2 3		1 2		1	2
Permitted Phases										
Detector Phase	4	4		3	1 2 3		1 2			
Switch Phase										
Minimum Initial (s)	10.0	10.0		10.0					5.0	10.0
Minimum Split (s)	15.6	15.6		22.8					16.5	14.6
Total Split (s)	33.0	33.0		26.0					15.0	16.0
Total Split (%)	36.7%	36.7%		28.9%					17%	18%
Yellow Time (s)	3.0	3.0		3.0					3.0	3.0
All-Red Time (s)	2.6	2.6		4.8					2.5	1.6
Lost Time Adjust (s)	0.0	0.0		0.0						
Total Lost Time (s)	5.6	5.6		7.8						
Lead/Lag	Lag	Lag		Lead					Lead	Lag
Lead-Lag Optimize?										
Recall Mode	None	None		None					None	C-Min
v/c Ratio	0.48	0.47		0.41	0.15		0.30			
Control Delay	60.5	58.9		40.6	4.6		15.2			
Queue Delay	0.0	0.0		0.0	0.0		0.0			
Total Delay	60.5	58.9		40.6	4.6		15.2			
Queue Length 50th (ft)	78	75		55	28		87			
Queue Length 95th (ft)	m86	m84		103	71		162			
Internal Link Dist (ft)		210			362		113			
Turn Bay Length (ft)										
Base Capacity (vph)	522	523		365	2842		1804			
Starvation Cap Reductn	0	0		0	0		0			
Spillback Cap Reductn	0	0		0	0		0			
Storage Cap Reductn	0	0		0	0		0			
Reduced v/c Ratio	0.23	0.23		0.28	0.14		0.30			

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBL, Start of Green, Master Intersection
Natural Cycle: 70
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: East Couplet & West Couplet/AMC South Lot & Ring Road



Movement	EBL	EBT	EBR	NBL	NBT	NBR	SBT	SBR
Lane Configurations								
Volume (vph)	215	3	5	95	355	5	515	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6		7.8	5.5		5.5	
Lane Util. Factor	0.95	0.95		1.00	0.95		0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	
Frt	1.00	0.99		1.00	1.00		1.00	
Flt Protected	0.95	0.96		0.95	1.00		1.00	
Satd. Flow (prot)	1715	1714		1805	3603		3609	
Flt Permitted	0.95	0.96		0.95	1.00		1.00	
Satd. Flow (perm)	1715	1714		1805	3603		3609	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94
Adj. Flow (vph)	234	3	5	103	386	5	548	1
RTOR Reduction (vph)	0	3	0	0	1	0	0	0
Lane Group Flow (vph)	122	117	0	103	390	0	549	0
Confl. Bikes (#/hr)								1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Split	NA		Prot	NA		NA	
Protected Phases	4	4		3	1 2 3		1 2	
Permitted Phases								
Actuated Green, G (s)	13.4	13.4		12.7	63.2		45.9	
Effective Green, g (s)	13.4	13.4		12.7	58.6		45.9	
Actuated g/C Ratio	0.15	0.15		0.14	0.65		0.51	
Clearance Time (s)	5.6	5.6		7.8				
Vehicle Extension (s)	3.0	3.0		3.0				
Lane Grp Cap (vph)	255	255		254	2345		1840	
v/s Ratio Prot	c0.07	0.07		c0.06	0.11		c0.15	
v/s Ratio Perm								
v/c Ratio	0.48	0.46		0.41	0.17		0.30	
Uniform Delay, d1	35.1	35.0		35.2	6.1		12.7	
Progression Factor	1.59	1.60		1.05	1.08		1.00	
Incremental Delay, d2	1.4	1.3		1.0	0.0		0.0	
Delay (s)	57.1	57.3		37.9	6.7		12.8	
Level of Service	E	E		D	A		B	
Approach Delay (s)		57.2			13.2		12.8	
Approach LOS		E			B		B	

Intersection Summary			
HCM 2000 Control Delay	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Volume (vph)	0	1750	45	30	35	2270	455	85	0	50	480	30	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0		280		280	0		90	0		0
Storage Lanes	0		0		1		1	1		1	1		0
Taper Length (ft)	25				25			25			25		
Right Turn on Red			Yes				Yes			Yes			Yes
Link Speed (mph)		30				30			30			30	
Link Distance (ft)		587				872			428			442	
Travel Time (s)		13.3				19.8			9.7			10.0	
Confl. Peds. (#/hr)	3		2		2		3						
Confl. Bikes (#/hr)			2										1
Peak Hour Factor	0.93	0.93	0.93	0.96	0.96	0.96	0.96	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Shared Lane Traffic (%)											46%		
Lane Group Flow (vph)	0	1930	0	0	67	2365	474	92	0	54	282	284	0
Turn Type		NA		Prot	Prot	NA	Prot	D.Pm		Prot	Perm	NA	
Protected Phases		2		1	1	1 2	1 2			3		3	
Permitted Phases								3			3		
Detector Phase		2		1	1	1 2	1 2	3		3	3	3	
Switch Phase													
Minimum Initial (s)		15.0		5.0	5.0			5.0		5.0	5.0	5.0	
Minimum Split (s)		21.0		10.5	10.5			11.5		11.5	11.5	11.5	
Total Split (s)		40.0		16.0	16.0			34.0		34.0	34.0	34.0	
Total Split (%)		44.4%		17.8%	17.8%			37.8%		37.8%	37.8%	37.8%	
Yellow Time (s)		3.0		3.0	3.0			3.0		3.0	3.0	3.0	
All-Red Time (s)		3.0		2.5	2.5			3.5		3.5	3.5	3.5	
Lost Time Adjust (s)		0.0			0.0			0.0		0.0	0.0	0.0	
Total Lost Time (s)		6.0			5.5			6.5		6.5	6.5	6.5	
Lead/Lag		Lag		Lead	Lead								
Lead-Lag Optimize?													
Recall Mode		C-Min		None	None			None		None	None	None	
v/c Ratio		0.99			0.19	0.71	0.39	0.61		0.12	0.74	0.74	
Control Delay		45.1			34.8	13.0	1.9	47.8		1.5	36.1	35.8	
Queue Delay		0.0			0.0	0.2	0.0	7.3		0.0	0.0	0.0	
Total Delay		45.1			34.8	13.1	1.9	55.1		1.5	36.1	35.8	
Queue Length 50th (ft)		390			32	289	0	47		0	171	171	
Queue Length 95th (ft)		#485			76	439	41	91		6	269	269	
Internal Link Dist (ft)		507				792			348			362	
Turn Bay Length (ft)					280		280			90			
Base Capacity (vph)		1953			362	3346	1210	207		560	524	526	
Starvation Cap Reductn		0			0	0	0	0		0	0	0	
Spillback Cap Reductn		0			0	230	0	77		0	0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	0	
Reduced v/c Ratio		0.99			0.19	0.76	0.39	0.71		0.10	0.54	0.54	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 56 (62%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Michael's Driveway/East Couplet & Route 9 (Worcester Street)

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Volume (vph)	0	1750	45	30	35	2270	455	85	0	50	480	30	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			5.5	5.5	5.5	6.5		6.5	6.5	6.5	
Lane Util. Factor		0.91			1.00	0.91	1.00	1.00		1.00	0.95	0.95	
Frpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt		1.00			1.00	1.00	0.85	1.00		0.85	1.00	0.99	
Flt Protected		1.00			0.95	1.00	1.00	0.95		1.00	0.95	0.96	
Satd. Flow (prot)		5164			1805	5187	1615	1787		1599	1715	1721	
Flt Permitted		1.00			0.95	1.00	1.00	0.36		1.00	0.95	0.96	
Satd. Flow (perm)		5164			1805	5187	1615	679		1599	1715	1721	
Peak-hour factor, PHF	0.93	0.93	0.93	0.96	0.96	0.96	0.96	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1882	48	31	36	2365	474	92	0	54	522	33	11
RTOR Reduction (vph)	0	3	0	0	0	0	171	0	0	42	0	2	0
Lane Group Flow (vph)	0	1927	0	0	67	2365	303	92	0	12	282	282	0
Confl. Peds. (#/hr)	3		2		2		3						
Confl. Bikes (#/hr)			2										1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Turn Type		NA		Prot	Prot	NA	Prot	D.Pm		Prot	Perm	NA	
Protected Phases		2		1	1	1 2	1 2			3		3	
Permitted Phases								3			3		
Actuated Green, G (s)		34.0			18.1	57.6	57.6	19.9		19.9	19.9	19.9	
Effective Green, g (s)		34.0			18.1	57.6	57.6	19.9		19.9	19.9	19.9	
Actuated g/C Ratio		0.38			0.20	0.64	0.64	0.22		0.22	0.22	0.22	
Clearance Time (s)		6.0			5.5			6.5		6.5	6.5	6.5	
Vehicle Extension (s)		3.5			2.0			2.0		2.0	2.0	2.0	
Lane Grp Cap (vph)		1950			363	3319	1033	150		353	379	380	
v/s Ratio Prot		c0.37			0.04	c0.46	0.19			0.01			
v/s Ratio Perm								0.14			c0.16	0.16	
v/c Ratio		0.99			0.18	0.71	0.29	0.61		0.03	0.74	0.74	
Uniform Delay, d1		27.8			29.8	10.7	7.2	31.6		27.5	32.7	32.7	
Progression Factor		0.97			1.00	1.00	1.00	1.00		1.00	0.76	0.76	
Incremental Delay, d2		17.3			0.1	0.6	0.1	5.1		0.0	6.6	6.6	
Delay (s)		44.2			29.9	11.3	7.2	36.7		27.5	31.4	31.3	
Level of Service		D			C	B	A	D		C	C	C	
Approach Delay (s)		44.2				11.1			33.3			31.4	
Approach LOS		D				B			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	SWL	SWR	ø1	ø3
Lane Configurations								
Volume (vph)	235	1660	2350	15	0	210		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Storage Length (ft)	335			0	0	0		
Storage Lanes	2			0	0	2		
Taper Length (ft)	25				25			
Right Turn on Red				Yes		Yes		
Link Speed (mph)		30	30		30			
Link Distance (ft)		938	587		277			
Travel Time (s)		21.3	13.3		6.3			
Confl. Peds. (#/hr)	2			2				
Peak Hour Factor	0.92	0.92	0.93	0.93	0.93	0.93		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	255	1804	2543	0	0	226		
Turn Type	Prot	NA	NA			pt+ov		
Protected Phases	1 3	1 2	2			1 3	1	3
Permitted Phases								
Detector Phase	1	1 2	2			1		
Switch Phase								
Minimum Initial (s)			15.0				5.0	5.0
Minimum Split (s)			20.6				10.4	22.6
Total Split (s)			56.0				17.0	17.0
Total Split (%)			62.2%				19%	19%
Yellow Time (s)			3.2				3.2	3.2
All-Red Time (s)			2.4				2.2	3.4
Lost Time Adjust (s)			0.0					
Total Lost Time (s)			5.6					
Lead/Lag			Lag				Lead	
Lead-Lag Optimize?								
Recall Mode			C-Min				None	None
v/c Ratio	0.26	0.37	0.82			0.28		
Control Delay	25.0	1.3	26.9			17.7		
Queue Delay	0.0	0.0	2.9			0.0		
Total Delay	25.0	1.3	29.8			17.7		
Queue Length 50th (ft)	54	0	568			28		
Queue Length 95th (ft)	84	138	620			52		
Internal Link Dist (ft)		858	507		197			
Turn Bay Length (ft)	335							
Base Capacity (vph)	980	4929	3098			798		
Starvation Cap Reductn	0	0	436			0		
Spillback Cap Reductn	0	0	0			0		
Storage Cap Reductn	0	0	0			0		
Reduced v/c Ratio	0.26	0.37	0.96			0.28		

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 78 (87%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 7: Route 9 (Worcester Street) & West Couplet

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Volume (vph)	235	1660	2350	15	0	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.4	5.4	5.6			5.4
Lane Util. Factor	0.97	0.91	0.91			0.88
Frpb, ped/bikes	1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	1.00	1.00			0.85
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3502	5187	5182			2842
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3502	5187	5182			2842
Peak-hour factor, PHF	0.92	0.92	0.93	0.93	0.93	0.93
Adj. Flow (vph)	255	1804	2527	16	0	226
RTOR Reduction (vph)	0	0	1	0	0	2
Lane Group Flow (vph)	255	1804	2542	0	0	224
Confl. Peds. (#/hr)	2			2		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	NA			pt+ov
Protected Phases	1 3	1 2	2			1 3
Permitted Phases						
Actuated Green, G (s)	30.5	75.7	48.5			30.5
Effective Green, g (s)	23.9	75.7	48.5			23.9
Actuated g/C Ratio	0.27	0.84	0.54			0.27
Clearance Time (s)			5.6			
Vehicle Extension (s)			3.5			
Lane Grp Cap (vph)	929	4362	2792			754
v/s Ratio Prot	0.07	c0.35	c0.49			c0.08
v/s Ratio Perm						
v/c Ratio	0.27	0.41	0.91			0.30
Uniform Delay, d1	26.2	1.7	18.8			26.4
Progression Factor	1.00	1.00	1.62			0.70
Incremental Delay, d2	0.1	0.0	4.3			0.1
Delay (s)	26.2	1.8	34.7			18.5
Level of Service	C	A	C			B
Approach Delay (s)		4.8	34.7		18.5	
Approach LOS		A	C		B	

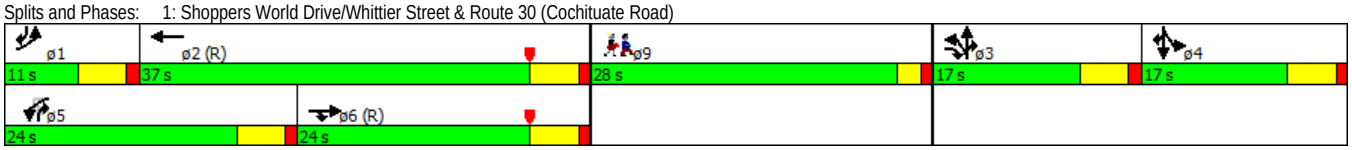
Intersection Summary			
HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.6
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Lane Configurations														
Volume (vph)	55	830	215	50	420	1050	265	225	350	195	380	470	90	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	250		250		300		0	300		0	200		200	
Storage Lanes	1		2		1		0	1		1	1		2	
Taper Length (ft)	25				25			25			25			
Right Turn on Red			Yes				Yes			No			Yes	
Link Speed (mph)		30				30			30			30		
Link Distance (ft)		941				1103			1733			939		
Travel Time (s)		21.4				25.1			39.4			21.3		
Confl. Peds. (#/hr)	3		1		1		3	3					3	
Confl. Bikes (#/hr)			1							1				
Peak Hour Factor	0.96	0.96	0.96	0.93	0.93	0.93	0.93	0.94	0.94	0.94	0.97	0.97	0.97	
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%	
Shared Lane Traffic (%)											27%			
Lane Group Flow (vph)	57	865	224	0	506	1414	0	0	611	207	286	591	93	
Turn Type	Prot	NA	pt+ov	custom	Prot	NA		Split	NA	pt+ov	Split	NA	pt+ov	
Protected Phases	1	6	3 6		5	2		3	3	3 5!	4	4	1 4	9
Permitted Phases				5!										
Detector Phase	1	6	3 6	5	5	2		3	3	3 5	4	4	1 4	
Switch Phase														
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0		6.0	6.0		6.0	6.0		4.0
Minimum Split (s)	11.0	11.0		11.0	11.0	11.0		11.0	11.0		11.0	11.0		28.0
Total Split (s)	11.0	24.0		24.0	24.0	37.0		17.0	17.0		17.0	17.0		28.0
Total Split (%)	10.0%	21.8%		21.8%	21.8%	33.6%		15.5%	15.5%		15.5%	15.5%		25%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	4.0		2.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0		1.0	1.0		1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0			0.0		0.0	0.0		
Total Lost Time (s)	5.0	5.0			5.0	5.0			5.0		5.0	5.0		
Lead/Lag	Lead	Lag		Lead	Lead	Lag		Lead	Lead		Lag	Lag		
Lead-Lag Optimize?														
Recall Mode	None	C-Max		None	None	C-Max		None	None		None	None		None
v/c Ratio	0.48	1.21	0.20		7.44	1.31			1.58	0.45	0.62	0.61	0.13	
Control Delay	63.5	144.6	2.7		2936.6	178.5			307.9	21.7	43.7	39.5	1.5	
Queue Delay	0.0	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	0.0	
Total Delay	63.5	144.6	2.7		2936.6	178.5			307.9	21.7	43.7	39.5	1.5	
Queue Length 50th (ft)	39	~352	0		~665	~644			~323	62	185	192	0	
Queue Length 95th (ft)	#98	#557	17		#875	#835			#439	135	#505	#447	10	
Internal Link Dist (ft)		861				1023			1653			859		
Turn Bay Length (ft)	250		250		300						200		200	
Base Capacity (vph)	119	717	1119		68	1080			386	455	463	966	725	
Starvation Cap Reductn	0	0	0		0	0			0	0	0	0	0	
Spillback Cap Reductn	0	0	0		0	0			0	0	0	0	0	
Storage Cap Reductn	0	0	0		0	0			0	0	0	0	0	
Reduced v/c Ratio	0.48	1.21	0.20		7.44	1.31			1.58	0.45	0.62	0.61	0.13	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow, Master Intersection
Natural Cycle: 100
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
! Phase conflict between lane groups.

Splits and Phases: 1: Shoppers World Drive/Whittier Street & Route 30 (Cochituate Road)



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Volume (vph)	55	830	215	50	420	1050	265	225	350	195	380	470	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		5.0	5.0			5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	0.88		1.00	0.95			0.95	1.00	0.91	0.91	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	0.97			1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00			0.98	1.00	0.95	0.99	1.00
Satd. Flow (prot)	1787	3574	2814		1787	3456			3541	1615	1626	3393	1599
Flt Permitted	0.95	1.00	1.00		0.21	1.00			0.98	1.00	0.95	0.99	1.00
Satd. Flow (perm)	1787	3574	2814		396	3456			3541	1615	1626	3393	1599
Peak-hour factor, PHF	0.96	0.96	0.96	0.93	0.93	0.93	0.93	0.94	0.94	0.94	0.97	0.97	0.97
Adj. Flow (vph)	57	865	224	54	452	1129	285	239	372	207	392	485	93
RTOR Reduction (vph)	0	0	159	0	0	21	0	0	0	0	0	0	56
Lane Group Flow (vph)	57	865	65	0	506	1393	0	0	611	207	286	591	37
Confl. Peds. (#/hr)	3		1		1		3	3					3
Confl. Bikes (#/hr)			1							1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Prot	NA	pt+ov	custom	Prot	NA		Split	NA	pt+ov	Split	NA	pt+ov
Protected Phases	1	6	3 6		5	2		3	3	3 5!	4	4	1 4
Permitted Phases				5!									
Actuated Green, G (s)	7.3	19.7	31.7		19.0	31.4			12.0	31.0	31.3	31.3	43.6
Effective Green, g (s)	7.3	19.7	31.7		19.0	31.4			12.0	31.0	31.3	31.3	43.6
Actuated g/C Ratio	0.07	0.18	0.29		0.17	0.29			0.11	0.28	0.28	0.28	0.40
Clearance Time (s)	5.0	5.0			5.0	5.0			5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0			2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	118	640	810		68	986			386	455	462	965	633
v/s Ratio Prot	0.03	0.24	0.02			c0.40			c0.17	0.13	c0.18	0.17	0.02
v/s Ratio Perm					c1.28								
v/c Ratio	0.48	1.35	0.08		7.44	1.41			1.58	0.45	0.62	0.61	0.06
Uniform Delay, d1	49.5	45.1	28.5		45.5	39.3			49.0	32.5	34.2	34.1	20.5
Progression Factor	1.00	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	168.4	0.0		2928.8	191.9			274.4	0.3	1.7	0.8	0.0
Delay (s)	50.7	213.5	28.5		2974.3	231.2			323.4	32.8	35.9	34.9	20.5
Level of Service	D	F	C		F	F			F	C	D	C	C
Approach Delay (s)		169.3				954.1			249.9			33.8	
Approach LOS		F				F			F			C	

Intersection Summary			
HCM 2000 Control Delay	466.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.42		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	97.9%	ICU Level of Service	F
Analysis Period (min)	15		

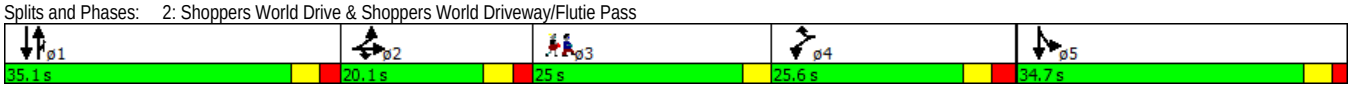
! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø3
Lane Configurations													
Volume (vph)	50	130	140	245	0	620	0	450	250	475	555	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0		0	120		0	0		125	120		0	
Storage Lanes	1		1	1		1	0		2	2		0	
Taper Length (ft)	25			25			25			25			
Right Turn on Red			Yes			Yes			Yes			Yes	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		732			745			212			1733		
Travel Time (s)		16.6			16.9			4.8			39.4		
Confl. Peds. (#/hr)	9					9							
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.98	0.98	0.98	0.94	0.94	0.94	
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	54	141	152	266	0	674	0	459	255	505	590	0	
Turn Type	Split	NA	Prot	Prot		Prot		NA	Prot	Prot	NA		
Protected Phases	2	2	2	4		4		1	1	5	1 5		3
Permitted Phases													
Detector Phase	2	2	2	4		4		1	1	5	1 5		
Switch Phase													
Minimum Initial (s)	5.0	5.0	5.0	5.0		5.0		15.0	15.0	5.0			4.0
Minimum Split (s)	10.1	10.1	10.1	10.6		10.6		20.1	20.1	9.7			25.0
Total Split (s)	20.1	20.1	20.1	25.6		25.6		35.1	35.1	34.7			25.0
Total Split (%)	14.3%	14.3%	14.3%	18.2%		18.2%		25.0%	25.0%	24.7%			18%
Yellow Time (s)	3.0	3.0	3.0	3.0		3.0		3.0	3.0	3.0			3.0
All-Red Time (s)	2.1	2.1	2.1	2.6		2.6		2.1	2.1	1.7			0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0			
Total Lost Time (s)	5.1	5.1	5.1	5.6		5.6		5.1	5.1	4.7			
Lead/Lag	Lag	Lag	Lag	Lag		Lag		Lead	Lead				Lead
Lead-Lag Optimize?													
Recall Mode	None	None	None	None		None		Min	Min	None			None
v/c Ratio	0.25	0.61	0.46	0.58		0.85		0.49	0.28	0.65	0.31		
Control Delay	49.0	57.9	13.3	48.7		14.9		35.3	9.8	41.6	14.7		
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0		
Total Delay	49.0	57.9	13.3	48.7		14.9		35.3	9.8	41.6	14.7		
Queue Length 50th (ft)	30	81	0	79		0		116	11	143	88		
Queue Length 95th (ft)	92	#217	68	165		147		260	61	284	227		
Internal Link Dist (ft)		652			665			132			1653		
Turn Bay Length (ft)				120					125	120			
Base Capacity (vph)	294	309	390	753		875		1165	1056	1130	2142		
Starvation Cap Reductn	0	0	0	0		0		0	0	0	0		
Spillback Cap Reductn	0	0	0	0		0		0	0	0	0		
Storage Cap Reductn	0	0	0	0		0		0	0	0	0		
Reduced v/c Ratio	0.18	0.46	0.39	0.35		0.77		0.39	0.24	0.45	0.28		

Intersection Summary

Area Type: Other
Cycle Length: 140.5
Actuated Cycle Length: 98
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Shoppers World Drive & Shoppers World Driveway/Flutie Pass



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	130	140	245	0	620	0	450	250	475	555	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.1	5.6		5.6		5.1	5.1	4.7	5.1	
Lane Util. Factor	1.00	1.00	1.00	0.97		1.00		0.95	0.88	0.97	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1900	1615	3467		1599		3574	2814	3467	3574	
Flt Permitted	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1805	1900	1615	3467		1599		3574	2814	3467	3574	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.98	0.98	0.98	0.94	0.94	0.94
Adj. Flow (vph)	54	141	152	266	0	674	0	459	255	505	590	0
RTOR Reduction (vph)	0	0	134	0	0	586	0	0	152	0	0	0
Lane Group Flow (vph)	54	141	18	266	0	88	0	459	103	505	590	0
Confl. Peds. (#/hr)	9					9						
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Split	NA	Prot	Prot		Prot		NA	Prot	Prot	NA	
Protected Phases	2	2	2	4		4		1	1	5	1 5	
Permitted Phases												
Actuated Green, G (s)	11.9	11.9	11.9	13.0		13.0		25.9	25.9	21.8	52.4	
Effective Green, g (s)	11.9	11.9	11.9	13.0		13.0		25.9	25.9	21.8	47.7	
Actuated g/C Ratio	0.12	0.12	0.12	0.13		0.13		0.26	0.26	0.22	0.48	
Clearance Time (s)	5.1	5.1	5.1	5.6		5.6		5.1	5.1	4.7		
Vehicle Extension (s)	2.0	2.0	2.0	2.0		2.0		3.5	3.5	2.0		
Lane Grp Cap (vph)	216	227	193	454		209		933	734	761	1718	
v/s Ratio Prot	0.03	c0.07	0.01	c0.08		0.06		c0.13	0.04	c0.15	0.17	
v/s Ratio Perm												
v/c Ratio	0.25	0.62	0.09	0.59		0.42		0.49	0.14	0.66	0.34	
Uniform Delay, d1	39.6	41.5	38.9	40.6		39.6		31.1	28.1	35.4	16.0	
Progression Factor	1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	3.8	0.1	1.2		0.5		0.5	0.1	1.7	0.1	
Delay (s)	39.8	45.3	38.9	41.8		40.2		31.6	28.2	37.0	16.2	
Level of Service	D	D	D	D		D		C	C	D	B	
Approach Delay (s)		41.6			40.6			30.4			25.8	
Approach LOS		D			D			C			C	

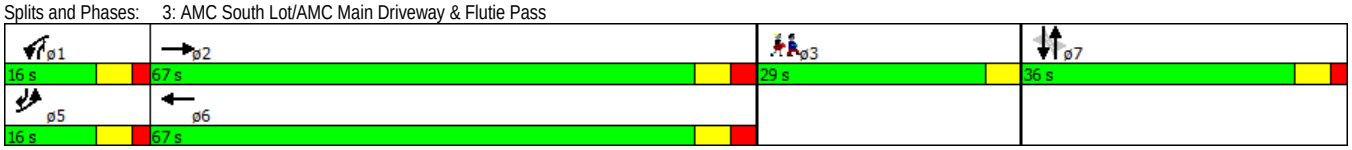
Intersection Summary			
HCM 2000 Control Delay	33.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	99.2	Sum of lost time (s)	23.5
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø3
Lane Configurations													
Volume (vph)	140	715	5	1	675	20	15	2	10	60	0	105	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	250		0	100		200	0		0	0		260	
Storage Lanes	1		0	1		1	0		1	0		1	
Taper Length (ft)	25			25			25			25			
Right Turn on Red			Yes			Yes			Yes			Yes	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		451			451			225			539		
Travel Time (s)		16.9			10.3			5.1			12.3		
Confl. Peds. (#/hr)	13					13							
Confl. Bikes (#/hr)						1							
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	9%	9%	9%	1%	1%	1%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	152	782	0	1	756	0	0	18	11	0	65	114	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Over	Perm	NA	Over	
Protected Phases	5	2		1	6			7	1		7	5	3
Permitted Phases							7			7			
Detector Phase	5	2		1	6		7	7	1	7	7	5	
Switch Phase													
Minimum Initial (s)	5.0	30.0		5.0	30.0		5.0	5.0	5.0	5.0	5.0	5.0	4.0
Minimum Split (s)	11.0	37.0		11.0	37.0		11.0	11.0	11.0	11.0	11.0	11.0	29.0
Total Split (s)	16.0	67.0		16.0	67.0		36.0	36.0	16.0	36.0	36.0	16.0	29.0
Total Split (%)	10.8%	45.3%		10.8%	45.3%		24.3%	24.3%	10.8%	24.3%	24.3%	10.8%	20%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	3.0		2.0	3.0		2.0	2.0	2.0	2.0	2.0	2.0	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	7.0		6.0	7.0			6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag				Lead			Lead	
Lead-Lag Optimize?													
Recall Mode	None	Min		None	Min		None	None	None	None	None	None	None
v/c Ratio	0.58	0.32		0.01	0.47			0.13	0.05		0.41	0.35	
Control Delay	44.8	10.1		42.0	17.9			36.9	0.5		42.5	11.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0	
Total Delay	44.8	10.1		42.0	17.9			36.9	0.5		42.5	11.9	
Queue Length 50th (ft)	59	53		0	107			7	0		25	0	
Queue Length 95th (ft)	#237	283		6	294			34	0		88	55	
Internal Link Dist (ft)		665			371			145			459		
Turn Bay Length (ft)	250			100								260	
Base Capacity (vph)	260	3027		260	3014			535	303		613	330	
Starvation Cap Reductn	0	0		0	0			0	0		0	0	
Spillback Cap Reductn	0	0		0	0			0	0		0	0	
Storage Cap Reductn	0	0		0	0			0	0		0	0	
Reduced v/c Ratio	0.58	0.26		0.00	0.25			0.03	0.04		0.11	0.35	

Intersection Summary

Area Type: Other
Cycle Length: 148
Actuated Cycle Length: 72.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: AMC South Lot/AMC Main Driveway & Flutie Pass



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	140	715	5	1	675	20	15	2	10	60	0	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0		6.0	7.0			6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.95	1.00
Satd. Flow (prot)	1787	3571		1787	3555			1669	1482		1787	1599
Flt Permitted	0.95	1.00		0.95	1.00			0.70	1.00		0.75	1.00
Satd. Flow (perm)	1787	3571		1787	3555			1226	1482		1403	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	152	777	5	1	734	22	16	2	11	65	0	114
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	11	0	0	99
Lane Group Flow (vph)	152	782	0	1	755	0	0	18	0	0	65	15
Confl. Peds. (#/hr)	13					13						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	9%	9%	9%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Over	Perm	NA	Over
Protected Phases	5	2		1	6			7	1		7	5
Permitted Phases							7			7		
Actuated Green, G (s)	10.6	48.6		0.7	38.7			6.9	0.7		6.9	10.6
Effective Green, g (s)	10.6	48.6		0.7	38.7			6.9	0.7		6.9	10.6
Actuated g/C Ratio	0.13	0.59		0.01	0.47			0.08	0.01		0.08	0.13
Clearance Time (s)	6.0	7.0		6.0	7.0			6.0	6.0		6.0	6.0
Vehicle Extension (s)	2.0	4.0		2.0	4.0			2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	229	2103		15	1667			102	12		117	205
v/s Ratio Prot	c0.09	0.22		0.00	c0.21				0.00			0.01
v/s Ratio Perm								0.01			c0.05	
v/c Ratio	0.66	0.37		0.07	0.45			0.18	0.01		0.56	0.07
Uniform Delay, d1	34.3	8.9		40.6	14.8			35.2	40.6		36.3	31.6
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	5.5	0.2		0.7	0.3			0.3	0.1		3.2	0.1
Delay (s)	39.8	9.1		41.3	15.0			35.5	40.6		39.5	31.7
Level of Service	D	A		D	B			D	D		D	C
Approach Delay (s)		14.1			15.1			37.4			34.5	
Approach LOS		B			B			D			C	

Intersection Summary			
HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	82.5	Sum of lost time (s)	23.0
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

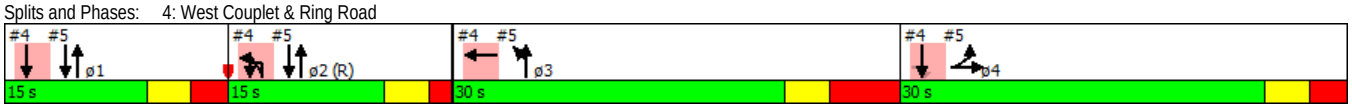
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR	ø1
Lane Configurations														
Volume (vph)	0	0	115	0	175	0	5	75	0	0	0	220	130	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Right Turn on Red			Yes			Yes				Yes			Yes	
Link Speed (mph)		30			30				30			30		
Link Distance (ft)		502			175				155			225		
Travel Time (s)		11.4			4.0				3.5			5.1		
Confl. Peds. (#/hr)			1	1			1	1					1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	
Shared Lane Traffic (%)														
Lane Group Flow (vph)	0	0	125	0	190	0	0	87	0	0	0	380	0	
Turn Type			Perm		NA		Prot	Prot				NA		
Protected Phases					3		2	2				1 4		1
Permitted Phases			4											
Detector Phase			4		3		2	2				1 4		
Switch Phase														
Minimum Initial (s)			10.0		10.0		10.0	10.0						5.0
Minimum Split (s)			15.6		22.8		14.6	14.6						16.5
Total Split (s)			30.0		30.0		15.0	15.0						15.0
Total Split (%)			33.3%		33.3%		16.7%	16.7%						17%
Yellow Time (s)			3.0		3.0		3.0	3.0						3.0
All-Red Time (s)			2.6		4.8		1.6	1.6						2.5
Lost Time Adjust (s)			0.0		0.0			0.0						
Total Lost Time (s)			5.6		7.8			4.6						
Lead/Lag			Lag		Lead		Lag	Lag						Lead
Lead-Lag Optimize?														
Recall Mode			None		None		C-Min	C-Min						None
v/c Ratio			0.12		0.54			0.25				0.26		
Control Delay			0.2		8.2			33.3				10.2		
Queue Delay			0.0		0.2			0.0				0.0		
Total Delay			0.2		8.4			33.3				10.2		
Queue Length 50th (ft)			0		5			54				37		
Queue Length 95th (ft)			0		6			m100				70		
Internal Link Dist (ft)		422			95				75			145		
Turn Bay Length (ft)														
Base Capacity (vph)			1129		468			348				1472		
Starvation Cap Reductn			0		30			0				0		
Spillback Cap Reductn			0		0			0				0		
Storage Cap Reductn			0		0			0				0		
Reduced v/c Ratio			0.11		0.43			0.25				0.26		

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBL, Start of Green, Master Intersection
Natural Cycle: 70
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: West Couplet & Ring Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Volume (vph)	0	0	115	0	175	0	5	75	0	0	0	220	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			5.6		7.8			4.6				5.5	
Lane Util. Factor			1.00		1.00			1.00				0.95	
Frpb, ped/bikes			0.99		1.00			1.00				0.99	
Flpb, ped/bikes			1.00		1.00			1.00				1.00	
Frt			0.86		1.00			1.00				0.94	
Flt Protected			1.00		1.00			0.95				1.00	
Satd. Flow (prot)			1621		1900			1787				3345	
Flt Permitted			1.00		1.00			0.95				1.00	
Satd. Flow (perm)			1621		1900			1787				3345	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	125	0	190	0	5	82	0	0	0	239	141
RTOR Reduction (vph)	0	0	101	0	0	0	0	0	0	0	0	91	0
Lane Group Flow (vph)	0	0	24	0	190	0	0	87	0	0	0	289	0
Confl. Peds. (#/hr)			1	1			1	1					1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%
Turn Type			Perm		NA		Prot	Prot				NA	
Protected Phases					3		2	2				1 4	
Permitted Phases			4										
Actuated Green, G (s)			17.4		16.7			17.6				37.8	
Effective Green, g (s)			17.4		16.7			17.6				32.2	
Actuated g/C Ratio			0.19		0.19			0.20				0.36	
Clearance Time (s)			5.6		7.8			4.6					
Vehicle Extension (s)			3.0		3.0			3.5					
Lane Grp Cap (vph)			313		352			349				1196	
v/s Ratio Prot					c0.10			c0.05				c0.09	
v/s Ratio Perm			0.01										
v/c Ratio			0.08		0.54			0.25				0.24	
Uniform Delay, d1			29.7		33.2			30.6				20.3	
Progression Factor			1.00		0.09			0.88				1.00	
Incremental Delay, d2			0.1		1.5			1.6				0.0	
Delay (s)			29.8		4.4			28.6				20.4	
Level of Service			C		A			C				C	
Approach Delay (s)		29.8			4.4				28.6			20.4	
Approach LOS		C			A				C			C	

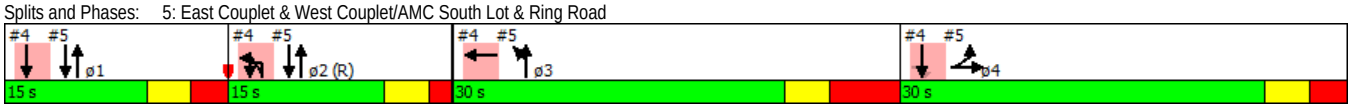
Intersection Summary			
HCM 2000 Control Delay	18.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	38.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	NBL	NBT	NBR	SBT	ø1	ø2
Lane Configurations									
Volume (vph)	335	2	5	175	365	1	590		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900		
Right Turn on Red			Yes			Yes			
Link Speed (mph)		30			30		30		
Link Distance (ft)		290			442		193		
Travel Time (s)		6.6			10.0		4.4		
Confl. Peds. (#/hr)				1					
Peak Hour Factor	0.96	0.96	0.96	0.92	0.92	0.92	0.92		
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	1%		
Shared Lane Traffic (%)	49%								
Lane Group Flow (vph)	178	178	0	190	398	0	641		
Turn Type	Split	NA		Prot	NA		NA		
Protected Phases	4	4		3	1 2 3		1 2	1	2
Permitted Phases									
Detector Phase	4	4		3	1 2 3		1 2		
Switch Phase									
Minimum Initial (s)	10.0	10.0		10.0				5.0	10.0
Minimum Split (s)	15.6	15.6		22.8				16.5	14.6
Total Split (s)	30.0	30.0		30.0				15.0	15.0
Total Split (%)	33.3%	33.3%		33.3%				17%	17%
Yellow Time (s)	3.0	3.0		3.0				3.0	3.0
All-Red Time (s)	2.6	2.6		4.8				2.5	1.6
Lost Time Adjust (s)	0.0	0.0		0.0					
Total Lost Time (s)	5.6	5.6		7.8					
Lead/Lag	Lag	Lag		Lead				Lead	Lag
Lead-Lag Optimize?									
Recall Mode	None	None		None				None	C-Min
v/c Ratio	0.54	0.54		0.57	0.16		0.44		
Control Delay	38.4	37.9		38.4	5.6		22.6		
Queue Delay	0.0	0.0		0.0	0.0		0.0		
Total Delay	38.4	37.9		38.4	5.6		22.6		
Queue Length 50th (ft)	88	87		98	36		136		
Queue Length 95th (ft)	m56	m55		157	73		229		
Internal Link Dist (ft)		210			362		113		
Turn Bay Length (ft)									
Base Capacity (vph)	460	461		445	2686		1468		
Starvation Cap Reductn	0	0		0	0		0		
Spillback Cap Reductn	0	0		0	0		0		
Storage Cap Reductn	0	0		0	0		0		
Reduced v/c Ratio	0.39	0.39		0.43	0.15		0.44		

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBL, Start of Green, Master Intersection
Natural Cycle: 70
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: East Couplet & West Couplet/AMC South Lot & Ring Road



Movement	EBL	EBT	EBR	NBL	NBT	NBR	SBT
Lane Configurations							
Volume (vph)	335	2	5	175	365	1	590
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6		7.8	5.5		5.5
Lane Util. Factor	0.95	0.95		1.00	0.95		0.95
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00
Frt	1.00	1.00		1.00	1.00		1.00
Flt Protected	0.95	0.95		0.95	1.00		1.00
Satd. Flow (prot)	1698	1698		1805	3609		3574
Flt Permitted	0.95	0.95		0.95	1.00		1.00
Satd. Flow (perm)	1698	1698		1805	3609		3574
Peak-hour factor, PHF	0.96	0.96	0.96	0.92	0.92	0.92	0.92
Adj. Flow (vph)	349	2	5	190	397	1	641
RTOR Reduction (vph)	0	2	0	0	0	0	0
Lane Group Flow (vph)	178	176	0	190	398	0	641
Confl. Peds. (#/hr)				1			
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	1%
Turn Type	Split	NA		Prot	NA		NA
Protected Phases	4	4		3	1 2 3		1 2
Permitted Phases							
Actuated Green, G (s)	17.4	17.4		16.7	59.2		37.9
Effective Green, g (s)	17.4	17.4		16.7	54.6		37.9
Actuated g/C Ratio	0.19	0.19		0.19	0.61		0.42
Clearance Time (s)	5.6	5.6		7.8			
Vehicle Extension (s)	3.0	3.0		3.0			
Lane Grp Cap (vph)	328	328		334	2189		1505
v/s Ratio Prot	c0.10	0.10		c0.11	0.11		c0.18
v/s Ratio Perm							
v/c Ratio	0.54	0.54		0.57	0.18		0.43
Uniform Delay, d1	32.7	32.7		33.4	7.8		18.4
Progression Factor	1.03	1.03		0.99	0.94		1.00
Incremental Delay, d2	1.8	1.6		2.0	0.0		0.1
Delay (s)	35.4	35.3		35.1	7.4		18.4
Level of Service	D	D		D	A		B
Approach Delay (s)		35.3			16.3		18.4
Approach LOS		D			B		B

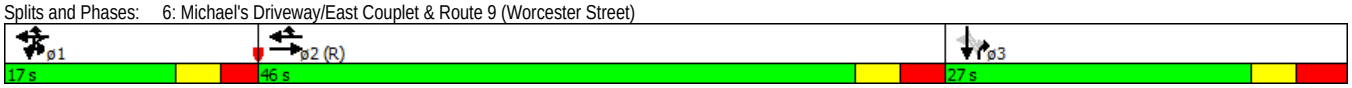
Intersection Summary			
HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	49.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Volume (vph)	0	1790	75	60	55	1975	540	110	0	70	535	30	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0		280		280	0		90	0		0
Storage Lanes	0		0		1		1	1		1	1		0
Taper Length (ft)	25				25			25			25		
Right Turn on Red			Yes				Yes			Yes			Yes
Link Speed (mph)		30				30			30			30	
Link Distance (ft)		587				872			428			442	
Travel Time (s)		13.3				19.8			9.7			10.0	
Confl. Peds. (#/hr)	2		9		9		2						
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)											44%		
Lane Group Flow (vph)	0	2006	0	0	121	2079	568	120	0	76	326	322	0
Turn Type		NA		Prot	Prot	NA	Prot	D.Pm		Prot	Perm	NA	
Protected Phases		2		1	1	1 2	1 2			3		3	
Permitted Phases								3			3		
Detector Phase		2		1	1	1 2	1 2	3		3	3	3	
Switch Phase													
Minimum Initial (s)		15.0		5.0	5.0			5.0		5.0	5.0	5.0	
Minimum Split (s)		21.0		10.5	10.5			11.5		11.5	11.5	11.5	
Total Split (s)		46.0		17.0	17.0			27.0		27.0	27.0	27.0	
Total Split (%)		51.1%		18.9%	18.9%			30.0%		30.0%	30.0%	30.0%	
Yellow Time (s)		3.0		3.0	3.0			3.0		3.0	3.0	3.0	
All-Red Time (s)		3.0		2.5	2.5			3.5		3.5	3.5	3.5	
Lost Time Adjust (s)		0.0			0.0			0.0		0.0	0.0	0.0	
Total Lost Time (s)		6.0			5.5			6.5		6.5	6.5	6.5	
Lead/Lag		Lag		Lead	Lead								
Lead-Lag Optimize?													
Recall Mode		C-Min		None	None			None		None	None	None	
v/c Ratio		0.88			0.53	0.63	0.46	0.97		0.17	0.85	0.83	
Control Delay		27.1			45.7	10.9	1.9	110.4		4.2	60.3	57.6	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay		27.1			45.7	10.9	1.9	110.4		4.2	60.3	57.6	
Queue Length 50th (ft)		368			65	236	0	68		0	214	209	
Queue Length 95th (ft)		440			121	280	34	#177		21	#354	#343	
Internal Link Dist (ft)		507				792			348			362	
Turn Bay Length (ft)					280		280			90			
Base Capacity (vph)		2271			230	3288	1227	125		443	386	390	
Starvation Cap Reductn		0			0	0	0	0		0	0	0	
Spillback Cap Reductn		0			0	102	0	0		0	0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	0	
Reduced v/c Ratio		0.88			0.53	0.65	0.46	0.96		0.17	0.84	0.83	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 72 (80%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Michael's Driveway/East Couplet & Route 9 (Worcester Street)



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Volume (vph)	0	1790	75	60	55	1975	540	110	0	70	535	30	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			5.5	5.5	5.5	6.5		6.5	6.5	6.5	
Lane Util. Factor		0.91			1.00	0.91	1.00	1.00		1.00	0.95	0.95	
Frpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt		0.99			1.00	1.00	0.85	1.00		0.85	1.00	0.98	
Flt Protected		1.00			0.95	1.00	1.00	0.95		1.00	0.95	0.96	
Satd. Flow (prot)		5098			1787	5136	1599	1787		1599	1698	1692	
Flt Permitted		1.00			0.95	1.00	1.00	0.29		1.00	0.95	0.96	
Satd. Flow (perm)		5098			1787	5136	1599	552		1599	1698	1692	
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1925	81	63	58	2079	568	120	0	76	582	33	33
RTOR Reduction (vph)	0	5	0	0	0	0	208	0	0	59	0	5	0
Lane Group Flow (vph)	0	2001	0	0	121	2079	360	120	0	17	326	317	0
Confl. Peds. (#/hr)	2		9		9		2						
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type		NA		Prot	Prot	NA	Prot	D.Pm		Prot	Perm	NA	
Protected Phases		2		1	1	1 2	1 2			3		3	
Permitted Phases								3			3		
Actuated Green, G (s)		40.0			11.6	57.1	57.1	20.4		20.4	20.4	20.4	
Effective Green, g (s)		40.0			11.6	57.1	57.1	20.4		20.4	20.4	20.4	
Actuated g/C Ratio		0.44			0.13	0.63	0.63	0.23		0.23	0.23	0.23	
Clearance Time (s)		6.0			5.5			6.5		6.5	6.5	6.5	
Vehicle Extension (s)		3.5			2.0			2.0		2.0	2.0	2.0	
Lane Grp Cap (vph)		2265			230	3258	1014	125		362	384	383	
v/s Ratio Prot		c0.39			0.07	c0.40	0.23			0.01			
v/s Ratio Perm								c0.22			0.19	0.19	
v/c Ratio		0.88			0.53	0.64	0.36	0.96		0.05	0.85	0.83	
Uniform Delay, d1		22.9			36.6	10.1	7.8	34.4		27.2	33.3	33.1	
Progression Factor		0.94			1.00	1.00	1.00	1.00		1.00	1.21	1.21	
Incremental Delay, d2		5.1			1.0	0.3	0.1	66.8		0.0	14.2	12.2	
Delay (s)		26.7			37.6	10.4	7.8	101.2		27.2	54.4	52.4	
Level of Service		C			D	B	A	F		C	D	D	
Approach Delay (s)		26.7				11.1			72.5			53.4	
Approach LOS		C				B			E			D	

Intersection Summary			
HCM 2000 Control Delay	23.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBU	EBL	EBT	WBT	WBR	SWL	SWR	ø1	ø3
Lane Configurations									
Volume (vph)	5	390	1905	2085	30	0	340		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900		
Storage Length (ft)		335			0	0	0		
Storage Lanes		2			0	0	2		
Taper Length (ft)		25				25			
Right Turn on Red					Yes		Yes		
Link Speed (mph)			30	30		30			
Link Distance (ft)			938	587		277			
Travel Time (s)			21.3	13.3		6.3			
Confl. Peds. (#/hr)		1			1				
Peak Hour Factor	0.92	0.98	0.98	0.97	0.97	0.92	0.92		
Heavy Vehicles (%)	2%	1%	1%	1%	1%	1%	1%		
Shared Lane Traffic (%)									
Lane Group Flow (vph)	0	403	1944	2180	0	0	370		
Turn Type	custom	Prot	NA	NA			pt+ov		
Protected Phases		1 3	1 2	2			1 3	1	3
Permitted Phases	1 3								
Detector Phase	1	1	1 2	2			1		
Switch Phase									
Minimum Initial (s)				15.0				5.0	5.0
Minimum Split (s)				20.6				10.4	22.6
Total Split (s)				49.0				22.0	19.0
Total Split (%)				54.4%				24%	21%
Yellow Time (s)				3.2				3.2	3.2
All-Red Time (s)				2.4				2.2	3.4
Lost Time Adjust (s)				0.0					
Total Lost Time (s)				5.6					
Lead/Lag				Lag				Lead	
Lead-Lag Optimize?									
Recall Mode				C-Min				None	None
v/c Ratio		0.31	0.40	0.84			0.35		
Control Delay		20.3	1.7	16.2			15.7		
Queue Delay		0.0	0.0	0.1			0.0		
Total Delay		20.3	1.7	16.3			15.7		
Queue Length 50th (ft)		78	0	409			56		
Queue Length 95th (ft)		113	175	m480			74		
Internal Link Dist (ft)			858	507		197			
Turn Bay Length (ft)		335							
Base Capacity (vph)		1291	4857	2594			1048		
Starvation Cap Reductn		0	0	35			0		
Spillback Cap Reductn		0	0	0			0		
Storage Cap Reductn		0	0	0			0		
Reduced v/c Ratio		0.31	0.40	0.85			0.35		

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 83 (92%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Route 9 (Worcester Street) & West Couplet

Movement	EBU	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations							
Volume (vph)	5	390	1905	2085	30	0	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.4	5.6			5.4
Lane Util. Factor		0.97	0.91	0.91			0.88
Frpb, ped/bikes		1.00	1.00	1.00			1.00
Flpb, ped/bikes		1.00	1.00	1.00			1.00
Frt		1.00	1.00	1.00			0.85
Flt Protected		0.95	1.00	1.00			1.00
Satd. Flow (prot)		3464	5136	5124			2814
Flt Permitted		0.95	1.00	1.00			1.00
Satd. Flow (perm)		3473	5136	5124			2814
Peak-hour factor, PHF	0.92	0.98	0.98	0.97	0.97	0.92	0.92
Adj. Flow (vph)	5	398	1944	2149	31	0	370
RTOR Reduction (vph)	0	0	0	2	0	0	3
Lane Group Flow (vph)	0	403	1944	2178	0	0	367
Confl. Peds. (#/hr)		1			1		
Heavy Vehicles (%)	2%	1%	1%	1%	1%	1%	1%
Turn Type	custom	Prot	NA	NA			pt+ov
Protected Phases		1 3	1 2	2			1 3
Permitted Phases	1 3						
Actuated Green, G (s)		38.8	75.3	40.2			38.8
Effective Green, g (s)		32.2	75.3	40.2			32.2
Actuated g/C Ratio		0.36	0.84	0.45			0.36
Clearance Time (s)				5.6			
Vehicle Extension (s)				3.5			
Lane Grp Cap (vph)		1242	4297	2288			1006
v/s Ratio Prot			c0.38	c0.43			c0.13
v/s Ratio Perm		0.12					
v/c Ratio		0.32	0.45	0.95			0.37
Uniform Delay, d1		21.0	1.9	24.0			21.4
Progression Factor		1.00	1.00	0.66			0.74
Incremental Delay, d2		0.1	0.0	8.5			0.1
Delay (s)		21.1	2.0	24.4			16.0
Level of Service		C	A	C			B
Approach Delay (s)			5.2	24.4		16.0	
Approach LOS			A	C		B	

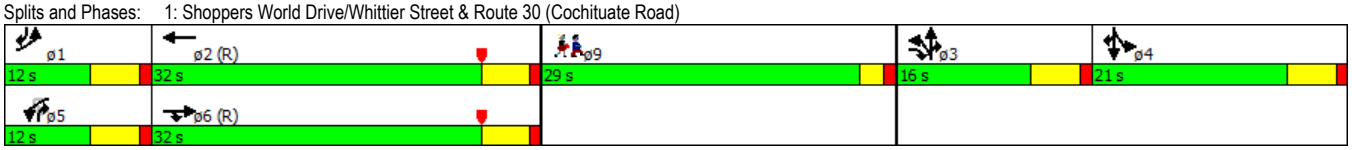
Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.6
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Lane Configurations														
Volume (vph)	20	695	150	50	385	1260	220	195	265	125	245	375	100	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	250		250		300		0	300		0	200		200	
Storage Lanes	1		2		1		0	1		1	1		2	
Taper Length (ft)	25				25			25			25			
Right Turn on Red			Yes				Yes			No			Yes	
Link Speed (mph)		30				30			30			30		
Link Distance (ft)		941				1103			1733			939		
Travel Time (s)		21.4				25.1			39.4			21.3		
Confl. Peds. (#/hr)	4		1		1		4	3					3	
Confl. Bikes (#/hr)													1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.96	0.94	0.94	0.94	
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	
Shared Lane Traffic (%)											18%			
Lane Group Flow (vph)	22	755	163	0	472	1609	0	0	479	130	214	446	106	
Turn Type	Prot	NA	pt+ov	custom	Prot	NA		Split	NA	pt+ov	Split	NA	pt+ov	
Protected Phases	1	6	3 6		5	2		3	3	3 5!	4	4	1 4	9
Permitted Phases				5!										
Detector Phase	1	6	3 6	5	5	2		3	3	3 5	4	4	1 4	
Switch Phase														
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0		6.0	6.0		6.0	6.0		4.0
Minimum Split (s)	11.0	11.0		11.0	11.0	11.0		11.0	11.0		11.0	11.0		28.0
Total Split (s)	12.0	32.0		12.0	12.0	32.0		16.0	16.0		21.0	21.0		29.0
Total Split (%)	10.9%	29.1%		10.9%	10.9%	29.1%		14.5%	14.5%		19.1%	19.1%		26%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	4.0		2.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0		1.0	1.0		1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0			0.0		0.0	0.0		
Total Lost Time (s)	5.0	5.0			5.0	5.0			5.0		5.0	5.0		
Lead/Lag	Lead	Lag		Lead	Lead	Lag		Lead	Lead		Lag	Lag		
Lead-Lag Optimize?														
Recall Mode	None	C-Max		None	None	C-Max		None	None		None	None		None
v/c Ratio	0.22	0.50	0.10		7.04	1.07			1.37	0.50	0.74	0.74	0.20	
Control Delay	54.5	26.8	2.0		2759.5	75.9			223.0	30.6	59.3	50.9	6.9	
Queue Delay	0.0	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	0.0	
Total Delay	54.5	26.8	2.0		2759.5	75.9			223.0	30.6	59.3	50.9	6.9	
Queue Length 50th (ft)	15	188	0		~645	574			~235	53	154	160	0	
Queue Length 95th (ft)	41	#367	12		#846	#1060			#342	101	#309	#257	42	
Internal Link Dist (ft)		861				1023			1653			859		
Turn Bay Length (ft)	250		250		300						200		200	
Base Capacity (vph)	113	1522	1653		67	1502			349	261	291	611	523	
Starvation Cap Reductn	0	0	0		0	0			0	0	0	0	0	
Spillback Cap Reductn	0	0	0		0	0			0	0	0	0	0	
Storage Cap Reductn	0	0	0		0	0			0	0	0	0	0	
Reduced v/c Ratio	0.19	0.50	0.10		7.04	1.07			1.37	0.50	0.74	0.73	0.20	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow, Master Intersection
Natural Cycle: 110
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
! Phase conflict between lane groups.

Splits and Phases: 1: Shoppers World Drive/Whittier Street & Route 30 (Cochituate Road)



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Volume (vph)	20	695	150	50	385	1260	220	195	265	125	245	375	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		5.0	5.0			5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	0.88		1.00	0.95			0.95	1.00	0.91	0.91	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	0.98			1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00			0.98	1.00	0.95	0.99	1.00
Satd. Flow (prot)	1787	3574	2814		1768	3453			3500	1599	1626	3406	1599
Flt Permitted	0.95	1.00	1.00		0.57	1.00			0.98	1.00	0.95	0.99	1.00
Satd. Flow (perm)	1787	3574	2814		1064	3453			3500	1599	1626	3406	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.96	0.94	0.94	0.94
Adj. Flow (vph)	22	755	163	54	418	1370	239	203	276	130	261	399	106
RTOR Reduction (vph)	0	0	81	0	0	10	0	0	0	0	0	0	76
Lane Group Flow (vph)	22	755	82	0	472	1599	0	0	479	130	214	446	30
Confl. Peds. (#/hr)	4		1		1		4	3					3
Confl. Bikes (#/hr)													1
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA	pt+ov	custom	Prot	NA		Split	NA	pt+ov	Split	NA	pt+ov
Protected Phases	1	6	3 6		5	2		3	3	3 5!	4	4	1 4
Permitted Phases				5!									
Actuated Green, G (s)	6.3	44.5	55.5		7.0	45.2			11.0	18.0	19.5	19.5	30.8
Effective Green, g (s)	6.3	44.5	55.5		7.0	45.2			11.0	18.0	19.5	19.5	30.8
Actuated g/C Ratio	0.06	0.40	0.50		0.06	0.41			0.10	0.16	0.18	0.18	0.28
Clearance Time (s)	5.0	5.0			5.0	5.0			5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0			2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	102	1445	1419		67	1418			350	261	288	603	447
v/s Ratio Prot	0.01	0.21	0.03			c0.46			c0.14	0.08	c0.13	0.13	0.02
v/s Ratio Perm					c0.44								
v/c Ratio	0.22	0.52	0.06		7.04	1.13			1.37	0.50	0.74	0.74	0.07
Uniform Delay, d1	49.5	24.7	13.9		51.5	32.4			49.5	41.9	42.9	42.8	29.1
Progression Factor	1.00	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	1.4	0.0		2751.1	67.0			183.2	0.5	8.7	4.1	0.0
Delay (s)	49.9	26.1	13.9		2802.6	99.4			232.7	42.4	51.6	46.9	29.1
Level of Service	D	C	B		F	F			F	D	D	D	C
Approach Delay (s)		24.5				712.6			192.0			45.8	
Approach LOS		C				F			F			D	

Intersection Summary			
HCM 2000 Control Delay	377.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.49		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	88.2%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø3
Lane Configurations													
Volume (vph)	25	65	110	100	0	435	0	450	135	270	555	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0		0	120		0	0		125	120		0	
Storage Lanes	1		1	1		1	0		2	2		0	
Taper Length (ft)	25			25			25			25			
Right Turn on Red			Yes			Yes			Yes			Yes	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		732			745			212			1733		
Travel Time (s)		16.6			16.9			4.8			39.4		
Confl. Peds. (#/hr)	6		1	1		6							
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	1%	1%	1%	1%	1%	1%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	27	71	120	109	0	473	0	489	147	293	603	0	
Turn Type	Split	NA	Prot	Prot		Prot		NA	Prot	Prot	NA		
Protected Phases	2	2	2	4		4		1	1	5	1 5		3
Permitted Phases													
Detector Phase	2	2	2	4		4		1	1	5	1 5		
Switch Phase													
Minimum Initial (s)	5.0	5.0	5.0	5.0		5.0		15.0	15.0	5.0			4.0
Minimum Split (s)	10.1	10.1	10.1	10.6		10.6		20.1	20.1	9.7			25.0
Total Split (s)	20.1	20.1	20.1	25.6		25.6		35.1	35.1	34.7			25.0
Total Split (%)	14.3%	14.3%	14.3%	18.2%		18.2%		25.0%	25.0%	24.7%			18%
Yellow Time (s)	3.0	3.0	3.0	3.0		3.0		3.0	3.0	3.0			3.0
All-Red Time (s)	2.1	2.1	2.1	2.6		2.6		2.1	2.1	1.7			0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0			
Total Lost Time (s)	5.1	5.1	5.1	5.6		5.6		5.1	5.1	4.7			
Lead/Lag	Lag	Lag	Lag	Lag		Lag		Lead	Lead				Lead
Lead-Lag Optimize?													
Recall Mode	None	None	None	None		None		Min	Min	None			None
v/c Ratio	0.15	0.38	0.45	0.29		0.80		0.46	0.16	0.47	0.31		
Control Delay	45.1	48.2	15.3	41.1		15.5		28.6	9.7	35.6	12.8		
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0		
Total Delay	45.1	48.2	15.3	41.1		15.5		28.6	9.7	35.6	12.8		
Queue Length 50th (ft)	11	30	0	23		0		87	4	60	64		
Queue Length 95th (ft)	54	113	61	74		113		272	43	163	228		
Internal Link Dist (ft)		652			665			132			1653		
Turn Bay Length (ft)				120					125	120			
Base Capacity (vph)	362	381	420	919		770		1435	1202	1392	2289		
Starvation Cap Reductn	0	0	0	0		0		27	0	0	0		
Spillback Cap Reductn	0	0	0	0		0		0	0	0	0		
Storage Cap Reductn	0	0	0	0		0		0	0	0	0		
Reduced v/c Ratio	0.07	0.19	0.29	0.12		0.61		0.35	0.12	0.21	0.26		

Intersection Summary	
Area Type:	Other
Cycle Length: 140.5	
Actuated Cycle Length: 82.5	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 2: Shoppers World Drive & Shoppers World Driveway/Flutie Pass

ø1	ø2	ø3	ø4	ø5
35.1 s	20.1 s	25 s	25.6 s	34.7 s

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	65	110	100	0	435	0	450	135	270	555	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.1	5.6		5.6		5.1	5.1	4.7	5.1	
Lane Util. Factor	1.00	1.00	1.00	0.97		1.00		0.95	0.88	0.97	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1900	1615	3433		1583		3574	2814	3467	3574	
Flt Permitted	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1805	1900	1615	3433		1583		3574	2814	3467	3574	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	71	120	109	0	473	0	489	147	293	603	0
RTOR Reduction (vph)	0	0	108	0	0	422	0	0	84	0	0	0
Lane Group Flow (vph)	27	71	12	109	0	51	0	489	63	293	603	0
Confl. Peds. (#/hr)	6		1	1		6						
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Split	NA	Prot	Prot		Prot		NA	Prot	Prot	NA	
Protected Phases	2	2	2	4		4		1	1	5	1 5	
Permitted Phases												
Actuated Green, G (s)	8.2	8.2	8.2	9.0		9.0		24.7	24.7	14.9	44.3	
Effective Green, g (s)	8.2	8.2	8.2	9.0		9.0		24.7	24.7	14.9	39.6	
Actuated g/C Ratio	0.10	0.10	0.10	0.11		0.11		0.30	0.30	0.18	0.48	
Clearance Time (s)	5.1	5.1	5.1	5.6		5.6		5.1	5.1	4.7		
Vehicle Extension (s)	2.0	2.0	2.0	2.0		2.0		3.5	3.5	2.0		
Lane Grp Cap (vph)	178	187	159	372		171		1064	838	623	1707	
v/s Ratio Prot	0.01	c0.04	0.01	0.03		c0.03		c0.14	0.02	c0.08	0.17	
v/s Ratio Perm												
v/c Ratio	0.15	0.38	0.07	0.29		0.30		0.46	0.07	0.47	0.35	
Uniform Delay, d1	34.2	35.0	33.9	34.0		34.0		23.7	20.9	30.5	13.6	
Progression Factor	1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.1	0.5	0.1	0.2		0.4		0.4	0.0	0.2	0.1	
Delay (s)	34.3	35.4	34.0	34.2		34.4		24.0	20.9	30.7	13.8	
Level of Service	C	D	C	C		C		C	C	C	B	
Approach Delay (s)		34.5			34.4			23.3			19.3	
Approach LOS		C			C			C			B	

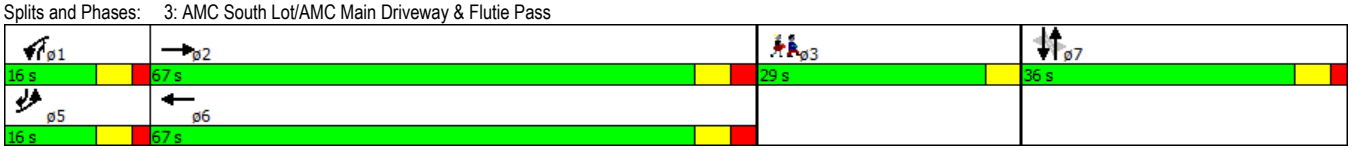
Intersection Summary			
HCM 2000 Control Delay	25.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	82.9	Sum of lost time (s)	23.5
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø3
Lane Configurations													
Volume (vph)	15	410	30	10	465	5	35	5	15	10	5	10	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	250		0	100		200	0		0	0		260	
Storage Lanes	1		0	1		1	0		1	0		1	
Taper Length (ft)	25			25			25			25			
Right Turn on Red			Yes			Yes			Yes			Yes	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		745			451			225			539		
Travel Time (s)		16.9			10.3			5.1			12.3		
Confl. Peds. (#/hr)	4		1	1		4							
Confl. Bikes (#/hr)			1			1							
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	14%	14%	14%	4%	4%	4%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	16	479	0	11	510	0	0	43	16	0	16	11	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Over	Perm	NA	Over	
Protected Phases	5	2		1	6			7	1		7	5	3
Permitted Phases							7			7			
Detector Phase	5	2		1	6		7	7	1	7	7	5	
Switch Phase													
Minimum Initial (s)	5.0	30.0		5.0	30.0		5.0	5.0	5.0	5.0	5.0	5.0	4.0
Minimum Split (s)	11.0	37.0		11.0	37.0		11.0	11.0	11.0	11.0	11.0	11.0	29.0
Total Split (s)	16.0	67.0		16.0	67.0		36.0	36.0	16.0	36.0	36.0	16.0	29.0
Total Split (%)	10.8%	45.3%		10.8%	45.3%		24.3%	24.3%	10.8%	24.3%	24.3%	10.8%	20%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	3.0		2.0	3.0		2.0	2.0	2.0	2.0	2.0	2.0	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	7.0		6.0	7.0			6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag				Lead			Lead	
Lead-Lag Optimize?													
Recall Mode	None	Min		None	Min		None	None	None	None	None	None	None
v/c Ratio	0.10	0.20		0.07	0.21			0.27	0.07		0.10	0.05	
Control Delay	34.5	10.9		34.5	11.1			34.5	0.7		32.0	0.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0	
Total Delay	34.5	10.9		34.5	11.1			34.5	0.7		32.0	0.4	
Queue Length 50th (ft)	4	26		3	28			11	0		4	0	
Queue Length 95th (ft)	30	163		24	176			58	0		28	0	
Internal Link Dist (ft)		665			371			145			459		
Turn Bay Length (ft)	250			100								260	
Base Capacity (vph)	305	3252		305	3286			714	327		719	350	
Starvation Cap Reductn	0	0		0	0			0	0		0	0	
Spillback Cap Reductn	0	0		0	0			0	0		0	0	
Storage Cap Reductn	0	0		0	0			0	0		0	0	
Reduced v/c Ratio	0.05	0.15		0.04	0.16			0.06	0.05		0.02	0.03	

Intersection Summary

Area Type: Other
Cycle Length: 148
Actuated Cycle Length: 62.1
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 3: AMC South Lot/AMC Main Driveway & Flutie Pass



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	410	30	10	465	5	35	5	15	10	5	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0		6.0	7.0			6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Frt	1.00	0.99		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.97	1.00
Satd. Flow (prot)	1787	3532		1787	3568			1596	1417		1766	1553
Flt Permitted	0.95	1.00		0.95	1.00			0.84	1.00		0.77	1.00
Satd. Flow (perm)	1787	3532		1787	3568			1395	1417		1403	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	446	33	11	505	5	38	5	16	11	5	11
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	16	0	0	11
Lane Group Flow (vph)	16	476	0	11	510	0	0	43	0	0	16	0
Confl. Peds. (#/hr)	4		1	1		4						
Confl. Bikes (#/hr)			1			1						
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	14%	14%	14%	4%	4%	4%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Over	Perm	NA	Over
Protected Phases	5	2		1	6			7	1		7	5
Permitted Phases							7			7		
Actuated Green, G (s)	1.9	39.1		1.9	39.1			4.5	1.9		4.5	1.9
Effective Green, g (s)	1.9	39.1		1.9	39.1			4.5	1.9		4.5	1.9
Actuated g/C Ratio	0.03	0.54		0.03	0.54			0.06	0.03		0.06	0.03
Clearance Time (s)	6.0	7.0		6.0	7.0			6.0	6.0		6.0	6.0
Vehicle Extension (s)	2.0	4.0		2.0	4.0			2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	47	1923		47	1943			87	37		87	41
v/s Ratio Prot	c0.01	0.13		0.01	c0.14				0.00			0.00
v/s Ratio Perm								c0.03			0.01	
v/c Ratio	0.34	0.25		0.23	0.26			0.49	0.01		0.18	0.01
Uniform Delay, d1	34.3	8.6		34.2	8.7			32.5	34.0		31.9	34.0
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	1.6	0.1		0.9	0.1			1.6	0.0		0.4	0.0
Delay (s)	35.9	8.7		35.2	8.8			34.2	34.1		32.3	34.1
Level of Service	D	A		D	A			C	C		C	C
Approach Delay (s)		9.6			9.3			34.1			33.0	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	71.8	Sum of lost time (s)	23.0
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		

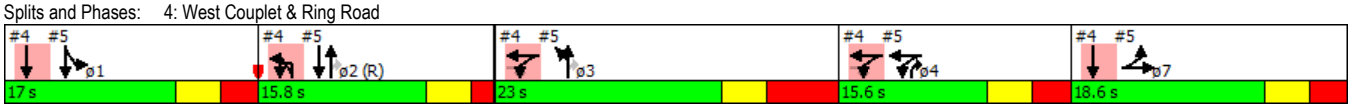
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR	ø1	ø3	ø4
Lane Configurations																
Volume (vph)	0	0	50	25	95	0	5	25	0	0	0	155	65			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Right Turn on Red			Yes			Yes				Yes			Yes			
Link Speed (mph)		30			30				30			30				
Link Distance (ft)		502			175				155			225				
Travel Time (s)		11.4			4.0				3.5			5.1				
Confl. Peds. (#/hr)								1					1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.96			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	2%	2%	2%			
Shared Lane Traffic (%)																
Lane Group Flow (vph)	0	0	54	0	130	0	0	32	0	0	0	229	0			
Turn Type			Perm	Split	NA		Prot	Prot				NA				
Protected Phases				3 4	3 4		2	2				1 7		1	3	4
Permitted Phases			3 4													
Detector Phase			3 4	3 4	3 4		2	2				1 7				
Switch Phase																
Minimum Initial (s)							10.0	10.0						5.0	10.0	10.0
Minimum Split (s)							14.6	14.6						16.5	22.8	15.6
Total Split (s)							15.8	15.8						17.0	23.0	15.6
Total Split (%)							17.6%	17.6%						19%	26%	17%
Yellow Time (s)							3.0	3.0						3.0	3.0	3.0
All-Red Time (s)							1.6	1.6						2.5	4.8	2.6
Lost Time Adjust (s)								0.0								
Total Lost Time (s)								4.6								
Lead/Lag							Lag	Lag						Lead	Lead	Lag
Lead-Lag Optimize?																
Recall Mode							C-Min	C-Min						None	None	None
v/c Ratio			0.05		0.22			0.12				0.20				
Control Delay			0.1		5.2			32.3				15.1				
Queue Delay			0.0		3.0			0.0				0.0				
Total Delay			0.1		8.2			32.3				15.1				
Queue Length 50th (ft)			0		11			20				31				
Queue Length 95th (ft)			0		18			m49				60				
Internal Link Dist (ft)		422			95				75			145				
Turn Bay Length (ft)																
Base Capacity (vph)			972		513			277				1127				
Starvation Cap Reductn			0		291			0				0				
Spillback Cap Reductn			0		0			0				0				
Storage Cap Reductn			0		0			0				0				
Reduced v/c Ratio			0.06		0.59			0.12				0.20				

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBL, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: West Couplet & Ring Road



Lane Group	ø7
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Right Turn on Red	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	16.6
Total Split (s)	18.6
Total Split (%)	21%
Yellow Time (s)	3.0
All-Red Time (s)	2.6
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Volume (vph)	0	0	50	25	95	0	5	25	0	0	0	155	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.8		7.8			4.6				5.5	
Lane Util. Factor			1.00		1.00			1.00				0.95	
Frpb, ped/bikes			1.00		1.00			1.00				0.99	
Flpb, ped/bikes			1.00		1.00			1.00				1.00	
Frt			0.86		1.00			1.00				0.96	
Flt Protected			1.00		0.99			0.95				1.00	
Satd. Flow (prot)			1644		1880			1770				3357	
Flt Permitted			1.00		0.99			0.95				1.00	
Satd. Flow (perm)			1644		1880			1770				3357	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.96
Adj. Flow (vph)	0	0	54	27	103	0	5	27	0	0	0	161	68
RTOR Reduction (vph)	0	0	36	0	0	0	0	0	0	0	0	50	0
Lane Group Flow (vph)	0	0	18	0	130	0	0	32	0	0	0	179	0
Confl. Peds. (#/hr)								1					1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	2%	2%	2%	2%	2%	2%
Turn Type			Perm	Split	NA		Prot	Prot				NA	
Protected Phases				3 4	3 4		2	2				1 7	
Permitted Phases			3 4										
Actuated Green, G (s)			30.3		30.3			14.1				29.9	
Effective Green, g (s)			30.3		30.3			14.1				24.3	
Actuated g/C Ratio			0.34		0.34			0.16				0.27	
Clearance Time (s)								4.6					
Vehicle Extension (s)								3.5					
Lane Grp Cap (vph)			553		632			277				906	
v/s Ratio Prot					c0.07			c0.02				c0.05	
v/s Ratio Perm			0.01										
v/c Ratio			0.03		0.21			0.12				0.20	
Uniform Delay, d1			20.0		21.3			32.6				25.3	
Progression Factor			1.00		0.19			0.89				1.00	
Incremental Delay, d2			0.0		0.2			0.8				0.0	
Delay (s)			20.0		4.3			29.9				25.4	
Level of Service			C		A			C				C	
Approach Delay (s)		20.0			4.3				29.9			25.4	
Approach LOS		C			A				C			C	

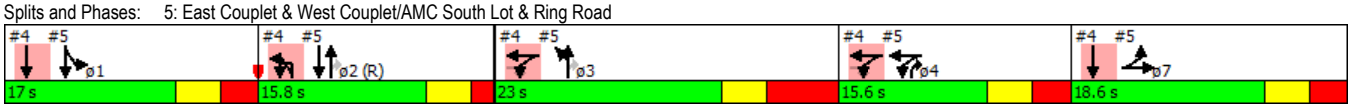
Intersection Summary			
HCM 2000 Control Delay	18.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	29.1
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	ø2
Lane Configurations														
Volume (vph)	215	45	5	20	0	25	15	95	355	40	30	515	1	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Right Turn on Red			Yes				Yes			Yes				
Link Speed (mph)		30			30				30			30		
Link Distance (ft)		290			416				442			193		
Travel Time (s)		6.6			9.5				10.0			4.4		
Confl. Bikes (#/hr)													1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	2%	0%	0%	0%	0%	0%	0%	
Shared Lane Traffic (%)	39%													
Lane Group Flow (vph)	143	145	0	22	43	0	0	103	386	43	32	549	0	
Turn Type	Split	NA		Split	NA			Prot	NA	pm+ov	Prot	NA		
Protected Phases	7	7		4	4			3	2 3	4	1	1 2		2
Permitted Phases										2 3				
Detector Phase	7	7		4	4			3	2 3	4	1	1 2		
Switch Phase														
Minimum Initial (s)	10.0	10.0		10.0	10.0			10.0		10.0	5.0			10.0
Minimum Split (s)	16.6	16.6		15.6	15.6			22.8		15.6	16.5			14.6
Total Split (s)	18.6	18.6		15.6	15.6			23.0		15.6	17.0			15.8
Total Split (%)	20.7%	20.7%		17.3%	17.3%			25.6%		17.3%	18.9%			18%
Yellow Time (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0			3.0
All-Red Time (s)	2.6	2.6		2.6	2.6			4.8		2.6	2.5			1.6
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0			
Total Lost Time (s)	5.6	5.6		5.6	5.6			7.8		5.6	5.5			
Lead/Lag				Lag	Lag			Lead		Lag	Lead			Lag
Lead-Lag Optimize?														
Recall Mode	None	None		None	None			None		None	None			C-Min
v/c Ratio	0.62	0.61		0.11	0.11			0.41	0.28	0.05	0.13	0.44		
Control Delay	32.4	31.5		37.6	0.6			41.1	21.3	1.8	35.9	25.1		
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	0.0		
Total Delay	32.4	31.5		37.6	0.6			41.1	21.3	1.8	35.9	25.1		
Queue Length 50th (ft)	28	27		11	0			54	83	0	16	128		
Queue Length 95th (ft)	m43	m42		34	0			105	127	7	43	184		
Internal Link Dist (ft)		210			336				362			113		
Turn Bay Length (ft)														
Base Capacity (vph)	251	257		196	396			304	1487	923	248	1203		
Starvation Cap Reductn	0	0		0	0			0	0	0	0	0		
Spillback Cap Reductn	0	0		0	0			0	0	0	0	0		
Storage Cap Reductn	0	0		0	0			0	0	0	0	0		
Reduced v/c Ratio	0.57	0.56		0.11	0.11			0.34	0.26	0.05	0.13	0.46		

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBL, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: East Couplet & West Couplet/AMC South Lot & Ring Road



Movement	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Volume (vph)	215	45	5	20	0	25	15	95	355	40	30	515	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6		5.6	5.6			7.8	4.6	5.6	5.5	5.5	
Lane Util. Factor	0.95	0.95		1.00	1.00			1.00	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.99		1.00	0.85			1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	0.97		0.95	1.00			0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1715	1741		1770	1583			1805	3610	1615	1805	3609	
Flt Permitted	0.95	0.97		0.95	1.00			0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1715	1741		1770	1583			1805	3610	1615	1805	3609	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94
Adj. Flow (vph)	234	49	5	22	0	27	16	103	386	43	32	548	1
RTOR Reduction (vph)	0	2	0	0	38	0	0	0	0	26	0	0	0
Lane Group Flow (vph)	143	143	0	22	5	0	0	103	386	17	32	549	0
Confl. Bikes (#/hr)													1
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type	Split	NA		Split	NA			Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	7		4	4			3	2 3	4	1	1 2	
Permitted Phases										2 3			
Actuated Green, G (s)	12.1	12.1		10.0	10.0			12.5	31.2	41.2	12.2	31.8	
Effective Green, g (s)	12.1	12.1		10.0	10.0			12.5	31.2	36.6	12.2	31.8	
Actuated g/C Ratio	0.13	0.13		0.11	0.11			0.14	0.35	0.41	0.14	0.35	
Clearance Time (s)	5.6	5.6		5.6	5.6			7.8		5.6	5.5		
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	2.0		
Lane Grp Cap (vph)	230	234		196	175			250	1251	656	244	1275	
v/s Ratio Prot	c0.08	0.08		c0.01	0.00			c0.06	0.11	0.00	0.02	c0.15	
v/s Ratio Perm										0.01			
v/c Ratio	0.62	0.61		0.11	0.03			0.41	0.31	0.03	0.13	0.43	
Uniform Delay, d1	36.8	36.7		36.0	35.7			35.4	21.5	16.0	34.2	22.2	
Progression Factor	0.57	0.56		1.00	1.00			1.04	1.05	1.00	1.00	1.00	
Incremental Delay, d2	5.0	4.5		0.3	0.1			1.0	0.1	0.0	0.1	0.1	
Delay (s)	25.8	25.2		36.3	35.7			37.8	22.8	16.0	34.3	22.3	
Level of Service	C	C		D	D			D	C	B	C	C	
Approach Delay (s)		25.5			35.9				25.2			22.9	
Approach LOS		C			D				C			C	

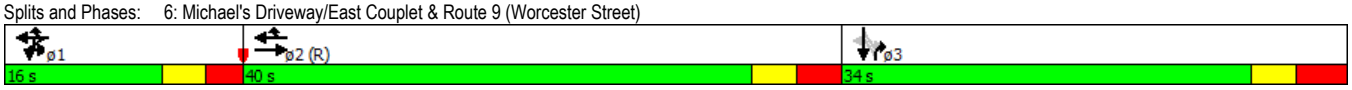
Intersection Summary			
HCM 2000 Control Delay	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	29.1
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Volume (vph)	0	1745	45	30	35	2265	490	85	0	50	500	30	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0		280		280	0		90	0		0
Storage Lanes	0		0		1		1	1		1	1		0
Taper Length (ft)	25				25			25			25		
Right Turn on Red			Yes				Yes			Yes			Yes
Link Speed (mph)		30				30			30			30	
Link Distance (ft)		587				872			428			442	
Travel Time (s)		13.3				19.8			9.7			10.0	
Confl. Peds. (#/hr)	3		2		2		3						
Confl. Bikes (#/hr)			2										1
Peak Hour Factor	0.93	0.93	0.93	0.96	0.96	0.96	0.96	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Shared Lane Traffic (%)											46%		
Lane Group Flow (vph)	0	1924	0	0	67	2359	510	92	0	54	293	294	0
Turn Type		NA		Prot	Prot	NA	Prot	D.Pm		Prot	Perm	NA	
Protected Phases		2		1	1	1 2	1 2			3		3	
Permitted Phases								3			3		
Detector Phase		2		1	1	1 2	1 2	3		3	3	3	
Switch Phase													
Minimum Initial (s)		15.0		5.0	5.0			5.0		5.0	5.0	5.0	
Minimum Split (s)		21.0		10.5	10.5			11.5		11.5	11.5	11.5	
Total Split (s)		40.0		16.0	16.0			34.0		34.0	34.0	34.0	
Total Split (%)		44.4%		17.8%	17.8%			37.8%		37.8%	37.8%	37.8%	
Yellow Time (s)		3.0		3.0	3.0			3.0		3.0	3.0	3.0	
All-Red Time (s)		3.0		2.5	2.5			3.5		3.5	3.5	3.5	
Lost Time Adjust (s)		0.0			0.0			0.0		0.0	0.0	0.0	
Total Lost Time (s)		6.0			5.5			6.5		6.5	6.5	6.5	
Lead/Lag		Lag		Lead	Lead								
Lead-Lag Optimize?													
Recall Mode		C-Min		None	None			None		None	None	None	
v/c Ratio		0.99			0.19	0.71	0.42	0.63		0.12	0.76	0.76	
Control Delay		44.4			35.1	13.2	2.0	48.9		1.4	29.2	28.8	
Queue Delay		0.0			0.0	0.2	0.0	8.7		0.0	0.0	0.0	
Total Delay		44.4			35.1	13.3	2.0	57.6		1.4	29.2	28.8	
Queue Length 50th (ft)		389			32	293	0	47		0	180	180	
Queue Length 95th (ft)		#482			76	436	42	92		6	277	277	
Internal Link Dist (ft)		507				792			348			362	
Turn Bay Length (ft)					280		280			90			
Base Capacity (vph)		1953			354	3324	1218	199		560	524	526	
Starvation Cap Reductn		0			0	0	0	0		0	0	0	
Spillback Cap Reductn		0			0	224	0	74		0	0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	0	
Reduced v/c Ratio		0.99			0.19	0.76	0.42	0.74		0.10	0.56	0.56	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 56 (62%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Michael's Driveway/East Couplet & Route 9 (Worcester Street)



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Volume (vph)	0	1745	45	30	35	2265	490	85	0	50	500	30	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			5.5	5.5	5.5	6.5		6.5	6.5	6.5	
Lane Util. Factor		0.91			1.00	0.91	1.00	1.00		1.00	0.95	0.95	
Frpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt		1.00			1.00	1.00	0.85	1.00		0.85	1.00	0.99	
Flt Protected		1.00			0.95	1.00	1.00	0.95		1.00	0.95	0.96	
Satd. Flow (prot)		5164			1805	5187	1615	1787		1599	1715	1721	
Flt Permitted		1.00			0.95	1.00	1.00	0.35		1.00	0.95	0.96	
Satd. Flow (perm)		5164			1805	5187	1615	654		1599	1715	1721	
Peak-hour factor, PHF	0.93	0.93	0.93	0.96	0.96	0.96	0.96	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1876	48	31	36	2359	510	92	0	54	543	33	11
RTOR Reduction (vph)	0	3	0	0	0	0	186	0	0	42	0	2	0
Lane Group Flow (vph)	0	1921	0	0	67	2359	324	92	0	12	293	292	0
Confl. Peds. (#/hr)	3		2		2		3						
Confl. Bikes (#/hr)			2										1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%
Turn Type		NA		Prot	Prot	NA	Prot	D.Pm		Prot	Perm	NA	
Protected Phases		2		1	1	1 2	1 2			3		3	
Permitted Phases								3			3		
Actuated Green, G (s)		34.0			17.7	57.2	57.2	20.3		20.3	20.3	20.3	
Effective Green, g (s)		34.0			17.7	57.2	57.2	20.3		20.3	20.3	20.3	
Actuated g/C Ratio		0.38			0.20	0.64	0.64	0.23		0.23	0.23	0.23	
Clearance Time (s)		6.0			5.5			6.5		6.5	6.5	6.5	
Vehicle Extension (s)		3.5			2.0			2.0		2.0	2.0	2.0	
Lane Grp Cap (vph)		1950			354	3296	1026	147		360	386	388	
v/s Ratio Prot		c0.37			0.04	c0.45	0.20			0.01			
v/s Ratio Perm								0.14			c0.17	0.17	
v/c Ratio		0.99			0.19	0.72	0.32	0.63		0.03	0.76	0.75	
Uniform Delay, d1		27.7			30.2	11.0	7.5	31.4		27.2	32.6	32.5	
Progression Factor		0.97			1.00	1.00	1.00	1.00		1.00	0.54	0.54	
Incremental Delay, d2		16.7			0.1	0.6	0.1	5.9		0.0	6.9	6.6	
Delay (s)		43.5			30.3	11.6	7.5	37.3		27.2	24.6	24.2	
Level of Service		D			C	B	A	D		C	C	C	
Approach Delay (s)		43.5				11.3			33.6			24.4	
Approach LOS		D				B			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	SWL	SWR	ø1	ø3
Lane Configurations								
Volume (vph)	280	1655	2345	15	0	235		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Storage Length (ft)	335			0	0	0		
Storage Lanes	2			0	0	2		
Taper Length (ft)	25				25			
Right Turn on Red				Yes		Yes		
Link Speed (mph)		30	30		30			
Link Distance (ft)		938	587		277			
Travel Time (s)		21.3	13.3		6.3			
Confl. Peds. (#/hr)	2			2				
Peak Hour Factor	0.92	0.92	0.93	0.93	0.93	0.93		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	304	1799	2538	0	0	253		
Turn Type	Prot	NA	NA			pt+ov		
Protected Phases	1 3	1 2	2			1 3	1	3
Permitted Phases								
Detector Phase	1	1 2	2			1		
Switch Phase								
Minimum Initial (s)			15.0				5.0	5.0
Minimum Split (s)			20.6				10.4	22.6
Total Split (s)			56.0				17.0	17.0
Total Split (%)			62.2%				19%	19%
Yellow Time (s)			3.2				3.2	3.2
All-Red Time (s)			2.4				2.2	3.4
Lost Time Adjust (s)			0.0					
Total Lost Time (s)			5.6					
Lead/Lag			Lag				Lead	
Lead-Lag Optimize?								
Recall Mode			C-Min				None	None
v/c Ratio	0.30	0.36	0.83			0.31		
Control Delay	25.2	1.3	27.5			19.1		
Queue Delay	0.0	0.0	3.8			0.0		
Total Delay	25.2	1.3	31.3			19.1		
Queue Length 50th (ft)	65	0	567			45		
Queue Length 95th (ft)	98	137	619			64		
Internal Link Dist (ft)		858	507		197			
Turn Bay Length (ft)	335							
Base Capacity (vph)	1006	4929	3060			818		
Starvation Cap Reductn	0	0	437			0		
Spillback Cap Reductn	0	0	0			0		
Storage Cap Reductn	0	0	0			0		
Reduced v/c Ratio	0.30	0.36	0.97			0.31		

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 78 (87%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 7: Route 9 (Worcester Street) & West Couplet

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Volume (vph)	280	1655	2345	15	0	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.4	5.4	5.6			5.4
Lane Util. Factor	0.97	0.91	0.91			0.88
Frpb, ped/bikes	1.00	1.00	1.00			1.00
Flpb, ped/bikes	1.00	1.00	1.00			1.00
Frt	1.00	1.00	1.00			0.85
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3502	5187	5182			2842
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3502	5187	5182			2842
Peak-hour factor, PHF	0.92	0.92	0.93	0.93	0.93	0.93
Adj. Flow (vph)	304	1799	2522	16	0	253
RTOR Reduction (vph)	0	0	1	0	0	2
Lane Group Flow (vph)	304	1799	2537	0	0	251
Confl. Peds. (#/hr)	2			2		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	NA			pt+ov
Protected Phases	1 3	1 2	2			1 3
Permitted Phases						
Actuated Green, G (s)	31.2	75.7	47.8			31.2
Effective Green, g (s)	24.6	75.7	47.8			24.6
Actuated g/C Ratio	0.27	0.84	0.53			0.27
Clearance Time (s)			5.6			
Vehicle Extension (s)			3.5			
Lane Grp Cap (vph)	957	4362	2752			776
v/s Ratio Prot	0.09	c0.35	c0.49			c0.09
v/s Ratio Perm						
v/c Ratio	0.32	0.41	0.92			0.32
Uniform Delay, d1	26.0	1.7	19.4			26.1
Progression Factor	1.00	1.00	1.61			0.75
Incremental Delay, d2	0.1	0.0	4.9			0.1
Delay (s)	26.1	1.8	36.1			19.6
Level of Service	C	A	D			B
Approach Delay (s)		5.3	36.1		19.6	
Approach LOS		A	D		B	

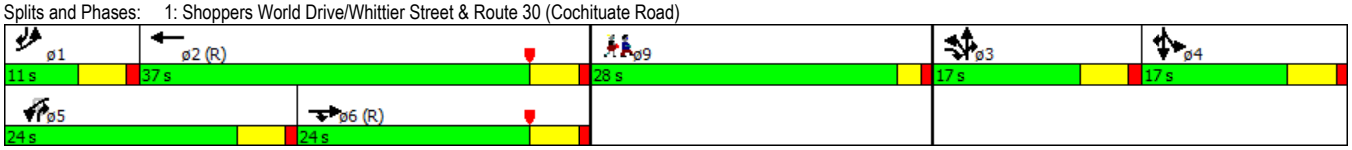
Intersection Summary			
HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.6
Intersection Capacity Utilization	63.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Lane Configurations														
Volume (vph)	55	830	225	50	440	1050	265	235	360	195	380	480	90	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	250		250		300		0	300		0	200		200	
Storage Lanes	1		2		1		0	1		1	1		2	
Taper Length (ft)	25				25			25			25			
Right Turn on Red			Yes				Yes			No			Yes	
Link Speed (mph)		30				30			30			30		
Link Distance (ft)		941				1103			1733			939		
Travel Time (s)		21.4				25.1			39.4			21.3		
Confl. Peds. (#/hr)	3		1		1		3	3					3	
Confl. Bikes (#/hr)			1							1				
Peak Hour Factor	0.96	0.96	0.96	0.93	0.93	0.93	0.93	0.94	0.94	0.94	0.97	0.97	0.97	
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%	
Shared Lane Traffic (%)											27%			
Lane Group Flow (vph)	57	865	234	0	527	1414	0	0	633	207	286	601	93	
Turn Type	Prot	NA	pt+ov	custom	Prot	NA		Split	NA	pt+ov	Split	NA	pt+ov	
Protected Phases	1	6	3 6		5	2		3	3	3 5!	4	4	1 4	9
Permitted Phases				5!										
Detector Phase	1	6	3 6	5	5	2		3	3	3 5	4	4	1 4	
Switch Phase														
Minimum Initial (s)	6.0	6.0		6.0	6.0	6.0		6.0	6.0		6.0	6.0		4.0
Minimum Split (s)	11.0	11.0		11.0	11.0	11.0		11.0	11.0		11.0	11.0		28.0
Total Split (s)	11.0	24.0		24.0	24.0	37.0		17.0	17.0		17.0	17.0		28.0
Total Split (%)	10.0%	21.8%		21.8%	21.8%	33.6%		15.5%	15.5%		15.5%	15.5%		25%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0		4.0	4.0		4.0	4.0		2.0
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0		1.0	1.0		1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0			0.0	0.0			0.0		0.0	0.0		
Total Lost Time (s)	5.0	5.0			5.0	5.0			5.0		5.0	5.0		
Lead/Lag	Lead	Lag		Lead	Lead	Lag		Lead	Lead		Lag	Lag		
Lead-Lag Optimize?														
Recall Mode	None	C-Max		None	None	C-Max		None	None		None	None		None
v/c Ratio	0.48	1.21	0.21		7.75	1.31			1.64	0.45	0.62	0.62	0.13	
Control Delay	63.5	144.6	2.7		3075.1	178.5			331.9	21.7	43.7	39.7	1.5	
Queue Delay	0.0	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	0.0	
Total Delay	63.5	144.6	2.7		3075.1	178.5			331.9	21.7	43.7	39.7	1.5	
Queue Length 50th (ft)	39	~352	0		~697	~644			~341	62	185	196	0	
Queue Length 95th (ft)	#98	#557	17		#910	#835			#457	135	#505	#456	10	
Internal Link Dist (ft)		861				1023			1653			859		
Turn Bay Length (ft)	250		250		300						200		200	
Base Capacity (vph)	119	717	1126		68	1080			386	455	463	966	725	
Starvation Cap Reductn	0	0	0		0	0			0	0	0	0	0	
Spillback Cap Reductn	0	0	0		0	0			0	0	0	0	0	
Storage Cap Reductn	0	0	0		0	0			0	0	0	0	0	
Reduced v/c Ratio	0.48	1.21	0.21		7.75	1.31			1.64	0.45	0.62	0.62	0.13	

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow, Master Intersection
Natural Cycle: 100
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
! Phase conflict between lane groups.

Splits and Phases: 1: Shoppers World Drive/Whittier Street & Route 30 (Cochituate Road)



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Volume (vph)	55	830	225	50	440	1050	265	235	360	195	380	480	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0		5.0	5.0			5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	0.95	0.88		1.00	0.95			0.95	1.00	0.91	0.91	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	0.97			1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00			0.98	1.00	0.95	0.99	1.00
Satd. Flow (prot)	1787	3574	2814		1787	3456			3540	1615	1626	3394	1599
Flt Permitted	0.95	1.00	1.00		0.21	1.00			0.98	1.00	0.95	0.99	1.00
Satd. Flow (perm)	1787	3574	2814		396	3456			3540	1615	1626	3394	1599
Peak-hour factor, PHF	0.96	0.96	0.96	0.93	0.93	0.93	0.93	0.94	0.94	0.94	0.97	0.97	0.97
Adj. Flow (vph)	57	865	234	54	473	1129	285	250	383	207	392	495	93
RTOR Reduction (vph)	0	0	167	0	0	21	0	0	0	0	0	0	56
Lane Group Flow (vph)	57	865	67	0	527	1393	0	0	633	207	286	601	37
Confl. Peds. (#/hr)	3		1		1		3	3					3
Confl. Bikes (#/hr)			1							1			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Prot	NA	pt+ov	custom	Prot	NA		Split	NA	pt+ov	Split	NA	pt+ov
Protected Phases	1	6	3 6		5	2		3	3	3 5!	4	4	1 4
Permitted Phases				5!									
Actuated Green, G (s)	7.3	19.7	31.7		19.0	31.4			12.0	31.0	31.3	31.3	43.6
Effective Green, g (s)	7.3	19.7	31.7		19.0	31.4			12.0	31.0	31.3	31.3	43.6
Actuated g/C Ratio	0.07	0.18	0.29		0.17	0.29			0.11	0.28	0.28	0.28	0.40
Clearance Time (s)	5.0	5.0			5.0	5.0			5.0		5.0	5.0	
Vehicle Extension (s)	2.0	2.0			2.0	2.0			2.0		2.0	2.0	
Lane Grp Cap (vph)	118	640	810		68	986			386	455	462	965	633
v/s Ratio Prot	0.03	0.24	0.02			c0.40			c0.18	0.13	0.18	c0.18	0.02
v/s Ratio Perm					c1.33								
v/c Ratio	0.48	1.35	0.08		7.75	1.41			1.64	0.45	0.62	0.62	0.06
Uniform Delay, d1	49.5	45.1	28.6		45.5	39.3			49.0	32.5	34.2	34.2	20.5
Progression Factor	1.00	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	168.4	0.0		3067.6	191.9			299.4	0.3	1.7	0.9	0.0
Delay (s)	50.7	213.5	28.6		3113.1	231.2			348.4	32.8	35.9	35.1	20.5
Level of Service	D	F	C		F	F			F	C	D	D	C
Approach Delay (s)		168.0				1013.7			270.7			34.0	
Approach LOS		F				F			F			C	

Intersection Summary			
HCM 2000 Control Delay	492.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	2.49		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	99.7%	ICU Level of Service	F
Analysis Period (min)	15		

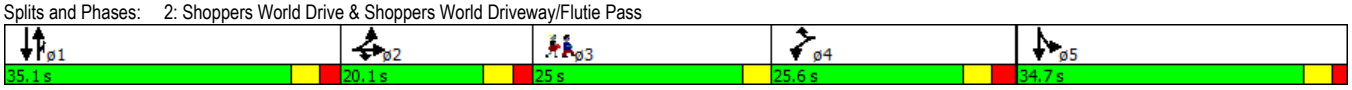
! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø3
Lane Configurations													
Volume (vph)	50	130	140	235	0	630	0	480	240	490	585	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0		0	120		0	0		125	120		0	
Storage Lanes	1		1	1		1	0		2	2		0	
Taper Length (ft)	25			25			25			25			
Right Turn on Red			Yes			Yes			Yes			Yes	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		732			745			212			1733		
Travel Time (s)		16.6			16.9			4.8			39.4		
Confl. Peds. (#/hr)	9					9							
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.98	0.98	0.98	0.94	0.94	0.94	
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	54	141	152	255	0	685	0	490	245	521	622	0	
Turn Type	Split	NA	Prot	Prot		Prot		NA	Prot	Prot	NA		
Protected Phases	2	2	2	4		4		1	1	5	1 5		3
Permitted Phases													
Detector Phase	2	2	2	4		4		1	1	5	1 5		
Switch Phase													
Minimum Initial (s)	5.0	5.0	5.0	5.0		5.0		15.0	15.0	5.0			4.0
Minimum Split (s)	10.1	10.1	10.1	10.6		10.6		20.1	20.1	9.7			25.0
Total Split (s)	20.1	20.1	20.1	25.6		25.6		35.1	35.1	34.7			25.0
Total Split (%)	14.3%	14.3%	14.3%	18.2%		18.2%		25.0%	25.0%	24.7%			18%
Yellow Time (s)	3.0	3.0	3.0	3.0		3.0		3.0	3.0	3.0			3.0
All-Red Time (s)	2.1	2.1	2.1	2.6		2.6		2.1	2.1	1.7			0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0			
Total Lost Time (s)	5.1	5.1	5.1	5.6		5.6		5.1	5.1	4.7			
Lead/Lag	Lag	Lag	Lag	Lag		Lag		Lead	Lead				Lead
Lead-Lag Optimize?													
Recall Mode	None	None	None	None		None		Min	Min	None			None
v/c Ratio	0.25	0.62	0.46	0.57		0.85		0.51	0.27	0.66	0.32		
Control Delay	49.7	59.1	13.4	49.4		15.3		35.9	11.0	42.0	14.7		
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.1	0.0	0.0	0.0		
Total Delay	49.7	59.1	13.4	49.4		15.3		36.1	11.0	42.0	14.7		
Queue Length 50th (ft)	31	84	0	78		0		128	14	151	94		
Queue Length 95th (ft)	92	#217	68	158		150		279	66	293	241		
Internal Link Dist (ft)		652			665			132			1653		
Turn Bay Length (ft)				120					125	120			
Base Capacity (vph)	287	302	385	736		879		1139	1023	1105	2117		
Starvation Cap Reductn	0	0	0	0		0		105	0	0	0		
Spillback Cap Reductn	0	0	0	0		0		0	0	0	0		
Storage Cap Reductn	0	0	0	0		0		0	0	0	0		
Reduced v/c Ratio	0.19	0.47	0.39	0.35		0.78		0.47	0.24	0.47	0.29		

Intersection Summary

Area Type: Other
Cycle Length: 140.5
Actuated Cycle Length: 99.8
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Shoppers World Drive & Shoppers World Driveway/Flutie Pass



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	130	140	235	0	630	0	480	240	490	585	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	5.1	5.6		5.6		5.1	5.1	4.7	5.1	
Lane Util. Factor	1.00	1.00	1.00	0.97		1.00		0.95	0.88	0.97	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1805	1900	1615	3467		1599		3574	2814	3467	3574	
Flt Permitted	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1805	1900	1615	3467		1599		3574	2814	3467	3574	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.98	0.98	0.98	0.94	0.94	0.94
Adj. Flow (vph)	54	141	152	255	0	685	0	490	245	521	622	0
RTOR Reduction (vph)	0	0	134	0	0	598	0	0	136	0	0	0
Lane Group Flow (vph)	54	141	18	255	0	87	0	490	109	521	622	0
Confl. Peds. (#/hr)	9					9						
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Split	NA	Prot	Prot		Prot		NA	Prot	Prot	NA	
Protected Phases	2	2	2	4		4		1	1	5	1 5	
Permitted Phases												
Actuated Green, G (s)	12.0	12.0	12.0	12.9		12.9		27.0	27.0	22.7	54.4	
Effective Green, g (s)	12.0	12.0	12.0	12.9		12.9		27.0	27.0	22.7	49.7	
Actuated g/C Ratio	0.12	0.12	0.12	0.13		0.13		0.27	0.27	0.22	0.49	
Clearance Time (s)	5.1	5.1	5.1	5.6		5.6		5.1	5.1	4.7		
Vehicle Extension (s)	2.0	2.0	2.0	2.0		2.0		3.5	3.5	2.0		
Lane Grp Cap (vph)	214	225	191	441		203		953	750	777	1755	
v/s Ratio Prot	0.03	c0.07	0.01	c0.07		0.05		c0.14	0.04	c0.15	0.17	
v/s Ratio Perm												
v/c Ratio	0.25	0.63	0.09	0.58		0.43		0.51	0.14	0.67	0.35	
Uniform Delay, d1	40.5	42.5	39.8	41.6		40.8		31.5	28.3	35.8	15.9	
Progression Factor	1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	3.9	0.1	1.1		0.5		0.5	0.1	1.8	0.1	
Delay (s)	40.8	46.4	39.8	42.7		41.3		32.1	28.4	37.6	16.0	
Level of Service	D	D	D	D		D		C	C	D	B	
Approach Delay (s)		42.6			41.7			30.8			25.9	
Approach LOS		D			D			C			C	

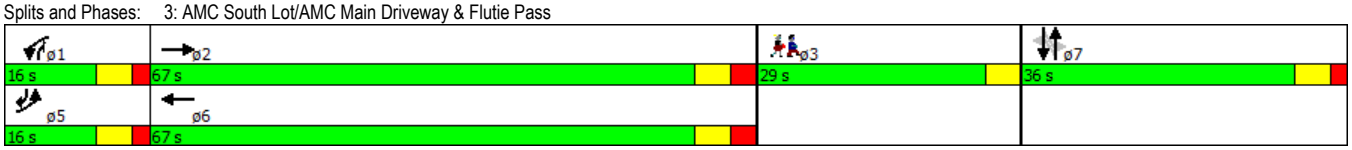
Intersection Summary			
HCM 2000 Control Delay	33.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	101.2	Sum of lost time (s)	23.5
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø3
Lane Configurations													
Volume (vph)	120	715	35	15	670	15	45	10	30	50	5	90	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	250		0	100		200	0		0	0		260	
Storage Lanes	1		0	1		1	0		1	0		1	
Taper Length (ft)	25			25			25			25			
Right Turn on Red			Yes			Yes			Yes			Yes	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		745			451			225			539		
Travel Time (s)		16.9			10.3			5.1			12.3		
Confl. Peds. (#/hr)	13					13							
Confl. Bikes (#/hr)						1							
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	9%	9%	9%	1%	1%	1%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	130	815	0	16	744	0	0	60	33	0	59	98	
Turn Type	Prot	NA		Prot	NA		Perm	NA	Over	Perm	NA	Over	
Protected Phases	5	2		1	6			7	1		7	5	3
Permitted Phases							7			7			
Detector Phase	5	2		1	6		7	7	1	7	7	5	
Switch Phase													
Minimum Initial (s)	5.0	30.0		5.0	30.0		5.0	5.0	5.0	5.0	5.0	5.0	4.0
Minimum Split (s)	11.0	37.0		11.0	37.0		11.0	11.0	11.0	11.0	11.0	11.0	29.0
Total Split (s)	16.0	67.0		16.0	67.0		36.0	36.0	16.0	36.0	36.0	16.0	29.0
Total Split (%)	10.8%	45.3%		10.8%	45.3%		24.3%	24.3%	10.8%	24.3%	24.3%	10.8%	20%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	3.0		2.0	3.0		2.0	2.0	2.0	2.0	2.0	2.0	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	7.0		6.0	7.0			6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag				Lead			Lead	
Lead-Lag Optimize?													
Recall Mode	None	Min		None	Min		None	None	None	None	None	None	None
v/c Ratio	0.50	0.37		0.11	0.46			0.42	0.16		0.39	0.31	
Control Delay	42.2	13.4		40.9	17.8			43.7	1.6		42.5	11.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0	
Total Delay	42.2	13.4		40.9	17.8			43.7	1.6		42.5	11.3	
Queue Length 50th (ft)	49	98		6	105			23	0		23	0	
Queue Length 95th (ft)	#199	309		34	290			83	0		82	48	
Internal Link Dist (ft)		665			371			145			459		
Turn Bay Length (ft)	250			100								260	
Base Capacity (vph)	260	3008		260	3018			552	303		576	321	
Starvation Cap Reductn	0	0		0	0			0	0		0	0	
Spillback Cap Reductn	0	0		0	0			0	0		0	0	
Storage Cap Reductn	0	0		0	0			0	0		0	0	
Reduced v/c Ratio	0.50	0.27		0.06	0.25			0.11	0.11		0.10	0.31	

Intersection Summary

Area Type: Other
Cycle Length: 148
Actuated Cycle Length: 72.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 3: AMC South Lot/AMC Main Driveway & Flutie Pass



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	120	715	35	15	670	15	45	10	30	50	5	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	7.0		6.0	7.0			6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Frt	1.00	0.99		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.96	1.00		0.96	1.00
Satd. Flow (prot)	1787	3549		1787	3560			1675	1482		1799	1599
Flt Permitted	0.95	1.00		0.95	1.00			0.72	1.00		0.70	1.00
Satd. Flow (perm)	1787	3549		1787	3560			1264	1482		1318	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	777	38	16	728	16	49	11	33	54	5	98
RTOR Reduction (vph)	0	2	0	0	1	0	0	0	32	0	0	85
Lane Group Flow (vph)	130	813	0	16	743	0	0	60	1	0	59	13
Confl. Peds. (#/hr)	13					13						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	9%	9%	9%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Over	Perm	NA	Over
Protected Phases	5	2		1	6			7	1		7	5
Permitted Phases							7			7		
Actuated Green, G (s)	10.6	43.4		3.2	36.0			6.9	3.2		6.9	10.6
Effective Green, g (s)	10.6	43.4		3.2	36.0			6.9	3.2		6.9	10.6
Actuated g/C Ratio	0.13	0.54		0.04	0.45			0.09	0.04		0.09	0.13
Clearance Time (s)	6.0	7.0		6.0	7.0			6.0	6.0		6.0	6.0
Vehicle Extension (s)	2.0	4.0		2.0	4.0			2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	237	1930		71	1606			109	59		113	212
v/s Ratio Prot	c0.07	0.23		0.01	c0.21				0.00			0.01
v/s Ratio Perm								c0.05			0.04	
v/c Ratio	0.55	0.42		0.23	0.46			0.55	0.02		0.52	0.06
Uniform Delay, d1	32.4	10.8		37.1	15.2			35.0	36.8		34.9	30.3
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	1.4	0.2		0.6	0.3			3.4	0.1		2.0	0.0
Delay (s)	33.8	11.0		37.7	15.5			38.3	36.9		36.9	30.3
Level of Service	C	B		D	B			D	D		D	C
Approach Delay (s)		14.1			15.9			37.8			32.8	
Approach LOS		B			B			D			C	

Intersection Summary			
HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	79.8	Sum of lost time (s)	23.0
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR	ø1	ø3	ø4
Lane Configurations																
Volume (vph)	0	0	115	40	175	0	5	75	0	0	0	215	130			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Right Turn on Red			Yes			Yes				Yes			Yes			
Link Speed (mph)		30			30				30			30				
Link Distance (ft)		502			175				155			225				
Travel Time (s)		11.4			4.0				3.5			5.1				
Confl. Peds. (#/hr)			1	1			1	1					1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%			
Shared Lane Traffic (%)																
Lane Group Flow (vph)	0	0	125	0	233	0	0	87	0	0	0	375	0			
Turn Type			Perm	custom	NA		Prot	Prot				NA				
Protected Phases				3 4	3 4		2	2				1 7		1	3	4
Permitted Phases			3 4	3												
Detector Phase			3 4	3 4	3 4		2	2				1 7				
Switch Phase																
Minimum Initial (s)							10.0	10.0						5.0	10.0	10.0
Minimum Split (s)							14.6	14.6						16.5	22.8	15.6
Total Split (s)							15.5	15.5						16.5	23.0	16.0
Total Split (%)							17.2%	17.2%						18%	26%	18%
Yellow Time (s)							3.0	3.0						3.0	3.0	3.0
All-Red Time (s)							1.6	1.6						2.5	4.8	2.6
Lost Time Adjust (s)								0.0								
Total Lost Time (s)								4.6								
Lead/Lag							Lag	Lag						Lead	Lead	Lag
Lead-Lag Optimize?																
Recall Mode							C-Min	C-Min						None	None	None
v/c Ratio			0.13		0.38			0.36				0.31				
Control Delay			0.3		5.2			37.0				14.2				
Queue Delay			0.0		2.3			0.0				0.0				
Total Delay			0.3		7.6			37.0				14.2				
Queue Length 50th (ft)			0		16			53				49				
Queue Length 95th (ft)			0		25			m100				84				
Internal Link Dist (ft)		422			95				75			145				
Turn Bay Length (ft)																
Base Capacity (vph)			929		587			242				1197				
Starvation Cap Reductn			0		235			0				0				
Spillback Cap Reductn			0		0			0				0				
Storage Cap Reductn			0		0			0				0				
Reduced v/c Ratio			0.13		0.66			0.36				0.31				

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBL, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: West Couplet & Ring Road

Lane Group	ø7
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Right Turn on Red	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	7
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	10.0
Minimum Split (s)	16.6
Total Split (s)	19.0
Total Split (%)	21%
Yellow Time (s)	3.0
All-Red Time (s)	2.6
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Volume (vph)	0	0	115	40	175	0	5	75	0	0	0	215	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.8		7.8			4.6				5.5	
Lane Util. Factor			1.00		1.00			1.00				0.95	
Frpb, ped/bikes			0.99		1.00			1.00				0.99	
Flpb, ped/bikes			1.00		1.00			1.00				1.00	
Frt			0.86		1.00			1.00				0.94	
Flt Protected			1.00		0.99			0.95				1.00	
Satd. Flow (prot)			1621		1883			1787				3342	
Flt Permitted			1.00		0.99			0.95				1.00	
Satd. Flow (perm)			1621		1883			1787				3342	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	125	43	190	0	5	82	0	0	0	234	141
RTOR Reduction (vph)	0	0	81	0	0	0	0	0	0	0	0	102	0
Lane Group Flow (vph)	0	0	44	0	233	0	0	87	0	0	0	273	0
Confl. Peds. (#/hr)			1	1			1	1					1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%
Turn Type			Perm	custom	NA		Prot	Prot				NA	
Protected Phases				3 4	3 4		2	2				1 7	
Permitted Phases			3 4	3									
Actuated Green, G (s)			31.9		31.9			12.2				30.2	
Effective Green, g (s)			31.9		31.9			12.2				24.6	
Actuated g/C Ratio			0.35		0.35			0.14				0.27	
Clearance Time (s)								4.6					
Vehicle Extension (s)								3.5					
Lane Grp Cap (vph)			574		667			242				913	
v/s Ratio Prot					c0.12			c0.05				c0.08	
v/s Ratio Perm			0.03										
v/c Ratio			0.08		0.35			0.36				0.30	
Uniform Delay, d1			19.3		21.4			35.3				25.9	
Progression Factor			1.00		0.16			0.89				1.00	
Incremental Delay, d2			0.1		0.3			3.9				0.1	
Delay (s)			19.3		3.8			35.5				25.9	
Level of Service			B		A			D				C	
Approach Delay (s)		19.3			3.8				35.5			25.9	
Approach LOS		B			A				D			C	

Intersection Summary			
HCM 2000 Control Delay	19.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	29.1
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	ø2
Lane Configurations													
Volume (vph)	330	40	5	35	0	40	25	175	365	40	30	585	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Right Turn on Red			Yes				Yes			Yes			
Link Speed (mph)		30			30				30			30	
Link Distance (ft)		290			416				442			193	
Travel Time (s)		6.6			9.5				10.0			4.4	
Confl. Peds. (#/hr)								1					
Peak Hour Factor	0.96	0.96	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	0%	0%	0%	1%	1%	
Shared Lane Traffic (%)	43%												
Lane Group Flow (vph)	196	195	0	38	70	0	0	190	397	43	33	636	
Turn Type	Split	NA		Split	NA			Prot	NA	pm+ov	Prot	NA	
Protected Phases	7	7		4	4			3	2 3	4	1	1 2	2
Permitted Phases										2 3			
Detector Phase	7	7		4	4			3	2 3	4	1	1 2	
Switch Phase													
Minimum Initial (s)	10.0	10.0		10.0	10.0			10.0		10.0	5.0		10.0
Minimum Split (s)	16.6	16.6		15.6	15.6			22.8		15.6	16.5		14.6
Total Split (s)	19.0	19.0		16.0	16.0			23.0		16.0	16.5		15.5
Total Split (%)	21.1%	21.1%		17.8%	17.8%			25.6%		17.8%	18.3%		17%
Yellow Time (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0		3.0
All-Red Time (s)	2.6	2.6		2.6	2.6			4.8		2.6	2.5		1.6
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0		
Total Lost Time (s)	5.6	5.6		5.6	5.6			7.8		5.6	5.5		
Lead/Lag				Lag	Lag			Lead		Lag	Lead		Lag
Lead-Lag Optimize?													
Recall Mode	None	None		None	None			None		None	None		C-Min
v/c Ratio	0.79	0.77		0.19	0.18			0.68	0.29	0.05	0.15	0.57	
Control Delay	44.0	42.2		38.8	1.0			46.7	19.8	0.9	37.2	28.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	0.0	
Total Delay	44.0	42.2		38.8	1.0			46.7	19.8	0.9	37.2	28.8	
Queue Length 50th (ft)	43	42		20	0			102	81	0	17	162	
Queue Length 95th (ft)	m#202	m#196		50	0			172	117	m1	45	219	
Internal Link Dist (ft)		210			336				362			113	
Turn Bay Length (ft)													
Base Capacity (vph)	260	263		204	402			304	1411	923	226	1119	
Starvation Cap Reductn	0	0		0	0			0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0			0	0	0	0	0	
Storage Cap Reductn	0	0		0	0			0	0	0	0	0	
Reduced v/c Ratio	0.75	0.74		0.19	0.17			0.63	0.28	0.05	0.15	0.57	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBL, Start of Green, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: East Couplet & West Couplet/AMC South Lot & Ring Road

Movement	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	330	40	5	35	0	40	25	175	365	40	30	585
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6		5.6	5.6			7.8	4.6	5.6	5.5	5.5
Lane Util. Factor	0.95	0.95		1.00	1.00			1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.85			1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	0.96		0.95	1.00			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1698	1715		1770	1583			1805	3610	1615	1787	3574
Flt Permitted	0.95	0.96		0.95	1.00			0.95	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1698	1715		1770	1583			1805	3610	1615	1787	3574
Peak-hour factor, PHF	0.96	0.96	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	344	42	5	38	0	43	27	190	397	43	33	636
RTOR Reduction (vph)	0	1	0	0	62	0	0	0	0	26	0	0
Lane Group Flow (vph)	196	194	0	38	8	0	0	190	397	17	33	636
Confl. Peds. (#/hr)								1				
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	0%	0%	0%	1%	1%
Turn Type	Split	NA		Split	NA			Prot	NA	pm+ov	Prot	NA
Protected Phases	7	7		4	4			3	2 3	4	1	1 2
Permitted Phases										2 3		
Actuated Green, G (s)	13.2	13.2		10.1	10.1			14.0	30.8	40.9	11.4	29.1
Effective Green, g (s)	13.2	13.2		10.1	10.1			14.0	30.8	36.3	11.4	29.1
Actuated g/C Ratio	0.15	0.15		0.11	0.11			0.16	0.34	0.40	0.13	0.32
Clearance Time (s)	5.6	5.6		5.6	5.6			7.8		5.6	5.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	2.0	
Lane Grp Cap (vph)	249	251		198	177			280	1235	651	226	1155
v/s Ratio Prot	c0.12	0.11		c0.02	0.00			c0.11	0.11	0.00	0.02	c0.18
v/s Ratio Perm										0.01		
v/c Ratio	0.79	0.77		0.19	0.04			0.68	0.32	0.03	0.15	0.55
Uniform Delay, d1	37.0	37.0		36.2	35.6			35.9	21.9	16.2	35.0	25.1
Progression Factor	0.56	0.56		1.00	1.00			0.98	0.97	1.00	1.00	1.00
Incremental Delay, d2	14.5	13.2		0.5	0.1			5.7	0.1	0.0	0.1	0.3
Delay (s)	35.2	33.8		36.7	35.7			40.9	21.4	16.2	35.1	25.4
Level of Service	D	C		D	D			D	C	B	D	C
Approach Delay (s)		34.5			36.1				26.9			25.9
Approach LOS		C			D				C			C

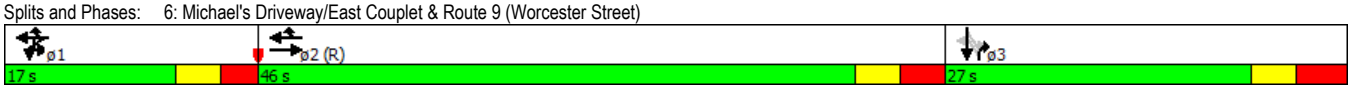
Intersection Summary			
HCM 2000 Control Delay	28.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	29.1
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Volume (vph)	0	1780	75	60	55	1965	580	110	0	70	565	30	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0		280		280	0		90	0		0
Storage Lanes	0		0		1		1	1		1	1		0
Taper Length (ft)	25				25			25			25		
Right Turn on Red			Yes				Yes			Yes			Yes
Link Speed (mph)		30				30			30			30	
Link Distance (ft)		587				872			428			442	
Travel Time (s)		13.3				19.8			9.7			10.0	
Confl. Peds. (#/hr)	2		9		9		2						
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)											44%		
Lane Group Flow (vph)	0	1995	0	0	121	2068	611	120	0	76	344	336	0
Turn Type		NA		Prot	Prot	NA	Prot	D.Pm		Prot	Perm	NA	
Protected Phases		2		1	1	1 2	1 2			3		3	
Permitted Phases								3			3		
Detector Phase		2		1	1	1 2	1 2	3		3	3	3	
Switch Phase													
Minimum Initial (s)		15.0		5.0	5.0			5.0		5.0	5.0	5.0	
Minimum Split (s)		21.0		10.5	10.5			11.5		11.5	11.5	11.5	
Total Split (s)		46.0		17.0	17.0			27.0		27.0	27.0	27.0	
Total Split (%)		51.1%		18.9%	18.9%			30.0%		30.0%	30.0%	30.0%	
Yellow Time (s)		3.0		3.0	3.0			3.0		3.0	3.0	3.0	
All-Red Time (s)		3.0		2.5	2.5			3.5		3.5	3.5	3.5	
Lost Time Adjust (s)		0.0			0.0			0.0		0.0	0.0	0.0	
Total Lost Time (s)		6.0			5.5			6.5		6.5	6.5	6.5	
Lead/Lag		Lag		Lead	Lead								
Lead-Lag Optimize?													
Recall Mode		C-Min		None	None			None		None	None	None	
v/c Ratio		0.88			0.53	0.63	0.49	1.05		0.17	0.89	0.86	
Control Delay		26.8			46.0	10.9	2.0	137.2		4.2	60.5	55.9	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay		26.8			46.0	10.9	2.0	137.2		4.2	60.5	55.9	
Queue Length 50th (ft)		364			65	233	0	~75		0	226	218	
Queue Length 95th (ft)		436			121	278	35	#184		21	#381	#364	
Internal Link Dist (ft)		507				792			348			362	
Turn Bay Length (ft)					280		280			90			
Base Capacity (vph)		2271			228	3281	1242	114		443	386	390	
Starvation Cap Reductn		0			0	0	0	0		0	0	0	
Spillback Cap Reductn		0			0	95	0	0		0	0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	0	
Reduced v/c Ratio		0.88			0.53	0.65	0.49	1.05		0.17	0.89	0.86	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 72 (80%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 6: Michael's Driveway/East Couplet & Route 9 (Worcester Street)



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Volume (vph)	0	1780	75	60	55	1965	580	110	0	70	565	30	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			5.5	5.5	5.5	6.5		6.5	6.5	6.5	
Lane Util. Factor		0.91			1.00	0.91	1.00	1.00		1.00	0.95	0.95	
Frpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt		0.99			1.00	1.00	0.85	1.00		0.85	1.00	0.99	
Flt Protected		1.00			0.95	1.00	1.00	0.95		1.00	0.95	0.96	
Satd. Flow (prot)		5098			1787	5136	1599	1787		1599	1698	1693	
Flt Permitted		1.00			0.95	1.00	1.00	0.27		1.00	0.95	0.96	
Satd. Flow (perm)		5098			1787	5136	1599	504		1599	1698	1693	
Peak-hour factor, PHF	0.93	0.93	0.93	0.95	0.95	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1914	81	63	58	2068	611	120	0	76	614	33	33
RTOR Reduction (vph)	0	5	0	0	0	0	224	0	0	59	0	5	0
Lane Group Flow (vph)	0	1990	0	0	121	2068	387	120	0	17	344	331	0
Confl. Peds. (#/hr)	2		9		9		2						
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type		NA		Prot	Prot	NA	Prot	D.Pm		Prot	Perm	NA	
Protected Phases		2		1	1	1 2	1 2			3		3	
Permitted Phases								3			3		
Actuated Green, G (s)		40.0			11.5	57.0	57.0	20.5		20.5	20.5	20.5	
Effective Green, g (s)		40.0			11.5	57.0	57.0	20.5		20.5	20.5	20.5	
Actuated g/C Ratio		0.44			0.13	0.63	0.63	0.23		0.23	0.23	0.23	
Clearance Time (s)		6.0			5.5			6.5		6.5	6.5	6.5	
Vehicle Extension (s)		3.5			2.0			2.0		2.0	2.0	2.0	
Lane Grp Cap (vph)		2265			228	3252	1012	114		364	386	385	
v/s Ratio Prot		c0.39			0.07	c0.40	0.24			0.01			
v/s Ratio Perm								c0.24			0.20	0.20	
v/c Ratio		0.88			0.53	0.64	0.38	1.05		0.05	0.89	0.86	
Uniform Delay, d1		22.8			36.7	10.1	8.0	34.8		27.1	33.7	33.4	
Progression Factor		0.94			1.00	1.00	1.00	1.00		1.00	1.09	1.09	
Incremental Delay, d2		5.0			1.2	0.3	0.1	99.1		0.0	18.8	14.8	
Delay (s)		26.4			37.9	10.4	8.1	133.9		27.1	55.4	51.2	
Level of Service		C			D	B	A	F		C	E	D	
Approach Delay (s)		26.4				11.1			92.5			53.3	
Approach LOS		C				B			F			D	

Intersection Summary			
HCM 2000 Control Delay	24.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	84.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBU	EBL	EBT	WBT	WBR	SWL	SWR	ø1	ø3
Lane Configurations									
Volume (vph)	5	425	1895	2075	30	0	375		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900		
Storage Length (ft)		335			0	0	0		
Storage Lanes		2			0	0	2		
Taper Length (ft)		25				25			
Right Turn on Red					Yes		Yes		
Link Speed (mph)			30	30		30			
Link Distance (ft)			938	587		277			
Travel Time (s)			21.3	13.3		6.3			
Confl. Peds. (#/hr)		1			1				
Peak Hour Factor	0.92	0.98	0.98	0.97	0.97	0.92	0.92		
Heavy Vehicles (%)	2%	1%	1%	1%	1%	1%	1%		
Shared Lane Traffic (%)									
Lane Group Flow (vph)	0	439	1934	2170	0	0	408		
Turn Type	custom	Prot	NA	NA			pt+ov		
Protected Phases		1 3	1 2	2			1 3	1	3
Permitted Phases	1 3								
Detector Phase	1	1	1 2	2			1		
Switch Phase									
Minimum Initial (s)				15.0				5.0	5.0
Minimum Split (s)				20.6				10.4	22.6
Total Split (s)				49.0				22.0	19.0
Total Split (%)				54.4%				24%	21%
Yellow Time (s)				3.2				3.2	3.2
All-Red Time (s)				2.4				2.2	3.4
Lost Time Adjust (s)				0.0					
Total Lost Time (s)				5.6					
Lead/Lag				Lag				Lead	
Lead-Lag Optimize?									
Recall Mode				C-Min				None	None
v/c Ratio		0.34	0.40	0.84			0.39		
Control Delay		20.5	1.7	16.3			16.3		
Queue Delay		0.0	0.0	0.1			0.0		
Total Delay		20.5	1.7	16.5			16.3		
Queue Length 50th (ft)		87	0	406			72		
Queue Length 95th (ft)		123	173	m473			94		
Internal Link Dist (ft)			858	507		197			
Turn Bay Length (ft)		335							
Base Capacity (vph)		1304	4857	2576			1058		
Starvation Cap Reductn		0	0	35			0		
Spillback Cap Reductn		0	0	0			0		
Storage Cap Reductn		0	0	0			0		
Reduced v/c Ratio		0.34	0.40	0.85			0.39		

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 83 (92%), Referenced to phase 2:EBWB, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Route 9 (Worcester Street) & West Couplet

Movement	EBU	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations							
Volume (vph)	5	425	1895	2075	30	0	375
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.4	5.6			5.4
Lane Util. Factor		0.97	0.91	0.91			0.88
Frpb, ped/bikes		1.00	1.00	1.00			1.00
Flpb, ped/bikes		1.00	1.00	1.00			1.00
Frt		1.00	1.00	1.00			0.85
Flt Protected		0.95	1.00	1.00			1.00
Satd. Flow (prot)		3464	5136	5124			2814
Flt Permitted		0.95	1.00	1.00			1.00
Satd. Flow (perm)		3474	5136	5124			2814
Peak-hour factor, PHF	0.92	0.98	0.98	0.97	0.97	0.92	0.92
Adj. Flow (vph)	5	434	1934	2139	31	0	408
RTOR Reduction (vph)	0	0	0	2	0	0	3
Lane Group Flow (vph)	0	439	1934	2168	0	0	405
Confl. Peds. (#/hr)		1			1		
Heavy Vehicles (%)	2%	1%	1%	1%	1%	1%	1%
Turn Type	custom	Prot	NA	NA			pt+ov
Protected Phases		1 3	1 2	2			1 3
Permitted Phases	1 3						
Actuated Green, G (s)		39.1	75.3	39.9			39.1
Effective Green, g (s)		32.5	75.3	39.9			32.5
Actuated g/C Ratio		0.36	0.84	0.44			0.36
Clearance Time (s)				5.6			
Vehicle Extension (s)				3.5			
Lane Grp Cap (vph)		1254	4297	2271			1016
v/s Ratio Prot			c0.38	c0.42			c0.14
v/s Ratio Perm		0.13					
v/c Ratio		0.35	0.45	0.95			0.40
Uniform Delay, d1		21.0	1.9	24.2			21.5
Progression Factor		1.00	1.00	0.67			0.76
Incremental Delay, d2		0.1	0.0	8.8			0.1
Delay (s)		21.1	2.0	24.9			16.4
Level of Service		C	A	C			B
Approach Delay (s)			5.5	24.9		16.4	
Approach LOS			A	C		B	

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.6
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

LANE SUMMARY

Site: EX-PM

Flutie Pass at Mall Road
2016 Existing Conditions
Weekday Evening Peak Hour
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Mall Road													
Lane 1[d]	229	0.0	928	0.247	100	6.4	LOS A	1.0	25.8	Full	1600	0.0	0.0
Approach	229	0.0		0.247		6.4	LOS A	1.0	25.8				
East: Flutie Pass													
Lane 1	183	4.0	928	0.197	100	5.8	LOS A	0.8	19.5	Full	1600	0.0	0.0
Lane 2[d]	239	4.0	928	0.257	100	6.5	LOS A	1.0	27.0	Full	1600	0.0	0.0
Approach	422	4.0		0.257		6.2	LOS A	1.0	27.0				
West: Flutie Pass													
Lane 1	172	1.0	920	0.187	100	5.7	LOS A	0.7	18.3	Full	1600	0.0	0.0
Lane 2[d]	206	1.0	920	0.223	100	6.2	LOS A	0.9	22.7	Full	1600	0.0	0.0
Approach	378	1.0		0.223		6.0	LOS A	0.9	22.7				
Intersection	1029	2.0		0.257		6.2	LOS A	1.0	27.0				

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

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LANE SUMMARY

Site: EX-SAT

Flutie Pass at Mall Road
2016 Existing Conditions
Saturday Midday Peak Hour
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Mall Road													
Lane 1[d]	443	1.0	764	0.580	100	13.9	LOS B	3.7	93.1	Full	1600	0.0	0.0
Approach	443	1.0		0.580		13.9	LOS B	3.7	93.1				
East: Flutie Pass													
Lane 1	274	1.0	850	0.322	100	7.8	LOS A	1.4	34.9	Full	1600	0.0	0.0
Lane 2[d]	442	1.0	850	0.520	100	11.3	LOS B	3.0	75.0	Full	1600	0.0	0.0
Approach	716	1.0		0.520		10.0	LOS A	3.0	75.0				
West: Flutie Pass													
Lane 1[d]	371	0.0	852	0.436	100	9.6	LOS A	2.1	53.6	Full	1600	0.0	0.0
Lane 2	356	0.0	852	0.417	100	9.3	LOS A	2.0	50.3	Full	1600	0.0	0.0
Approach	727	0.0		0.436		9.5	LOS A	2.1	53.6				
Intersection	1886	0.6		0.580		10.7	LOS B	3.7	93.1				

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

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LANE SUMMARY

Site: NB-PM

Flutie Pass at Mall Road
2023 No-Build Conditions
Weekday Evening Peak Hour
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Mall Road													
Lane 1[d]	328	0.0	863	0.380	100	8.6	LOS A	1.8	44.3	Full	1600	0.0	0.0
Approach	328	0.0		0.380		8.6	LOS A	1.8	44.3				
East: Flutie Pass													
Lane 1	315	4.0	919	0.343	100	7.7	LOS A	1.5	39.3	Full	1600	0.0	0.0
Lane 2[d]	353	4.0	919	0.385	100	8.3	LOS A	1.8	46.2	Full	1600	0.0	0.0
Approach	668	4.0		0.385		8.0	LOS A	1.8	46.2				
West: Flutie Pass													
Lane 1[d]	245	1.0	802	0.305	100	8.0	LOS A	1.3	31.9	Full	1600	0.0	0.0
Lane 2	217	1.0	802	0.271	100	7.5	LOS A	1.1	27.5	Full	1600	0.0	0.0
Approach	462	1.0		0.305		7.8	LOS A	1.3	31.9				
Intersection	1459	2.1		0.385		8.1	LOS A	1.8	46.2				

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

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LANE SUMMARY

Site: NB-SAT

Flutie Pass at Mall Road
2023 No-Build Conditions
Saturday Midday Peak Hour
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Mall Road													
Lane 1[d]	516	1.0	710	0.727	100	21.0	LOS C	6.0	151.1	Full	1600	0.0	0.0
Approach	516	1.0		0.727		21.0	LOS C	6.0	151.1				
East: Flutie Pass													
Lane 1	405	1.0	846	0.479	100	10.5	LOS B	2.5	63.2	Full	1600	0.0	0.0
Lane 2[d]	547	1.0	846	0.647	100	14.9	LOS B	4.9	124.5	Full	1600	0.0	0.0
Approach	953	1.0		0.647		13.0	LOS B	4.9	124.5				
West: Flutie Pass													
Lane 1[d]	428	0.0	746	0.574	100	14.0	LOS B	3.6	90.2	Full	1600	0.0	0.0
Lane 2	381	0.0	746	0.511	100	12.3	LOS B	2.9	71.7	Full	1600	0.0	0.0
Approach	810	0.0		0.574		13.2	LOS B	3.6	90.2				
Intersection	2278	0.6		0.727		14.9	LOS B	6.0	151.1				

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

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LANE SUMMARY

Site: BD-PM

Flutie Pass at Mall Road
2023 Build Conditions
Weekday Evening Peak Hour
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Mall Road													
Lane 1[d]	328	0.0	858	0.382	100	8.7	LOS A	1.8	44.5	Full	1600	0.0	0.0
Approach	328	0.0		0.382		8.7	LOS A	1.8	44.5				
East: Flutie Pass													
Lane 1	315	4.0	919	0.343	100	7.7	LOS A	1.5	39.3	Full	1600	0.0	0.0
Lane 2[d]	364	4.0	919	0.396	100	8.4	LOS A	1.9	48.3	Full	1600	0.0	0.0
Approach	679	4.0		0.396		8.1	LOS A	1.9	48.3				
West: Flutie Pass													
Lane 1[d]	250	1.0	802	0.312	100	8.1	LOS A	1.3	32.8	Full	1600	0.0	0.0
Lane 2	223	1.0	802	0.278	100	7.6	LOS A	1.1	28.4	Full	1600	0.0	0.0
Approach	473	1.0		0.312		7.8	LOS A	1.3	32.8				
Intersection	1480	2.2		0.396		8.1	LOS A	1.9	48.3				

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach

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LANE SUMMARY

Site: BD-SAT

Flutie Pass at Mall Road
2023 No-Build Conditions
Saturday Midday Peak Hour
Roundabout

Lane Use and Performance

	Demand Flows Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Veh	Dist ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: Mall Road													
Lane 1[d]	505	1.0	703	0.719	100	20.7	LOS C	5.8	145.7	Full	1600	0.0	0.0
Approach	505	1.0		0.719		20.7	LOS C	5.8	145.7				
East: Flutie Pass													
Lane 1	405	1.0	856	0.474	100	10.3	LOS B	2.4	61.5	Full	1600	0.0	0.0
Lane 2[d]	553	1.0	856	0.646	100	14.8	LOS B	4.9	124.6	Full	1600	0.0	0.0
Approach	958	1.0		0.646		12.9	LOS B	4.9	124.6				
West: Flutie Pass													
Lane 1[d]	438	0.0	746	0.587	100	14.4	LOS B	3.8	94.8	Full	1600	0.0	0.0
Lane 2	381	0.0	746	0.511	100	12.3	LOS B	2.9	71.7	Full	1600	0.0	0.0
Approach	820	0.0		0.587		13.4	LOS B	3.8	94.8				
Intersection	2283	0.6		0.719		14.8	LOS B	5.8	145.7				

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
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d Dominant lane on roundabout approach

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Queue Diagrams

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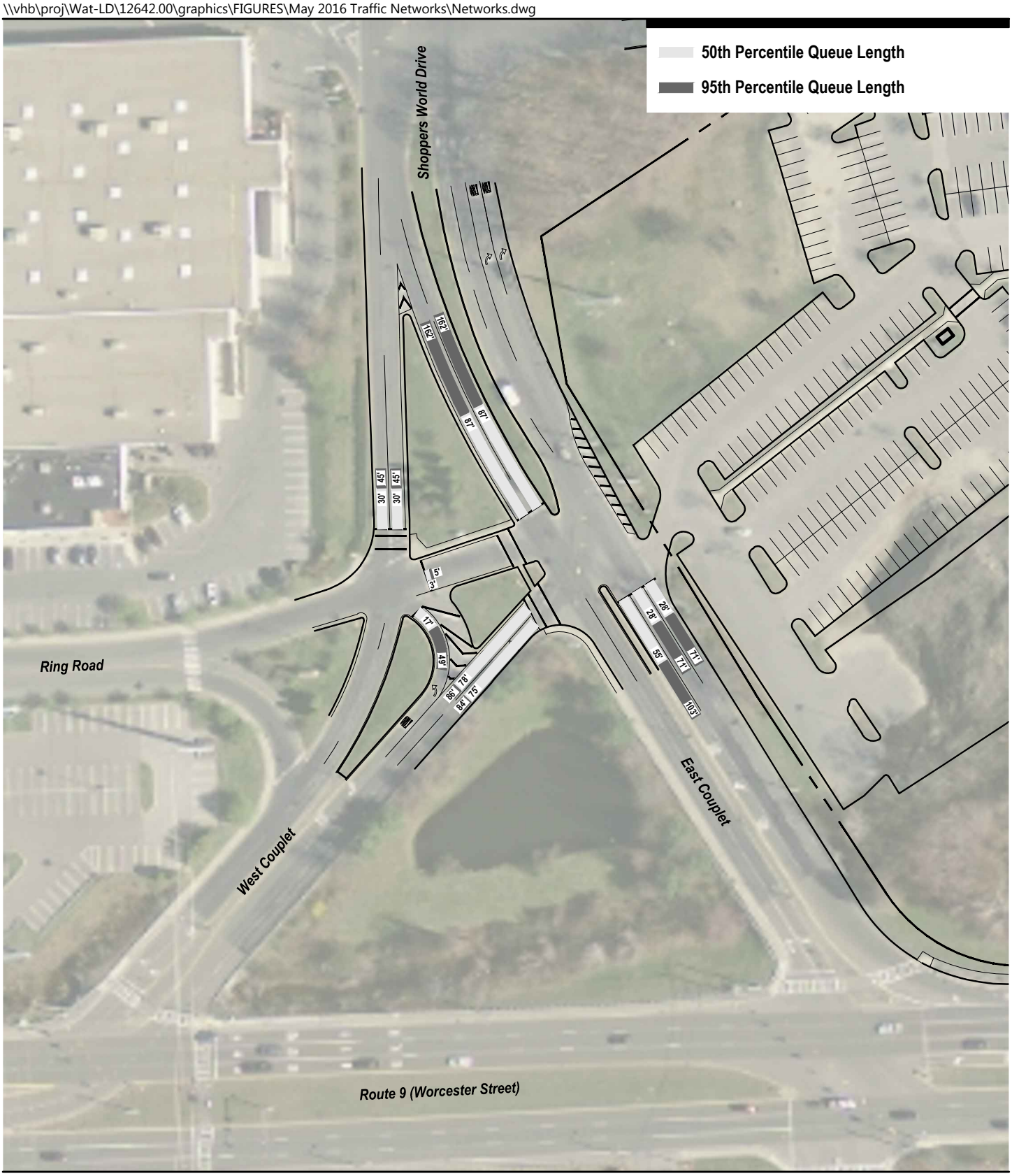

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2023 No-Build Conditions
Weekday Evening Peak Hour Queue Lengths
AMC South Parking Lot Redevelopment
Framingham, Massachusetts

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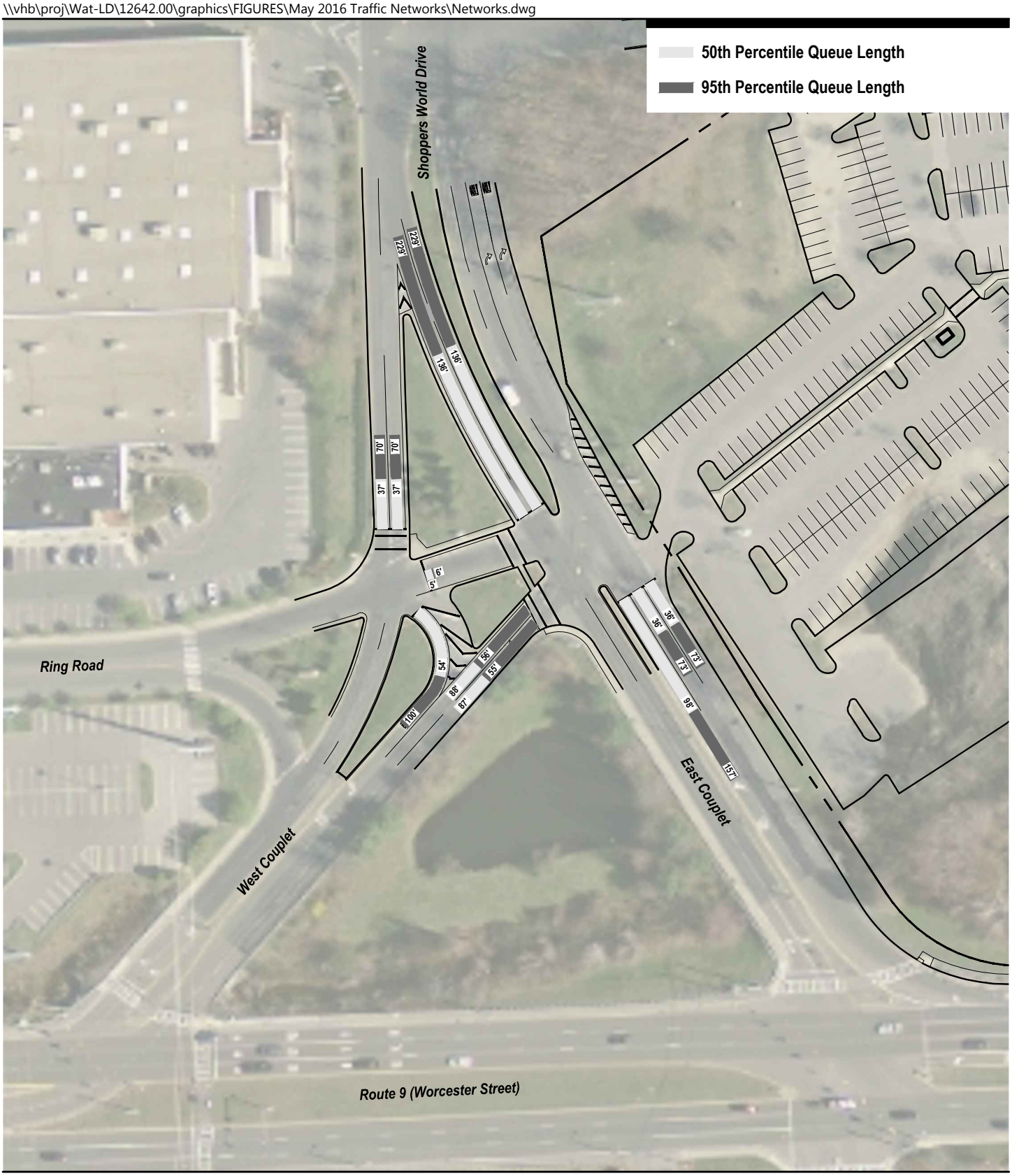

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2023 No-Build Conditions
Saturday Midday Peak Hour Queue Lengths
AMC South Parking Lot Redevelopment
Framingham, Massachusetts

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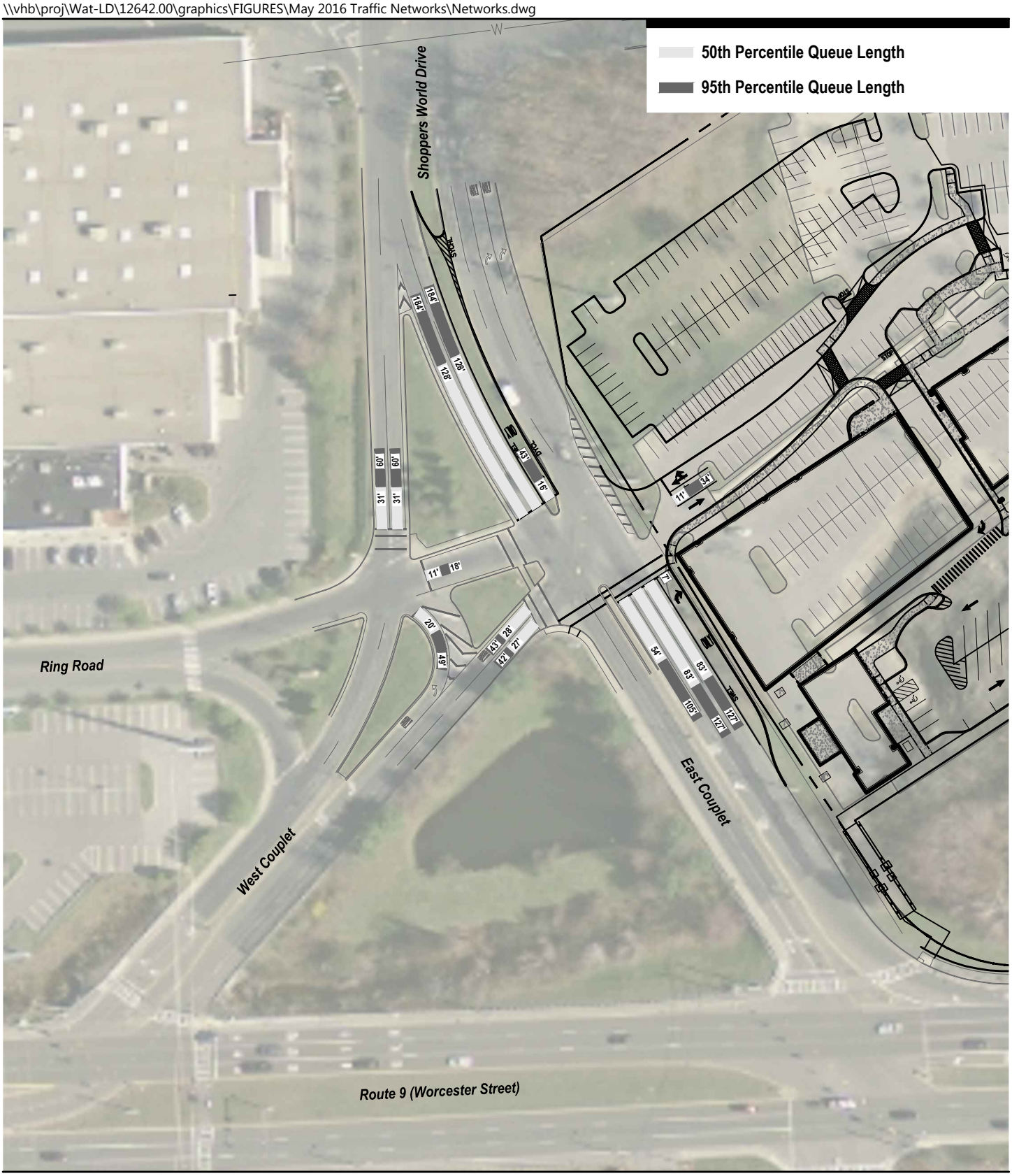

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2023 Build Conditions
Weekday Evening Peak Hour Queue Lengths
AMC South Parking Lot Redevelopment
Framingham, Massachusetts

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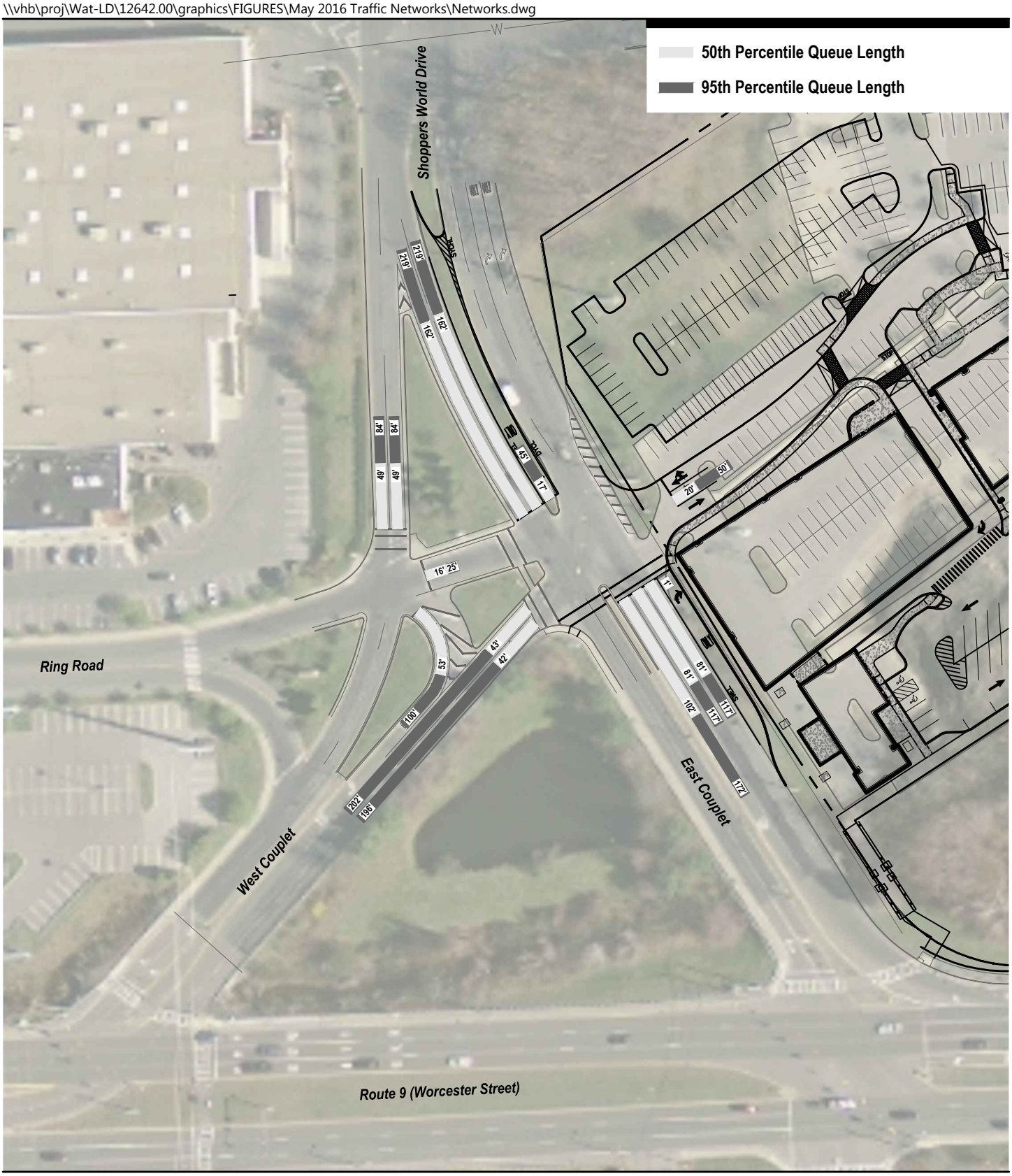

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Saturday Midday Peak Hour Queue Lengths
AMC South Parking Lot Redevelopment
Framingham, Massachusetts