TRANSPORTATION IMPACT ASSESSMENT

PROPOSED AUTOMOTIVE SALES AND SERVICE CENTER
71 BISHOP STREET
FRAMINGHAM, MASSACHUSETTS

Prepared for:

The Herb Chambers Companies
Somerville, Massachusetts

November 2015

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EXECUTIVE SUMMARY

Vanasse & Associates, Inc. (VAI) has conducted a Transportation Impact Assessment (TIA) in order to determine the potential impacts on the transportation infrastructure associated with the proposed construction of an automotive sales and service facility to be located at 71 Bishop Street in Framingham, Massachusetts (hereafter referred to as the "Project"). This assessment was prepared in consultation with the Town of Framingham and the Massachusetts Department of Transportation (MassDOT); was performed in accordance with MassDOT's *Transportation Impact Assessment (TIA) Guidelines*; and was conducted pursuant to the standards of the Traffic Engineering and Transportation Planning professions for the preparation of such reports. Based on this assessment, we have concluded the following with respect to the Project:

1. Using a combination of empirical traffic count data obtained from facilities similar to those that will be located within the Project site and employee/customer projections for the proposed uses, the Project is predicted to generate approximately 53 vehicle trips during the weekday morning peak-hour, 62 vehicle trips during the weekday evening peak-hour and 51 vehicle trips during the Saturday midday peak-hour;

2. The Project will not have a significant impact (increase) on motorist delays or vehicle queuing over Existing or anticipated future conditions without the Project (No-Build conditions);

3. With the exception of the Waverly Street/Bishop Street/Beaver Street intersection, no apparent safety deficiencies were noted with respect to the motor vehicle crash history at the study intersections. Specific safety-related improvement measures have been identified at the Waverly Street/Bishop Street/Beaver Street intersection to address the motor vehicle crashes that are occurring at this intersection; and

4. Lines of sight to and from the Project site driveway intersections with Bishop Street, Lawrence Street and Clark Street were found to exceed the required minimum distance for the intersections to function in a safe manner based on the appropriate approach speed along the intersecting roadway.

In consideration of the above, we have concluded that the Project can be accommodated within the confines of the existing transportation infrastructure in a safe and efficient manner with implementation of the recommendations that follow.

RECOMMENDATIONS

A detailed transportation improvement program has been developed that is designed to provide safe and efficient access to the Project site and address any deficiencies identified at off-site locations evaluated in conjunction with this study. The following improvements have been recommended as a part of this evaluation and, where applicable, will be completed in conjunction with the Project subject to receipt of all necessary rights, permits, and approvals.

Project Access

Access to the Project site will be provided by way of multiple driveways defined as follows: two (2) full-access driveways that will intersect the east side of Bishop Street between Clark Street and Lawrence Street; a full access driveway that will intersect the north side of Clark Street east of Bishop Street; and two (2) restricted (by means of a gate) access driveways that will intersect the north side of Clark Street and the south side of Lawrence Street, respectively. Additional access will be provided to a 120 space parking lot at the east end of Clark Street. These spaces serve as parking for existing businesses in the area. The following recommendations are offered with respect to the design and operation of the Project site driveways:

- The non-restricted Project site driveways should be a minimum of 24-feet in width and accommodate two-way traffic, with the restricted access driveways providing a minimum width of 18-feet.
- The gates securing the restricted access driveways should include appropriate signs ("Do Not Enter") and/or reflectorized tape to clearly delineate the gates under low visibility conditions.
- Vehicles exiting the Project site should be placed under STOP-sign control with a marked STOP-line provided.
- All signs and pavement markings to be installed within the Project site shall conform to the applicable standards of the *Manual on Uniform Traffic Control Devices* (MUTCD).[1]
- Sidewalks should be provided within the Project site linking the proposed building to the sidewalk infrastructure along Bishop Street.
- Wheelchair ramps should be provided for crossing the Project site driveways where a sidewalk is present.
- Signs and landscaping to be installed along the Project site driveways, internal to the Project site and at the Project site driveway intersections with Bishop Street, Lawrence Street and Clark Street should be designed and maintained so as not to restrict lines of sight.
- Snow windrows along the Project site frontage within the sight triangle areas of the Project site driveways shall be promptly removed where such accumulations would exceed 2.5 feet in height.
- Where allowed, on-street parking should be prohibited for a minimum distance of 20-feet on either side of the Project site driveways in order to provide and maintain the required lines of sight for the driveways to operate in a safe manner.

[1] *Manual on Uniform Traffic Control Devices (MUTCD)*; Federal Highway Administration; Washington, D.C.; 2009.

Off-Site

Waverly Street/Bishop Street/Beaver Street

This signalized intersection was found to have a motor vehicle crash rate that exceeded both the MassDOT statewide and District crash rates for a signalized intersection, and was listed on MassDOT's *Top 200 Crash Location List* (number 92 out of 200). In addition, it was noted that one or more movements at the intersection were operating at or over their theoretical design capacity (defined as a level-of-service of "E" or "F", respectively) independent of the Project. In an effort to reduce the frequency of occurrence of motor vehicle crashes at the intersection and improve traffic operations (i.e., reduce motorist delay and vehicle queuing), the following improvements are recommended and include the Bishop Street/Howard Street intersection as both intersections operate as a single signalized intersection:

- Realign the optically programmed signal heads so that the displays are only visible within the defined zones;
- Relamp the existing signal heads with LED type bulbs to enhance the visibility of the signal indications;
- Add reflectorized tape to the perimeter of the signal head backplates;
- Replace missing OPTICOM™ receiver; and
- Review, design and implement an optimal traffic signal timing plan, with specific emphasis on the "yellow" and "all-red" clearance intervals.

These improvements will be completed prior to the issuance of a Certificate of Occupancy for the Project and subject to receipt of all necessary rights, permits and approvals.

Transportation Demand Management

The Project site is ideally situated to take advantage of available public transportation opportunities in the area, including both Commuter Rail and bus service along Waverly Street. In an effort to the encourage use of alternative modes of transportation to single-occupant vehicles, the following Transportation Demand Management (TDM) measures will be implemented as a part of the Project:

- Information regarding public transportation services, maps, schedules and fare information will be posted in a central location;
- A packet will be provided to new employees of the Project detailing available public transportation services, bicycle and walking alternatives, and commuter options available through MassRIDES' and their NuRide program which rewards individuals that choose to walk, bicycle, carpool, vanpool or that use public transportation to travel to and from work;
- Pedestrian accommodations will be incorporated within the Project site; and
- Secure bicycle parking will be provided, including both an exterior bicycle rack and weather protected bicycle parking in a secure area.

With implementation of the above recommendations, safe and efficient access will be provided to the Project site and the Project can be accommodated within the confines of the existing and improved transportation system.

INTRODUCTION

Vanasse & Associates, Inc. (VAI) has conducted a Transportation Impact Assessment (TIA) in order to determine the potential impacts on the transportation infrastructure associated with the proposed construction of an automotive sales and service center to be located at 71 Bishop Street in Framingham, Massachusetts (hereafter referred to as the "Project"). This study evaluates the following specific areas as they relate to the Project: i) access requirements; ii) potential off-site improvements; and iii) safety considerations; and identifies and analyzes existing traffic conditions and future traffic conditions, both with and without the Project, along Bishop Street and at the following intersections: Bishop Street at Lawrence Street; Bishop Street at Clark Street; Bishop Street at Howard Street; and Waverly Street at Bishop Street and Beaver Street.

PROJECT DESCRIPTION

As proposed, the Project will entail the construction of a 65,162± square foot (sf) building to be located at 71 Bishop Street in Framingham, Massachusetts, that will be utilized for automotive sales and services. Specifically, the Project will allow for consolidation of existing automotive services offered by The Herb Chambers Companies to a central location to include a collision center; Mercedes Benz sales and distribution of parts; mechanical services and vehicle preparation; and Mercedes Benz Sprinter van sales. With the exception of the Mercedes Benz Sprinter van sales, the uses that are to be located within the Project will serve existing Herb Chambers dealerships. The specialty nature of the Mercedes Benz Sprinter van line also serves to limit the activity that will be associated with the sales use.

The Project site encompasses approximately 6.27± acres of developed land bounded by Lawrence Street to the north; Clark Street to the south; the Massachusetts Bay Transportation Authority (MBTA) Commuter Rail tracks and areas of open and wooded space to the east; and Bishop Street to the west. Figure 1 depicts the Project site location in relation to the existing roadway network. At present, the Project site contains an 88,116± sf commercial building and associated appurtenances that will be removed in conjunction with the Project.

Access to the Project site will be provided by way of multiple driveways defined as follows: two (2) full-access driveways that will intersect the east side of Bishop Street between Clark Street and Lawrence Street; a full access driveway that will intersect the north side of Clark Street east of Bishop Street; and two (2) restricted (by means of a gate) access driveways that will intersect the north side of Clark Street and the south side of Lawrence Street, respectively. Additional

Figure 1

Site Location Map

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access will be provided to a 120 space parking lot at the east end of Clark Street. These spaces serve as parking for existing businesses in the area. On-site parking will be provided for 355 vehicles (excluding the 120 spaces allocated for area tenant use), including 102 tandem spaces for vehicle inventory. This parking supply is sufficient to accommodate the parking demands of employees and customers; the storage of vehicles in the process of being repaired or prepped for customer delivery; and vehicle inventory.

STUDY METHODOLOGY

This study was prepared in consultation with the Town of Framingham and the Massachusetts Department of Transportation (MassDOT); was performed in accordance with MassDOT's *Transportation Impact Assessment (TIA) Guidelines* and the standards of the Traffic Engineering and Transportation Planning professions for the preparation of such reports; and was conducted in three distinct stages.

The first stage involved an assessment of existing conditions in the study area and included an inventory of roadway geometrics; pedestrian and bicycle facilities; public transportation services; observations of traffic flow; and collection of daily and peak period traffic counts.

In the second stage of the study, future traffic conditions were projected and analyzed. Specific travel demand forecasts for the Project were assessed along with future traffic demands due to expected traffic growth independent of the Project. A seven-year time horizon was selected for analyses consistent with MassDOT's *Transportation Impact Assessment (TIA) Guidelines*. The traffic analysis conducted in stage two identifies existing or projected future roadway capacity, traffic safety, and site access issues.

The third stage of the study presents and evaluates measures to address traffic and safety issues, if any, identified in stage two of the study.

EXISTING CONDITIONS

A comprehensive field inventory of existing conditions within the study area was conducted in October 2015. The field investigation consisted of an inventory of existing roadway geometrics; pedestrian and bicycle facilities; public transportation services; traffic volumes; and operating characteristics; as well as posted speed limits and land use information within the study area. The study area for the Project was selected to contain the major roadway providing access to the Project site, Bishop Street, as well as the following specific intersections: Bishop Street at Lawrence Street; Bishop Street at Clark Street; Bishop Street at Howard Street; and Waverly Street at Bishop Street and Beaver Street.

The following describes the study area roadway and intersections.

Roadway

Bishop Street

- Two-lane urban collector roadway under Town jurisdiction
- Traverses study area in a general northeast-southwest direction
- Provides two 13 to 14-foot wide travel lanes separated by a double-yellow centerline with 1 to 8-foot wide marked shoulders provided
- A sidewalk is provided continuously along the west side of the roadway and along the east side between Waverly Street and Lawrence Street
- Illumination is provided by way of street lights mounted on wood poles
- The posted speed limit is 35 miles per hour (mph)
- Land use consists of the Project site and residential and commercial properties

Intersections

Table 1 and Figure 2 summarize lane use, traffic control, and pedestrian and bicycle accommodations at the study area intersections as observed in October 2015.

Table 1
STUDY AREA INTERSECTION DESCRIPTION

Intersection	Traffic Control Type[a]	No. of Travel Lanes Provided	Shoulder Provided? (Yes/No/Width)	Pedestrian Accommodations? (Yes/No/Description)	Bicycle Accommodations? (Yes/No/Description)
Waverly Street/ Bishop Street/ Beaver Street	TS	Waverly Street approaches accommodate a left-turn lane and a through travel lane with a right-turn lane provided on the westbound approach; Bishop Street and Beaver Street approaches accommodate a left-turn lane, 1 through travel lane and 1 through/right turn lane	Yes; 1-2 feet on all approaches	Yes – both sides of Bishop Street and Beaver Street, and south side of Waverly Street; Crosswalks across Waverly Street (both legs) and Beaver Street; traffic signal system includes pushbuttons, signal indications and phasing.	Yes - Shared travelled-way on all approaches[b]
Bishop Street/ Howard Street	TS	2 lanes on Bishop Street; Howard Street provides 2 right-turn lanes (left-turns are prohibited)	Yes; 1-2 feet on Bishop Street; no shoulders on Howard Street	Yes – both sides of Bishop Street and Howard Street; Crosswalks across Bishop Street north leg and Howard Street; traffic signal system includes pushbuttons, signal indications and phasing.	Yes - Shared travelled-way on all approaches
Bishop Street/ Clark Street	S	1 per direction on both roadways	Yes; 3-8 feet on Bishop Street; No Parking signs posted along Bishop Street	Yes – both sides of Bishop Street and north side of Clark Street; Crosswalks across north leg of Bishop Street and west leg of Clark Street	Yes - Shared travelled-way on all approaches
Bishop Street/ Lawrence Street	S	1 per direction on both roadways	Yes; 3-8 feet on Bishop Street; No Parking signs posted along Bishop Street	Yes – both sides of Bishop Street south of intersection, west side of Bishop Street north of intersection and north side of Lawrence Street; Crosswalks across south leg of Bishop Street and west leg of Lawrence Street	Yes - Shared travelled-way on all approaches

[a]TS = traffic signal control; S = STOP-sign control; Y = YIELD-sign control; R = rotary/roundabout control; NC = no control present.
[b]Combined shoulder and travel lane width equal to or exceed 14 feet.
[c]Assumed STOP-control; STOP-sign is not present.

EXISTING TRAFFIC VOLUMES

In order to determine existing traffic-volume demands and flow patterns within the study area, automatic traffic recorder (ATR) counts, manual turning movement counts (TMCs) and vehicle classification counts were completed in October 2015 while public schools were in regular session. The ATR counts were conducted on Bishop Street in the vicinity of the Project site in order to record weekday daily traffic conditions over an extended period, with weekday morning (7:00 to 9:00 AM), weekday evening (4:00 to 6:00 PM) and Saturday midday (11:00 AM to 2:00 PM) peak period manual TMCs performed at the study intersections. These time periods were selected for analysis purposes as they are representative of the peak traffic volume hours for both the Project and the adjacent roadway network.

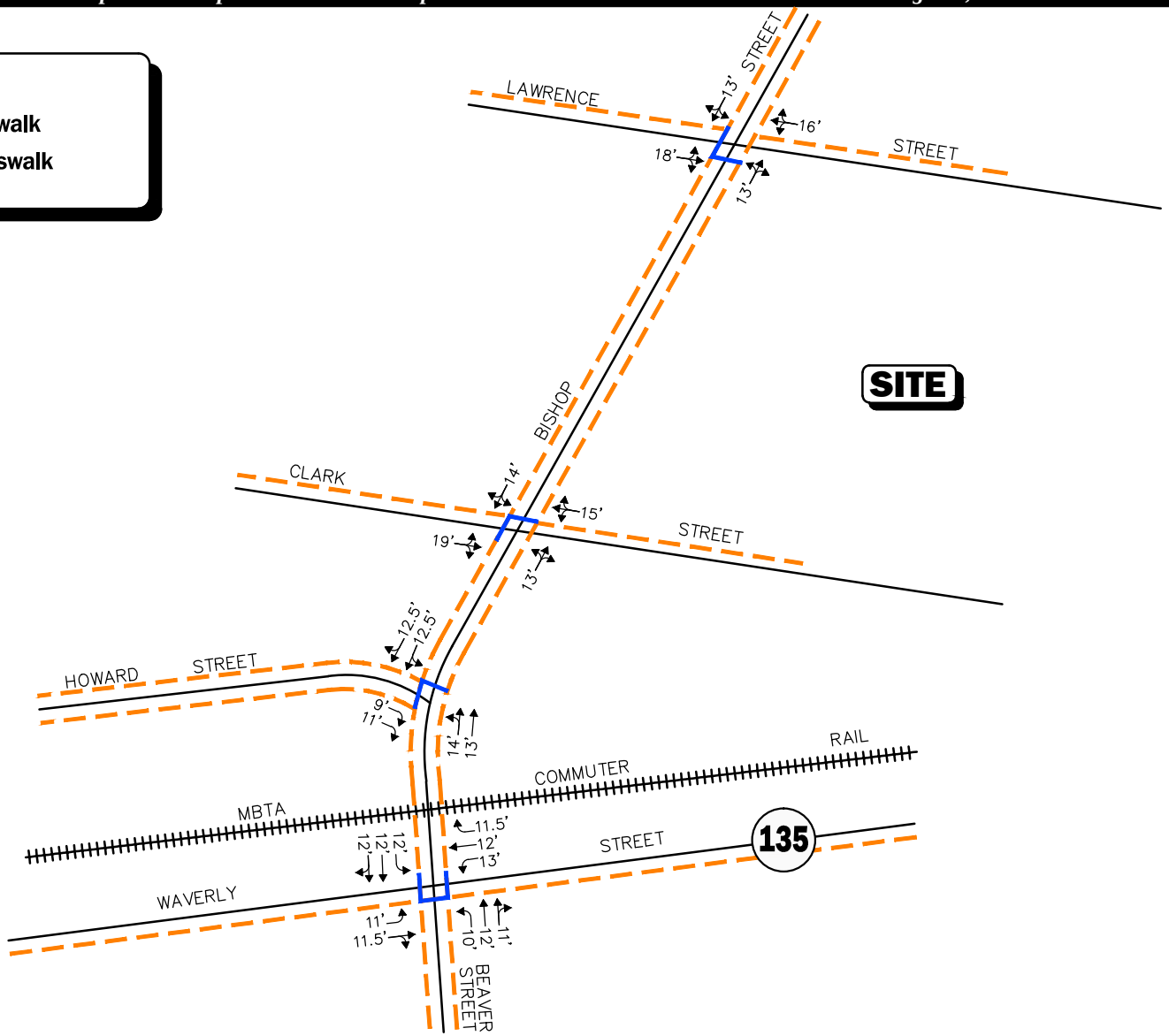

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Figure 2

Existing Intersection
Lane Use and Travel Lane Width

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Traffic Volume Adjustments

In order to evaluate the potential for seasonal fluctuation of traffic volumes within the study area, MassDOT weekday seasonal factors for Group 6 roadways (urban arterials, collectors and rural arterials, the functional classification of Bishop Street) were reviewed.[2] Based on a review of this data, it was determined that traffic volumes for the month of October are approximately 7 to 8 percent above average-month conditions and, therefore, were not adjusted downward in order to provide a conservative (above-average) analysis condition. The 2015 Existing traffic volumes are summarized in Table 2, with the weekday morning, weekday evening and Saturday midday peak-hour traffic volumes graphically depicted on Figures 3, 4 and 5, respectively. Note that the peak-hour traffic volumes presented in Table 2 were obtained from the TMCs and are reflected on the aforementioned figure.

Table 2
2015 EXISTING TRAFFIC VOLUMES

Location	AWT[a]	Saturday[b]	VPH[c]	K Factor[d]	Directional Distribution
Bishop Street, north of Clark Street:	13,005	11,105	--	--	--
Weekday Morning Peak Hour (7:30 – 8:30 AM)	--	--	975	7.5	55.6% NB
Weekday Evening Peak Hour (4:45 – 5:45 PM)	--	--	1,066	8.2	50.6% SB
Saturday Midday Peak Hour (12:30 – 1:30 PM)	--	--	913	8.2	53.0% NB

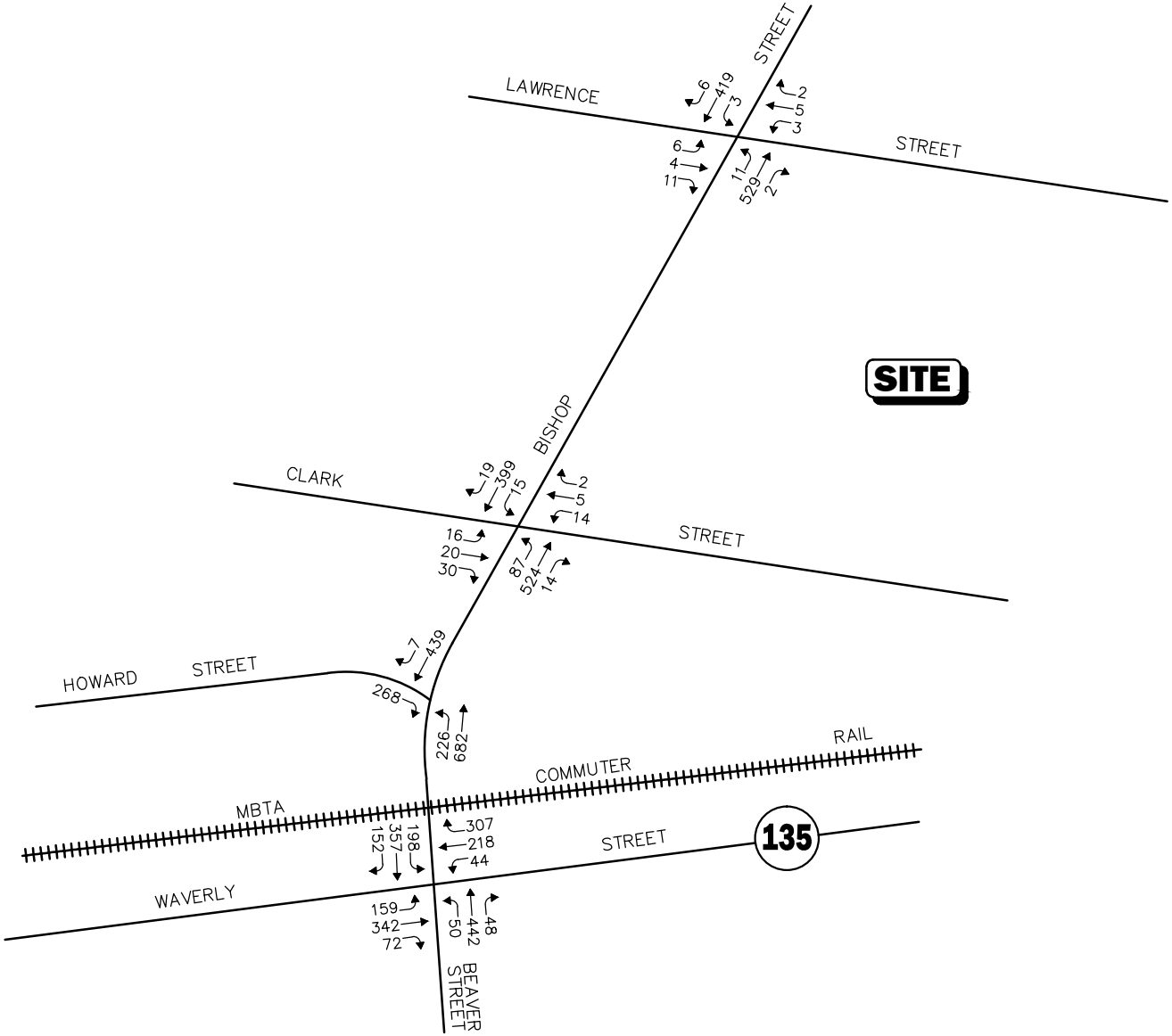
[a]Average weekday traffic in vehicles per day.
[b]Average Saturday traffic in vehicles.
[c]Vehicles per hour.
[d]Percent of daily traffic occurring during the peak-hour.
NB = northbound; SB = southbound; EB = eastbound; WB = westbound.

As can be seen in Table 2, Bishop Street in the vicinity of the Project site was found to accommodate approximately 13,005 vehicles on an average weekday and 11,105 vehicles on a Saturday (two-way, 24-hour volumes), with approximately 975 vehicles per hour (vph) during the weekday morning peak-hour, 1,066 vph during the weekday evening peak-hour and 913 vph during the Saturday midday peak-hour.

PEDESTRIAN AND BICYCLE FACILITIES

A comprehensive field inventory of pedestrian and bicycle facilities within the study area was undertaken in October 2015. The field inventory consisted of a review of the location of sidewalks and pedestrian crossing locations along the study roadways and at the study intersections, as well as the location of existing and planned future bicycle facilities. As detailed on Figure 2, sidewalks are currently provided along one or both sides of the study area roadways, with marked crosswalks provided at the study intersections. The traffic signal system that controls the Waverly Street/Bishop Street/Beaver Street and Bishop Street/Howard Street intersections includes pedestrian traffic signal equipment and phasing.

[2]MassDOT Traffic Volumes for the Commonwealth of Massachusetts; 2011 Weekday Seasonal Factors, Group 6 – Urban Arterials, Collectors and Rural Arterials.



Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

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Figure 3

2015 Existing Weekday Morning Peak Hour Traffic Volumes

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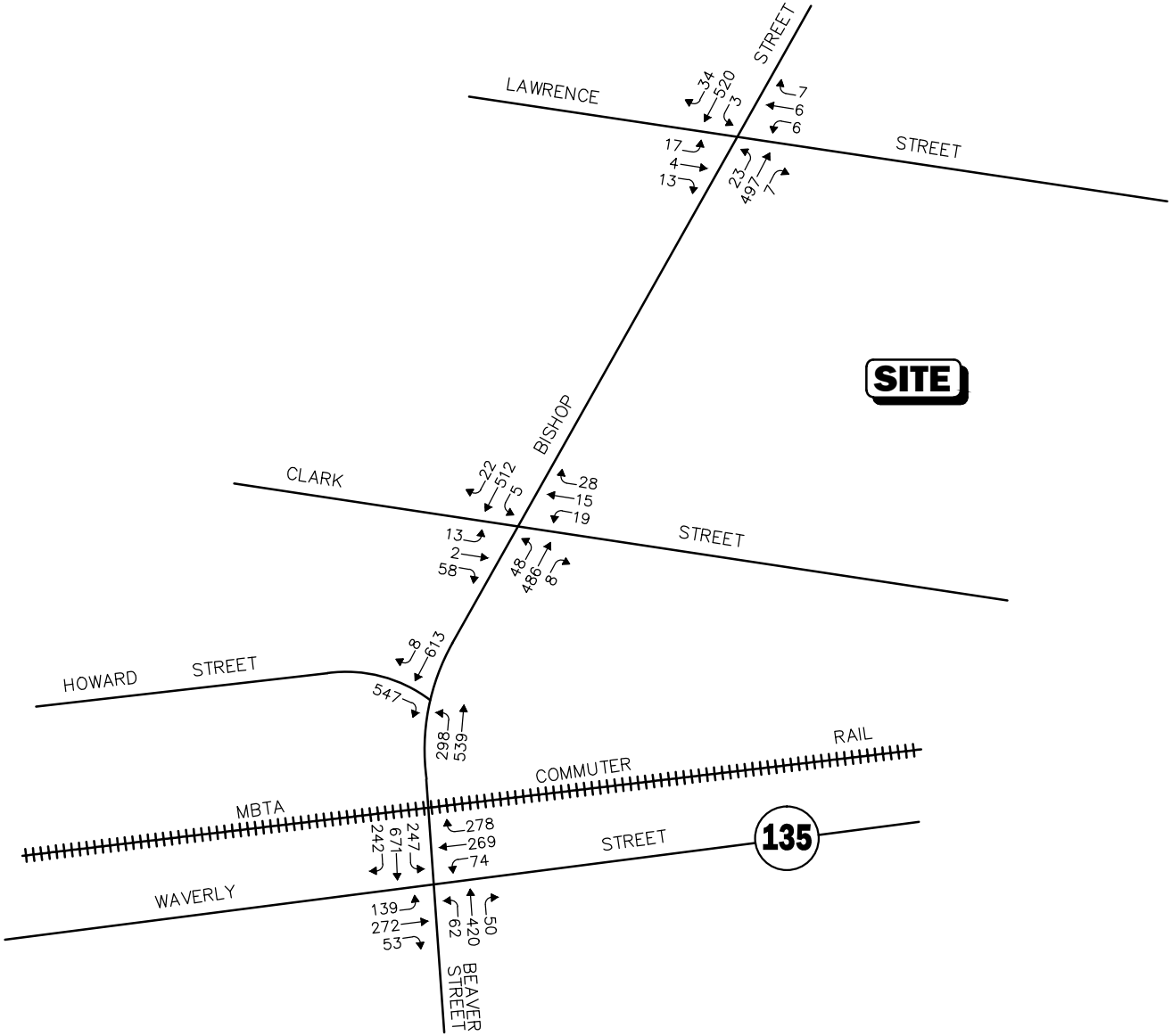

Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

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Figure 4

2015 Existing
Weekday Evening
Peak Hour Traffic Volumes

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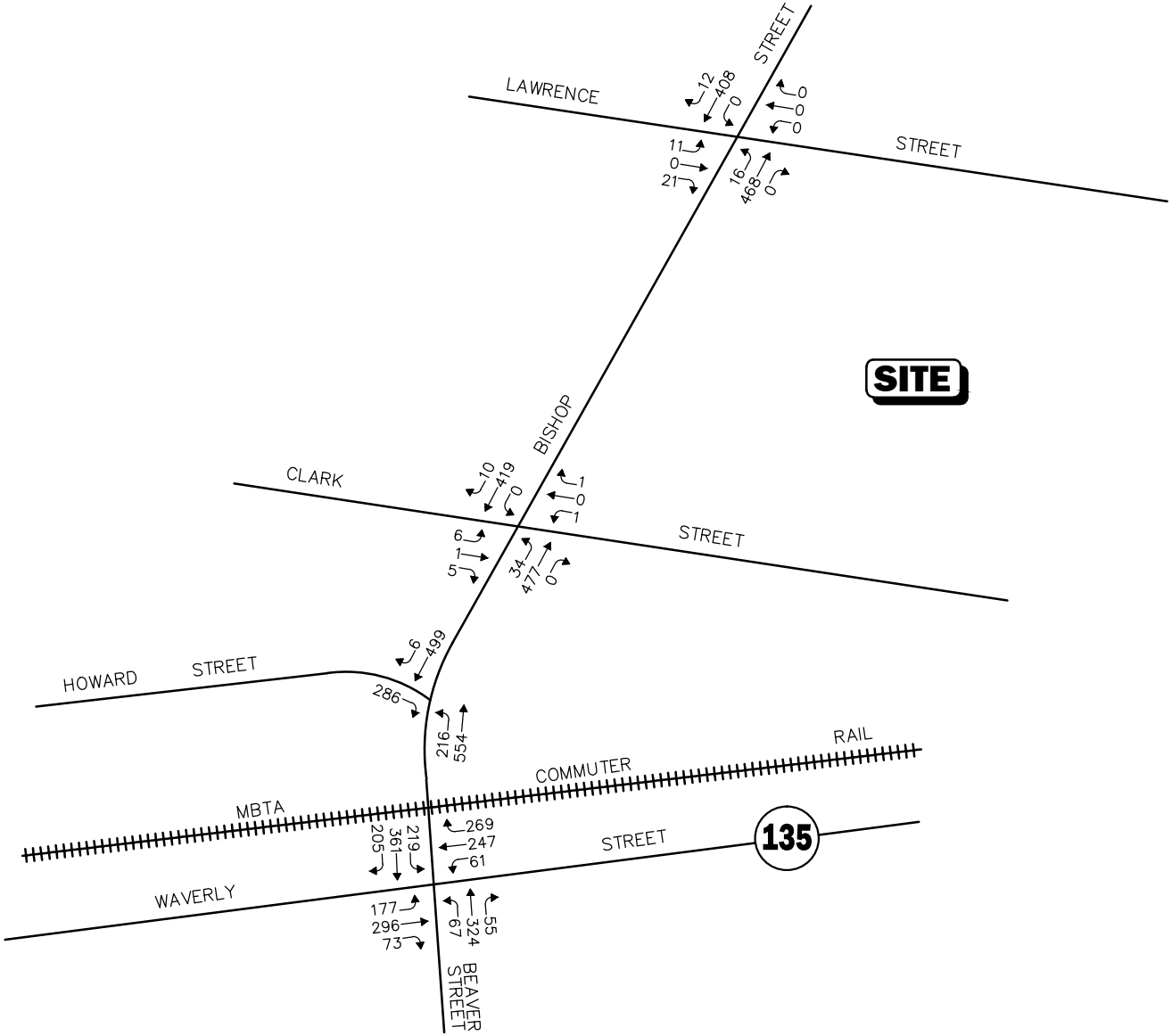

Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 5

2015 Existing
Saturday Midday
Peak Hour Traffic Volumes

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Formal bicycle facilities were not identified within the study area; however, the study area roadways provide sufficient width (combined travel lane and shoulder) to support bicycle travel in a shared travelled-way configuration.[3]

PUBLIC TRANSPORTATION

Public transportation services are provided within the study area by the MBTA and the Metrowest Regional Transit Authority (MWRTA). Framingham Station on the Framingham Branch of the MBTA Commuter Rail system is located off Waverly Street approximately 0.6 miles west of the Project site. The MWRTA operates fixed-route bus service along Waverly Street within the study area by way of Route 4, which travels from the MWRTA Hub located at 37 Waverly Street in Framingham and provides service to the Natick and West Natick Commuter Rail Stations, Sherwood Village, the Natick Mall, TJX Companies, the Natick Senior Center, and other residential and commercial developments in the area. The closest regular stop to the Project site for the Route 4 bus is located at Memorial House which is proximate to the Waverly Street/ Coolidge Street intersection and approximately 0.4 miles east of the Project site; however, the bus will stop anywhere along its defined route where it is safe to pick-up and discharge passengers. The public transportation schedules and fare information are provided in the Appendix.

SPOT SPEED MEASUREMENTS

Vehicle travel speed measurements were performed on Bishop Street in the vicinity of the Project site in conjunction with the ATR counts. Table 3 summarizes the vehicle travel speed measurements.

Table 3
VEHICLE TRAVEL SPEED MEASUREMENTS

	Bishop Street	
	Northbound	Southbound
Mean Travel Speed (mph)	31	30
85th Percentile Speed (mph)	35	35
Posted Speed Limit (mph)	35	35

mph = miles per hour.

As can be seen in Table 3, the mean (average) vehicle travel speed along Bishop Street in the vicinity of the Project site was found to be approximately 30 mph. The average measured 85th percentile vehicle travel speed, or the speed at which 85 percent of the observed vehicles traveled at or below, was found to be approximately 35 mph, which is consistent with the posted

[3]A minimum combined travel lane and paved shoulder width of 14-feet is required to support bicycle travel in a shared travelled-way condition.

speed limit. The 85th percentile speed is used as the basis of engineering design and in the evaluation of sight distances, and is often used in establishing posted speed limits.

MOTOR VEHICLE CRASH DATA

Motor vehicle crash information for the study area intersections was provided by the MassDOT Highway Division Safety Management/Traffic Operations Unit for the most recent five-year period available (2009 through 2013, inclusive) in order to examine motor vehicle crash trends occurring within the study area. The data is summarized by intersection, type, severity, and day of occurrence, and presented in Table 4.

Table 4
MOTOR VEHICLE CRASH DATA SUMMARY[a]

	Waverly Street/ Bishop Street/ Beaver Street	Bishop Street/ Howard Street	Bishop Street/ Clark Street	Bishop Street/ Lawrence Street
Traffic Control Type:[b]	TS	TS	U	U
Year:				
2009	18	3	0	0
2010	18	4	0	0
2011	20	4	1	0
2012	5	1	0	0
2013	7	1	2	1
Total	68	13	3	1
Average	13.60	2.60	0.60	0.20
Rate[c]	1.21	0.32	0.13	0.04
MassDOT Crash Rate:[d]	0.80/0.89	0.80/0.89	0.60/0.66	0.60/0.66
Significant?[e]	Yes	No	No	No
Type:				
Angle	36	2	2	0
Rear-End	12	6	1	1
Head-On	1	0	0	0
Sideswipe	16	3	0	0
Fixed Object	0	1	0	0
Pedestrian/Bicycle	0	0	0	0
Unknown/Other	3	1	0	0
Total	68	13	3	1
Day of Week:				
Monday through Friday	54	7	3	1
Saturday	9	4	0	0
Sunday	5	2	0	0
Total	68	13	3	1
Severity:				
Property Damage Only	49	10	1	0
Personal Injury	19	3	2	1
Fatality	0	0	0	0
Total	68	13	3	1

[a]Source: MassDOT Safety Management/Traffic Operations Unit records, 2009 through 2013.
[b]Traffic Control Type: U = unsignalized; TS = traffic signal.
[c]Crash rate per million vehicles entering the intersection.
[d]Statewide/District crash rate.
[e]The intersection crash rate is significant if it is found to exceed the MassDOT crash rate for the MassDOT Highway Division District in which the Project is located (District 3).

As can be seen in Table 4, with the exception of the Waverly Street/Bishop Street/Beaver Street intersection, the study area intersections were found to have experienced an average of less than three (3) reported motor vehicle crash per year over the five-year review period and were found to have a motor vehicle crash rate below both the MassDOT statewide and District averages for a signalized or unsignalized intersection, as appropriate, for the MassDOT Highway Division District in which the intersections are located (District 3).

The Waverly Street/Bishop Street/Beaver Street intersection was reported to have experienced a total of 68 crashes over the five-year review period, or an average of approximately 14 crashes per year, the majority of which occurred on a weekday, involved angle-type collisions and resulted in property damage only. In addition, the intersection was also found to have a motor vehicle crash rate above both the MassDOT statewide and District crash rates for a signalized intersection, and as was listed on MassDOT's *Top 200 Crash Location List* (number 92 out of 200). Accordingly, specific recommendations have been defined as a part of this assessment that are designed to reduce the frequency of occurrence of motor vehicle crashes at the intersection.

No fatal motor vehicle crashes were reported to have occurred at the study area intersections over the five-year review period. The detailed MassDOT Crash Rate Worksheets are provided in the Appendix.

FUTURE CONDITIONS

Traffic volumes in the study area were projected to the year 2022, which reflects a seven-year planning horizon consistent with MassDOT's *Transportation Impact Assessment (TIA) Guidelines*. Independent of the Project, traffic volumes on the roadway network in the year 2022 under No-Build conditions include all existing traffic and new traffic resulting from background traffic growth. Anticipated Project-generated traffic volumes superimposed upon the 2022 No-Build traffic volumes reflect 2022 Build traffic volume conditions with the Project.

FUTURE TRAFFIC GROWTH

Future traffic growth is a function of the expected land development in the immediate area and the surrounding region. Several methods can be used to estimate this growth. A procedure frequently employed estimates an annual percentage increase in traffic growth and applies that percentage to all traffic volumes under study. The drawback to such a procedure is that some turning volumes may actually grow at either a higher or a lower rate at particular intersections.

An alternative procedure identifies the location and type of planned development, estimates the traffic to be generated, and assigns it to the area roadway network. This procedure produces a more realistic estimate of growth for local traffic; however, potential population growth and development external to the study area would not be accounted for in the resulting traffic projections.

To provide a conservative analysis framework, both procedures were used, the salient components of which are described below.

Specific Development by Others

The Town of Framingham Planning Department was contacted in order to determine if there were any projects planned within the study area that would have an impact on future traffic volumes at the study intersections. Based on this discussion, the following projects were identified that may result in an increase in traffic within the study area:

- ***Grant Street Residential Development, Framingham, Massachusetts.*** This project will entail the construction of a 79-unit residential apartment community to be located at 39 Grant Street in Framingham, Massachusetts.

- ***Clark Hill Residential Development, Framingham, Massachusetts.*** This project will entail the construction of a 28-unit residential community to be located off Clark Hill Avenue in Framingham, Massachusetts.

Traffic volumes associated with the aforementioned specific development projects by others were obtained from the respective traffic studies or using trip-generation information available from the Institute of Transportation Engineers (ITE)[4] for the appropriate land use, and were assigned onto the study area roadway network based on existing traffic patterns where no other information was available. No other developments were identified at this time that are expected to result in an increase in traffic within the study area beyond the general background traffic growth rate.

General Background Traffic Growth

Traffic-volume data compiled by MassDOT from permanent count stations and historic traffic counts in the area were reviewed in order to determine general traffic growth trends. Based on a review of this data it was determined that traffic volumes within the Town of Framingham have declined slightly over the past several years. In order to provide a conservative (high) analysis condition, a 1.0 percent per year compounded annual background traffic growth rate was used in order to account for future traffic growth and presently unforeseen development within the study area.

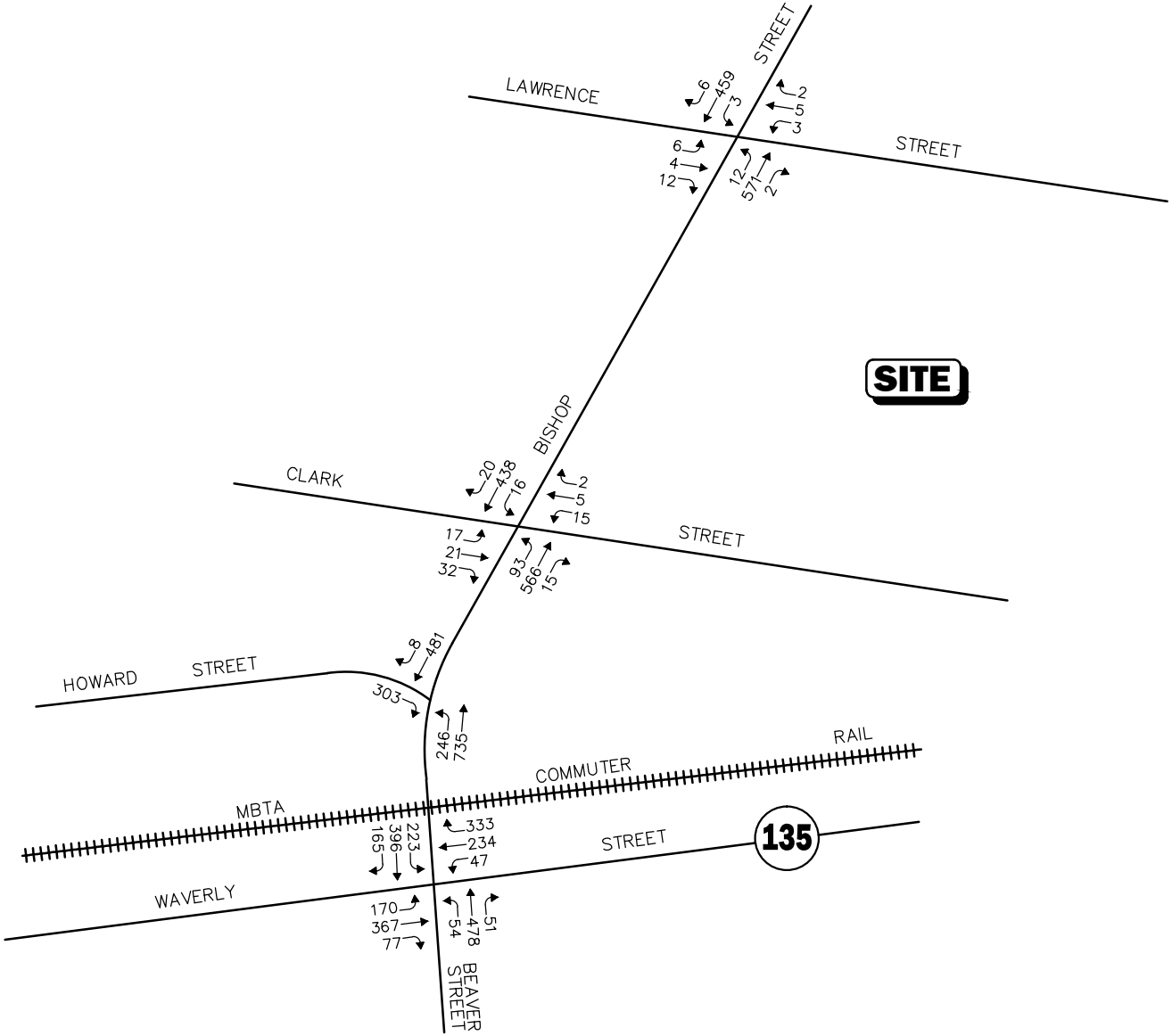
Roadway Improvement Projects

MassDOT and the Town of Framingham Department of Public Works were contacted in order to determine if there were any planned future roadway improvement projects expected to be complete by 2022 within the study area. Based on these discussions, no roadway improvement projects aside from routine maintenance activities were identified to be planned within the study area at this time.

No-Build Traffic Volumes

The 2022 No-Build condition peak-hour traffic-volumes were developed by applying the 1.0 percent per year compounded annual background traffic growth rate to the 2015 Existing peak-hour traffic volumes and then superimposing the peak-hour traffic volumes associated with the identified specific development projects by others. The resulting 2022 No-Build weekday morning, weekday evening and Saturday midday peak-hour traffic volumes are shown on Figures 6, 7 and 8, respectively.

[4] *Trip Generation*, 9th Edition; Institute of Transportation Engineers; Washington, DC; 2012.



Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure 6

2022 No-Build
Weekday Morning
Peak Hour Traffic Volumes

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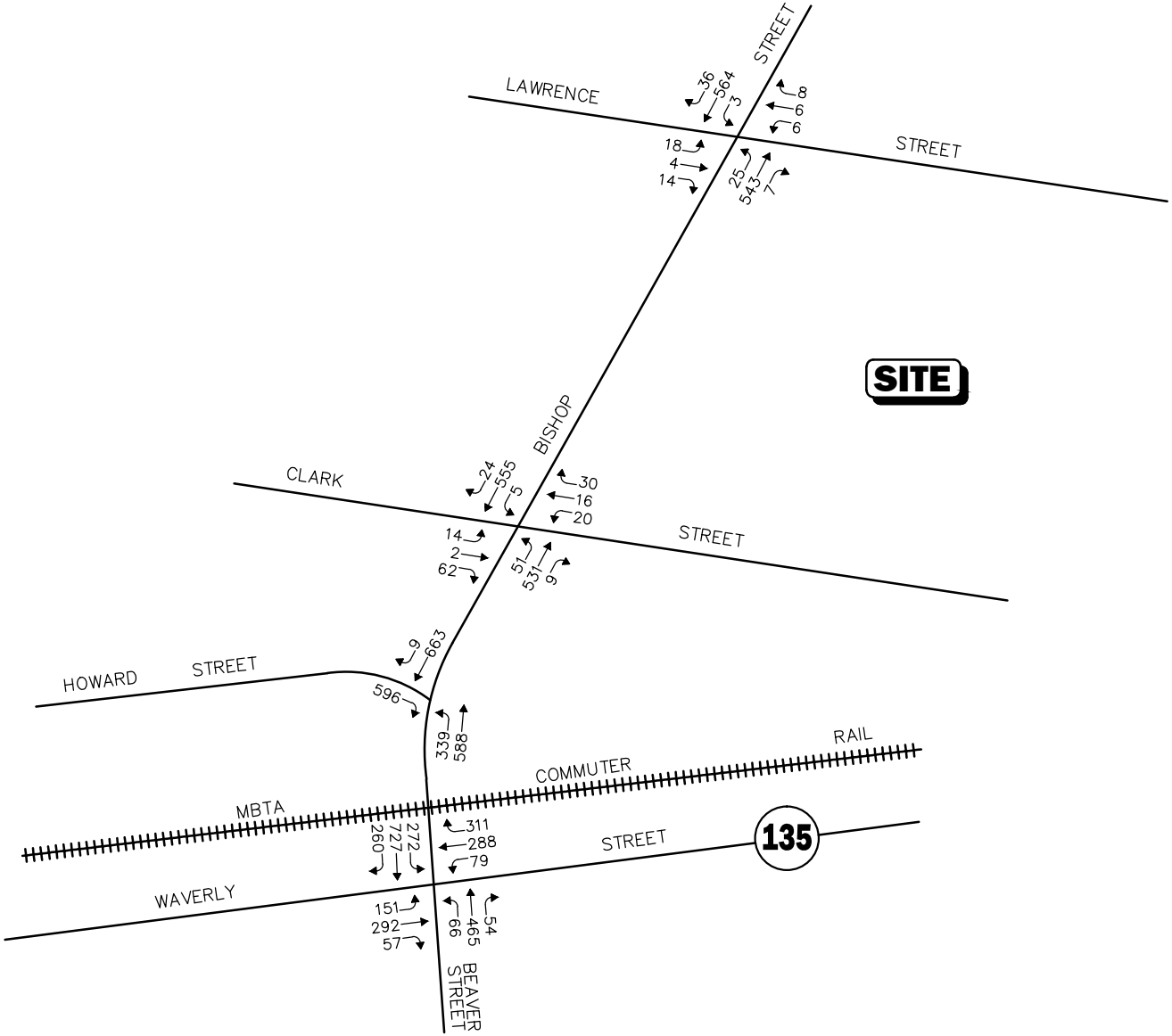

Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

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Figure 7

2022 No-Build
Weekday Evening
Peak Hour Traffic Volumes

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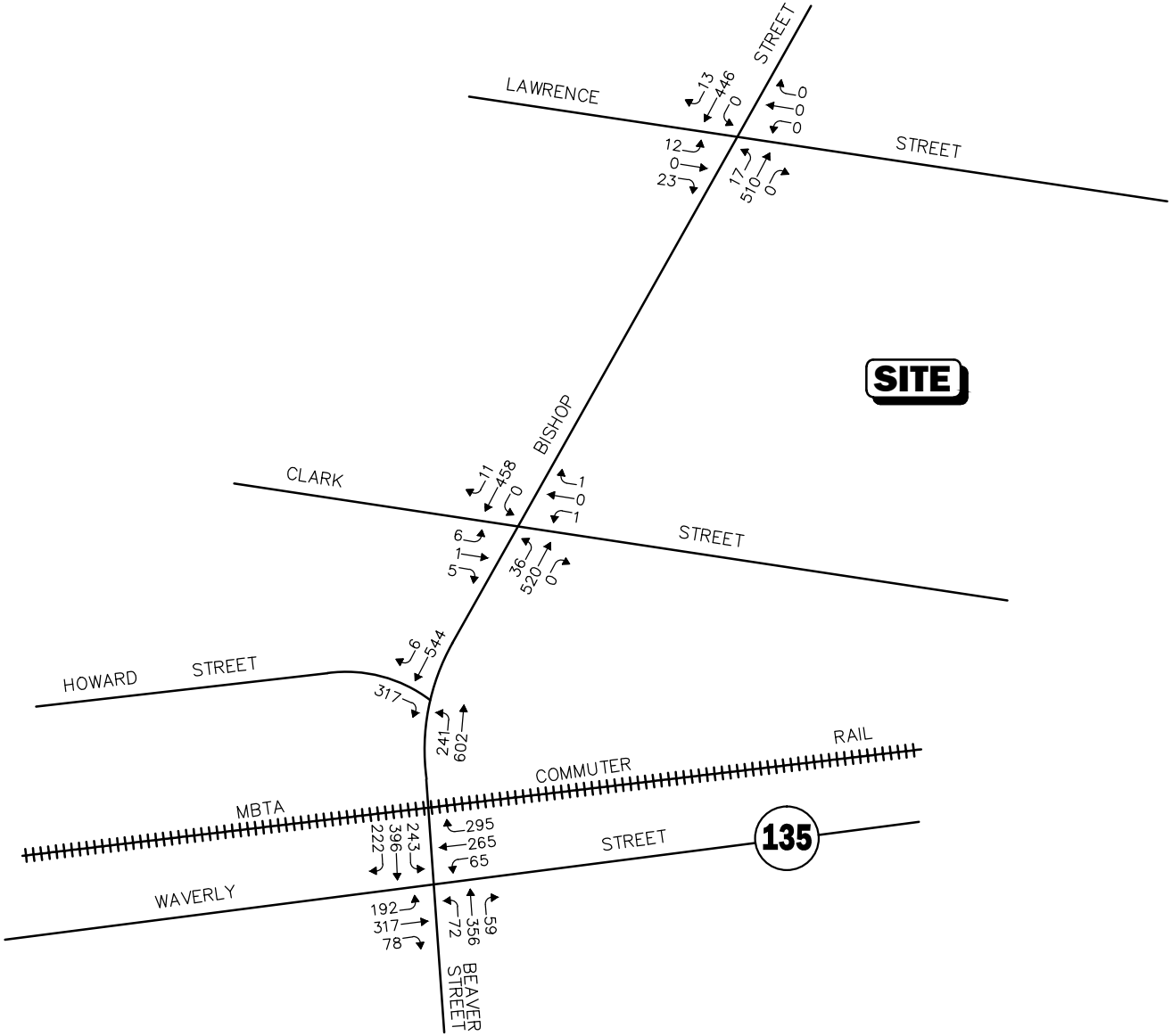

Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

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Figure 8

2022 No-Build
Saturday Midday
Peak Hour Traffic Volumes

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PROJECT-GENERATED TRAFFIC

Design year (2022 Build) traffic volumes for the study area roadways were determined by estimating Project-generated traffic volumes and assigning those volumes on the study roadways. The following sections describe the methodology used to develop the anticipated traffic characteristics of the Project.

As proposed, the Project will entail the construction of a 65,162± sf building that will be utilized for automotive sales and services, with the intent of allowing for the consolidation of existing automotive services offered by The Herb Chambers Companies to a central location. The services that are to be offered at the Project site will include a collision center, which will be a relocation of the Herb Chambers Collision Center from Ashland; Mercedes Benz sales and distribution of parts; mechanical services and vehicle preparation, similar to the services offered at Chambers Motorcars of Natick; and Mercedes Benz Sprinter van sales. As stated in the Introduction of this assessment, with the exception of the Mercedes Benz Sprinter van sales, the uses that are to be located within the Project will serve existing Herb Chambers dealerships.

In order to develop the traffic characteristics of the Project, both empirical traffic count data obtained from the Herb Chambers Collision Center in Ashland and Chambers Motorcars of Natick were used to define the traffic volumes for the collision center and the mechanical services/vehicle preparation components of the Project, respectively. Traffic volume projections for the Mercedes Benz sales/distribution of parts and Sprinter van sales components were developed based on the number of employees associated with each of these operations and customer activity in the case of the Sprinter van sales.

The Mercedes Benz Sprinter van line is primarily marketed toward contractors, service vendors and delivery services, which limits the sales activity associated with this use. In addition, initial sales inquiries and research are commonly accomplished using the internet and websites, which also reduces customer activity. For context, typical sales for Mercedes Benz Sprinter vans are less than five (5) vehicles per month.

Table 5 summarizes the anticipated traffic characteristics of the Project using the above methodology.

Table 5
HERB CHAMBERS FRAMINGHAM – 71 BISHOP STREET
TRIP GENERATION SUMMARY

Time Period/Direction	(A) Service/Vehicle Preparation[a]	(B) Collision Center[b]	(C) Parts Sales/ Distribution[d]	(D) Sprinter Sales[e]	(E = A + B + C + D) Total
Weekday Morning Peak Hour:					
Entering	11	23	6	1	41
Exiting	7	3	1	1	12
Total	18	26	7	2	53
Weekday Evening Peak Hour:					
Entering	6	10	1	1	18
Exiting	11	26	5	2	44
Total	17	36	6	3	62
Saturday Midday Peak Hour:					
Entering	10	23	3	1	37
Exiting	8	3	1	2	14
Total	18	26[c]	4	3	51

[a]Based on traffic counts conducted at Chambers Motorcars of Natick on October 1, 2015 and October 3, 2015.
[b]Based on traffic counts conducted at Herb Chambers Collision Center in Ashland on October 13, 2015 and October 14, 2015.
[c]Based on a review of the Saturday midday peak-hour traffic volumes to the weekday peak-hour traffic volumes observed at Chambers Motorcars of Natick.
[d]Based on 14 employees, including 6 on-site and 8 drivers, and using ITE LUC 710, *General Office Building*. Saturday midday traffic volumes based on 50 percent of weekday peak-hour traffic volumes.
[e]Based on 1 employee and 3 customers per day.

Project-Generated Traffic Volume Summary

As can be seen in Table 5, using a combination of empirical traffic count data obtained from facilities similar to those that will be located within the Project site and employee/customer projections for the proposed uses, the Project is predicted to generate approximately 53 vehicle trips during the weekday morning peak-hour, 62 vehicle trips during the weekday evening peak-hour and 51 vehicle trips during the Saturday midday peak-hour.

Trip Distribution and Assignment

The directional distribution of generated trips to and from the Project site was determined based on a review of existing traffic patterns within the study area during the commuter peak periods. This methodology is consistent with the commercial nature of the abutting land use and commuter traffic patterns during the peak hours. The general trip distribution for the Project is graphically depicted on Figure 9. The additional traffic expected to be generated by the Project was assigned on the study area roadway network as shown on Figures 10, 11 and 12 for the weekday morning, weekday evening and Saturday midday peak hours, respectively.

FUTURE TRAFFIC VOLUMES - BUILD CONDITION

The 2022 Build condition traffic volumes consist of the 2022 No-Build traffic volumes with the additional traffic expected to be generated by the Project added to them. The 2022 Build weekday morning, weekday evening and Saturday midday peak-hour traffic-volumes are graphically depicted on Figures 13, 14 and 15, respectively.

A summary of peak-hour projected traffic-volume increases external to the study area that is the subject of this assessment is shown in Table 6. These volumes are based on the expected increases from the Project.

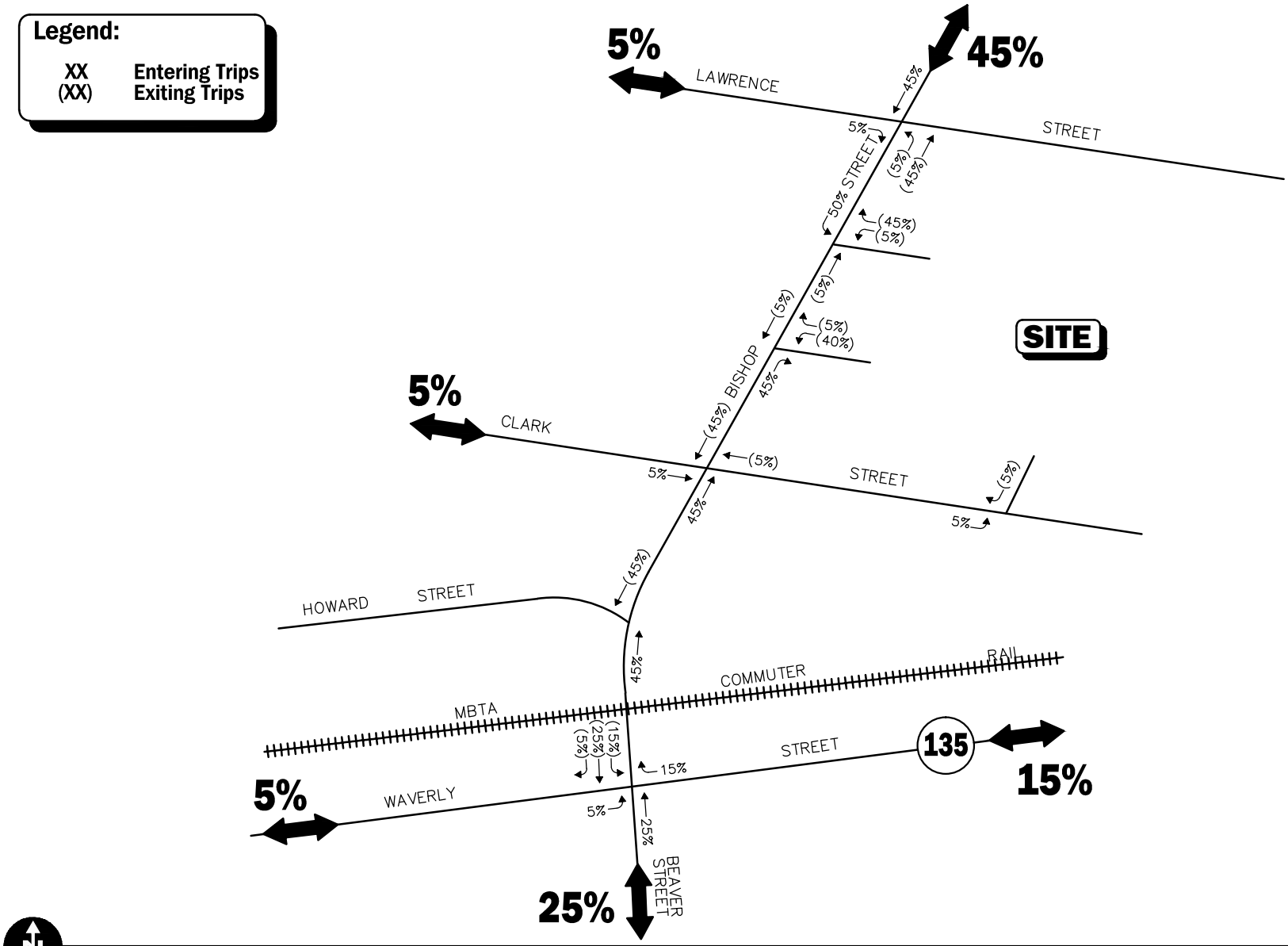

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Figure 9

Trip Distribution Map

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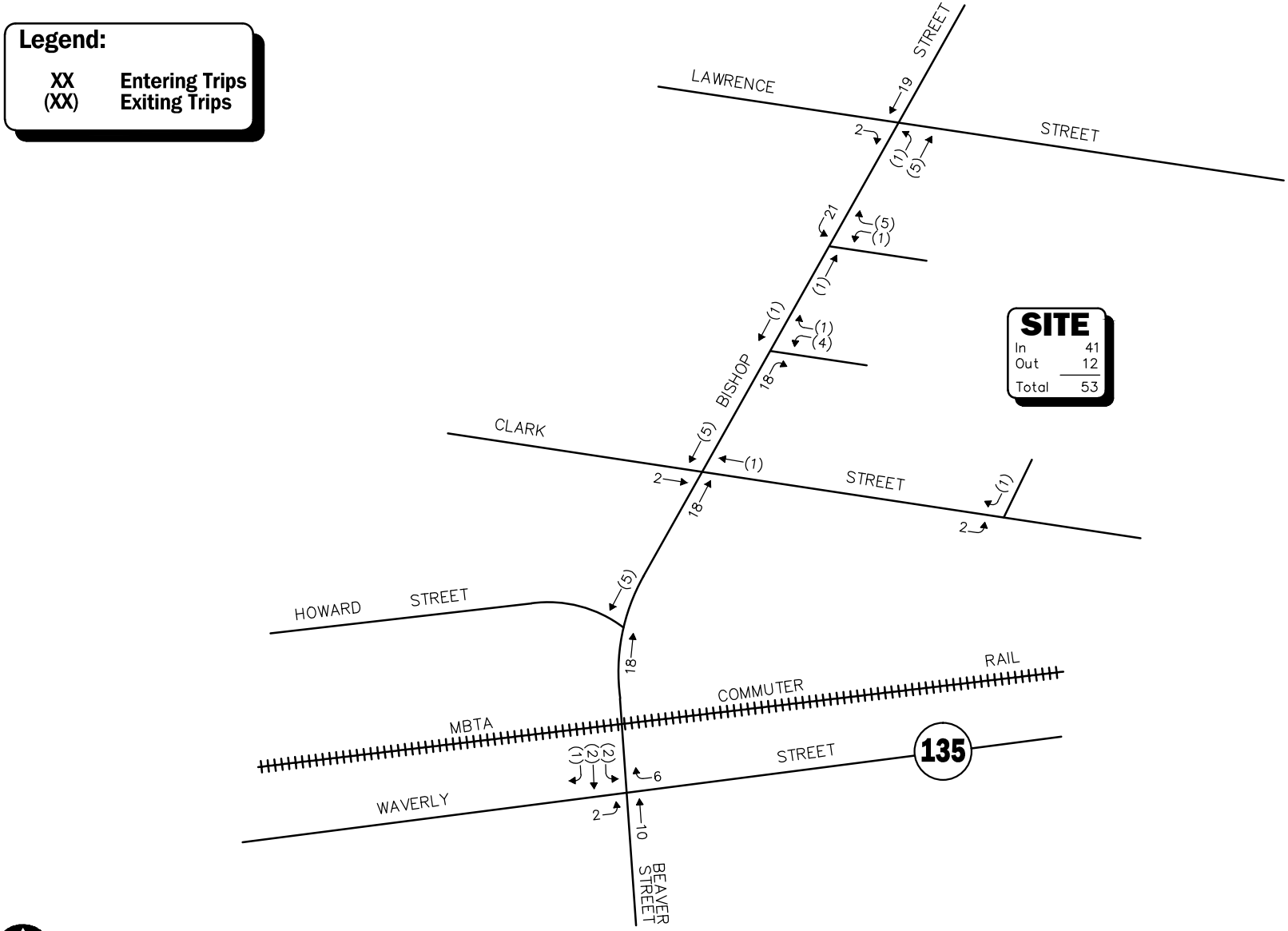

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Figure 10

Project-Generated Weekday Morning Peak Hour Traffic Volumes

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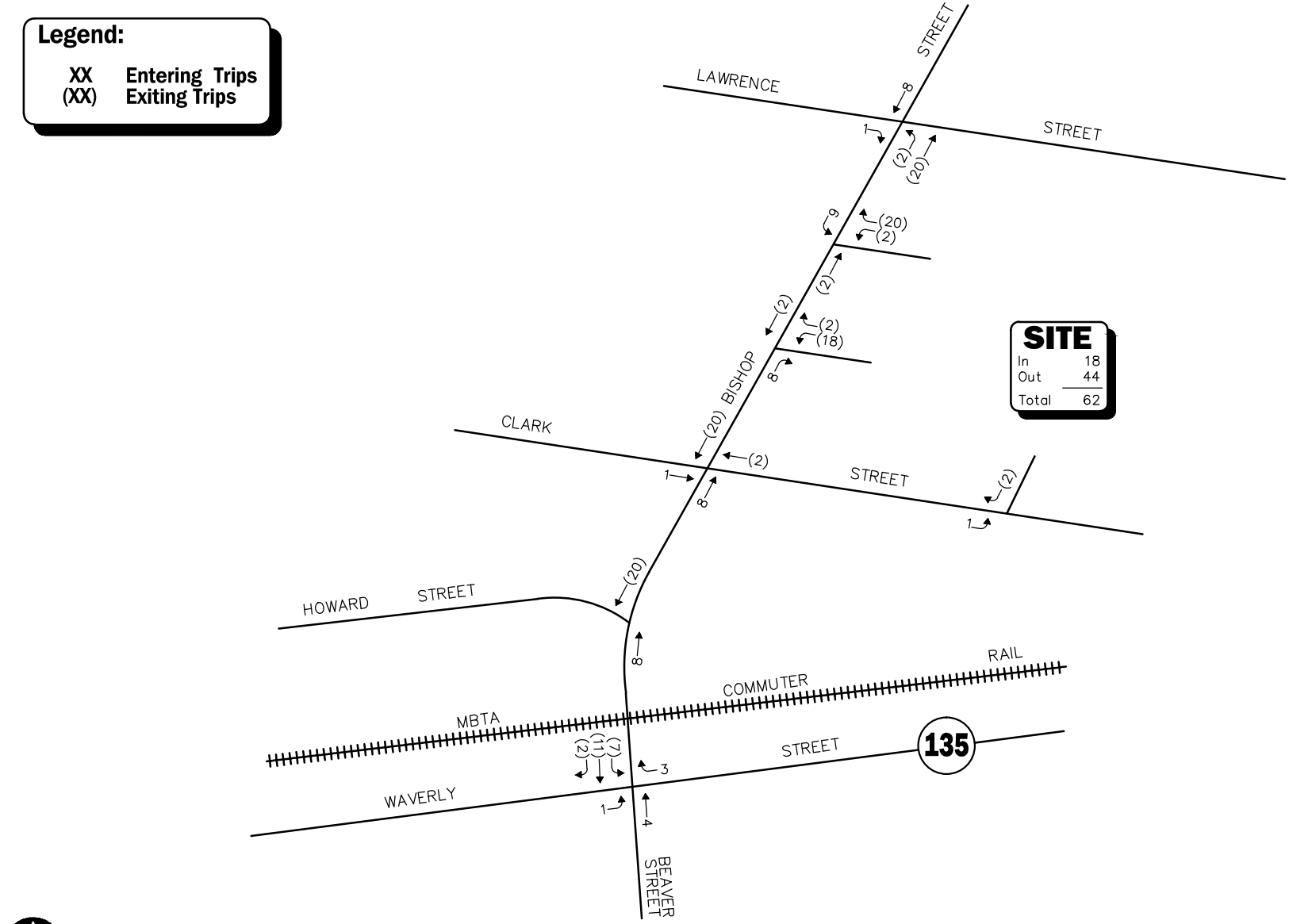

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Figure 11

Project-Generated Weekday Evening Peak Hour Traffic Volumes

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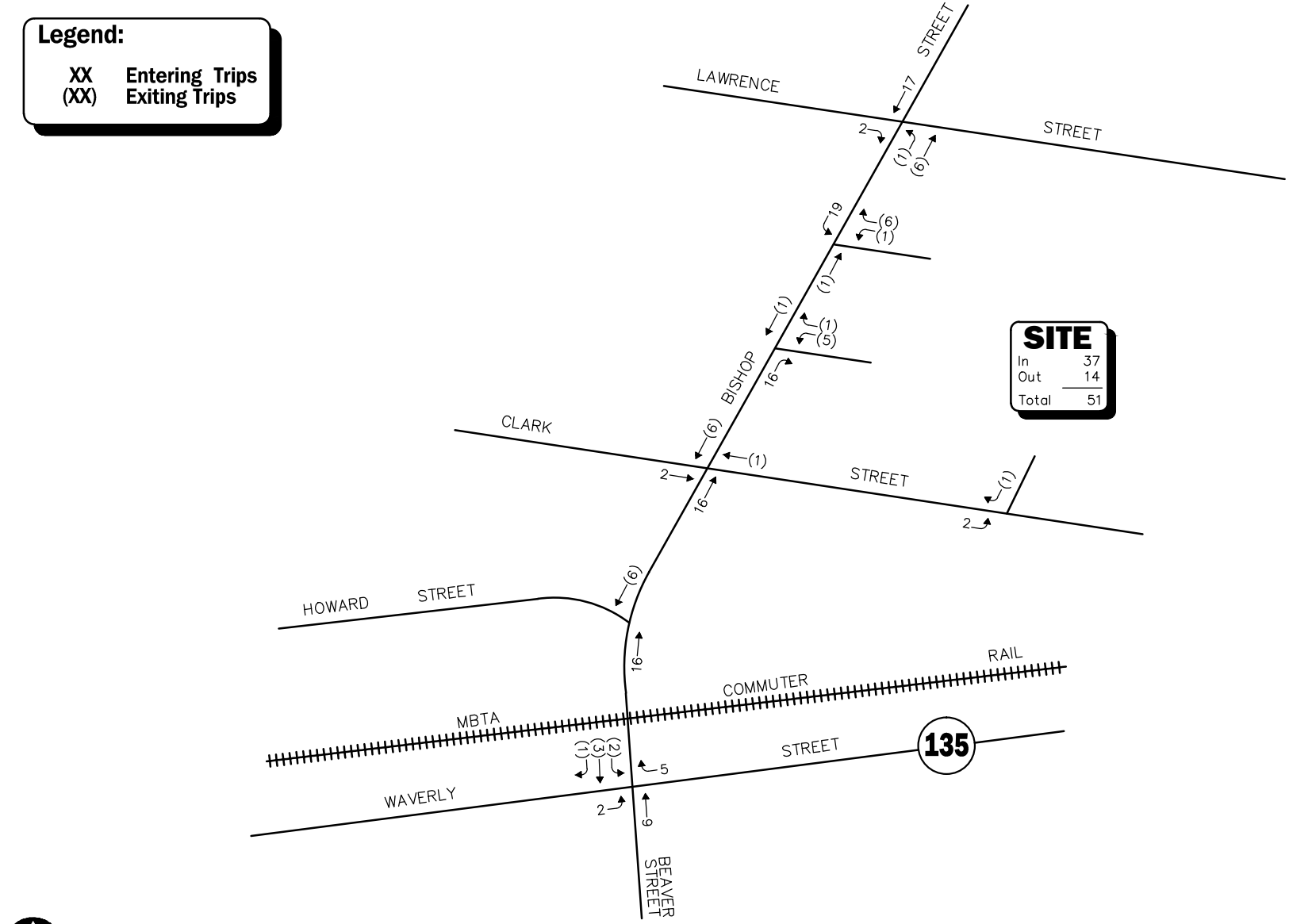

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Figure 12

Project-Generated Saturday Midday Peak Hour Traffic Volumes

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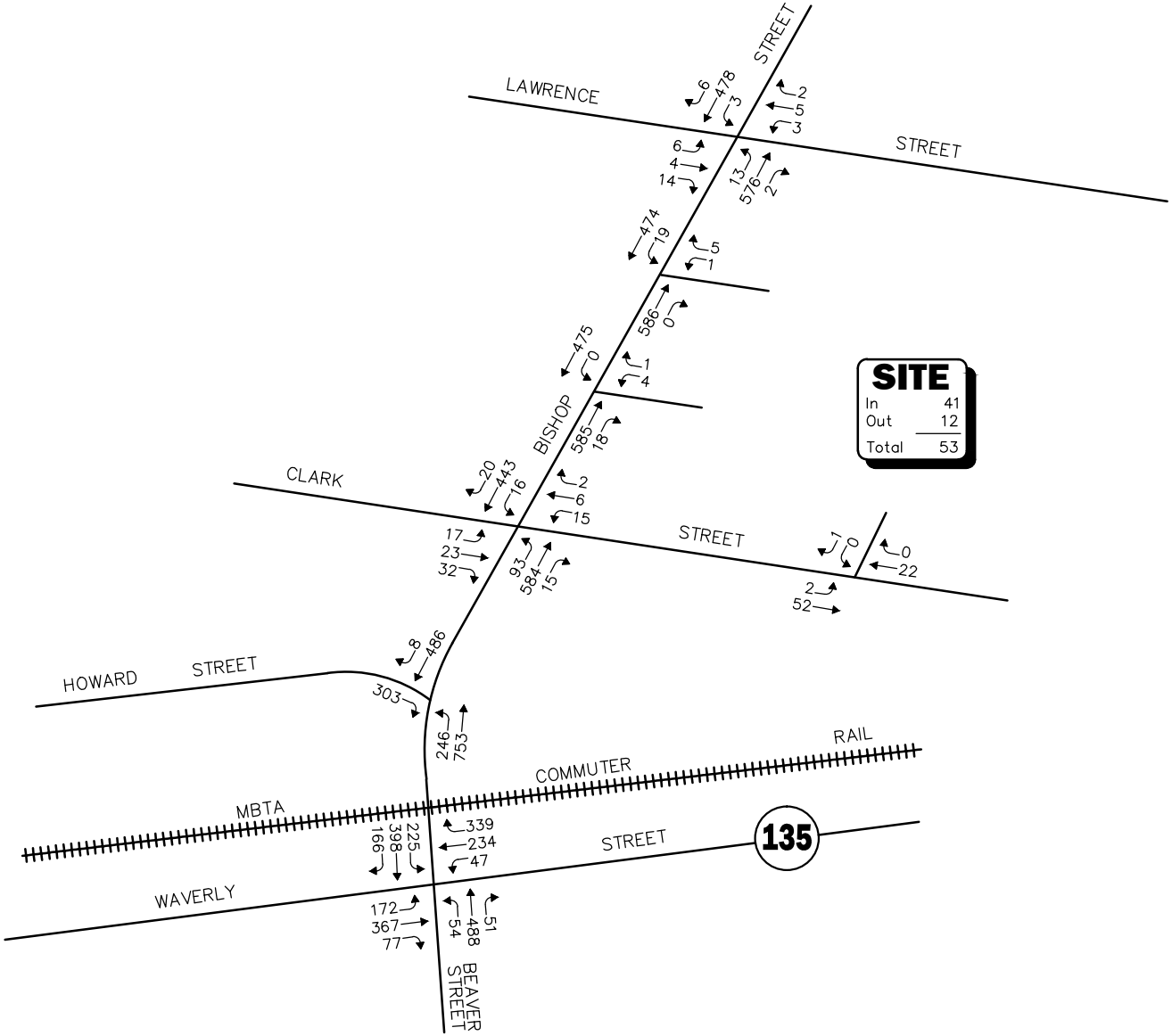

Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

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Figure 13

2022 Build
Weekday Morning
Peak Hour Traffic Volumes

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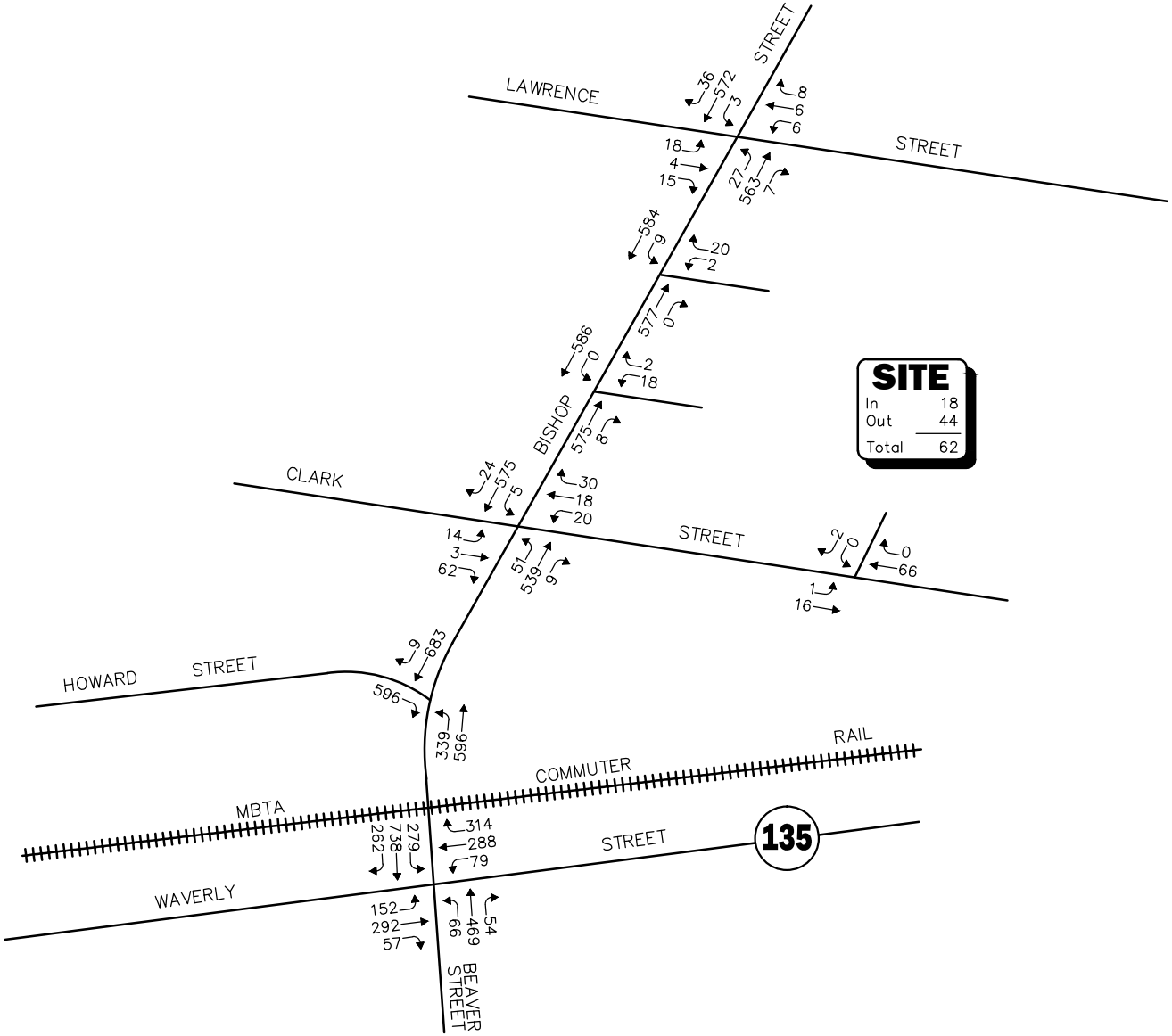

Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

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Figure 14

2022 Build
Weekday Evening
Peak Hour Traffic Volumes

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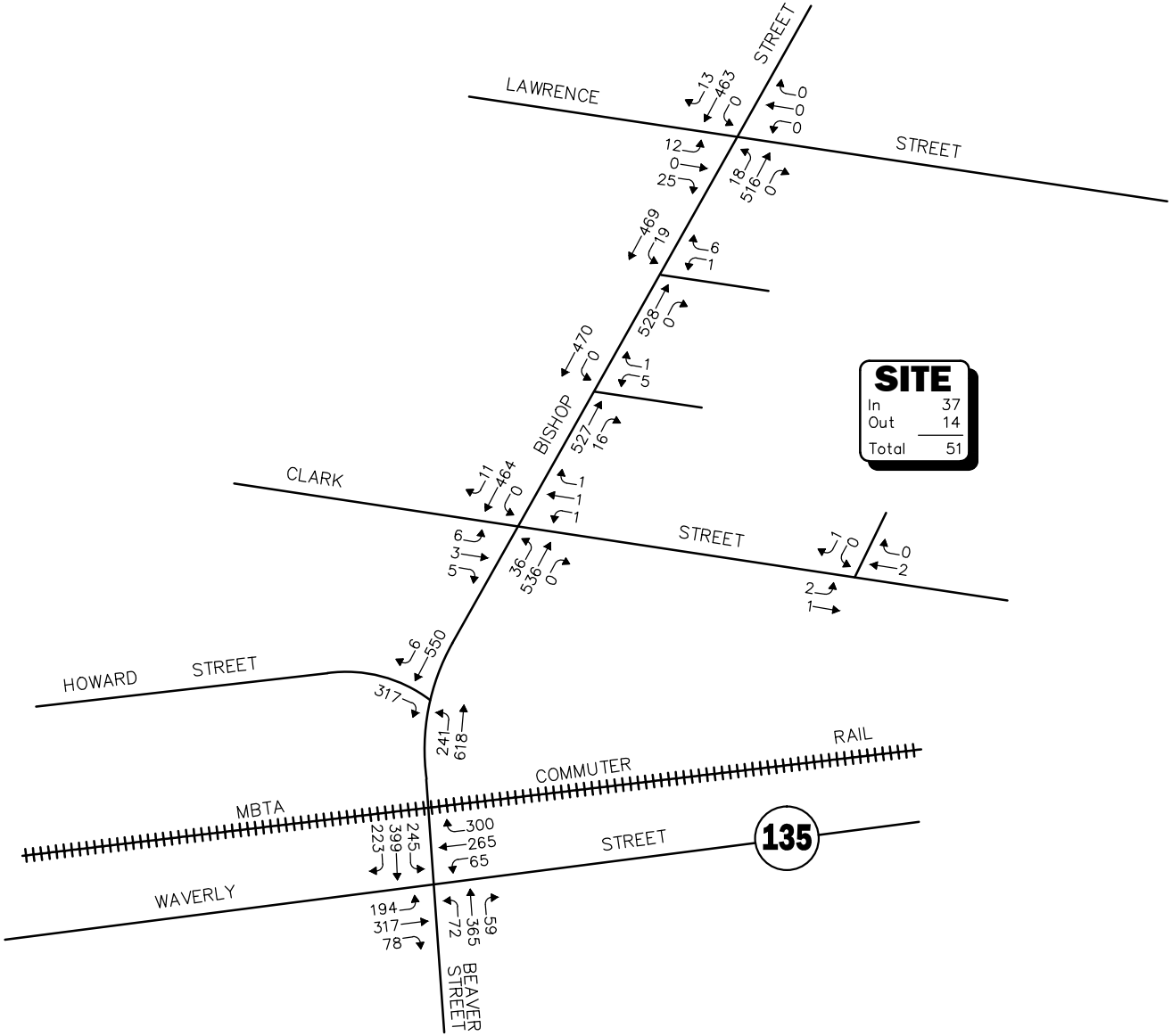

Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

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Figure 15

2022 Build
Saturday Midday
Peak Hour Traffic Volumes

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Table 6
PEAK-HOUR TRAFFIC-VOLUME INCREASES

Location/Peak Hour	2015 Existing	2022 No-Build	2022 Build	Traffic Volume Increase Over No-Build	Percent Increase Over No-Build
Bishop Street, north of Lawrence Street:					
Weekday Morning	965	1,047	1,071	24	2.3
Weekday Evening	1,078	1,172	1,200	28	2.4
Saturday Midday	899	981	1,004	23	2.3
Beaver Street, South of Waverly Street:					
Weekday Morning	1,013	1,103	1,115	12	1.1
Weekday Evening	1,330	1,448	1,463	15	1.0
Saturday Midday	941	1,026	1,038	12	1.2
Waverly Street, east of Bishop Street:					
Weekday Morning	1,157	1,255	1,263	8	0.6
Weekday Evening	1,190	1,296	1,306	10	0.8
Saturday Midday	1,147	1,244	1,251	7	0.6
Waverly Street, west of Bishop Street:					
Weekday Morning	993	1,067	1,070	3	0.3
Weekday Evening	1,037	1,114	1,117	3	0.3
Saturday Midday	1,065	1,146	1,149	3	0.3
Lawrence Street, west of Bishop Street:					
Weekday Morning	43	45	48	3	6.7
Weekday Evening	97	103	106	3	2.9
Saturday Midday	60	65	68	3	4.6
Clark Street, west of Bishop Street:					
Weekday Morning	177	188	191	3	1.6
Weekday Evening	158	169	172	3	1.8
Saturday Midday	56	59	62	3	5.1
Howard Street, west of Bishop Street:					
Weekday Morning	501	557	557	0	0.0
Weekday Evening	853	944	944	0	0.0
Saturday Midday	508	564	564	0	0.0

As shown in Table 6, Project-related traffic-volume increases external to the study area relative to 2022 No-Build conditions are anticipated to range from 0.0 to 6.7 percent during the peak periods, with vehicle increases shown to range from 0 to 28 vehicles. ***Such increases are considered nominal when dispersed over the peak-hour and would not result in a material impact (increase) on motorist delays or vehicle queuing outside of the immediate study area that is the subject of this assessment.***

TRAFFIC OPERATIONS ANALYSIS

Measuring existing and future traffic volumes quantifies traffic flow within the study area. To assess quality of flow, roadway capacity and vehicle queue analyses were conducted under Existing, 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, with vehicle queue analyses providing a secondary measure of the operational characteristics of an intersection or section of roadway under study.

METHODOLOGY

Levels of Service

A primary result of capacity analyses is the assignment of level of service to traffic facilities under various traffic-flow conditions.[5] The concept of level of service is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A level-of-service definition provides an index to quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

Six levels of service are defined for each type of facility. They are given letter designations from A to F, with level-of-service (LOS) A representing the best operating conditions and LOS F representing congested or constrained operating conditions.

Since the level of service of a traffic facility is a function of the traffic flows placed upon it, such a facility may operate at a wide range of levels of service, depending on the time of day, day of week, or period of year.

[5]The capacity analysis methodology is based on the concepts and procedures presented in the *Highway Capacity Manual;* Transportation Research Board; Washington, DC; 2010.

Unsignalized Intersections

The six levels of service for unsignalized intersections may be described as follows:

- *LOS A* represents a condition with little or no control delay to minor street traffic.
- *LOS B* represents a condition with short control delays to minor street traffic.
- *LOS C* represents a condition with average control delays to minor street traffic.
- *LOS D* represents a condition with long control delays to minor street traffic.
- *LOS E* represents operating conditions at or near capacity level, with very long control delays to minor street traffic.
- *LOS F* represents a condition where minor street demand volume exceeds capacity of an approach lane, with extreme control delays resulting.

The levels of service of unsignalized intersections are determined by application of a procedure described in the 2010 *Highway Capacity Manual*.[6] Level of service is measured in terms of average control delay. Mathematically, control delay is a function of the capacity and degree of saturation of the lane group and/or approach under study and is a quantification of motorist delay associated with traffic control devices such as traffic signals and STOP signs. Control delay includes the affects of initial deceleration delay approaching a STOP sign, stopped delay, queue move-up time, and final acceleration delay from a stopped condition. Definitions for level of service at unsignalized intersections are also given in the 2010 *Highway Capacity Manual*. Table 7 summarizes the relationship between level of service and average control delay for two way stop controlled and all-way stop controlled intersections.

Table 7
LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS[a]

Level-Of-Service by Volume-to-Capacity Ratio		Average Control Delay (Seconds Per Vehicle)
v/c ≤ 1.0	v/c > 1.0	
A	F	≤10.0
B	F	10.1 to 15.0
C	F	15.1 to 25.0
D	F	25.1 to 35.0
E	F	35.1 to 50.0
F	F	>50.0

[a]Source: *Highway Capacity Manual*; Transportation Research Board; Washington, DC; 2010; page 19-2.

[6]*Highway Capacity Manual*; Transportation Research Board; Washington, DC; 2010.

Signalized Intersections

The six levels of service for signalized intersections may be described as follows:

- *LOS A* describes operations with very low control delay; most vehicles do not stop at all.
- *LOS B* describes operations with relatively low control delay. However, more vehicles stop than LOS A.
- *LOS C* describes operations with higher control delays. Individual cycle failures may begin to appear. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
- *LOS D* describes operations with control delay in the range where the influence of congestion becomes more noticeable. Many vehicles stop and individual cycle failures are noticeable.
- *LOS E* describes operations with high control delay values. Individual cycle failures are frequent occurrences.
- *LOS F* describes operations with high control delay values that often occur with over-saturation. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Levels of service for signalized intersections were calculated using the Percentile Delay Method implemented as a part of the Synchro™ 8 software as suggested by MassDOT in order to compensate for errors found when employing the 2010 *Highway Capacity Manual* methodology as a part of the software. The Percentile Delay Method assesses the effects of signal type, timing, phasing, and progression; vehicle mix; and geometrics on "percentile" delay. Level-of-service designations are based on the criterion of percentile delay per vehicle and is a measure of: i) driver discomfort; ii) motorist frustration; and iii) fuel consumption; and includes a uniform delay based on percentile volumes using a Poisson arrival pattern, an initial queue move-up time, and a queue interaction delay that accounts for delays resulting from queues extending from adjacent intersections. Table 8 summarizes the relationship between level-of-service and percentile delay, and uses the same numerical delay thresholds as the HCM method. The tabulated percentile delay criterion may be applied in assigning level-of-service designations to individual lane groups, to individual intersection approaches, or to entire intersections.

Table 8
LEVEL-OF-SERVICE CRITERIA
FOR SIGNALIZED INTERSECTIONS

Level of Service	Percentile Delay Per Vehicle (Seconds)
A	≤10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	>80.0

Vehicle Queue Analysis

Vehicle queue analyses are a direct measurement of an intersection's ability to process vehicles under various traffic control and volume scenarios and lane use arrangements. The vehicle queue analysis was performed using the Synchro™ intersection capacity analysis software for the unsignalized study area intersections and the accompanying SimTraffic™ modeling software for the signalized study area intersections. Both Synchro™ and SimTraffic™ are based upon the methodology and procedures presented in the 2010 *Highway Capacity Manual*.

The Synchro™ vehicle queue analysis methodology reports the number of vehicles that experience a delay of six seconds or more at an intersection. For unsignalized intersections, Synchro™ reports the 95th percentile vehicle queue. The SimTraffic™ modeling software provides a dynamic simulation of vehicle arrivals and signal timing intervals over the course of the analysis period to predict vehicle queuing at an intersection. The model is run several times and the results are then averaged, producing an average (50th percentile) and 95th percentile vehicle queue prediction for an intersection. Vehicle queue lengths are a function of the capacity of a movement under study and the volume of traffic being processed by the intersection during the analysis period. The 95th percentile vehicle queue is the vehicle queue length that will be exceeded only 5 percent of the time, or approximately three minutes out of sixty minutes during the peak one hour of the day (during the remaining fifty-seven minutes, the vehicle queue length will be less than the 95th percentile queue length).

ANALYSIS RESULTS

Level-of-service and vehicle queue analyses were conducted for 2015 Existing, 2022 No-Build and 2022 Build conditions for the intersections within the study area. The results of the intersection capacity and vehicle queue analyses are summarized in Tables 9 and 10. The detailed analysis results are presented in the Appendix.

The following is a summary of the level-of-service and vehicle queue analyses for the intersections within the study area.

Table 9
SIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY

	2015 Existing				2022 No-Build				2022 Build			
Signalized Intersection/Peak Hour/Movement	V/C[a]	Delay[b]	LOS[c]	Queue[d] 50th/95th	V/C	Delay	LOS	Queue 50th/95th	V/C	Delay	LOS	Queue 50th/95th
Waverly Street and Bishop Street and Beaver Street												
Weekday Morning:												
Waverly Street EB LT	0.60	62.6	E	7/10	0.58	60.2	E	8/12	0.58	59.6	E	8/14
Waverly Street EB TH/RT	0.60	34.9	C	14/15	0.62	34.5	C	14/15	0.62	34.3	C	14/15
Waverly Street WB LT	0.24	48.7	D	1/2	0.26	50.1	D	1/2	0.26	50.3	D	1/2
Waverly Street WB TH	0.58	56.0	E	14/14	0.62	57.7	E	14/14	0.62	58.0	E	14/14
Waverly Street WB RT	0.56	8.5	A	1/2	0.58	8.6	A	1/2	0.59	8.7	A	1/2
Beaver Street NB LT	0.28	48.9	D	2/3	0.32	50.5	E	2/3	0.33	50.6	D	2/6
Beaver Street NB TH/RT	0.63	51.5	D	11/13	0.68	53.2	D	11/13	0.69	53.6	D	12/16
Bishop Street SB LT	0.38	20.4	C	3/3	0.47	21.0	C	3/3	0.48	21.0	C	3/3
Bishop Street SB TH/RT	0.29	19.9	C	3/4	0.33	20.0	C	3/4	0.34	20.0	C	3/4
Overall	--	**37.0**	**D**	--	--	**46.3**	**D**	--	--	**47.9**	**D**	--
Weekday Evening:												
Waverly Street EB LT	0.85	>80.0	F	8/14	0.92	>80.0	F	8/14	0.93	>80.0	F	8/14
Waverly Street EB TH/RT	0.63	46.9	D	15/16	0.67	48.8	D	15/16	0.67	48.8	D	15/16
Waverly Street WB LT	0.49	64.5	E	1/2	0.60	72.7	E	6/6	0.60	72.7	E	6/8
Waverly Street WB TH	0.87	>80.0	F	13/13	0.93	>80.0	F	14/14	0.93	>80.0	F	14/14
Waverly Street WB RT	0.56	9.8	A	1/2	0.60	9.8	A	1/3	0.60	9.9	A	1/3
Beaver Street NB LT	0.53	64.0	E	3/5	0.60	70.9	E	3/5	0.61	72.1	E	3/6
Beaver Street NB TH/RT	0.59	50.4	D	7/8	0.65	52.2	D	10/13	0.66	52.3	D	10/13
Bishop Street SB LT	0.34	12.2	B	3/3	0.38	12.3	B	3/3	0.39	12.7	B	3/4
Bishop Street SB TH/RT	0.43	18.0	B	4/5	0.46	18.7	B	4/5	0.47	19.2	B	4/5
Overall	--	**55.7**	**E**	--	--	**59.0**	**E**	--	--	**59.9**	**E**	--
Saturday Midday:												
Waverly Street EB LT	0.78	79.1	E	8/11	0.81	>80.0	F	8/11	0.82	>80.0	F	8/12
Waverly Street EB TH/RT	0.56	35.6	D	14/14	0.59	36.1	D	14/14	0.58	36.0	D	14/14
Waverly Street WB LT	0.29	49.9	D	4/5	0.31	50.5	D	4/8	0.31	50.5	D	4/8
Waverly Street WB TH	0.64	58.2	E	14/14	0.68	59.6	E	14/14	0.67	59.5	E	14/14
Waverly Street WB RT	0.50	8.0	A	1/2	0.52	8.0	A	1/3	0.53	8.0	A	2/5
Beaver Street NB LT	0.59	71.9	E	4/8	063	74.7	E	4/8	0.68	>80.0	F	4/8
Beaver Street NB TH/RT	0.67	57.5	E	7/9	0.73	60.0	E	8/10	0.75	60.9	E	10/12
Bishop Street SB LT	0.36	19.5	B	3/3	0.41	20.0	C	3/3	0.42	20.2	C	3/4
Bishop Street SB TH/RT	0.33	20.2	C	4/4	0.33	20.4	C	4/4	0.37	20.8	C	4/5
Overall	--	**43.5**	**D**	--	--	**45.6**	**D**	--	--	**50.6**	**D**	--

See notes at end of table.

Table 9 (Continued)
SIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY

	2015 Existing				2022 No-Build				2022 Build			
Signalized Intersection/Peak Hour/Movement	V/C[a]	Delay[b]	LOS[c]	Queue[d] 50th/95th	V/C	Delay	LOS	Queue 50th/95th	V/C	Delay	LOS	Queue 50th/95th
Bishop Street at Howard Street												
Weekday Morning:												
Howard Street EB RT	0.42	47.3	D	13/18	0.51	50.6	D	15/18	0.52	50.7	D	15/18
Bishop Street NB LT/TH	0.44	1.0	A	1/2	0.49	1.2	A	1/3	0.50	1.2	A	2/4
Bishop Street SB TH/RT	0.61	>80.0	F	17/22	0.67	>80.0	F	21/22	0.68	>80.0	F	21/22
Overall	--	**37.1**	**D**	--	--	**38.4**	**D**	--	--	**38.4**	**D**	--
Weekday Evening:												
Howard Street EB RT	0.59	39.4	D	15/16	0.64	40.9	D	16/16	0.64	40.9	D	16/16
Bishop Street NB LT/TH	0.40	1.0	A	1/2	0.44	1.3	A	1/2	0.45	1.3	A	1/2
Bishop Street SB TH/RT	1.04	>80.0	A	21/22	1.13	>80.0	F	21/22	1.16	>80.0	F	21/22
Overall	--	**51.9**	**D**	--	--	**53.0**	**D**	--	--	**54.6**	**D**	--
Saturday Midday:												
Howard Street EB RT	0.38	38.6	D	14/15	0.44	39.9	D	14/20	0.44	40.0	D	15/20
Bishop Street NB LT/TH	0.36	0.9	A	1/2	0.40	1.1	A	1/2	0.41	1.2	A	2/3
Bishop Street SB TH/RT	0.71	>80.0	F	14/19	0.76	>80.0	F	21/22	0.76	>80.0	F	21/22
Overall	--	**44.5**	**D**	--	--	**45.1**	**D**	--	--	**45.3**	**D**	--

[a]Volume-to-capacity ratio.
[b]Control (signal) delay per vehicle in seconds.
[c]Level-of-Service.
[d]Queue length in vehicles and are from the SimTraffic queuing report.
NB = northbound; SB = southbound; EB = eastbound; WB = westbound; LT = left-turning movements; TH = through movements; RT = right-turning movements.

Table 10
UNSIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY

	2015 Existing				2022 No-Build				2022 Build			
Unsignalized Intersection/Peak Hour/Movement	Demand[a]	Delay[b]	LOS[c]	Queue[d] 95th	Demand	Delay	LOS	Queue 95th	Demand	Delay	LOS	Queue 95th
Bishop Street at Clark Street												
Weekday Morning:												
Clark Street EB LT/TH/RT	66	44.7	E	3	70	>50.0	F	4	72	>50.0	F	5
Clark Street WB LT/TH/RT	21	>50.0	F	2	22	>50.0	F	3	23	>50.0	F	3
Bishop Street NB LT/TH/RT	526	1.2	A	1	674	1.2	A	1	692	1.2	A	1
Bishop Street SB LT/TH/RT	433	0.3	A	0	474	0.3	A	0	479	0.3	A	0
Weekday Evening:												
Clark Street EB LT/TH/RT	73	19.9	C	1	78	23.6	C	2	79	25.8	C	2
Clark Street WB LT/TH/RT	62	36.4	E	3	66	>50.0	F	4	68	>50.0	F	4
Bishop Street NB LT/TH/RT	542	0.8	A	0	591	0.8	A	0	599	0.8	A	0
Bishop Street SB LT/TH/RT	539	0.1	A	0	584	0.1	A	0	604	0.1	A	0
Saturday Midday:												
Clark Street EB LT/TH/RT	12	18.1	C	0	12	20.0	C	1	14	21.5	C	1
Clark Street WB LT/TH/RT	2	17.1	C	0	2	18.7	C	0	3	21.0	C	0
Bishop Street NB LT/TH/RT	511	0.6	A	0	556	0.6	A	0	572	0.6	A	0
Bishop Street SB LT/TH/RT	429	0.0	A	0	469	0.0	A	0	475	0.0	A	0
Bishop Street at Lawrence Street												
Weekday Morning:												
Lawrence Street EB LT/TH/RT	21	19.6	C	1	22	21.5	C	1	24	21.7	C	1
Lawrence Street WB LT/TH/RT	10	25.9	D	1	10	29.8	D	1	10	31.0	D	1
Bishop Street NB LT/TH/RT	542	0.2	A	0	585	0.2	A	0	591	0.2	A	0
Bishop Street SB LT/TH/RT	428	0.1	A	0	468	0.1	A	0	487	0.1	A	0
Weekday Evening:												
Lawrence Street EB LT/ TH/RT	34	25.4	D	1	36	30.0	D	1	37	31.5	D	1
Lawrence Street WB LT/TH/RT	19	24.8	C	1	20	27.9	D	1	20	29.5	D	1
Bishop Street NB LT/TH/RT	527	0.4	A	0	575	0.4	A	0	597	0.4	A	0
Bishop Street SB LT/TH/RT	557	0.0	A	0	603	0.0	A	0	611	0.0	A	0
Saturday Midday:												
Lawrence Street EB LT/TH/RT	32	15.2	C	1	35	16.6	C	1	37	16.8	C	1
Lawrence Street WB LT/TH/RT	0	0.0	A	0	0	0.0	A	0	0	0.0	A	0
Bishop Street NB LT/TH/RT	484	0.3	A	0	527	0.3	A	0	534	0.3	A	0
Bishop Street SB LT/TH/RT	420	0.0	A	0	459	0.0	A	0	476	0.0	A	0

See notes at end of table.

Table 10 (Continued)
UNSIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY

	2015 Existing				2022 No-Build				2022 Build			
Unsignalized Intersection/Peak Hour/Movement	Demand[a]	Delay[b]	LOS[c]	Queue[d] 95th	Demand	Delay	LOS	Queue 95th	Demand	Delay	LOS	Queue 95th
Bishop Street at the North Project Site Driveway												
Weekday Morning:												
Bishop Street NB TH/RT	--	--	--	--	--	--	--	--	586	0.0	A	0
Bishop Street SB LT/TH	--	--	--	--	--	--	--	--	495	0.4	A	0
North Project Site Driveway WB LT/RT	--	--	--	--	--	--	--	--	6	14.5	B	0
Weekday Evening:												
Bishop Street NB TH/RT	--	--	--	--	--	--	--	--	577	0.0	A	0
Bishop Street SB LT/TH	--	--	--	--	--	--	--	--	593	0.1	A	0
North Project Site Driveway WB LT/RT	--	--	--	--	--	--	--	--	22	14.1	B	0
Saturday Midday:												
Bishop Street NB TH/RT	--	--	--	--	--	--	--	--	528	0.3	A	0
Bishop Street SB LT/TH	--	--	--	--	--	--	--	--	488	0.0	A	0
North Project Site Driveway WB LT/RT	--	--	--	--	--	--	--	--	7	13.4	B	0
Bishop Street at the South Project Site Driveway												
Weekday Morning:												
South Project Site Driveway WB LT/RT	--	--	--	--	--	--	--	--	5	20.2	C	0
Bishop Street NB TH/RT	--	--	--	--	--	--	--	--	603	0.0	A	0
Bishop Street SB LT/TH	--	--	--	--	--	--	--	--	475	0.0	A	0
Weekday Evening:												
South Project Site Driveway WB LT/RT	--	--	--	--	--	--	--	--	20	25.3	D	1
Bishop Street NB TH/RT	--	--	--	--	--	--	--	--	583	0.0	A	0
Bishop Street SB LT/TH	--	--	--	--	--	--	--	--	586	0.0	A	0
Saturday Midday:												
South Project Site Driveway WB LT/RT	--	--	--	--	--	--	--	--	6	19.2	C	0
Bishop Street NB TH/RT	--	--	--	--	--	--	--	--	543	0.0	A	0
Bishop Street SB LT/TH	--	--	--	--	--	--	--	--	470	0.0	A	0

See notes at end of table.

Table 10 (Continued)
UNSIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY

	2015 Existing				2022 No-Build				2022 Build			
Unsignalized Intersection/Peak Hour/Movement	Demand[a]	Delay[b]	LOS[c]	Queue[d] 95th	Demand	Delay	LOS	Queue 95th	Demand	Delay	LOS	Queue 95th
Clark Street at the Project Site Driveway												
Weekday Morning:												
Clark Street EB LT/TH	--	--	--	--	--	--	--	--	54	0.3	A	0
Clark Street WB TH/RT	--	--	--	--	--	--	--	--	21	0.0	A	0
Project Site Driveway SB LT/RT	--	--	--	--	--	--	--	--	1	8.4	A	0
Weekday Evening:												
Clark Street EB LT/TH	--	--	--	--	--	--	--	--	17	0.4	A	0
Clark Street WB TH/RT	--	--	--	--	--	--	--	--	66	0.0	A	0
Project Site Driveway SB LT/RT	--	--	--	--	--	--	--	--	2	8.6	A	0
Saturday Evening:												
Clark Street EB LT/TH	--	--	--	--	--	--	--	--	3	4.8	A	0
Clark Street WB TH/RT	--	--	--	--	--	--	--	--	2	0.0	A	0
Project Site Driveway SB LT/RT	--	--	--	--	--	--	--	--	1	8.3	A	0

[a]Demand in vehicles per hour.
[b]Average control delay per vehicle (in seconds).
[c]Level-of-Service.
[d]Queue length in vehicles.
NB = northbound; SB = southbound; EB = eastbound; WB = westbound; SEB = southeastbound; LT = left-turning movements; TH = through movements; RT = right-turning movements.

Signalized Intersections

As can be seen in Table 9, with the exception of the Waverly Street/Bishop Street/Beaver Street intersection during the weekday evening peak-hour, the signalized study area intersections were shown to operate at an overall LOS D or better during the weekday morning, weekday evening and Saturday midday peak hours under 2015 Existing, 2022 No-Build and 2022 Build conditions, where an LOS of "D" or better is generally defined as "acceptable" operating conditions. That being said, we note that specific movements at both the Waverly Street/Bishop Street/ Beaver Street and Bishop Street/Howard Street intersections are operating at or over their theoretical design capacity (defined as LOS E or F, respectively) independent of the Project. During the weekday evening peak-hour, the Waverly Street/Bishop Street/Beaver Street intersection was shown to operate at an overall LOS E again, independent of the Project. Project-related impacts at the signalized study area intersections were identified as follows:

Waverly Street/Bishop Street/Beaver Street – Minor increases in average motorist delay (5 seconds or less) and vehicle queuing (three (3) vehicles or less) predicted over No-Build conditions.

Bishop Street/Howard Street – Minor increases in average motorist delay (less than 2 seconds) and vehicle queuing (one (1) vehicle) predicted with no reported change in LOS over No-Build conditions.

Unsignalized Intersections

As can be seen in Table 10, with the exception of the Bishop Street/Clark Street intersection during the weekday morning and evening peak hours, all movements at the unsignalized study area intersections were shown to operate at LOS D or better during the weekday morning, weekday evening and Saturday midday peak hours under 2015 Existing, 2022 No-Build and 2022 Build conditions. All movements from Clark Street (east and/or westbound) at its intersection with Bishop Street were shown to operate at or over capacity during the weekday morning and evening peak hours independent of the Project due to the relatively large volume of conflicting traffic travelling along Bishop Street. The residual vehicle queueing was shown to be limited to five (5) or fewer vehicles. Project-related impacts at the unsignalized study area intersections were identified as follows:

Bishop Street/Clark Street – Minor increase in vehicle queuing predicted (one (1) vehicle) with no reported change in LOS over No-Build conditions.

Bishop Street/Lawrence Street – No material change in operating conditions over No-Build conditions.

Project Site Driveways - All movements at the Project site driveway intersections with Bishop Street and Clark Street were shown to operate at LOS D or better during the peak hours with predicted vehicle queueing internal to the Project site of no more than one (1) vehicle. All movements along Bishop Street and Clark Street were reported to operate at LOS A during the peak hours with no vehicle queuing predicted to occur.

SIGHT DISTANCE EVALUATION

Sight distance measurements were performed at the Project site driveway intersections with Bishop Street, Lawrence Street and Clark Street in accordance with MassDOT and American Association of State Highway and Transportation Officials (AASHTO)[7] requirements. Both stopping sight distance (SSD) and intersection sight distance (ISD) measurements were performed. In brief, SSD is the distance required by a vehicle traveling at the design speed of a roadway, on wet pavement, to stop prior to striking an object in its travel path. ISD or corner sight distance (CSD) is the sight distance required by a driver entering or crossing an intersecting roadway to perceive an on-coming vehicle and safely complete a turning or crossing maneuver with on-coming traffic. In accordance with AASHTO standards, if the measured ISD is at least equal to the required SSD value for the appropriate design speed, the intersection can operate in a safe manner. Table 11 presents the measured SSD and ISD at the subject intersections.

[7] *A Policy on Geometric Design of Highway and Streets*, 6th Edition; American Association of State Highway and Transportation Officials (AASHTO); Washington D.C.; 2011.

Table 11
SIGHT DISTANCE MEASUREMENTS[a]

Intersection/Sight Distance Measurement	Feet		
	Required Minimum (SSD)	Desirable (ISD)[b]	Measured
Bishop Street at the North Project Site Driveway			
Stopping Sight Distance:			
Prescott Street approaching from the north	250	--	500+
Prescott Street approaching from the south	250	--	500+
Intersection Sight Distance:			
Looking to the north from the Project Site Driveway	250	335/390	500+
Looking to the south from the Project Site Driveway	250	335/390	500+
Bishop Street at the South Project Site Driveway			
Stopping Sight Distance:			
Prescott Street approaching from the north	250	--	500+
Prescott Street approaching from the south	250	--	500+
Intersection Sight Distance:			
Looking to the north from the Project Site Driveway	200	335/390	500+
Looking to the south from the Project Site Driveway	200	335/390	500+
Lawrence Street at the Project Site Driveway			
Stopping Sight Distance:			
Prescott Street approaching from the east	200	--	318
Prescott Street approaching from the west	200	--	400
Intersection Sight Distance:			
Looking to the east from the Project Site Driveway	200	290/335	318[c]
Looking to the west from the Project Site Driveway	200	290/335	400
Clark Street at the East Project Site Driveway			
Stopping Sight Distance:			
Lincoln Street approaching from the east	200	--	204
Lincoln Street approaching from the west	200	--	500+
Intersection Sight Distance:			
Looking to the east from the Project Site Driveway	200	290/335	204[c]
Looking to the west from the Project Site Driveway	200	290/335	500+
Clark Street at the West Project Site Driveway			
Stopping Sight Distance:			
Lincoln Street approaching from the east	200	--	500+
Lincoln Street approaching from the west	200	--	500+
Intersection Sight Distance:			
Looking to the east from the Project Site Driveway	200	290/335	500+
Looking to the west from the Project Site Driveway	200	290/335	500+

[a]Recommended minimum values obtained from *A Policy on Geometric Design of Highways and Streets*, 6th Edition; American Association of State Highway and Transportation Officials (AASHTO); 2011; and based on a 35 mph approach speed on Bishop Street and a 30 mph approach speed on Lawrence Street and Clark Street.

[b]Values shown are the intersection sight distance for a vehicle turning right/left exiting a roadway under STOP control such that motorists approaching the intersection on the major street should not need to adjust their travel speed to less than 70 percent of their initial approach speed.

[c]Clear line of sight is provided to the end of the roadway.

As can be seen in Table 11, lines of sight at the Project site driveway intersections exceed the recommended minimum sight distance requirements to function in a safe manner based on a 35 mph approach speed along Bishop Street and a 30 mph approach speed along both Lawrence Street and Clark Street, which is consistent with the measured 85th percentile vehicle travel speed and the posted speed limit along Bishop Street, and the "prima facie" speed limit along Lawrence Street and Clark Street (30 mph).[8]

[8]The "prima facie" speed is defined in M.G.L. Chapter 90, Section 17, as the speed which would be deemed reasonable and proper to operate a motor vehicle.

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

VAI has completed a detailed assessment of the potential impacts on the transportation infrastructure associated with the proposed construction of an automotive sales and service facility to be located at 71 Bishop Street in Framingham, Massachusetts. The following specific areas have been evaluated as they relate to the Project: i) access requirements; ii) potential off-site improvements; and iii) safety considerations; under existing and future conditions, both with and without the Project. Based on this assessment, we have concluded the following with respect to the Project:

1. Using a combination of empirical traffic count data obtained from facilities similar to those that will be located within the Project site and employee/customer projections for the proposed uses, the Project is predicted to generate approximately 53 vehicle trips during the weekday morning peak-hour, 62 vehicle trips during the weekday evening peak-hour and 51 vehicle trips during the Saturday midday peak-hour;

2. The Project will not have a significant impact (increase) on motorist delays or vehicle queuing over Existing or anticipated future conditions without the Project (No-Build conditions);

3. With the exception of the Waverly Street/Bishop Street/Beaver Street intersection, no apparent safety deficiencies were noted with respect to the motor vehicle crash history at the study intersections. Specific safety-related improvement measures have been identified at the Waverly Street/Bishop Street/Beaver Street intersection to address the motor vehicle crashes that are occurring at this intersection; and

4. Lines of sight to and from the Project site driveway intersections with Bishop Street, Lawrence Street and Clark Street were found to exceed the required minimum distance for the intersections to function in a safe manner based on the appropriate approach speed along the intersecting roadway.

In consideration of the above, we have concluded that the Project can be accommodated within the confines of the existing transportation infrastructure in a safe and efficient manner with implementation of the recommendations that follow.

RECOMMENDATIONS

A detailed transportation improvement program has been developed that is designed to provide safe and efficient access to the Project site and address any deficiencies identified at off-site locations evaluated in conjunction with this study. The following improvements have been recommended as a part of this evaluation and, where applicable, will be completed in conjunction with the Project subject to receipt of all necessary rights, permits, and approvals.

Project Access

Access to the Project site will be provided by way of multiple driveways defined as follows: two (2) full-access driveways that will intersect the east side of Bishop Street between Clark Street and Lawrence Street; a full access driveway that will intersect the north side of Clark Street east of Bishop Street; and two (2) restricted (by means of a gate) access driveways that will intersect the north side of Clark Street and the south side of Lawrence Street, respectively. Additional access will be provided to a 120 space parking lot at the east end of Clark Street. These spaces serve as parking for existing businesses in the area. The following recommendations are offered with respect to the design and operation of the Project site driveways:

- The non-restricted Project site driveways should be a minimum of 24-feet in width and accommodate two-way traffic, with the restricted access driveways providing a minimum width of 18-feet.
- The gates securing the restricted access driveways should include appropriate signs ("Do Not Enter") and/or reflectorized tape to clearly delineate the gates under low visibility conditions.
- Vehicles exiting the Project site should be placed under STOP-sign control with a marked STOP-line provided.
- All signs and pavement markings to be installed within the Project site shall conform to the applicable standards of the *Manual on Uniform Traffic Control Devices* (MUTCD).[9]
- Sidewalks should be provided within the Project site linking the proposed building to the sidewalk infrastructure along Bishop Street.
- Wheelchair ramps should be provided for crossing the Project site driveways where a sidewalk is present.
- Signs and landscaping to be installed along the Project site driveways, internal to the Project site and at the Project site driveway intersections with Bishop Street, Lawrence Street and Clark Street should be designed and maintained so as not to restrict lines of sight.
- Snow windrows along the Project site frontage within the sight triangle areas of the Project site driveways shall be promptly removed where such accumulations would exceed 2.5 feet in height.
- Where allowed, on-street parking should be prohibited for a minimum distance of 20-feet on either side of the Project site driveways in order to provide and maintain the required lines of sight for the driveways to operate in a safe manner.

[9] Ibid 1.

Off-Site

Waverly Street/Bishop Street/Beaver Street

This signalized intersection was found to have a motor vehicle crash rate that exceeded both the MassDOT statewide and District crash rates for a signalized intersection, and was listed on MassDOT's *Top 200 Crash Location List* (number 92 out of 200). In addition, it was noted that one or more movements at the intersection were operating at or over their theoretical design capacity (defined as an LOS of "E" or "F", respectively) independent of the Project. In an effort to reduce the frequency of occurrence of motor vehicle crashes at the intersection and improve traffic operations (i.e., reduce motorist delay and vehicle queuing), the following improvements are recommended and include the Bishop Street/Howard Street intersection as both intersections operate as a single signalized intersection:

- Realign the optically programmed signal heads so that the displays are only visible within the defined zones;
- Relamp the existing signal heads with LED type bulbs to enhance the visibility of the signal indications;
- Add reflectorized tape to the perimeter of the signal head backplates;
- Replace missing OPTICOM™ receiver; and
- Review, design and implement an optimal traffic signal timing plan, with specific emphasis on the "yellow" and "all-red" clearance intervals.

These improvements will be completed prior to the issuance of a Certificate of Occupancy for the Project and subject to receipt of all necessary rights, permits and approvals.

Transportation Demand Management

The Project site is ideally situated to take advantage of available public transportation opportunities in the area, including both Commuter Rail and bus service along Waverly Street. In an effort to the encourage use of alternative modes of transportation to single-occupant vehicles, the following Transportation Demand Management (TDM) measures will be implemented as a part of the Project:

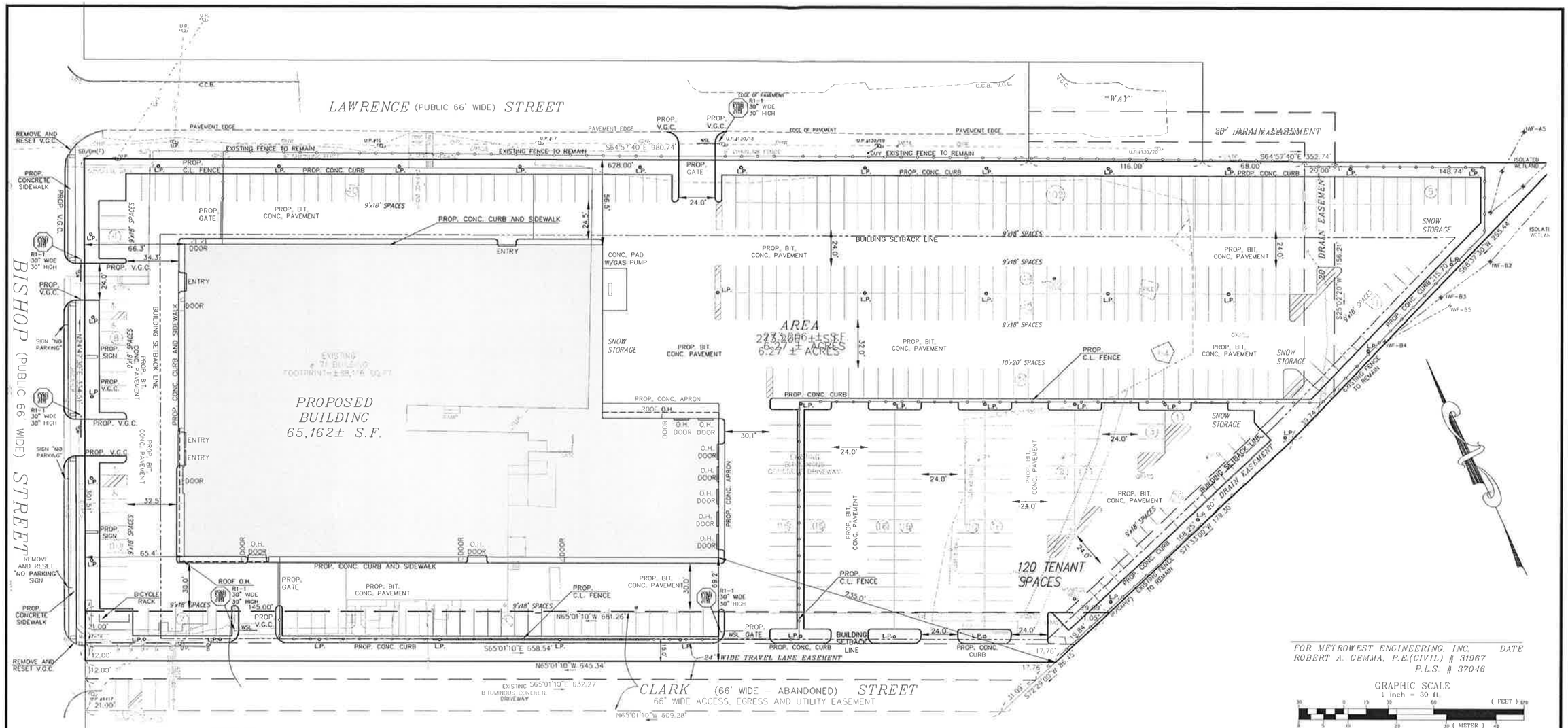
- Information regarding public transportation services, maps, schedules and fare information will be posted in a central location;
- A packet will be provided to new employees of the Project detailing available public transportation services, bicycle and walking alternatives, and commuter options available through MassRIDES' and their NuRide program which rewards individuals that choose to walk, bicycle, carpool, vanpool or that use public transportation to travel to and from work;
- Pedestrian accommodations will be incorporated within the Project site; and
- Secure bicycle parking will be provided, including both an exterior bicycle rack and weather protected bicycle parking in a secure area.

With implementation of the above recommendations, safe and efficient access will be provided to the Project site and the Project can be accommodated within the confines of the existing and improved transportation system.

APPENDIX

PROJECT SITE PLAN
AUTOMATIC TRAFFIC RECORDER COUNTS
MANUAL TURNING MOVEMENT COUNTS
SEASONAL ADJUSTMENT DATA
VEHICLE TRAVEL SPEED DATA
PUBLIC TRANSPORTATION SCHEDULE AND FARE INFORMATIONS
MASSDOT CRASH RATE WORKSHEETS
SITE-SPECIFIC DEVELOPMENT TRAFFIC-VOLUME NETWORKS
GENERAL BACKGROUND TRAFFIC GROWTH
TRIP-GENERATION CALCULATIONS
CAPACITY ANALYSIS WORKSHEETS
SIMTRAFFIC QUEUING REPORTS

PROJECT SITE PLAN



FOR METROWEST ENGINEERING, INC. DATE
ROBERT A. CEMMA, P.E.(CIVIL) # 31967
P.L.S. # 37046

GRAPHIC SCALE
1 inch = 30 ft.
(FEET) 0 15 30 60
(METER) 0 5 10 20 30 40

NOTES:

1. SUBJECT PARCEL IS SHOWN AS ASSESSORS MAP 84, BLOCK 165 LOT 04.
RECORD TITLE FROM BOOK 64092, PAGE 318.

2. UTILITY LOCATIONS DEPICTED ON THIS PLAN, BOTH ABOVE- AND BELOW-GROUND, ARE BASED UPON DIRECT FIELD OBSERVATIONS MADE BY METROWEST ENGINEERING, INC. PERSONNEL DURING A FIELD SURVEY, RECORD PLAN LOCATIONS, OR DIGSAFE PAINT-INDICATORS. METROWEST ENGINEERING, INC. DOES NOT WARRANT THAT ALL UTILITIES ARE SHOWN OR THAT UTILITIES THAT ARE DEPICTED ARE SHOWN IN THE CORRECT LOCATION, OR WITH THE PROPER MATERIAL DESIGNATION. METROWEST ENGINEERING, INC. DOES NOT WARRANT OR PROVIDE AN EXPRESS OR IMPLIED WARRANTY THAT ALL SUBSURFACE IMPROVEMENTS ARE SHOWN OR ARE SHOWN CORRECTLY, INCLUDING, BUT NOT LIMITED TO, UTILITIES, UNDERGROUND VAULTS, UNDERGROUND TANKS OR CHAMBERS, BUNKERS, DUCT BANKS, AND/OR OTHER MAN-MADE IMPROVEMENTS THAT LIE BENEATH THE GROUND SURFACE AT THE TIME OF THE SURVEY.

3. CONTRACTOR IS SOLELY RESPONSIBLE FOR ESTABLISHING EXISTING LOCATIONS OF ALL SUB-SURFACE UTILITIES AND MAN-MADE IMPROVEMENTS AND FOR THE REQUIREMENTS TO REPLACE, RELOCATE OR REPAIR EXISTING UTILITIES IN THE EVENT OF DAMAGE OCCURRING DURING CONSTRUCTION. MWE IS NOT RESPONSIBLE OR LIABLE FOR DELAYS OR COSTS ASSOCIATED WITH REMOVING/REPLACING/RELOCATING OF EXISTING UTILITIES REGARDLESS OF WHETHER SAID UTILITIES ARE ACCURATELY DEPICTED ON THIS SURVEY.

4. THE PROPERTY DESCRIBED ON THIS SURVEY DOES NOT LIE WITHIN A SPECIAL FLOOD HAZARD AREA AS DEFINED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY; THE PROPERTY LIES WITHIN ZONE "X" OF THE FLOOD INSURANCE RATE MAP IDENTIFIED AS MAPS NUMBER 25017C0519F & 25017C0519F, BEARING AN EFFECTIVE DATE OF JULY 7, 2014.

CONTRACTOR TO VERIFY ACTUAL LOCATION OF EXISTING UTILITY SERVICES IN THE FIELD PRIOR TO CONSTRUCTION (WATER, ELECTRICAL, ETC.) CALL DIG-SAFE BEFORE YOU DIG 8"!.

ZONING:

M-GENERAL MANUFACTURING
ANY NON-RESIDENTIAL USE
MINIMUM AREA= 6,000 SQUARE FEET
MAXIMUM HEIGHT= 6 STORY/80 FEET
SETBACKS:
FRONT YARD= 50 FEET
SIDE YARD = 15 FEET
REAR YARD= 15 FEET
LOT COVERAGE= N/A
FLOOR AREA RATIO= 0.32
LANDSCAPED OPEN SPACE SURFACE RATIO= 0.20

FRAMINGHAM PLANNING BOARD
SITE PLAN REVIEW

THE ENDORSEMENT OF THE PLANNING BOARD SHOULD NOT BE CONSTRUED TO BE A DETERMINATION OF CONFORMANCE WITH ZONING REGULATIONS.

PROPOSED LAYOUT PLAN

#71 BISHOP STREET
IN
FRAMINGHAM, MASS

PREPARED FOR:
HERB CHAMBERS COMPANIES
259 McGRATH HIGHWAY
SOMERVILLE, MA 02143

PROPERTY OF:
CLINTON 100 CPI, LLC
43 BROAD ST
HUDSON, MA 01749

ENGINEERS & SURVEYORS:
MWE
METROWEST ENGINEERING, INC.
75 FRANKLIN STREET
FRAMINGHAM, MA 01702
TEL.: (508)626-0063
FAX: (508)875-6440

SHEET C300	DATE: NOVEMBER 16, 2015
CALC'D BY: BTN/RAG FIELD BK: 632	CAD FILE: PROP_SPI_BTN.dwg
DRAFTER: BTN PROJECT: FRM_CLI	DWG FILE: SP111615.dwg

AUTOMATIC TRAFFIC RECORDER COUNTS

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

Bishop Street
north of Clark Street
City, State: Framingham, MA
Client: VAI/B. Guen

04626Avolume
Site Code: 7156

Start	23-Oct-15	NB		Hour Totals		SB		Hour Totals		Combined Totals	
Time	Fri	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		17	125			6	83				
12:15		6	109			11	73				
12:30		3	145			9	86				
12:45		1	110	27	489	10	86	36	328	63	817
01:00		4	108			6	103				
01:15		5	99			5	102				
01:30		5	85			6	113				
01:45		1	102	15	394	6	91	23	409	38	803
02:00		5	102			2	96				
02:15		1	97			6	117				
02:30		3	88			6	107				
02:45		3	97	12	384	0	103	14	423	26	807
03:00		6	93			2	124				
03:15		1	96			0	112				
03:30		3	107			1	119				
03:45		5	96	15	392	4	103	7	458	22	850
04:00		2	132			4	107				
04:15		2	114			3	71				
04:30		11	89			6	99				
04:45		5	158	20	493	5	95	18	372	38	865
05:00		6	120			9	113				
05:15		17	118			9	126				
05:30		36	101			18	93				
05:45		44	95	103	434	25	111	61	443	164	877
06:00		51	111			38	111				
06:15		74	109			39	120				
06:30		95	79			64	119				
06:45		100	85	320	384	76	101	217	451	537	835
07:00		119	99			81	101				
07:15		118	113			87	98				
07:30		128	104			106	80				
07:45		121	74	486	390	105	96	379	375	865	765
08:00		141	58			113	74				
08:15		107	77			114	80				
08:30		124	70			107	68				
08:45		126	50	498	255	113	71	447	293	945	548
09:00		116	61			89	63				
09:15		95	46			72	64				
09:30		91	56			74	57				
09:45		110	55	412	218	69	64	304	248	716	466
10:00		80	56			78	54				
10:15		79	47			69	60				
10:30		93	38			79	47				
10:45		77	47	329	188	80	45	306	206	635	394
11:00		82	36			81	36				
11:15		97	17			67	33				
11:30		111	15			85	25				
11:45		117	15	407	83	84	27	317	121	724	204
Total		2644	4104			2129	4127			4773	8231
Percent		39.2%	60.8%			34.0%	66.0%			36.7%	63.3%
Combined Total		6748				6256				13004	

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Bishop Street
north of Clark Street
City, State: Framingham, MA
Client: VAI/B. Guen

04626Avolume
Site Code: 7156

Start	24-Oct-15	NB		Hour Totals		SB		Hour Totals		Combined Totals	
Time	Sat	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		23	113			13	101				
12:15		20	95			13	99				
12:30		12	130			6	97				
12:45		8	123	63	461	12	106	44	403	107	864
01:00		11	99			12	104				
01:15		12	93			10	105				
01:30		9	115			15	112				
01:45		7	108	39	415	12	90	49	411	88	826
02:00		9	99			7	112				
02:15		7	86			1	92				
02:30		10	129			7	89				
02:45		2	101	28	415	4	88	19	381	47	796
03:00		1	102			5	96				
03:15		7	86			6	117				
03:30		5	86			4	114				
03:45		4	108	17	382	2	105	17	432	34	814
04:00		3	126			5	99				
04:15		2	92			3	99				
04:30		5	111			2	91				
04:45		5	90	15	419	2	118	12	407	27	826
05:00		1	86			4	97				
05:15		14	101			5	98				
05:30		9	135			7	104				
05:45		15	104	39	426	11	84	27	383	66	809
06:00		21	92			18	91				
06:15		21	72			18	99				
06:30		31	87			19	110				
06:45		45	101	118	352	31	82	86	382	204	734
07:00		41	74			27	86				
07:15		46	87			24	69				
07:30		59	74			29	69				
07:45		65	57	211	292	46	85	126	309	337	601
08:00		56	48			37	64				
08:15		68	57			57	60				
08:30		77	51			51	59				
08:45		84	56	285	212	57	72	202	255	487	467
09:00		73	50			76	58				
09:15		76	66			47	54				
09:30		90	50			55	61				
09:45		91	31	330	197	85	47	263	220	593	417
10:00		84	48			80	47				
10:15		93	31			69	53				
10:30		119	34			65	43				
10:45		88	30	384	143	76	29	290	172	674	315
11:00		108	40			85	24				
11:15		89	30			80	35				
11:30		74	30			101	26				
11:45		123	20	394	120	85	21	351	106	745	226
Total		1923	3834			1486	3861			3409	7695
Percent		33.4%	66.6%			27.8%	72.2%			30.7%	69.3%
Combined Total		5757				5347				11104	

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Bishop Street
north of Clark Street
City, State: Framingham, MA
Client: VAI/B. Guen

04626Avolume
Site Code: 7156

Start Time	25-Oct-15 Sun	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		32	101			22	102				
12:15		27	101			22	78				
12:30		24	90			13	74				
12:45		19	134	102	426	15	93	72	347	174	773
01:00		10	127			15	75				
01:15		4	113			9	87				
01:30		8	88			11	100				
01:45		3	102	25	430	7	87	42	349	67	779
02:00		6	80			6	69				
02:15		8	99			7	81				
02:30		5	77			9	84				
02:45		6	87	25	343	7	79	29	313	54	656
03:00		13	62			5	75				
03:15		4	86			5	84				
03:30		4	73			4	79				
03:45		4	79	25	300	2	63	16	301	41	601
04:00		2	57			2	73				
04:15		1	77			5	73				
04:30		5	79			1	77				
04:45		1	73	9	286	3	83	11	306	20	592
05:00		1	69			2	75				
05:15		7	77			6	84				
05:30		5	79			0	71				
05:45		14	63	27	288	6	75	14	305	41	593
06:00		8	64			9	81				
06:15		9	88			13	60				
06:30		20	55			12	102				
06:45		21	57	58	264	11	72	45	315	103	579
07:00		10	62			14	69				
07:15		13	49			24	63				
07:30		27	56			16	57				
07:45		25	40	75	207	25	51	79	240	154	447
08:00		36	35			22	48				
08:15		31	49			27	38				
08:30		43	44			33	37				
08:45		54	46	164	174	42	35	124	158	288	332
09:00		47	40			53	37				
09:15		47	36			51	36				
09:30		56	47			56	31				
09:45		67	40	217	163	64	23	224	127	441	290
10:00		67	25			52	30				
10:15		73	28			60	24				
10:30		93	26			65	23				
10:45		89	21	322	100	65	19	242	96	564	196
11:00		64	18			51	18				
11:15		92	21			67	14				
11:30		84	12			80	16				
11:45		95	12	335	63	78	6	276	54	611	117
Total		1384	3044			1174	2911			2558	5955
Percent		31.3%	68.7%			28.7%	71.3%			30.0%	70.0%
Combined Total		4428				4085				8513	
Total		8489	12894			6776	12948			15265	25842
Percent		39.7%	60.3%			34.4%	65.6%			37.1%	62.9%
Combined Total		21383				19724				41107	
ADT		ADT 10,277		AADT 10,277							

MANUAL TURNING MOVEMENT COUNTS

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
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N/S: Bishop Street
E/W: Waverly Street (Route 135)
City, State: Framingham, MA
Client: VAI/B. Guen

File Name : 04626A
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

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

	Bishop Street From North				Waverly Street (Route 135) From East				Bishop Street From South				Waverly Street (Route 135) From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	28	83	40	0	62	33	7	4	23	101	15	1	12	79	38	0	526
07:15 AM	32	102	44	1	61	56	4	1	14	99	18	1	10	79	37	0	559
07:30 AM	33	90	48	0	86	47	7	0	13	129	20	0	14	79	45	0	611
07:45 AM	41	96	35	0	69	51	14	1	9	108	14	0	15	74	38	0	565
Total	134	371	167	1	278	187	32	6	59	437	67	2	51	311	158	0	2261
08:00 AM	33	95	38	1	61	48	12	3	8	101	10	0	19	92	47	1	569
08:15 AM	36	100	47	0	66	63	15	5	11	104	11	0	17	91	31	1	598
08:30 AM	41	87	48	0	75	59	6	3	10	107	18	0	14	82	29	0	579
08:45 AM	39	67	61	0	91	48	11	1	19	111	11	0	22	77	45	4	607
Total	149	349	194	1	293	218	44	12	48	423	50	0	72	342	152	6	2353
Grand Total	283	720	361	2	571	405	76	18	107	860	117	2	123	653	310	6	4614
Apprch %	20.7	52.7	26.4	0.1	53.4	37.9	7.1	1.7	9.9	79.2	10.8	0.2	11.3	59.8	28.4	0.5	
Total %	6.1	15.6	7.8	0	12.4	8.8	1.6	0.4	2.3	18.6	2.5	0	2.7	14.2	6.7	0.1	
Cars & Peds	277	710	341	2	541	384	73	18	103	847	112	2	121	626	304	6	4467
% Cars & Peds	97.9	98.6	94.5	100	94.7	94.8	96.1	100	96.3	98.5	95.7	100	98.4	95.9	98.1	100	96.8
Trucks & Buses	6	8	19	0	29	20	3	0	4	9	5	0	2	21	4	0	130
% Trucks & Buses	2.1	1.1	5.3	0	5.1	4.9	3.9	0	3.7	1	4.3	0	1.6	3.2	1.3	0	2.8
Bikes by Direction	0	2	1	0	1	1	0	0	0	4	0	0	0	6	2	0	17
% Bikes by Direction	0	0.3	0.3	0	0.2	0.2	0	0	0	0.5	0	0	0	0.9	0.6	0	0.4

	Bishop Street From North					Waverly Street (Route 135) From East					Bishop Street From South					Waverly Street (Route 135) 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 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	33	95	38	1	167	61	48	12	3	124	8	101	10	0	119	19	92	47	1	159	569
08:15 AM	36	100	47	0	183	66	63	15	5	149	11	104	11	0	126	17	91	31	1	140	598
08:30 AM	41	87	48	0	176	75	59	6	3	143	10	107	18	0	135	14	82	29	0	125	579
08:45 AM	39	67	61	0	167	91	48	11	1	151	19	111	11	0	141	22	77	45	4	148	607
Total Volume	149	349	194	1	693	293	218	44	12	567	48	423	50	0	521	72	342	152	6	572	2353
% App. Total	21.5	50.4	28	0.1		51.7	38.4	7.8	2.1		9.2	81.2	9.6	0		12.6	59.8	26.6	1		
PHF	.909	.873	.795	.250	.947	.805	.865	.733	.600	.939	.632	.953	.694	.000	.924	.818	.929	.809	.375	.899	.969
Cars & Peds	146	343	182	1	672	278	212	41	12	543	46	416	46	0	508	71	331	149	6	557	2280
% Cars & Peds	98.0	98.3	93.8	100	97.0	94.9	97.2	93.2	100	95.8	95.8	98.3	92.0	0	97.5	98.6	96.8	98.0	100	97.4	96.9
Trucks & Buses	3	5	12	0	20	15	6	3	0	24	2	4	4	0	10	1	8	2	0	11	65
% Trucks & Buses	2.0	1.4	6.2	0	2.9	5.1	2.8	6.8	0	4.2	4.2	0.9	8.0	0	1.9	1.4	2.3	1.3	0	1.9	2.8
Bikes by Direction	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	0	3	1	0	4	8
% Bikes by Direction	0	0.3	0	0	0.1	0	0	0	0	0	0	0.7	0	0	0.6	0	0.9	0.7	0	0.7	0.3

Transportation Data Corporation

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N/S: Bishop Street
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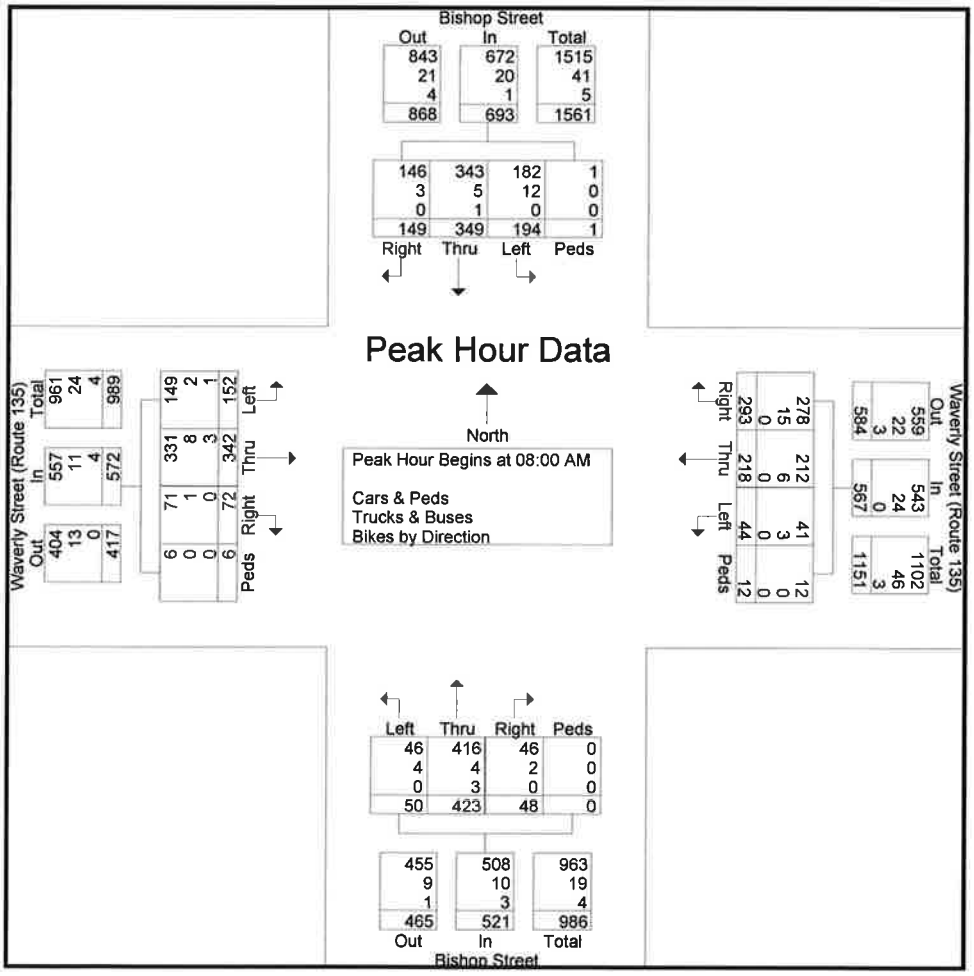
City, State: Framingham, MA
Client: VAI/B. Guen

File Name : 04626A
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

	Bishop Street From North					Waverly Street (Route 135) From East					Bishop Street From South					Waverly Street (Route 135) 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 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	33	95	38	**1**	167	61	48	12	3	124	8	101	10	0	119	19	**92**	**47**	1	**159**	569
08:15 AM	**36**	**100**	47	0	**183**	66	**63**	**15**	**5**	149	11	104	11	0	126	17	91	31	1	140	598
08:30 AM	**41**	87	48	0	176	75	59	6	3	143	10	107	**18**	0	135	14	82	29	0	125	579
08:45 AM	**39**	**67**	**61**	**0**	**167**	**91**	**48**	**11**	**1**	**151**	**19**	**111**	11	0	**141**	**22**	**77**	**45**	**4**	**148**	**607**
Total Volume	149	349	194	1	693	293	218	44	12	567	48	423	50	0	521	72	342	152	6	572	2353
% App. Total	21.5	50.4	28	0.1		51.7	38.4	7.8	2.1		9.2	81.2	9.6	0		12.6	59.8	26.6	1		
PHF	.909	.873	.795	.250	.947	.805	.865	.733	.600	.939	.632	.953	.694	.000	.924	.818	.929	.809	.375	.899	.969
Cars & Peds	146	343	182	1	672	278	212	41	12	543	46	416	46	0	508	71	331	149	6	557	2280
% Cars & Peds	98.0	98.3	93.8	100	97.0	94.9	97.2	93.2	100	95.8	95.8	98.3	92.0	0	97.5	98.6	96.8	98.0	100	97.4	96.9
Trucks & Buses	3	5	12	0	20	15	6	3	0	24	2	4	4	0	10	1	8	2	0	11	65
% Trucks & Buses	2.0	1.4	6.2	0	2.9	5.1	2.8	6.8	0	4.2	4.2	0.9	8.0	0	1.9	1.4	2.3	1.3	0	1.9	2.8
Bikes by Direction	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	0	3	1	0	4	8
% Bikes by Direction	0	0.3	0	0	0.1	0	0	0	0	0	0	0.7	0	0	0.6	0	0.9	0.7	0	0.7	0.3



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File Name : 04626A
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

Groups Printed- Cars & Peds

	Bishop Street From North				Waverly Street (Route 135) From East				Bishop Street From South				Waverly Street (Route 135) From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	27	82	39	0	62	30	7	4	23	100	14	1	11	77	37	0	514
07:15 AM	31	101	38	1	60	54	4	1	14	99	18	1	10	71	35	0	538
07:30 AM	32	90	47	0	77	43	7	0	12	127	20	0	14	75	45	0	589
07:45 AM	41	94	35	0	64	45	14	1	8	105	14	0	15	72	38	0	546
Total	131	367	159	1	263	172	32	6	57	431	66	2	50	295	155	0	2187
08:00 AM	32	92	37	1	57	48	12	3	8	100	9	0	19	83	46	1	548
08:15 AM	35	98	41	0	61	61	14	5	11	102	10	0	16	90	31	1	576
08:30 AM	40	87	46	0	71	55	5	3	9	104	17	0	14	81	29	0	561
08:45 AM	39	66	58	0	89	48	10	1	18	110	10	0	22	77	43	4	595
Total	146	343	182	1	278	212	41	12	46	416	46	0	71	331	149	6	2280
Grand Total	277	710	341	2	541	384	73	18	103	847	112	2	121	626	304	6	4467
Apprch %	20.8	53.4	25.6	0.2	53.2	37.8	7.2	1.8	9.7	79.6	10.5	0.2	11.4	59.2	28.8	0.6	
Total %	6.2	15.9	7.6	0	12.1	8.6	1.6	0.4	2.3	19	2.5	0	2.7	14	6.8	0.1	

	Bishop Street From North					Waverly Street (Route 135) From East					Bishop Street From South					Waverly Street (Route 135) 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 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	32	92	37	1	162	57	48	12	3	120	8	100	9	0	117	19	83	46	1	149	548
08:15 AM	35	98	41	0	174	61	61	14	5	141	11	102	10	0	123	16	90	31	1	138	576
08:30 AM	40	87	46	0	173	71	55	5	3	134	9	104	17	0	130	14	81	29	0	124	561
08:45 AM	39	66	58	0	163	89	48	10	1	148	18	110	10	0	138	22	77	43	4	146	595
Total Volume	146	343	182	1	672	278	212	41	12	543	46	416	46	0	508	71	331	149	6	557	2280
% App. Total	21.7	51	27.1	0.1		51.2	39	7.6	2.2		9.1	81.9	9.1	0		12.7	59.4	26.8	1.1		
PHF	.913	.875	.784	.250	.966	.781	.869	.732	.600	.917	.639	.945	.676	.000	.920	.807	.919	.810	.375	.935	.958

Transportation Data Corporation

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N/S: Bishop Street
E/W: Waverly Street (Route 135)
City, State: Framingham, MA
Client: VAI/B. Guen

File Name : 04626A
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

Groups Printed- Trucks & Buses

	Bishop Street From North				Waverly Street (Route 135) From East				Bishop Street From South				Waverly Street (Route 135) From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	1	1	1	0	0	3	0	0	0	1	1	0	1	2	1	0	12
07:15 AM	1	0	5	0	1	2	0	0	0	0	0	0	0	7	1	0	17
07:30 AM	1	0	1	0	9	3	0	0	1	2	0	0	0	2	0	0	19
07:45 AM	0	2	0	0	4	6	0	0	1	2	0	0	0	2	0	0	17
Total	3	3	7	0	14	14	0	0	2	5	1	0	1	13	2	0	65
08:00 AM	1	3	1	0	4	0	0	0	0	0	1	0	0	7	1	0	18
08:15 AM	1	1	6	0	5	2	1	0	0	1	1	0	1	1	0	0	20
08:30 AM	1	0	2	0	4	4	1	0	1	3	1	0	0	0	0	0	17
08:45 AM	0	1	3	0	2	0	1	0	1	0	1	0	0	0	1	0	10
Total	3	5	12	0	15	6	3	0	2	4	4	0	1	8	2	0	65
Grand Total	6	8	19	0	29	20	3	0	4	9	5	0	2	21	4	0	130
Apprch %	18.2	24.2	57.6	0	55.8	38.5	5.8	0	22.2	50	27.8	0	7.4	77.8	14.8	0	
Total %	4.6	6.2	14.6	0	22.3	15.4	2.3	0	3.1	6.9	3.8	0	1.5	16.2	3.1	0	

	Bishop Street From North					Waverly Street (Route 135) From East					Bishop Street From South					Waverly Street (Route 135) 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 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	1	0	1	0	2	9	3	0	0	12	1	2	0	0	3	0	2	0	0	2	19
07:45 AM	0	2	0	0	2	4	6	0	0	10	1	2	0	0	3	0	2	0	0	2	17
08:00 AM	1	3	1	0	5	4	0	0	0	4	0	0	1	0	1	0	7	1	0	8	18
08:15 AM	1	1	6	0	8	5	2	1	0	8	0	1	1	0	2	1	1	0	0	2	20
Total Volume	3	6	8	0	17	22	11	1	0	34	2	5	2	0	9	1	12	1	0	14	74
% App. Total	17.6	35.3	47.1	0		64.7	32.4	2.9	0		22.2	55.6	22.2	0		7.1	85.7	7.1	0		
PHF	.750	.500	.333	.000	.531	.611	.458	.250	.000	.708	.500	.625	.500	.000	.750	.250	.429	.250	.000	.438	.925

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N/S: Bishop Street
E/W: Waverly Street (Route 135)
City, State: Framingham, MA
Client: VAI/B. Guen

File Name : 04626A
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

Groups Printed- Bikes by Direction

	Bishop Street From North				Waverly Street (Route 135) From East				Bishop Street From South				Waverly Street (Route 135) From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	4
07:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	3
07:45 AM	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2
Total	0	1	1	0	1	1	0	0	0	1	0	0	0	3	1	0	9
08:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	3
08:15 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	2
Total	0	1	0	0	0	0	0	0	0	3	0	0	0	3	1	0	8
Grand Total	0	2	1	0	1	1	0	0	0	4	0	0	0	6	2	0	17
Apprch %	0	66.7	33.3	0	50	50	0	0	0	100	0	0	0	75	25	0	
Total %	0	11.8	5.9	0	5.9	5.9	0	0	0	23.5	0	0	0	35.3	11.8	0	

	Bishop Street From North					Waverly Street (Route 135) From East					Bishop Street From South					Waverly Street (Route 135) 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 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	4
07:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
07:45 AM	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	3
Total Volume	0	1	1	0	2	1	1	0	0	2	0	2	0	0	2	0	5	1	0	6	12
% App. Total	0	50	50	0		50	50	0	0		0	100	0	0		0	83.3	16.7	0		
PHF	.000	.250	.250	.000	.250	.250	.250	.000	.000	.500	.000	.500	.000	.000	.500	.000	.625	.250	.000	.750	.750

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N/S: Bishop Street
W: Howard Street
City, State: Framingham, MA
Client: VAI/B. Guen

File Name : 04626B
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

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

	Bishop Street From North			Bishop Street From South			Howard Street From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
07:00 AM	4	88	0	140	59	0	60	0	0	351
07:15 AM	5	125	6	144	47	0	57	0	0	384
07:30 AM	3	100	3	186	79	0	71	0	0	442
07:45 AM	1	119	2	156	67	0	74	0	2	421
Total	13	432	11	626	252	0	262	0	2	1598
08:00 AM	2	101	2	183	40	0	55	0	0	383
08:15 AM	1	119	4	157	40	0	68	0	4	393
08:30 AM	1	122	5	162	49	0	52	0	0	391
08:45 AM	1	107	2	179	68	0	55	0	1	413
Total	5	449	13	681	197	0	230	0	5	1580
Grand Total	18	881	24	1307	449	0	492	0	7	3178
Apprch %	2	95.4	2.6	74.4	25.6	0	98.6	0	1.4	
Total %	0.6	27.7	0.8	41.1	14.1	0	15.5	0	0.2	
Cars & Peds	18	861	23	1269	440	0	475	0	5	3091
% Cars & Peds	100	97.7	95.8	97.1	98	0	96.5	0	71.4	97.3
Trucks & Buses	0	17	0	33	9	0	17	0	1	77
% Trucks & Buses	0	1.9	0	2.5	2	0	3.5	0	14.3	2.4
Bikes by Direction	0	3	1	5	0	0	0	0	1	10
% Bikes by Direction	0	0.3	4.2	0.4	0	0	0	0	14.3	0.3

	Bishop Street From North				Bishop Street From South				Howard Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	3	100	3	106	186	79	0	265	71	0	0	71	442
07:45 AM	1	119	2	122	156	67	0	223	74	0	2	76	421
08:00 AM	2	101	2	105	183	40	0	223	55	0	0	55	383
08:15 AM	1	119	4	124	157	40	0	197	68	0	4	72	393
Total Volume	7	439	11	457	682	226	0	908	268	0	6	274	1639
% App. Total	1.5	96.1	2.4		75.1	24.9	0		97.8	0	2.2		
PHF	.583	.922	.688	.921	.917	.715	.000	.857	.905	.000	.375	.901	.927
Cars & Peds	7	429	10	446	661	218	0	879	260	0	4	264	1589
% Cars & Peds	100	97.7	90.9	97.6	96.9	96.5	0	96.8	97.0	0	66.7	96.4	96.9
Trucks & Buses	0	9	0	9	19	8	0	27	8	0	1	9	45
% Trucks & Buses	0	2.1	0	2.0	2.8	3.5	0	3.0	3.0	0	16.7	3.3	2.7
Bikes by Direction	0	1	1	2	2	0	0	2	0	0	1	1	5
% Bikes by Direction	0	0.2	9.1	0.4	0.3	0	0	0.2	0	0	16.7	0.4	0.3

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Client: VAI/B. Guen

File Name : 04626B
Site Code : 7156
Start Date : 10/22/2015
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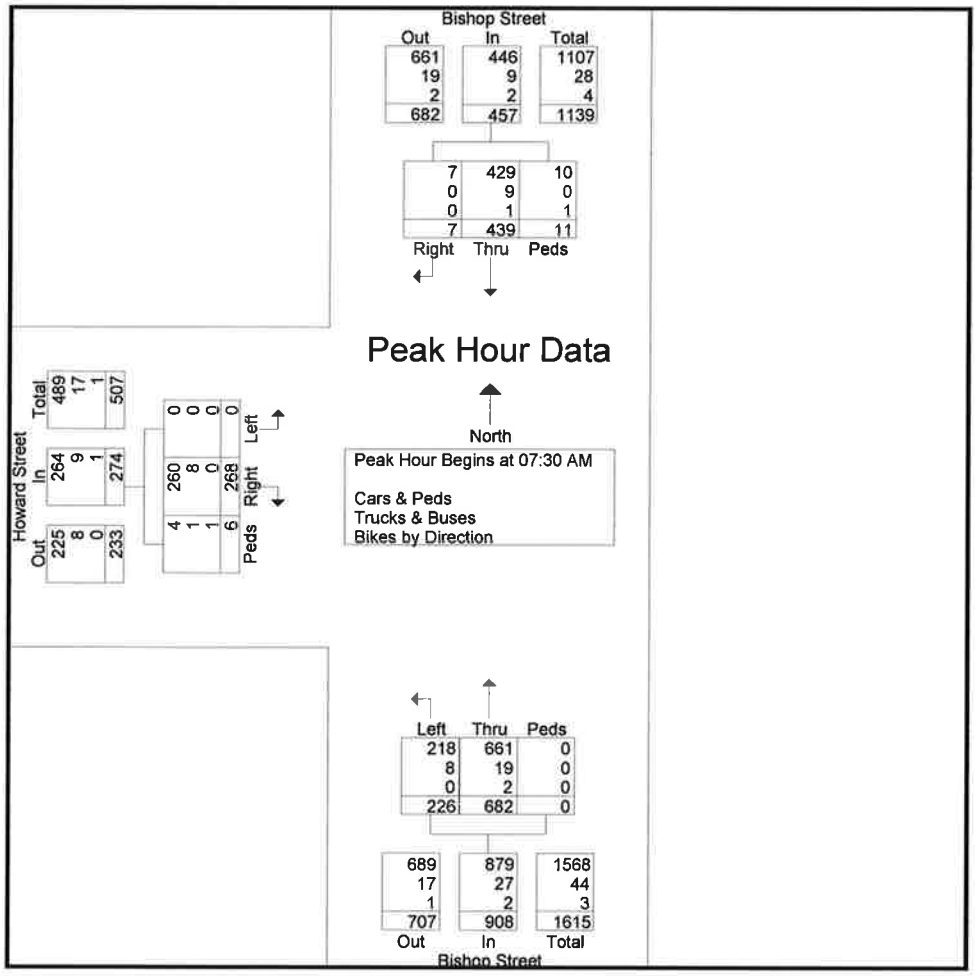
	Bishop Street From North				Bishop Street From South				Howard Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	**3**	100	**3**	106	**186**	**79**	0	**265**	71	0	0	71	**442**
07:45 AM	1	**119**	**2**	122	156	67	0	223	**74**	0	2	**76**	421
08:00 AM	2	101	**2**	105	183	40	0	223	55	0	0	55	383
08:15 AM	**1**	**119**	**4**	**124**	**157**	**40**	**0**	**197**	**68**	**0**	**4**	**72**	**393**
Total Volume	7	439	11	457	682	226	0	908	268	0	6	274	1639
% App. Total	1.5	96.1	2.4		75.1	24.9	0		97.8	0	2.2		
PHF	.583	.922	.688	.921	.917	.715	.000	.857	.905	.000	.375	.901	.927
Cars & Peds	7	429	10	446	661	218	0	879	260	0	4	264	1589
% Cars & Peds	100	97.7	90.9	97.6	96.9	96.5	0	96.8	97.0	0	66.7	96.4	96.9
Trucks & Buses	0	9	0	9	19	8	0	27	8	0	1	9	45
% Trucks & Buses	0	2.1	0	2.0	2.8	3.5	0	3.0	3.0	0	16.7	3.3	2.7
Bikes by Direction	0	1	1	2	2	0	0	2	0	0	1	1	5
% Bikes by Direction	0	0.2	9.1	0.4	0.3	0	0	0.2	0	0	16.7	0.4	0.3



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File Name : 04626B
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

Groups Printed- Cars & Peds

	Bishop Street From North			Bishop Street From South			Howard Street From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
07:00 AM	4	87	0	136	59	0	58	0	0	344
07:15 AM	5	119	6	142	47	0	54	0	0	373
07:30 AM	3	97	3	177	77	0	71	0	0	428
07:45 AM	1	118	1	150	67	0	73	0	1	411
Total	13	421	10	605	250	0	256	0	1	1556
08:00 AM	2	100	2	180	37	0	51	0	0	372
08:15 AM	1	114	4	154	37	0	65	0	3	378
08:30 AM	1	120	5	155	48	0	50	0	0	379
08:45 AM	1	106	2	175	68	0	53	0	1	406
Total	5	440	13	664	190	0	219	0	4	1535
Grand Total	18	861	23	1269	440	0	475	0	5	3091
Apprch %	2	95.5	2.5	74.3	25.7	0	99	0	1	
Total %	0.6	27.9	0.7	41.1	14.2	0	15.4	0	0.2	

	Bishop Street From North				Bishop Street From South				Howard Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	**3**	97	3	103	177	**77**	0	**254**	71	**0**	0	71	**428**
07:45 AM	1	**118**	1	**120**	150	67	0	217	**73**	**0**	1	**74**	411
08:00 AM	2	100	2	104	**180**	37	0	217	51	**0**	0	51	372
08:15 AM	1	114	**4**	119	154	37	**0**	191	65	**0**	**3**	68	378
Total Volume	7	429	10	446	661	218	0	879	260	0	4	264	1589
% App. Total	1.6	96.2	2.2		75.2	24.8	0		98.5	0	1.5		
PHF	.583	.909	.625	.929	.918	.708	.000	.865	.890	.000	.333	.892	.928

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N/S: Bishop Street
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Client: VAI/B. Guen

File Name : 04626B
Site Code : 7156
Start Date : 10/22/2015
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Groups Printed- Trucks & Buses

	Bishop Street From North			Bishop Street From South			Howard Street From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
07:00 AM	0	1	0	3	0	0	2	0	0	6
07:15 AM	0	4	0	1	0	0	3	0	0	8
07:30 AM	0	2	0	9	2	0	0	0	0	13
07:45 AM	0	1	0	6	0	0	1	0	1	9
Total	0	8	0	19	2	0	6	0	1	36
08:00 AM	0	1	0	2	3	0	4	0	0	10
08:15 AM	0	5	0	2	3	0	3	0	0	13
08:30 AM	0	2	0	7	1	0	2	0	0	12
08:45 AM	0	1	0	3	0	0	2	0	0	6
Total	0	9	0	14	7	0	11	0	0	41
Grand Total	0	17	0	33	9	0	17	0	1	77
Apprch %	0	100	0	78.6	21.4	0	94.4	0	5.6	
Total %	0	22.1	0	42.9	11.7	0	22.1	0	1.3	

	Bishop Street From North				Bishop Street From South				Howard Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	0	2	0	2	9	2	0	11	0	0	0	0	13
07:45 AM	0	1	0	1	6	0	0	6	1	0	1	2	9
08:00 AM	0	1	0	1	2	3	0	5	4	0	0	4	10
08:15 AM	0	5	0	5	2	3	0	5	3	0	0	3	13
Total Volume	0	9	0	9	19	8	0	27	8	0	1	9	45
% App. Total	0	100	0		70.4	29.6	0		88.9	0	11.1		
PHF	.000	.450	.000	.450	.528	.667	.000	.614	.500	.000	.250	.563	.865

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W: Howard Street
City, State: Framingham, MA
Client: VAI/B. Guen

File Name : 04626B
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

Groups Printed- Bikes by Direction

	Bishop Street From North			Bishop Street From South			Howard Street From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
07:00 AM	0	0	0	1	0	0	0	0	0	1
07:15 AM	0	2	0	1	0	0	0	0	0	3
07:30 AM	0	1	0	0	0	0	0	0	0	1
07:45 AM	0	0	1	0	0	0	0	0	0	1
Total	0	3	1	2	0	0	0	0	0	6
08:00 AM	0	0	0	1	0	0	0	0	0	1
08:15 AM	0	0	0	1	0	0	0	0	1	2
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	1	0	0	0	0	0	1
Total	0	0	0	3	0	0	0	0	1	4
Grand Total	0	3	1	5	0	0	0	0	1	10
Apprch %	0	75	25	100	0	0	0	0	100	
Total %	0	30	10	50	0	0	0	0	10	

	Bishop Street From North				Bishop Street From South				Howard Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	0	0	0	0	1	0	0	1	0	0	0	0	1
07:15 AM	0	2	0	2	1	0	0	1	0	0	0	0	3
07:30 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	1	1	0	0	0	0	0	0	0	0	1
Total Volume	0	3	1	4	2	0	0	2	0	0	0	0	6
% App. Total	0	75	25		100	0	0		0	0	0		
PHF	.000	.375	.250	.500	.500	.000	.000	.500	.000	.000	.000	.000	.500

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N/S: Bishop Street
E/W: Clark Street
City, State: Framingham, MA
Client: VAI/B. Guen

File Name : 04626C
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

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

	Bishop Street From North				Clark Street From East				Bishop Street From South				Clark Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	2	74	2	0	0	0	0	0	1	117	16	1	5	2	5	1	226
07:15 AM	4	89	2	3	0	0	1	3	3	116	20	0	10	4	2	0	257
07:30 AM	2	83	0	0	1	2	2	0	5	159	24	0	9	6	8	3	304
07:45 AM	6	99	4	0	0	1	1	0	5	118	21	0	5	5	1	1	267
Total	14	345	8	3	1	3	4	3	14	510	81	1	29	17	16	5	1054
08:00 AM	4	104	5	0	0	1	9	0	2	133	16	0	8	5	2	1	290
08:15 AM	7	109	6	0	1	1	2	1	2	114	26	0	8	4	5	2	288
08:30 AM	2	93	3	0	2	1	2	0	15	124	21	0	7	5	5	0	280
08:45 AM	0	86	9	0	1	2	2	0	16	124	30	0	10	7	1	2	290
Total	13	392	23	0	4	5	15	1	35	495	93	0	33	21	13	5	1148
Grand Total	27	737	31	3	5	8	19	4	49	1005	174	1	62	38	29	10	2202
Apprch %	3.4	92.4	3.9	0.4	13.9	22.2	52.8	11.1	4	81.8	14.2	0.1	44.6	27.3	20.9	7.2	
Total %	1.2	33.5	1.4	0.1	0.2	0.4	0.9	0.2	2.2	45.6	7.9	0	2.8	1.7	1.3	0.5	
Cars & Peds	27	725	31	3	5	8	19	4	48	981	166	1	61	37	29	10	2155
% Cars & Peds	100	98.4	100	100	100	100	100	100	98	97.6	95.4	100	98.4	97.4	100	100	97.9
Trucks & Buses	0	11	0	0	0	0	0	0	1	23	6	0	1	1	0	0	43
% Trucks & Buses	0	1.5	0	0	0	0	0	0	2	2.3	3.4	0	1.6	2.6	0	0	2
Bikes by Direction	0	1	0	0	0	0	0	0	0	1	2	0	0	0	0	0	4
% Bikes by Direction	0	0.1	0	0	0	0	0	0	0	0.1	1.1	0	0	0	0	0	0.2

	Bishop Street From North					Clark Street From East					Bishop Street From South					Clark Street 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 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	2	83	0	0	85	1	2	2	0	5	5	159	24	0	188	9	6	8	3	26	304
07:45 AM	6	99	4	0	109	0	1	1	0	2	5	118	21	0	144	5	5	1	1	12	267
08:00 AM	4	104	5	0	113	0	1	9	0	10	2	133	16	0	151	8	5	2	1	16	290
08:15 AM	7	109	6	0	122	1	1	2	1	5	2	114	26	0	142	8	4	5	2	19	288
Total Volume	19	395	15	0	429	2	5	14	1	22	14	524	87	0	625	30	20	16	7	73	1149
% App. Total	4.4	92.1	3.5	0		9.1	22.7	63.6	4.5		2.2	83.8	13.9	0		41.1	27.4	21.9	9.6		
PHF	.679	.906	.625	.000	.879	.500	.625	.389	.250	.550	.700	.824	.837	.000	.831	.833	.833	.500	.583	.702	.945
Cars & Peds	19	388	15	0	422	2	5	14	1	22	13	509	83	0	605	30	20	16	7	73	1122
% Cars & Peds	100	98.2	100	0	98.4	100	100	100	100	100	92.9	97.1	95.4	0	96.8	100	100	100	100	100	97.7
Trucks & Buses	0	7	0	0	7	0	0	0	0	0	1	14	3	0	18	0	0	0	0	0	25
% Trucks & Buses	0	1.8	0	0	1.6	0	0	0	0	0	7.1	2.7	3.4	0	2.9	0	0	0	0	0	2.2
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	2
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0.2	1.1	0	0.3	0	0	0	0	0	0.2

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File Name : 04626C
Site Code : 7156
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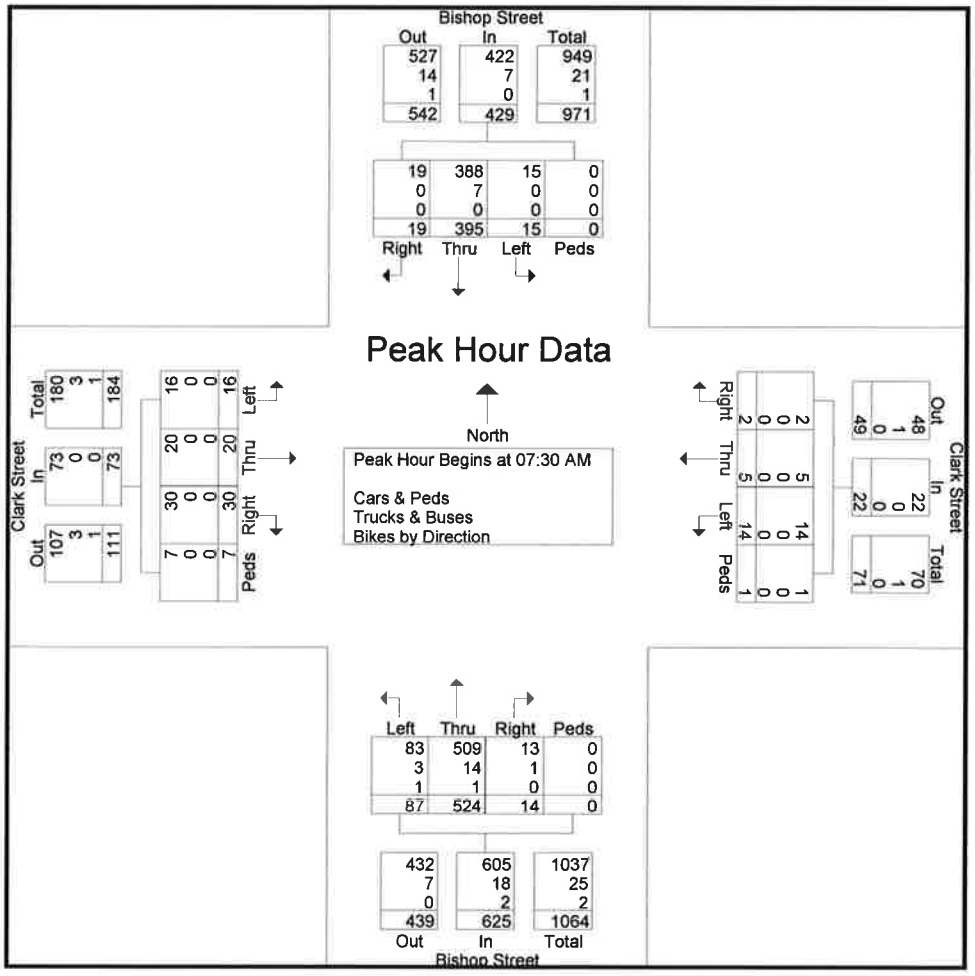
	Bishop Street From North					Clark Street From East					Bishop Street From South					Clark Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	2	83	0	0	85	**1**	**2**	2	**0**	5	**5**	**159**	24	0	**188**	**9**	**6**	**8**	**3**	**26**	**304**
07:45 AM	6	99	4	0	109	0	1	1	**0**	2	5	118	21	**0**	144	5	**5**	1	1	12	267
08:00 AM	4	104	5	0	113	0	1	**9**	**0**	**10**	2	133	16	0	151	8	**5**	2	1	16	290
08:15 AM	**7**	**109**	**6**	**0**	**122**	1	1	**2**	**1**	5	**2**	**114**	**26**	0	142	**8**	**4**	**5**	**2**	**19**	**288**
Total Volume	19	395	15	0	429	2	5	14	1	22	14	524	87	0	625	30	20	16	7	73	1149
% App. Total	4.4	92.1	3.5	0		9.1	22.7	63.6	4.5		2.2	83.8	13.9	0		41.1	27.4	21.9	9.6		
PHF	.679	.906	.625	.000	.879	.500	.625	.389	.250	.550	.700	.824	.837	.000	.831	.833	.833	.500	.583	.702	.945
Cars & Peds	19	388	15	0	422	2	5	14	1	22	13	509	83	0	605	30	20	16	7	73	1122
% Cars & Peds	100	98.2	100	0	98.4	100	100	100	100	100	92.9	97.1	95.4	0	96.8	100	100	100	100	100	97.7
Trucks & Buses	0	7	0	0	7	0	0	0	0	0	1	14	3	0	18	0	0	0	0	0	25
% Trucks & Buses	0	1.8	0	0	1.6	0	0	0	0	0	7.1	2.7	3.4	0	2.9	0	0	0	0	0	2.2
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	2
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0.2	1.1	0	0.3	0	0	0	0	0	0.2



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Site Code : 7156
Start Date : 10/22/2015
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Groups Printed- Cars & Peds

	Bishop Street From North				Clark Street From East				Bishop Street From South				Clark Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	2	74	2	0	0	0	0	0	1	116	16	1	5	1	5	1	224
07:15 AM	4	85	2	3	0	0	1	3	3	114	20	0	10	4	2	0	251
07:30 AM	2	82	0	0	1	2	2	0	4	152	24	0	9	6	8	3	295
07:45 AM	6	98	4	0	0	1	1	0	5	113	20	0	5	5	1	1	260
Total	14	339	8	3	1	3	4	3	13	495	80	1	29	16	16	5	1030
08:00 AM	4	103	5	0	0	1	9	0	2	132	15	0	8	5	2	1	287
08:15 AM	7	105	6	0	1	1	2	1	2	112	24	0	8	4	5	2	280
08:30 AM	2	93	3	0	2	1	2	0	15	119	20	0	6	5	5	0	273
08:45 AM	0	85	9	0	1	2	2	0	16	123	27	0	10	7	1	2	285
Total	13	386	23	0	4	5	15	1	35	486	86	0	32	21	13	5	1125
Grand Total	27	725	31	3	5	8	19	4	48	981	166	1	61	37	29	10	2155
Apprch %	3.4	92.2	3.9	0.4	13.9	22.2	52.8	11.1	4	82	13.9	0.1	44.5	27	21.2	7.3	
Total %	1.3	33.6	1.4	0.1	0.2	0.4	0.9	0.2	2.2	45.5	7.7	0	2.8	1.7	1.3	0.5	

	Bishop Street From North					Clark Street From East					Bishop Street From South					Clark Street 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 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	4	103	5	0	112	0	1	9	0	10	2	132	15	0	149	8	5	2	1	16	287
08:15 AM	7	105	6	0	118	1	1	2	1	5	2	112	24	0	138	8	4	5	2	19	280
08:30 AM	2	93	3	0	98	2	1	2	0	5	15	119	20	0	154	6	5	5	0	16	273
08:45 AM	0	85	9	0	94	1	2	2	0	5	16	123	27	0	166	10	7	1	2	20	285
Total Volume	13	386	23	0	422	4	5	15	1	25	35	486	86	0	607	32	21	13	5	71	1125
% App. Total	3.1	91.5	5.5	0		16	20	60	4		5.8	80.1	14.2	0		45.1	29.6	18.3	7		
PHF	.464	.919	.639	.000	.894	.500	.625	.417	.250	.625	.547	.920	.796	.000	.914	.800	.750	.650	.625	.888	.980

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File Name : 04626C
Site Code : 7156
Start Date : 10/22/2015
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Groups Printed- Trucks & Buses

	Bishop Street From North				Clark Street From East				Bishop Street From South				Clark Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
07:15 AM	0	3	0	0	0	0	0	0	0	2	0	0	0	0	0	0	5
07:30 AM	0	1	0	0	0	0	0	0	1	7	0	0	0	0	0	0	9
07:45 AM	0	1	0	0	0	0	0	0	0	5	1	0	0	0	0	0	7
Total	0	5	0	0	0	0	0	0	1	15	1	0	0	1	0	0	23
08:00 AM	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	3
08:15 AM	0	4	0	0	0	0	0	0	0	1	1	0	0	0	0	0	6
08:30 AM	0	0	0	0	0	0	0	0	0	5	1	0	1	0	0	0	7
08:45 AM	0	1	0	0	0	0	0	0	0	1	2	0	0	0	0	0	4
Total	0	6	0	0	0	0	0	0	0	8	5	0	1	0	0	0	20
Grand Total	0	11	0	0	0	0	0	0	1	23	6	0	1	1	0	0	43
Apprch %	0	100	0	0	0	0	0	0	3.3	76.7	20	0	50	50	0	0	
Total %	0	25.6	0	0	0	0	0	0	2.3	53.5	14	0	2.3	2.3	0	0	

	Bishop Street From North					Clark Street From East					Bishop Street From South					Clark Street 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 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	1	0	0	1	0	0	0	0	0	1	7	0	0	8	0	0	0	0	0	9
07:45 AM	0	1	0	0	1	0	0	0	0	0	0	5	1	0	6	0	0	0	0	0	7
08:00 AM	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	3
08:15 AM	0	4	0	0	4	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	6
Total Volume	0	7	0	0	7	0	0	0	0	0	1	14	3	0	18	0	0	0	0	0	25
% App. Total	0	100	0	0		0	0	0	0		5.6	77.8	16.7	0		0	0	0	0		
PHF	.000	.438	.000	.000	.438	.000	.000	.000	.000	.000	.250	.500	.750	.000	.563	.000	.000	.000	.000	.000	.694

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File Name : 04626C
Site Code : 7156
Start Date : 10/22/2015
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Groups Printed- Bikes by Direction

	Bishop Street From North				Clark Street From East				Bishop Street From South				Clark Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	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	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	3
Grand Total	0	1	0	0	0	0	0	0	0	1	2	0	0	0	0	0	4
Apprch %	0	100	0	0	0	0	0	0	0	33.3	66.7	0	0	0	0	0	
Total %	0	25	0	0	0	0	0	0	0	25	50	0	0	0	0	0	

	Bishop Street From North					Clark Street From East					Bishop Street From South					Clark Street 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 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	2
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	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	0	0	0	0	0	1	2	0	3	0	0	0	0	0	3
% App. Total	0	0	0	0		0	0	0	0		0	33.3	66.7	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.500	.000	.375	.000	.000	.000	.000	.000	.375

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File Name : 04626D
Site Code : 7156
Start Date : 10/22/2015
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Groups Printed- Cars & Peds - Trucks & Buses - Bikes by Direction

	Bishop Street From North				Lawrence Street From East				Bishop Street From South				Lawrence Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	2	72	0	0	2	0	0	0	2	119	1	0	4	1	1	1	205
07:15 AM	1	92	0	0	0	2	1	0	0	119	0	0	1	0	2	0	218
07:30 AM	1	89	1	0	2	2	2	0	0	166	3	1	1	0	3	1	272
07:45 AM	4	104	2	0	0	0	0	0	1	118	1	0	5	2	1	1	239
Total	8	357	3	0	4	4	3	0	3	522	5	1	11	3	7	3	934
08:00 AM	1	111	0	0	0	2	0	0	0	133	2	0	1	1	0	1	252
08:15 AM	0	115	0	0	0	1	1	1	1	112	5	0	4	1	2	2	245
08:30 AM	4	94	3	0	1	3	2	0	1	128	3	0	4	0	3	1	247
08:45 AM	2	92	1	0	0	1	1	0	0	125	1	0	1	1	6	1	232
Total	7	412	4	0	1	7	4	1	2	498	11	0	10	3	11	5	976
Grand Total	15	769	7	0	5	11	7	1	5	1020	16	1	21	6	18	8	1910
Apprch %	1.9	97.2	0.9	0	20.8	45.8	29.2	4.2	0.5	97.9	1.5	0.1	39.6	11.3	34	15.1	
Total %	0.8	40.3	0.4	0	0.3	0.6	0.4	0.1	0.3	53.4	0.8	0.1	1.1	0.3	0.9	0.4	
Cars & Peds	15	758	7	0	5	9	7	1	5	998	14	1	19	6	18	8	1871
% Cars & Peds	100	98.6	100	0	100	81.8	100	100	100	97.8	87.5	100	90.5	100	100	100	98
Trucks & Buses	0	10	0	0	0	2	0	0	0	21	2	0	2	0	0	0	37
% Trucks & Buses	0	1.3	0	0	0	18.2	0	0	0	2.1	12.5	0	9.5	0	0	0	1.9
Bikes by Direction	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
% Bikes by Direction	0	0.1	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0.1

	Bishop Street From North					Lawrence Street From East					Bishop Street From South					Lawrence Street 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 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	1	89	1	0	91	2	2	2	0	6	0	166	3	1	170	1	0	3	1	5	272
07:45 AM	4	104	2	0	110	0	0	0	0	0	1	118	1	0	120	5	2	1	1	9	239
08:00 AM	1	111	0	0	112	0	2	0	0	2	0	133	2	0	135	1	1	0	1	3	252
08:15 AM	0	115	0	0	115	0	1	1	1	3	1	112	5	0	118	4	1	2	2	9	245
Total Volume	6	419	3	0	428	2	5	3	1	11	2	529	11	1	543	11	4	6	5	26	1008
% App. Total	1.4	97.9	0.7	0		18.2	45.5	27.3	9.1		0.4	97.4	2	0.2		42.3	15.4	23.1	19.2		
PHF	.375	.911	.375	.000	.930	.250	.625	.375	.250	.458	.500	.797	.550	.250	.799	.550	.500	.500	.625	.722	.926
Cars & Peds	6	412	3	0	421	2	4	3	1	10	2	516	9	1	528	10	4	6	5	25	984
% Cars & Peds	100	98.3	100	0	98.4	100	80.0	100	100	90.9	100	97.5	81.8	100	97.2	90.9	100	100	100	96.2	97.6
Trucks & Buses	0	7	0	0	7	0	1	0	0	1	0	12	2	0	14	1	0	0	0	1	23
% Trucks & Buses	0	1.7	0	0	1.6	0	20.0	0	0	9.1	0	2.3	18.2	0	2.6	9.1	0	0	0	3.8	2.3
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0	0.2	0	0	0	0	0	0.1

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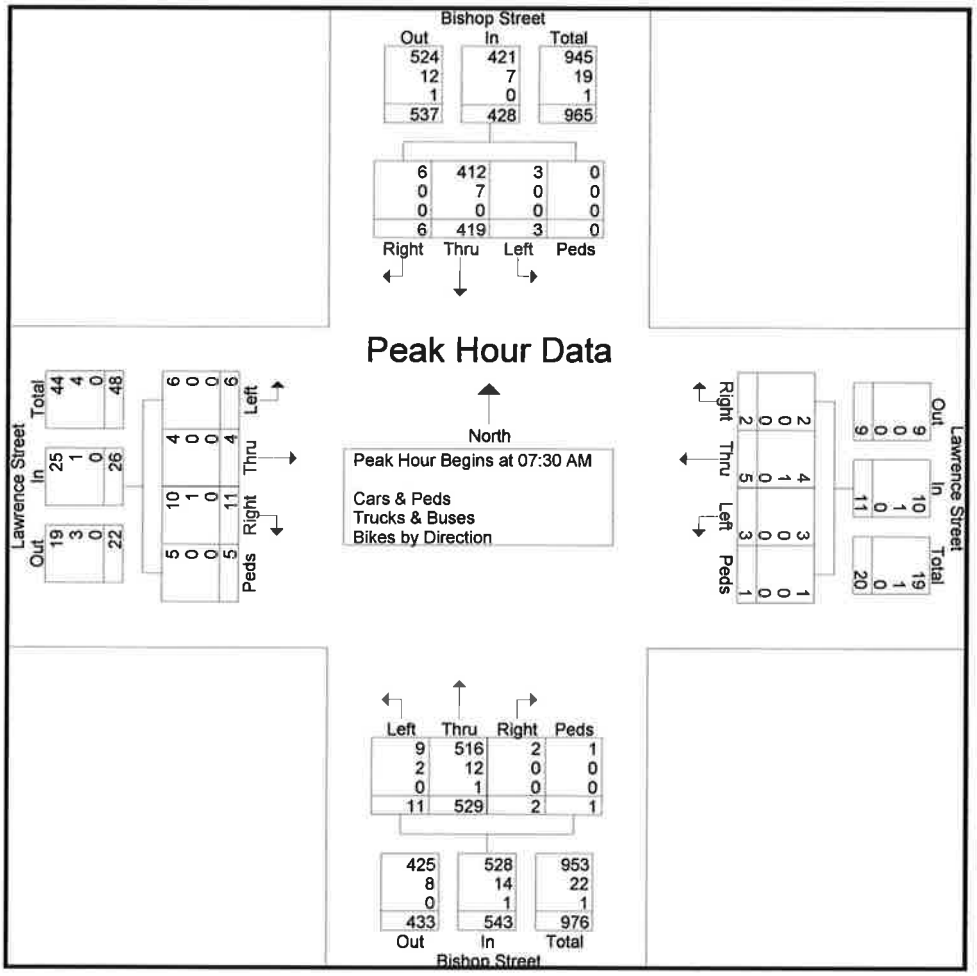
	Bishop Street From North					Lawrence Street From East					Bishop Street From South					Lawrence Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	1	89	1	0	91	**2**	**2**	**2**	**0**	**6**	0	**166**	3	**1**	**170**	1	0	**3**	1	5	**272**
07:45 AM	**4**	104	**2**	0	110	0	0	0	**0**	0	**1**	118	1	0	120	**5**	**2**	1	1	**9**	239
08:00 AM	1	111	0	0	112	0	2	0	**0**	2	0	133	2	0	135	1	1	0	1	3	252
08:15 AM	**0**	**115**	**0**	**0**	**115**	**0**	1	1	**1**	3	1	112	**5**	**0**	118	4	1	2	**2**	9	245
Total Volume	6	419	3	0	428	2	5	3	1	11	2	529	11	1	543	11	4	6	5	26	1008
% App. Total	1.4	97.9	0.7	0		18.2	45.5	27.3	9.1		0.4	97.4	2	0.2		42.3	15.4	23.1	19.2		
PHF	.375	.911	.375	.000	.930	.250	.625	.375	.250	.458	.500	.797	.550	.250	.799	.550	.500	.500	.625	.722	.926
Cars & Peds	6	412	3	0	421	2	4	3	1	10	2	516	9	1	528	10	4	6	5	25	984
% Cars & Peds	100	98.3	100	0	98.4	100	80.0	100	100	90.9	100	97.5	81.8	100	97.2	90.9	100	100	100	96.2	97.6
Trucks & Buses	0	7	0	0	7	0	1	0	0	1	0	12	2	0	14	1	0	0	0	1	23
% Trucks & Buses	0	1.7	0	0	1.6	0	20.0	0	0	9.1	0	2.3	18.2	0	2.6	9.1	0	0	0	3.8	2.3
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0	0.2	0	0	0	0	0	0.1



Transportation Data Corporation

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N/S: Bishop Street
E/W: Lawrence Street
City, State: Framingham, MA
Client: VAI/B. Guen

File Name : 04626D
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

Groups Printed- Cars & Peds

	Bishop Street From North				Lawrence Street From East				Bishop Street From South				Lawrence Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	2	72	0	0	2	0	0	0	2	118	1	0	4	1	1	1	204
07:15 AM	1	89	0	0	0	1	1	0	0	117	0	0	0	0	2	0	211
07:30 AM	1	87	1	0	2	2	2	0	0	159	3	1	1	0	3	1	263
07:45 AM	4	103	2	0	0	0	0	0	1	114	0	0	5	2	1	1	233
Total	8	351	3	0	4	3	3	0	3	508	4	1	10	3	7	3	911
08:00 AM	1	110	0	0	0	1	0	0	0	132	2	0	1	1	0	1	249
08:15 AM	0	112	0	0	0	1	1	1	1	111	4	0	3	1	2	2	239
08:30 AM	4	94	3	0	1	3	2	0	1	123	3	0	4	0	3	1	242
08:45 AM	2	91	1	0	0	1	1	0	0	124	1	0	1	1	6	1	230
Total	7	407	4	0	1	6	4	1	2	490	10	0	9	3	11	5	960
Grand Total	15	758	7	0	5	9	7	1	5	998	14	1	19	6	18	8	1871
Apprch %	1.9	97.2	0.9	0	22.7	40.9	31.8	4.5	0.5	98	1.4	0.1	37.3	11.8	35.3	15.7	
Total %	0.8	40.5	0.4	0	0.3	0.5	0.4	0.1	0.3	53.3	0.7	0.1	1	0.3	1	0.4	

	Bishop Street From North					Lawrence Street From East					Bishop Street From South					Lawrence Street 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 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	1	87	1	0	89	2	2	2	0	6	0	159	3	1	163	1	0	3	1	5	263
07:45 AM	4	103	2	0	109	0	0	0	0	0	1	114	0	0	115	5	2	1	1	9	233
08:00 AM	1	110	0	0	111	0	1	0	0	1	0	132	2	0	134	1	1	0	1	3	249
08:15 AM	0	112	0	0	112	0	1	1	1	3	1	111	4	0	116	3	1	2	2	8	239
Total Volume	6	412	3	0	421	2	4	3	1	10	2	516	9	1	528	10	4	6	5	25	984
% App. Total	1.4	97.9	0.7	0		20	40	30	10		0.4	97.7	1.7	0.2		40	16	24	20		
PHF	.375	.920	.375	.000	.940	.250	.500	.375	.250	.417	.500	.811	.563	.250	.810	.500	.500	.500	.625	.694	.935

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Client: VAI/B. Guen

File Name : 04626D
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

Groups Printed- Trucks & Buses

	Bishop Street From North				Lawrence Street From East				Bishop Street From South				Lawrence Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
07:15 AM	0	2	0	0	0	1	0	0	0	2	0	0	1	0	0	0	6
07:30 AM	0	2	0	0	0	0	0	0	0	7	0	0	0	0	0	0	9
07:45 AM	0	1	0	0	0	0	0	0	0	4	1	0	0	0	0	0	6
Total	0	5	0	0	0	1	0	0	0	14	1	0	1	0	0	0	22
08:00 AM	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	3
08:15 AM	0	3	0	0	0	0	0	0	0	0	1	0	1	0	0	0	5
08:30 AM	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	5
08:45 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
Total	0	5	0	0	0	1	0	0	0	7	1	0	1	0	0	0	15
Grand Total	0	10	0	0	0	2	0	0	0	21	2	0	2	0	0	0	37
Apprch %	0	100	0	0	0	100	0	0	0	91.3	8.7	0	100	0	0	0	
Total %	0	27	0	0	0	5.4	0	0	0	56.8	5.4	0	5.4	0	0	0	

	Bishop Street From North					Lawrence Street From East					Bishop Street From South					Lawrence Street 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 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	2	0	0	2	0	1	0	0	1	0	2	0	0	2	1	0	0	0	1	6
07:30 AM	0	2	0	0	2	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	9
07:45 AM	0	1	0	0	1	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	6
08:00 AM	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	3
Total Volume	0	6	0	0	6	0	2	0	0	2	0	14	1	0	15	1	0	0	0	1	24
% App. Total	0	100	0	0		0	100	0	0		0	93.3	6.7	0		100	0	0	0		
PHF	.000	.750	.000	.000	.750	.000	.500	.000	.000	.500	.000	.500	.250	.000	.536	.250	.000	.000	.000	.250	.667

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File Name : 04626D
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

Groups Printed- Bikes by Direction

	Bishop Street From North				Lawrence Street From East				Bishop Street From South				Lawrence Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	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	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 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	1	0	0	0	0	0	0	1
Grand Total	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	0	0	0	0	
Total %	0	50	0	0	0	0	0	0	0	50	0	0	0	0	0	0	

	Bishop Street From North					Lawrence Street From East					Bishop Street From South					Lawrence Street 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 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	0	1	0	0	0	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		0	0	0	0		
PHF	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250

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City, State: Framingham, MA
Client: VAI/B. Guen

File Name : 04626AA
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

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

	Bishop Street From North				Waverly Street (Route 135) From East				Bishop Street From South				Waverly Street (Route 135) 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	60	109	56	1	79	64	12	3	15	106	18	0	13	70	35	3	644
04:15 PM	47	118	55	0	59	63	23	11	7	98	15	2	16	83	28	2	627
04:30 PM	46	106	45	0	73	79	22	1	10	80	17	0	12	89	24	1	605
04:45 PM	69	157	65	0	76	64	15	2	16	109	15	0	5	65	31	2	691
Total	222	490	221	1	287	270	72	17	48	393	65	2	46	307	118	8	2567
05:00 PM	55	170	58	0	68	68	28	5	15	98	12	0	15	72	35	2	701
05:15 PM	63	176	61	1	63	73	13	2	9	112	20	0	16	62	32	1	704
05:30 PM	53	162	61	0	67	64	18	0	10	94	15	0	17	73	39	1	674
05:45 PM	56	142	30	1	76	60	17	3	6	103	16	2	15	71	33	2	633
Total	227	650	210	2	274	265	76	10	40	407	63	2	63	278	139	6	2712
Grand Total	449	1140	431	3	561	535	148	27	88	800	128	4	109	585	257	14	5279
Apprch %	22.2	56.4	21.3	0.1	44.1	42.1	11.6	2.1	8.6	78.4	12.5	0.4	11.3	60.6	26.6	1.5	
Total %	8.5	21.6	8.2	0.1	10.6	10.1	2.8	0.5	1.7	15.2	2.4	0.1	2.1	11.1	4.9	0.3	
Cars & Peds	445	1126	423	3	556	531	144	27	86	795	128	4	109	576	252	14	5219
% Cars & Peds	99.1	98.8	98.1	100	99.1	99.3	97.3	100	97.7	99.4	100	100	100	98.5	98.1	100	98.9
Trucks & Buses	2	5	8	0	2	1	4	0	2	2	0	0	0	7	3	0	36
% Trucks & Buses	0.4	0.4	1.9	0	0.4	0.2	2.7	0	2.3	0.2	0	0	0	1.2	1.2	0	0.7
Bikes by Direction	2	9	0	0	3	3	0	0	0	3	0	0	0	2	2	0	24
% Bikes by Direction	0.4	0.8	0	0	0.5	0.6	0	0	0	0.4	0	0	0	0.3	0.8	0	0.5

	Bishop Street From North					Waverly Street (Route 135) From East					Bishop Street From South					Waverly Street (Route 135) 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 04:45 PM																					
04:45 PM	69	157	65	0	291	76	64	15	2	157	16	109	15	0	140	5	65	31	2	103	691
05:00 PM	55	170	58	0	283	68	68	28	5	169	15	98	12	0	125	15	72	35	2	124	701
05:15 PM	63	176	61	1	301	63	73	13	2	151	9	112	20	0	141	16	62	32	1	111	704
05:30 PM	53	162	61	0	276	67	64	18	0	149	10	94	15	0	119	17	73	39	1	130	674
Total Volume	240	665	245	1	1151	274	269	74	9	626	50	413	62	0	525	53	272	137	6	468	2770
% App. Total	20.9	57.8	21.3	0.1		43.8	43	11.8	1.4		9.5	78.7	11.8	0		11.3	58.1	29.3	1.3		
PHF	.870	.945	.942	.250	.956	.901	.921	.661	.450	.926	.781	.922	.775	.000	.931	.779	.932	.878	.750	.900	.984
Cars & Peds	238	662	241	1	1142	273	267	71	9	620	49	412	62	0	523	53	267	133	6	459	2744
% Cars & Peds	99.2	99.5	98.4	100	99.2	99.6	99.3	95.9	100	99.0	98.0	99.8	100	0	99.6	100	98.2	97.1	100	98.1	99.1
Trucks & Buses	1	1	4	0	6	0	1	3	0	4	1	1	0	0	2	0	3	2	0	5	17
% Trucks & Buses	0.4	0.2	1.6	0	0.5	0	0.4	4.1	0	0.6	2.0	0.2	0	0	0.4	0	1.1	1.5	0	1.1	0.6
Bikes by Direction	1	2	0	0	3	1	1	0	0	2	0	0	0	0	0	0	2	2	0	4	9
% Bikes by Direction	0.4	0.3	0	0	0.3	0.4	0.4	0	0	0.3	0	0	0	0	0	0	0.7	1.5	0	0.9	0.3

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N/S: Bishop Street
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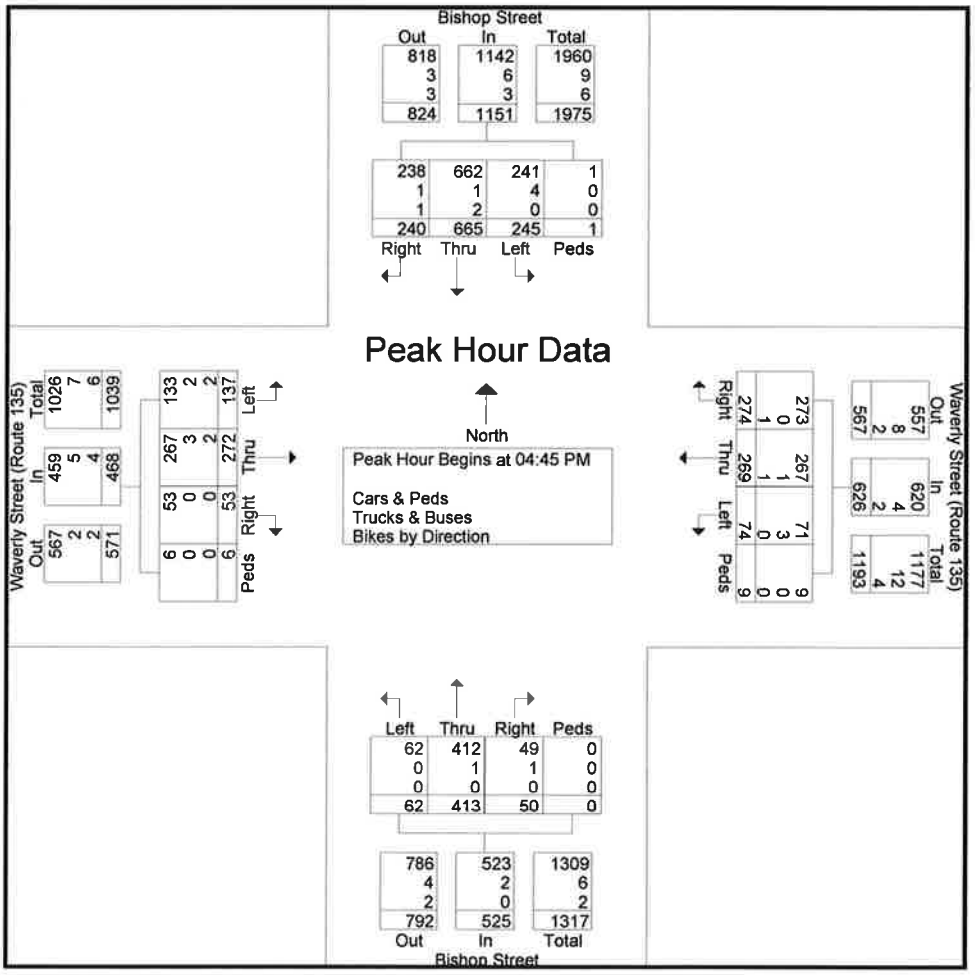
Client: VAI/B. Guen

File Name : 04626AA
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

	Bishop Street From North					Waverly Street (Route 135) From East					Bishop Street From South					Waverly Street (Route 135) 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 04:45 PM																					
04:45 PM	**69**	157	**65**	0	291	**76**	64	15	2	157	**16**	109	15	0	140	5	65	31	**2**	103	691
05:00 PM	55	170	58	0	283	68	68	**28**	**5**	**169**	15	98	12	0	125	15	72	35	2	124	701
05:15 PM	63	**176**	61	**1**	**301**	63	**73**	13	2	151	9	**112**	**20**	0	**141**	16	62	32	1	111	**704**
05:30 PM	53	162	61	0	276	67	64	18	0	149	10	94	15	0	119	**17**	**73**	**39**	1	**130**	674
Total Volume	240	665	245	1	1151	274	269	74	9	626	50	413	62	0	525	53	272	137	6	468	2770
% App. Total	20.9	57.8	21.3	0.1		43.8	43	11.8	1.4		9.5	78.7	11.8	0		11.3	58.1	29.3	1.3		
PHF	.870	.945	.942	.250	.956	.901	.921	.661	.450	.926	.781	.922	.775	.000	.931	.779	.932	.878	.750	.900	.984
Cars & Peds	238	662	241	1	1142	273	267	71	9	620	49	412	62	0	523	53	267	133	6	459	2744
% Cars & Peds	99.2	99.5	98.4	100	99.2	99.6	99.3	95.9	100	99.0	98.0	99.8	100	0	99.6	100	98.2	97.1	100	98.1	99.1
Trucks & Buses	1	1	4	0	6	0	1	3	0	4	1	1	0	0	2	0	3	2	0	5	17
% Trucks & Buses	0.4	0.2	1.6	0	0.5	0	0.4	4.1	0	0.6	2.0	0.2	0	0	0.4	0	1.1	1.5	0	1.1	0.6
Bikes by Direction	1	2	0	0	3	1	1	0	0	2	0	0	0	0	0	0	2	2	0	4	9
% Bikes by Direction	0.4	0.3	0	0	0.3	0.4	0.4	0	0	0.3	0	0	0	0	0	0	0.7	1.5	0	0.9	0.3



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File Name : 04626AA
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

Groups Printed- Cars & Peds

	Bishop Street From North				Waverly Street (Route 135) From East				Bishop Street From South				Waverly Street (Route 135) 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	59	106	54	1	76	64	12	3	14	106	18	0	13	67	35	3	631
04:15 PM	47	114	55	0	58	63	23	11	7	95	15	2	16	83	28	2	619
04:30 PM	45	104	43	0	73	78	22	1	10	79	17	0	12	88	24	1	597
04:45 PM	69	155	65	0	75	64	15	2	16	109	15	0	5	65	30	2	687
Total	220	479	217	1	282	269	72	17	47	389	65	2	46	303	117	8	2534
05:00 PM	55	170	56	0	68	68	27	5	14	97	12	0	15	72	35	2	696
05:15 PM	61	176	59	1	63	72	13	2	9	112	20	0	16	60	31	1	696
05:30 PM	53	161	61	0	67	63	16	0	10	94	15	0	17	70	37	1	665
05:45 PM	56	140	30	1	76	59	16	3	6	103	16	2	15	71	32	2	628
Total	225	647	206	2	274	262	72	10	39	406	63	2	63	273	135	6	2685
Grand Total	445	1126	423	3	556	531	144	27	86	795	128	4	109	576	252	14	5219
Apprch %	22.3	56.4	21.2	0.2	44.2	42.2	11.4	2.1	8.5	78.5	12.6	0.4	11.5	60.6	26.5	1.5	
Total %	8.5	21.6	8.1	0.1	10.7	10.2	2.8	0.5	1.6	15.2	2.5	0.1	2.1	11	4.8	0.3	

	Bishop Street From North					Waverly Street (Route 135) From East					Bishop Street From South					Waverly Street (Route 135) 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 04:45 PM																					
04:45 PM	**69**	155	**65**	0	289	**75**	64	15	2	156	**16**	109	15	0	140	5	65	30	**2**	102	687
05:00 PM	55	170	56	0	281	68	68	**27**	**5**	**168**	14	97	12	0	123	15	**72**	35	2	124	**696**
05:15 PM	61	**176**	59	**1**	**297**	63	**72**	13	2	150	9	**112**	**20**	0	**141**	16	60	31	1	108	696
05:30 PM	53	161	61	0	275	67	63	16	0	146	10	94	15	0	119	**17**	70	**37**	1	**125**	665
Total Volume	238	662	241	1	1142	273	267	71	9	620	49	412	62	0	523	53	267	133	6	459	2744
% App. Total	20.8	58	21.1	0.1		44	43.1	11.5	1.5		9.4	78.8	11.9	0		11.5	58.2	29	1.3		
PHF	.862	.940	.927	.250	.961	.910	.927	.657	.450	.923	.766	.920	.775	.000	.927	.779	.927	.899	.750	.918	.986

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City, State: Framingham, MA
Client: VAI/B. Guen

File Name : 04626AA
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

Groups Printed- Trucks & Buses

	Bishop Street From North				Waverly Street (Route 135) From East				Bishop Street From South				Waverly Street (Route 135) 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	1	2	0	1	0	0	0	1	0	0	0	0	3	0	0	8
04:15 PM	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	3
04:30 PM	1	2	2	0	0	0	0	0	0	0	0	0	0	1	0	0	6
04:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
Total	1	5	4	0	2	0	0	0	1	1	0	0	0	4	1	0	19
05:00 PM	0	0	2	0	0	0	1	0	1	1	0	0	0	0	0	0	5
05:15 PM	1	0	2	0	0	0	0	0	0	0	0	0	0	2	1	0	6
05:30 PM	0	0	0	0	0	1	2	0	0	0	0	0	0	1	0	0	4
05:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	2
Total	1	0	4	0	0	1	4	0	1	1	0	0	0	3	2	0	17
Grand Total	2	5	8	0	2	1	4	0	2	2	0	0	0	7	3	0	36
Apprch %	13.3	33.3	53.3	0	28.6	14.3	57.1	0	50	50	0	0	0	70	30	0	
Total %	5.6	13.9	22.2	0	5.6	2.8	11.1	0	5.6	5.6	0	0	0	19.4	8.3	0	

	Bishop Street From North					Waverly Street (Route 135) From East					Bishop Street From South					Waverly Street (Route 135) 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	1	2	0	3	1	0	0	0	1	1	0	0	0	1	0	3	0	0	3	8
04:15 PM	0	1	0	0	1	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	3
04:30 PM	1	2	2	0	5	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	6
04:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
Total Volume	1	5	4	0	10	2	0	0	0	2	1	1	0	0	2	0	4	1	0	5	19
% App. Total	10	50	40	0		100	0	0	0		50	50	0	0		0	80	20	0		
PHF	.250	.625	.500	.000	.500	.500	.000	.000	.000	.500	.250	.250	.000	.000	.500	.000	.333	.250	.000	.417	.594

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Client: VAI/B. Guen

File Name : 04626AA
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

Groups Printed- Bikes by Direction

	Bishop Street From North				Waverly Street (Route 135) From East				Bishop Street From South				Waverly Street (Route 135) 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	1	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	5
04:15 PM	0	3	0	0	0	0	0	0	0	2	0	0	0	0	0	0	5
04:30 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2
04:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
Total	1	6	0	0	3	1	0	0	0	3	0	0	0	0	0	0	14
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
05:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	2	2	0	5
05:45 PM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
Total	1	3	0	0	0	2	0	0	0	0	0	0	0	2	2	0	10
Grand Total	2	9	0	0	3	3	0	0	0	3	0	0	0	2	2	0	24
Apprch %	18.2	81.8	0	0	50	50	0	0	0	100	0	0	0	50	50	0	
Total %	8.3	37.5	0	0	12.5	12.5	0	0	0	12.5	0	0	0	8.3	8.3	0	

	Bishop Street From North					Waverly Street (Route 135) From East					Bishop Street From South					Waverly Street (Route 135) 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	1	2	0	0	3	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5
04:15 PM	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	5
04:30 PM	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	2
04:45 PM	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Total Volume	1	6	0	0	7	3	1	0	0	4	0	3	0	0	3	0	0	0	0	0	14
% App. Total	14.3	85.7	0	0		75	25	0	0		0	100	0	0		0	0	0	0		
PHF	.250	.500	.000	.000	.583	.375	.250	.000	.000	.500	.000	.375	.000	.000	.375	.000	.000	.000	.000	.000	.700

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Client: VAI/B. Guen

File Name : 04626BB
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

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

	Bishop Street From North			Bishop Street From South			Howard Street From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
04:00 PM	1	131	4	137	87	0	93	0	1	454
04:15 PM	4	134	4	112	76	0	85	0	0	415
04:30 PM	3	99	0	115	58	0	87	1	1	364
04:45 PM	4	164	3	143	86	0	138	1	1	540
Total	12	528	11	507	307	0	403	2	3	1773
05:00 PM	0	145	1	127	70	5	135	0	3	486
05:15 PM	4	164	3	133	76	0	140	0	1	521
05:30 PM	0	140	0	136	66	0	134	0	3	479
05:45 PM	1	148	1	149	75	0	100	1	1	476
Total	5	597	5	545	287	5	509	1	8	1962
Grand Total	17	1125	16	1052	594	5	912	3	11	3735
Apprch %	1.5	97.2	1.4	63.7	36	0.3	98.5	0.3	1.2	
Total %	0.5	30.1	0.4	28.2	15.9	0.1	24.4	0.1	0.3	
Cars & Peds	15	1106	16	1039	588	5	902	1	11	3683
% Cars & Peds	88.2	98.3	100	98.8	99	100	98.9	33.3	100	98.6
Trucks & Buses	0	8	0	7	0	0	7	0	0	22
% Trucks & Buses	0	0.7	0	0.7	0	0	0.8	0	0	0.6
Bikes by Direction	2	11	0	6	6	0	3	2	0	30
% Bikes by Direction	11.8	1	0	0.6	1	0	0.3	66.7	0	0.8

	Bishop Street From North				Bishop Street From South				Howard Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	**4**	**164**	**3**	**171**	**143**	**86**	0	**229**	138	**1**	1	140	**540**
05:00 PM	0	145	1	146	127	70	**5**	202	135	0	**3**	138	486
05:15 PM	4	164	3	171	133	76	0	209	**140**	0	1	**141**	521
05:30 PM	0	140	0	140	136	66	0	202	134	0	3	137	479
Total Volume	8	613	7	628	539	298	5	842	547	1	8	556	2026
% App. Total	1.3	97.6	1.1		64	35.4	0.6		98.4	0.2	1.4		
PHF	.500	.934	.583	.918	.942	.866	.250	.919	.977	.250	.667	.986	.938
Cars & Peds	7	605	7	619	532	296	5	833	543	1	8	552	2004
% Cars & Peds	87.5	98.7	100	98.6	98.7	99.3	100	98.9	99.3	100	100	99.3	98.9
Trucks & Buses	0	3	0	3	3	0	0	3	3	0	0	3	9
% Trucks & Buses	0	0.5	0	0.5	0.6	0	0	0.4	0.5	0	0	0.5	0.4
Bikes by Direction	1	5	0	6	4	2	0	6	1	0	0	1	13
% Bikes by Direction	12.5	0.8	0	1.0	0.7	0.7	0	0.7	0.2	0	0	0.2	0.6

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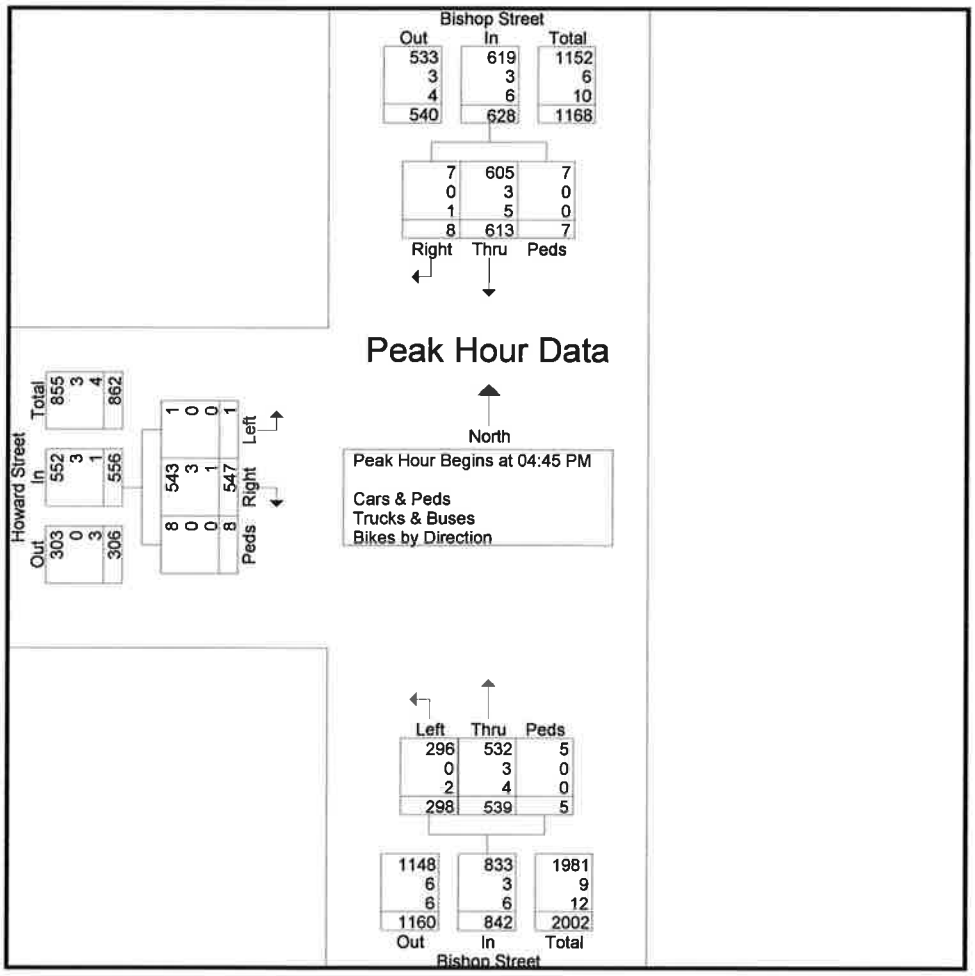
Client: VAI/B. Guen

File Name : 04626BB
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

	Bishop Street From North				Bishop Street From South				Howard Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	**4**	**164**	**3**	**171**	**143**	**86**	0	**229**	138	**1**	**1**	140	**540**
05:00 PM	0	145	1	146	127	70	**5**	202	135	0	**3**	138	486
05:15 PM	4	164	3	171	133	76	0	209	**140**	0	1	**141**	521
05:30 PM	0	140	0	140	136	66	0	202	134	0	3	137	479
Total Volume	8	613	7	628	539	298	5	842	547	1	8	556	2026
% App. Total	1.3	97.6	1.1		64	35.4	0.6		98.4	0.2	1.4		
PHF	.500	.934	.583	.918	.942	.866	.250	.919	.977	.250	.667	.986	.938
Cars & Peds	7	605	7	619	532	296	5	833	543	1	8	552	2004
% Cars & Peds	87.5	98.7	100	98.6	98.7	99.3	100	98.9	99.3	100	100	99.3	98.9
Trucks & Buses	0	3	0	3	3	0	0	3	3	0	0	3	9
% Trucks & Buses	0	0.5	0	0.5	0.6	0	0	0.4	0.5	0	0	0.5	0.4
Bikes by Direction	1	5	0	6	4	2	0	6	1	0	0	1	13
% Bikes by Direction	12.5	0.8	0	1.0	0.7	0.7	0	0.7	0.2	0	0	0.2	0.6



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Groups Printed- Cars & Peds

	Bishop Street From North			Bishop Street From South			Howard Street From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
04:00 PM	1	130	4	136	85	0	91	0	1	448
04:15 PM	3	132	4	109	75	0	84	0	0	407
04:30 PM	3	96	0	114	57	0	85	0	1	356
04:45 PM	3	163	3	140	84	0	136	1	1	531
Total	10	521	11	499	301	0	396	1	3	1742
05:00 PM	0	144	1	126	70	5	135	0	3	484
05:15 PM	4	162	3	131	76	0	138	0	1	515
05:30 PM	0	136	0	135	66	0	134	0	3	474
05:45 PM	1	143	1	148	75	0	99	0	1	468
Total	5	585	5	540	287	5	506	0	8	1941
Grand Total	15	1106	16	1039	588	5	902	1	11	3683
Apprch %	1.3	97.3	1.4	63.7	36	0.3	98.7	0.1	1.2	
Total %	0.4	30	0.4	28.2	16	0.1	24.5	0	0.3	

	Bishop Street From North				Bishop Street From South				Howard Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	3	163	3	169	140	84	0	224	136	1	1	138	531
05:00 PM	0	144	1	145	126	70	5	201	135	0	3	138	484
05:15 PM	4	162	3	169	131	76	0	207	138	0	1	139	515
05:30 PM	0	136	0	136	135	66	0	201	134	0	3	137	474
Total Volume	7	605	7	619	532	296	5	833	543	1	8	552	2004
% App. Total	1.1	97.7	1.1		63.9	35.5	0.6		98.4	0.2	1.4		
PHF	.438	.928	.583	.916	.950	.881	.250	.930	.984	.250	.667	.993	.944

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Page No : 1

Groups Printed- Trucks & Buses

	Bishop Street From North			Bishop Street From South			Howard Street From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
04:00 PM	0	1	0	1	0	0	2	0	0	4
04:15 PM	0	1	0	2	0	0	0	0	0	3
04:30 PM	0	3	0	0	0	0	2	0	0	5
04:45 PM	0	1	0	1	0	0	1	0	0	3
Total	0	6	0	4	0	0	5	0	0	15
05:00 PM	0	1	0	1	0	0	0	0	0	2
05:15 PM	0	1	0	1	0	0	2	0	0	4
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	1	0	0	0	0	0	1
Total	0	2	0	3	0	0	2	0	0	7
Grand Total	0	8	0	7	0	0	7	0	0	22
Apprch %	0	100	0	100	0	0	100	0	0	
Total %	0	36.4	0	31.8	0	0	31.8	0	0	

	Bishop Street From North				Bishop Street From South				Howard Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:00 PM													
04:00 PM	0	1	0	1	1	0	0	1	**2**	0	0	**2**	4
04:15 PM	0	1	0	1	**2**	0	0	**2**	0	0	0	0	3
04:30 PM	0	**3**	0	**3**	0	0	0	0	2	0	0	2	**5**
04:45 PM	0	1	0	1	1	0	0	1	1	0	0	1	3
Total Volume	0	6	0	6	4	0	0	4	5	0	0	5	15
% App. Total	0	100	0		100	0	0		100	0	0		
PHF	.000	.500	.000	.500	.500	.000	.000	.500	.625	.000	.000	.625	.750

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Page No : 1

Groups Printed- Bikes by Direction

	Bishop Street From North			Bishop Street From South			Howard Street From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
04:00 PM	0	0	0	0	2	0	0	0	0	2
04:15 PM	1	1	0	1	1	0	1	0	0	5
04:30 PM	0	0	0	1	1	0	0	1	0	3
04:45 PM	1	0	0	2	2	0	1	0	0	6
Total	2	1	0	4	6	0	2	1	0	16
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	1	0	1	0	0	0	0	0	2
05:30 PM	0	4	0	1	0	0	0	0	0	5
05:45 PM	0	5	0	0	0	0	1	1	0	7
Total	0	10	0	2	0	0	1	1	0	14
Grand Total	2	11	0	6	6	0	3	2	0	30
Apprch %	15.4	84.6	0	50	50	0	60	40	0	
Total %	6.7	36.7	0	20	20	0	10	6.7	0	

	Bishop Street From North				Bishop Street From South				Howard Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:00 PM													
04:00 PM	0	0	0	0	0	2	0	2	0	0	0	0	2
04:15 PM	1	1	0	2	1	1	0	2	1	0	0	1	5
04:30 PM	0	0	0	0	1	1	0	2	0	1	0	1	3
04:45 PM	1	0	0	1	2	2	0	4	1	0	0	1	6
Total Volume	2	1	0	3	4	6	0	10	2	1	0	3	16
% App. Total	66.7	33.3	0		40	60	0		66.7	33.3	0		
PHF	.500	.250	.000	.375	.500	.750	.000	.625	.500	.250	.000	.750	.667

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Client: VAI/B. Guen

File Name : 04626CC
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

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

	Bishop Street From North				Clark Street From East				Bishop Street From South				Clark Street 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	3	105	5	0	6	8	11	0	2	113	15	0	16	1	2	1	288
04:15 PM	3	122	1	0	7	1	5	1	2	89	20	0	11	2	4	0	268
04:30 PM	3	109	2	0	12	5	6	0	3	108	17	0	13	2	5	0	285
04:45 PM	1	114	3	0	9	1	4	0	0	134	10	0	11	2	1	0	290
Total	10	450	11	0	34	15	26	1	7	444	62	0	51	7	12	1	1131
05:00 PM	5	136	1	0	12	9	6	0	4	119	10	0	19	0	5	1	327
05:15 PM	12	126	1	1	5	3	3	0	3	112	14	0	12	0	2	3	297
05:30 PM	4	136	0	0	2	2	6	0	1	121	14	0	16	0	5	1	308
05:45 PM	6	113	0	1	1	1	3	1	0	130	17	0	9	0	0	4	286
Total	27	511	2	2	20	15	18	1	8	482	55	0	56	0	12	9	1218
Grand Total	37	961	13	2	54	30	44	2	15	926	117	0	107	7	24	10	2349
Apprch %	3.7	94.9	1.3	0.2	41.5	23.1	33.8	1.5	1.4	87.5	11.1	0	72.3	4.7	16.2	6.8	
Total %	1.6	40.9	0.6	0.1	2.3	1.3	1.9	0.1	0.6	39.4	5	0	4.6	0.3	1	0.4	
Cars & Peds	37	953	13	2	54	29	42	2	14	914	114	0	107	7	23	10	2321
% Cars & Peds	100	99.2	100	100	100	96.7	95.5	100	93.3	98.7	97.4	0	100	100	95.8	100	98.8
Trucks & Buses	0	6	0	0	0	1	0	0	0	8	1	0	0	0	1	0	17
% Trucks & Buses	0	0.6	0	0	0	3.3	0	0	0	0.9	0.9	0	0	0	4.2	0	0.7
Bikes by Direction	0	2	0	0	0	0	2	0	1	4	2	0	0	0	0	0	11
% Bikes by Direction	0	0.2	0	0	0	0	4.5	0	6.7	0.4	1.7	0	0	0	0	0	0.5

	Bishop Street From North					Clark Street From East					Bishop Street From South					Clark Street 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 04:45 PM																					
04:45 PM	1	114	3	0	118	9	1	4	0	14	0	134	10	0	144	11	2	1	0	14	290
05:00 PM	5	136	1	0	142	12	9	6	0	27	4	119	10	0	133	19	0	5	1	25	327
05:15 PM	12	126	1	1	140	5	3	3	0	11	3	112	14	0	129	12	0	2	3	17	297
05:30 PM	4	136	0	0	140	2	2	6	0	10	1	121	14	0	136	16	0	5	1	22	308
Total Volume	22	512	5	1	540	28	15	19	0	62	8	486	48	0	542	58	2	13	5	78	1222
% App. Total	4.1	94.8	0.9	0.2		45.2	24.2	30.6	0		1.5	89.7	8.9	0		74.4	2.6	16.7	6.4		
PHF	.458	.941	.417	.250	.951	.583	.417	.792	.000	.574	.500	.907	.857	.000	.941	.763	.250	.650	.417	.780	.934
Cars & Peds	22	508	5	1	536	28	15	19	0	62	8	481	47	0	536	58	2	13	5	78	1212
% Cars & Peds	100	99.2	100	100	99.3	100	100	100	0	100	100	99.0	97.9	0	98.9	100	100	100	100	100	99.2
Trucks & Buses	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	5
% Trucks & Buses	0	0.4	0	0	0.4	0	0	0	0	0	0	0.6	0	0	0.6	0	0	0	0	0	0.4
Bikes by Direction	0	2	0	0	2	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	5
% Bikes by Direction	0	0.4	0	0	0.4	0	0	0	0	0	0	0.4	2.1	0	0.6	0	0	0	0	0	0.4

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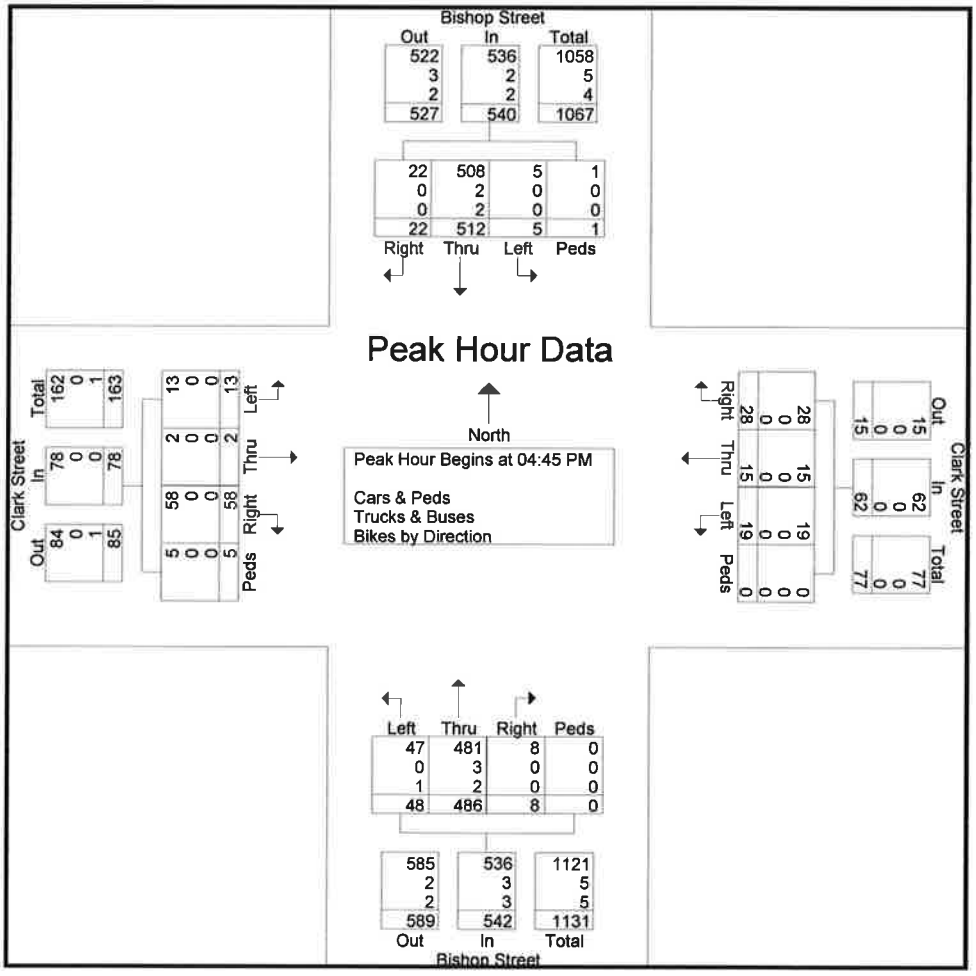
File Name : 04626CC
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

	Bishop Street From North					Clark Street From East					Bishop Street From South					Clark Street 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 04:45 PM																					
04:45 PM	1	114	**3**	0	118	9	1	4	0	14	0	**134**	10	0	**144**	11	**2**	**1**	0	14	290
05:00 PM	5	**136**	1	0	**142**	**12**	**9**	**6**	0	**27**	**4**	119	10	0	133	**19**	0	**5**	1	**25**	**327**
05:15 PM	**12**	126	1	**1**	140	5	3	3	0	11	3	112	**14**	0	129	12	0	**2**	**3**	17	297
05:30 PM	4	136	0	0	140	2	2	6	0	10	1	121	14	0	136	16	0	5	1	22	308
Total Volume	22	512	5	1	540	28	15	19	0	62	8	486	48	0	542	58	2	13	5	78	1222
% App. Total	4.1	94.8	0.9	0.2		45.2	24.2	30.6	0		1.5	89.7	8.9	0		74.4	2.6	16.7	6.4		
PHF	.458	.941	.417	.250	.951	.583	.417	.792	.000	.574	.500	.907	.857	.000	.941	.763	.250	.650	.417	.780	.934
Cars & Peds	22	508	5	1	536	28	15	19	0	62	8	481	47	0	536	58	2	13	5	78	1212
% Cars & Peds	100	99.2	100	100	99.3	100	100	100	0	100	100	99.0	97.9	0	98.9	100	100	100	100	100	99.2
Trucks & Buses	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	5
% Trucks & Buses	0	0.4	0	0	0.4	0	0	0	0	0	0	0.6	0	0	0.6	0	0	0	0	0	0.4
Bikes by Direction	0	2	0	0	2	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	5
% Bikes by Direction	0	0.4	0	0	0.4	0	0	0	0	0	0	0.4	2.1	0	0.6	0	0	0	0	0	0.4



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File Name : 04626CC
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

Groups Printed- Cars & Peds

	Bishop Street From North				Clark Street From East				Bishop Street From South				Clark Street 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	3	105	5	0	6	8	10	0	2	111	14	0	16	1	2	1	284
04:15 PM	3	121	1	0	7	1	4	1	2	86	19	0	11	2	4	0	262
04:30 PM	3	106	2	0	12	4	6	0	2	107	17	0	13	2	4	0	278
04:45 PM	1	114	3	0	9	1	4	0	0	131	9	0	11	2	1	0	286
Total	10	446	11	0	34	14	24	1	6	435	59	0	51	7	11	1	1110
05:00 PM	5	135	1	0	12	9	6	0	4	118	10	0	19	0	5	1	325
05:15 PM	12	124	1	1	5	3	3	0	3	112	14	0	12	0	2	3	295
05:30 PM	4	135	0	0	2	2	6	0	1	120	14	0	16	0	5	1	306
05:45 PM	6	113	0	1	1	1	3	1	0	129	17	0	9	0	0	4	285
Total	27	507	2	2	20	15	18	1	8	479	55	0	56	0	12	9	1211
Grand Total	37	953	13	2	54	29	42	2	14	914	114	0	107	7	23	10	2321
Apprch %	3.7	94.8	1.3	0.2	42.5	22.8	33.1	1.6	1.3	87.7	10.9	0	72.8	4.8	15.6	6.8	
Total %	1.6	41.1	0.6	0.1	2.3	1.2	1.8	0.1	0.6	39.4	4.9	0	4.6	0.3	1	0.4	

	Bishop Street From North					Clark Street From East					Bishop Street From South					Clark Street 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 04:45 PM																					
04:45 PM	1	114	3	0	118	9	1	4	0	14	0	131	9	0	140	11	2	1	0	14	286
05:00 PM	5	135	1	0	141	12	9	6	0	27	4	118	10	0	132	19	0	5	1	25	325
05:15 PM	12	124	1	1	138	5	3	3	0	11	3	112	14	0	129	12	0	2	3	17	295
05:30 PM	4	135	0	0	139	2	2	6	0	10	1	120	14	0	135	16	0	5	1	22	306
Total Volume	22	508	5	1	536	28	15	19	0	62	8	481	47	0	536	58	2	13	5	78	1212
% App. Total	4.1	94.8	0.9	0.2		45.2	24.2	30.6	0		1.5	89.7	8.8	0		74.4	2.6	16.7	6.4		
PHF	.458	.941	.417	.250	.950	.583	.417	.792	.000	.574	.500	.918	.839	.000	.957	.763	.250	.650	.417	.780	.932

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File Name : 04626CC
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

Groups Printed- Trucks & Buses

	Bishop Street From North				Clark Street From East				Bishop Street From South				Clark Street 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	2	1	0	0	0	0	0	3
04:15 PM	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	3
04:30 PM	0	3	0	0	0	1	0	0	0	0	0	0	0	0	1	0	5
04:45 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
Total	0	4	0	0	0	1	0	0	0	6	1	0	0	0	1	0	13
05:00 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
05:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Total	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	4
Grand Total	0	6	0	0	0	1	0	0	0	8	1	0	0	0	1	0	17
Apprch %	0	100	0	0	0	100	0	0	0	88.9	11.1	0	0	0	100	0	
Total %	0	35.3	0	0	0	5.9	0	0	0	47.1	5.9	0	0	0	5.9	0	

	Bishop Street From North					Clark Street From East					Bishop Street From South					Clark Street 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	0	0	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	3
04:15 PM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
04:30 PM	0	3	0	0	3	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	5
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
Total Volume	0	4	0	0	4	0	1	0	0	1	0	6	1	0	7	0	0	1	0	1	13
% App. Total	0	100	0	0		0	100	0	0		0	85.7	14.3	0		0	0	100	0		
PHF	.000	.333	.000	.000	.333	.000	.250	.000	.000	.250	.000	.750	.250	.000	.583	.000	.000	.250	.000	.250	.650

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Client: VAI/B. Guen

File Name : 04626CC
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

Groups Printed- Bikes by Direction

	Bishop Street From North				Clark Street From East				Bishop Street From South				Clark Street 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	1	0	0	0	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	3
04:30 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2
04:45 PM	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2
Total	0	0	0	0	0	0	2	0	1	3	2	0	0	0	0	0	8
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
Grand Total	0	2	0	0	0	0	2	0	1	4	2	0	0	0	0	0	11
Apprch %	0	100	0	0	0	0	100	0	14.3	57.1	28.6	0	0	0	0	0	
Total %	0	18.2	0	0	0	0	18.2	0	9.1	36.4	18.2	0	0	0	0	0	

	Bishop Street From North					Clark Street From East					Bishop Street From South					Clark Street 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	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0	1	0	1	0	1	1	0	2	0	0	0	0	0	3
04:30 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	2
Total Volume	0	0	0	0	0	0	0	2	0	2	1	3	2	0	6	0	0	0	0	0	8
% App. Total	0	0	0	0		0	0	100	0		16.7	50	33.3	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.500	.000	.500	.250	.750	.500	.000	.750	.000	.000	.000	.000	.000	.667

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City, State: Framingham, MA
Client: VAI/B. Guen

File Name : 04626DD
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

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

	Bishop Street From North				Lawrence Street From East				Bishop Street From South				Lawrence Street 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	2	110	2	1	1	1	1	0	0	116	7	0	5	1	4	1	252
04:15 PM	5	121	0	0	4	3	1	1	0	95	4	0	3	1	3	0	241
04:30 PM	6	115	4	0	1	0	0	0	2	112	6	0	4	0	3	0	253
04:45 PM	13	110	0	0	0	1	0	1	1	135	9	0	4	0	2	1	277
Total	26	456	6	1	6	5	2	2	3	458	26	0	16	2	12	2	1023
05:00 PM	3	142	0	0	1	2	3	0	1	131	4	0	2	1	7	2	299
05:15 PM	7	131	2	0	3	2	0	0	3	109	2	1	4	2	5	1	272
05:30 PM	11	131	1	1	3	1	3	0	2	120	8	1	3	1	3	3	292
05:45 PM	10	115	2	1	4	1	0	1	2	125	4	0	6	0	3	2	276
Total	31	519	5	2	11	6	6	1	8	485	18	2	15	4	18	8	1139
Grand Total	57	975	11	3	17	11	8	3	11	943	44	2	31	6	30	10	2162
Apprch %	5.4	93.2	1.1	0.3	43.6	28.2	20.5	7.7	1.1	94.3	4.4	0.2	40.3	7.8	39	13	
Total %	2.6	45.1	0.5	0.1	0.8	0.5	0.4	0.1	0.5	43.6	2	0.1	1.4	0.3	1.4	0.5	
Cars & Peds	56	970	11	3	16	10	7	1	7	937	44	2	31	6	30	7	2138
% Cars & Peds	98.2	99.5	100	100	94.1	90.9	87.5	33.3	63.6	99.4	100	100	100	100	100	70	98.9
Trucks & Buses	1	5	0	0	1	1	1	0	4	5	0	0	0	0	0	0	18
% Trucks & Buses	1.8	0.5	0	0	5.9	9.1	12.5	0	36.4	0.5	0	0	0	0	0	0	0.8
Bikes by Direction	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	3	6
% Bikes by Direction	0	0	0	0	0	0	0	66.7	0	0.1	0	0	0	0	0	30	0.3

	Bishop Street From North					Lawrence Street From East					Bishop Street From South					Lawrence Street 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 04:45 PM																					
04:45 PM	**13**	110	0	0	123	0	1	0	**1**	2	1	**135**	**9**	**0**	**145**	**4**	0	**2**	1	7	277
05:00 PM	3	**142**	0	0	**145**	1	**2**	**3**	0	6	1	131	4	**0**	136	2	1	**7**	2	**12**	**299**
05:15 PM	7	131	**2**	0	140	**3**	2	0	0	5	**3**	109	2	**1**	115	**4**	**2**	**5**	1	12	272
05:30 PM	11	131	1	**1**	144	**3**	1	**3**	**0**	**7**	**2**	120	**8**	1	131	**3**	1	**3**	**3**	10	292
Total Volume	34	514	3	1	552	7	6	6	1	20	7	495	23	2	527	13	4	17	7	41	1140
% App. Total	6.2	93.1	0.5	0.2		35	30	30	5		1.3	93.9	4.4	0.4		31.7	9.8	41.5	17.1		
PHF	.654	.905	.375	.250	.952	.583	.750	.500	.250	.714	.583	.917	.639	.500	.909	.813	.500	.607	.583	.854	.953
Cars & Peds	34	512	3	1	550	6	5	5	0	16	5	493	23	2	523	13	4	17	4	38	1127
% Cars & Peds	100	99.6	100	100	99.6	85.7	83.3	83.3	0	80.0	71.4	99.6	100	100	99.2	100	100	100	57.1	92.7	98.9
Trucks & Buses	0	2	0	0	2	1	1	1	0	3	2	1	0	0	3	0	0	0	0	0	8
% Trucks & Buses	0	0.4	0	0	0.4	14.3	16.7	16.7	0	15.0	28.6	0.2	0	0	0.6	0	0	0	0	0	0.7
Bikes by Direction	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	0	0	0	3	3	5
% Bikes by Direction	0	0	0	0	0	0	0	0	100	5.0	0	0.2	0	0	0.2	0	0	0	42.9	7.3	0.4

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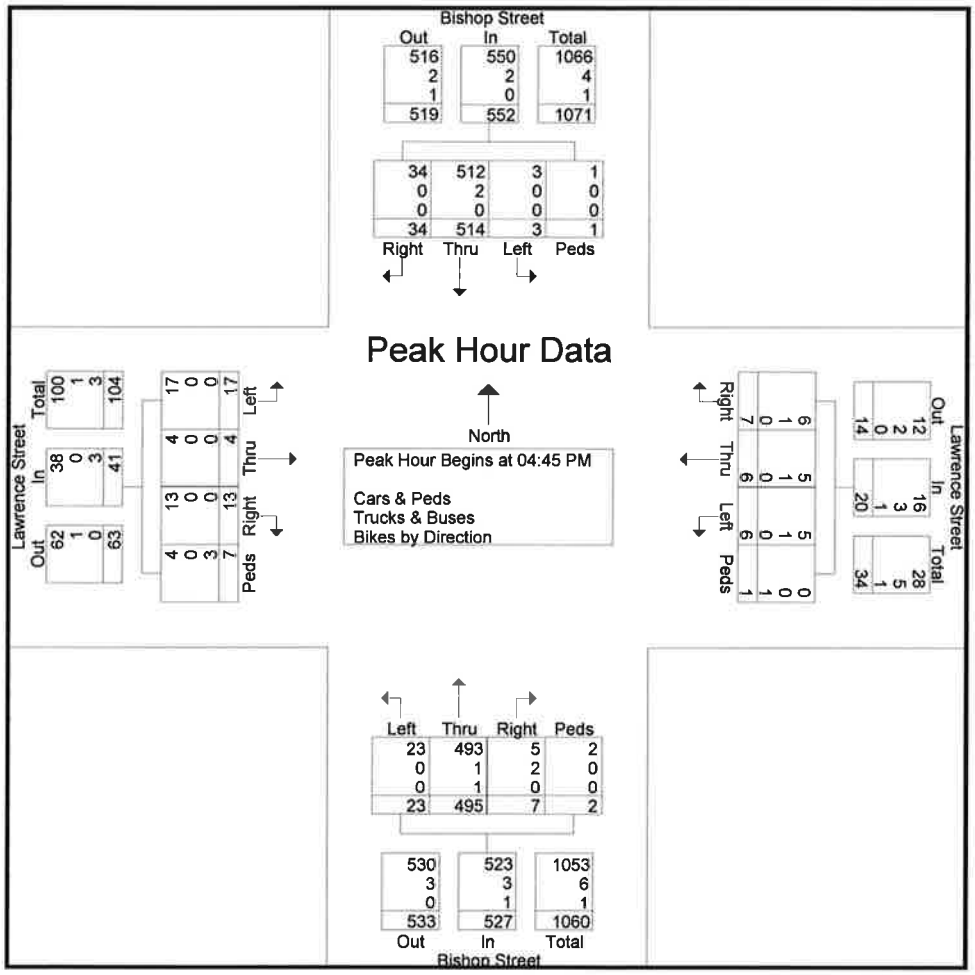
E/W: Lawrence Street
City, State: Framingham, MA
Client: VAI/B. Guen

File Name : 04626DD
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

	Bishop Street From North					Lawrence Street From East					Bishop Street From South					Lawrence Street 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 04:45 PM																					
04:45 PM	**13**	110	0	0	123	0	1	0	**1**	2	1	**135**	**9**	0	**145**	**4**	0	2	1	7	277
05:00 PM	3	**142**	0	0	**145**	1	**2**	**3**	0	6	1	131	4	0	136	2	1	**7**	2	**12**	**299**
05:15 PM	7	131	**2**	0	140	**3**	2	0	0	5	**3**	109	2	**1**	115	**4**	**2**	5	1	12	272
05:30 PM	11	131	1	**1**	144	3	1	3	0	7	2	120	8	1	131	3	1	3	**3**	10	292
Total Volume	34	514	3	1	552	7	6	6	1	20	7	495	23	2	527	13	4	17	7	41	1140
% App. Total	6.2	93.1	0.5	0.2		35	30	30	5		1.3	93.9	4.4	0.4		31.7	9.8	41.5	17.1		
PHF	.654	.905	.375	.250	.952	.583	.750	.500	.250	.714	.583	.917	.639	.500	.909	.813	.500	.607	.583	.854	.953
Cars & Peds	34	512	3	1	550	6	5	5	0	16	5	493	23	2	523	13	4	17	4	38	1127
% Cars & Peds	100	99.6	100	100	99.6	85.7	83.3	83.3	0	80.0	71.4	99.6	100	100	99.2	100	100	100	57.1	92.7	98.9
Trucks & Buses	0	2	0	0	2	1	1	1	0	3	2	1	0	0	3	0	0	0	0	0	8
% Trucks & Buses	0	0.4	0	0	0.4	14.3	16.7	16.7	0	15.0	28.6	0.2	0	0	0.6	0	0	0	0	0	0.7
Bikes by Direction	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	0	0	0	3	3	5
% Bikes by Direction	0	0	0	0	0	0	0	0	100	5.0	0	0.2	0	0	0.2	0	0	0	42.9	7.3	0.4



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Client: VAI/B. Guen

File Name : 04626DD
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

Groups Printed- Cars & Peds

	Bishop Street From North				Lawrence Street From East				Bishop Street From South				Lawrence Street 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	1	110	2	1	1	1	1	0	0	115	7	0	5	1	4	1	250
04:15 PM	5	120	0	0	4	3	1	0	0	92	4	0	3	1	3	0	236
04:30 PM	6	113	4	0	1	0	0	0	1	112	6	0	4	0	3	0	250
04:45 PM	13	109	0	0	0	1	0	0	0	135	9	0	4	0	2	0	273
Total	25	452	6	1	6	5	2	0	1	454	26	0	16	2	12	1	1009
05:00 PM	3	142	0	0	1	1	2	0	1	130	4	0	2	1	7	2	296
05:15 PM	7	130	2	0	2	2	0	0	2	109	2	1	4	2	5	0	268
05:30 PM	11	131	1	1	3	1	3	0	2	119	8	1	3	1	3	2	290
05:45 PM	10	115	2	1	4	1	0	1	1	125	4	0	6	0	3	2	275
Total	31	518	5	2	10	5	5	1	6	483	18	2	15	4	18	6	1129
Grand Total	56	970	11	3	16	10	7	1	7	937	44	2	31	6	30	7	2138
Apprch %	5.4	93.3	1.1	0.3	47.1	29.4	20.6	2.9	0.7	94.6	4.4	0.2	41.9	8.1	40.5	9.5	
Total %	2.6	45.4	0.5	0.1	0.7	0.5	0.3	0	0.3	43.8	2.1	0.1	1.4	0.3	1.4	0.3	

	Bishop Street From North					Lawrence Street From East					Bishop Street From South					Lawrence Street 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	3	142	0	0	145	1	1	2	0	4	1	130	4	0	135	2	1	7	2	12	296
05:15 PM	7	130	2	0	139	2	2	0	0	4	2	109	2	1	114	4	2	5	0	11	268
05:30 PM	11	131	1	1	144	3	1	3	0	7	2	119	8	1	130	3	1	3	2	9	290
05:45 PM	10	115	2	1	128	4	1	0	1	6	1	125	4	0	130	6	0	3	2	11	275
Total Volume	31	518	5	2	556	10	5	5	1	21	6	483	18	2	509	15	4	18	6	43	1129
% App. Total	5.6	93.2	0.9	0.4		47.6	23.8	23.8	4.8		1.2	94.9	3.5	0.4		34.9	9.3	41.9	14		
PHF	.705	.912	.625	.500	.959	.625	.625	.417	.250	.750	.750	.929	.563	.500	.943	.625	.500	.643	.750	.896	.954

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Client: VAI/B. Guen

File Name : 04626DD
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

Groups Printed- Trucks & Buses

	Bishop Street From North				Lawrence Street From East				Bishop Street From South				Lawrence Street 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	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
04:15 PM	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	4
04:30 PM	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3
04:45 PM	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2
Total	1	4	0	0	0	0	0	0	2	4	0	0	0	0	0	0	11
05:00 PM	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	3
05:15 PM	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	3
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	1	0	0	0	0	0	0	0	1
Total	0	1	0	0	1	1	1	0	2	1	0	0	0	0	0	0	7
Grand Total	1	5	0	0	1	1	1	0	4	5	0	0	0	0	0	0	18
Apprch %	16.7	83.3	0	0	33.3	33.3	33.3	0	44.4	55.6	0	0	0	0	0	0	
Total %	5.6	27.8	0	0	5.6	5.6	5.6	0	22.2	27.8	0	0	0	0	0	0	

	Bishop Street From North					Lawrence Street From East					Bishop Street From South					Lawrence Street 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	1	0	0	1	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	4
04:30 PM	0	2	0	0	2	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	3
04:45 PM	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
05:00 PM	0	0	0	0	0	0	1	1	0	2	0	1	0	0	1	0	0	0	0	0	3
Total Volume	0	4	0	0	4	0	1	1	0	2	2	4	0	0	6	0	0	0	0	0	12
% App. Total	0	100	0	0		0	50	50	0		33.3	66.7	0	0		0	0	0	0		
PHF	.000	.500	.000	.000	.500	.000	.250	.250	.000	.250	.500	.333	.000	.000	.500	.000	.000	.000	.000	.000	.750

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Client: VAI/B. Guen

File Name : 04626DD
Site Code : 7156
Start Date : 10/22/2015
Page No : 1

Groups Printed- Bikes by Direction

	Bishop Street From North				Lawrence Street From East				Bishop Street From South				Lawrence Street 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	1	0	0	0	0	0	0	0	0	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	1	0	0	0	0	0	0	0	1	2
Total	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	3
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	1	1
05:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	2
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	2	3
Grand Total	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	3	6
Apprch %	0	0	0	0	0	0	0	100	0	100	0	0	0	0	0	100	
Total %	0	0	0	0	0	0	0	33.3	0	16.7	0	0	0	0	0	50	

	Bishop Street From North					Lawrence Street From East					Bishop Street From South					Lawrence Street 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 04:45 PM																					
04:45 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	2
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	1	1	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	1	2
Total Volume	0	0	0	0	0	0	0	0	1	1	0	1	0	0	1	0	0	0	3	3	5
% App. Total	0	0	0	0		0	0	0	100		0	100	0	0		0	0	0	100		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.000	.250	.000	.000	.250	.000	.000	.000	.750	.750	.625

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City, State: Framingham, MA
Client: VAI/B. Guen

File Name : 04626AAA
Site Code : 7156
Start Date : 10/24/2015
Page No : 1

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

	Bishop Street From North				Waverly Street (Route 135) From East				Bishop Street From South				Waverly Street (Route 135) 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	27	76	46	0	57	62	12	0	15	79	23	0	15	88	29	4	533
11:15 AM	35	79	41	0	60	62	16	5	11	62	15	0	20	68	27	0	501
11:30 AM	42	99	41	0	45	58	7	2	15	58	19	0	19	73	21	2	501
11:45 AM	41	78	40	0	49	60	20	2	18	76	19	0	12	78	50	0	543
Total	145	332	168	0	211	242	55	9	59	275	76	0	66	307	127	6	2078
12:00 PM	44	75	60	0	55	75	22	1	11	83	17	0	16	79	43	3	584
12:15 PM	48	103	48	0	71	51	15	2	17	74	17	1	20	57	38	0	562
12:30 PM	50	81	55	3	74	61	15	0	11	72	11	3	20	81	47	3	587
12:45 PM	63	102	56	0	67	60	9	0	16	91	22	6	17	79	48	1	637
Total	205	361	219	3	267	247	61	3	55	320	67	10	73	296	176	7	2370
01:00 PM	43	91	49	1	56	54	12	1	17	72	12	1	19	83	34	1	546
01:15 PM	44	78	36	0	61	56	11	1	13	71	14	2	15	70	31	0	503
01:30 PM	50	93	50	0	64	50	13	0	11	85	21	0	19	85	33	0	574
01:45 PM	59	83	59	0	65	60	15	1	17	94	20	2	18	77	39	0	609
Total	196	345	194	1	246	220	51	3	58	322	67	5	71	315	137	1	2232
Grand Total	546	1038	581	4	724	709	167	15	172	917	210	15	210	918	440	14	6680
Apprch %	25.2	47.9	26.8	0.2	44.8	43.9	10.3	0.9	13.1	69.8	16	1.1	13.3	58	27.8	0.9	
Total %	8.2	15.5	8.7	0.1	10.8	10.6	2.5	0.2	2.6	13.7	3.1	0.2	3.1	13.7	6.6	0.2	
Cars & Peds	545	1024	577	4	718	698	164	15	162	912	208	15	209	908	440	14	6613
% Cars & Peds	99.8	98.7	99.3	100	99.2	98.4	98.2	100	94.2	99.5	99	100	99.5	98.9	100	100	99
Trucks & Buses	1	7	3	0	3	9	3	0	9	4	2	0	1	6	0	0	48
% Trucks & Buses	0.2	0.7	0.5	0	0.4	1.3	1.8	0	5.2	0.4	1	0	0.5	0.7	0	0	0.7
Bikes by Direction	0	7	1	0	3	2	0	0	1	1	0	0	0	4	0	0	19
% Bikes by Direction	0	0.7	0.2	0	0.4	0.3	0	0	0.6	0.1	0	0	0	0.4	0	0	0.3

	Bishop Street From North					Waverly Street (Route 135) From East					Bishop Street From South					Waverly Street (Route 135) 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 12:00 PM																					
12:00 PM	44	75	60	0	179	55	75	22	1	153	11	83	17	0	111	16	79	43	3	141	584
12:15 PM	48	103	48	0	199	71	51	15	2	139	17	74	17	1	109	20	57	38	0	115	562
12:30 PM	50	81	55	3	189	74	61	15	0	150	11	72	11	3	97	20	81	47	3	151	587
12:45 PM	63	102	56	0	221	67	60	9	0	136	16	91	22	6	135	17	79	48	1	145	637
Total Volume	205	361	219	3	788	267	247	61	3	578	55	320	67	10	452	73	296	176	7	552	2370
% App. Total	26	45.8	27.8	0.4		46.2	42.7	10.6	0.5		12.2	70.8	14.8	2.2		13.2	53.6	31.9	1.3		
PHF	.813	.876	.913	.250	.891	.902	.823	.693	.375	.944	.809	.879	.761	.417	.837	.913	.914	.917	.583	.914	.930
Cars & Peds	205	360	218	3	786	264	245	61	3	573	51	319	66	10	446	73	294	176	7	550	2355
% Cars & Peds	100	99.7	99.5	100	99.7	98.9	99.2	100	100	99.1	92.7	99.7	98.5	100	98.7	100	99.3	100	100	99.6	99.4
Trucks & Buses	0	1	1	0	2	2	0	0	0	2	4	1	1	0	6	0	1	0	0	1	11
% Trucks & Buses	0	0.3	0.5	0	0.3	0.7	0	0	0	0.3	7.3	0.3	1.5	0	1.3	0	0.3	0	0	0.2	0.5
Bikes by Direction	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	0	1	0	0	1	4
% Bikes by Direction	0	0	0	0	0	0.4	0.8	0	0	0.5	0	0	0	0	0	0	0.3	0	0	0.2	0.2

Transportation Data Corporation

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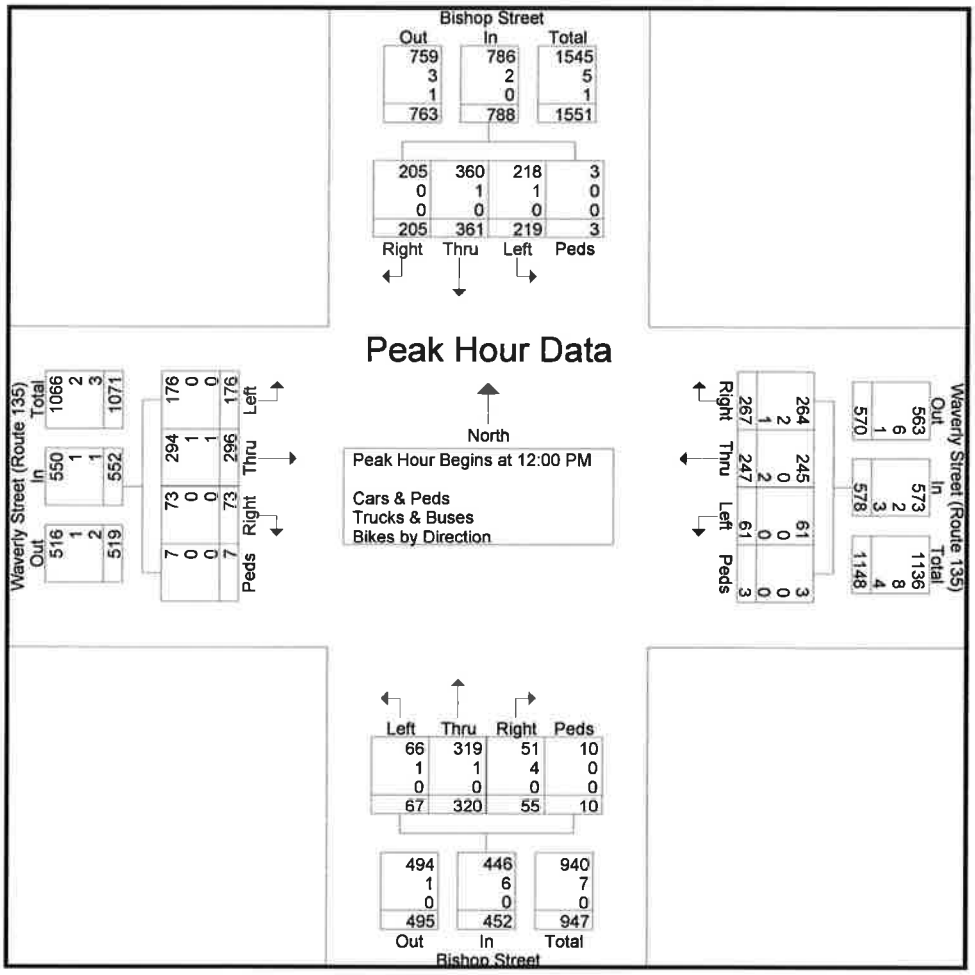
N/S: Bishop Street
E/W: Waverly Street (Route 135)
City, State: Framingham, MA
Client: VAI/B. Guen

File Name : 04626AAA
Site Code : 7156
Start Date : 10/24/2015
Page No : 1

	Bishop Street From North					Waverly Street (Route 135) From East					Bishop Street From South					Waverly Street (Route 135) 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 12:00 PM																					
12:00 PM	44	75	**60**	0	179	55	**75**	**22**	1	**153**	11	83	17	0	111	16	79	43	**3**	141	584
12:15 PM	48	**103**	48	0	199	71	51	15	**2**	139	**17**	74	17	1	109	**20**	57	38	0	115	562
12:30 PM	50	81	55	**3**	189	**74**	61	15	0	150	11	72	11	3	97	20	**81**	47	3	**151**	587
12:45 PM	**63**	**102**	**56**	**0**	**221**	**67**	**60**	**9**	**0**	**136**	16	**91**	**22**	**6**	**135**	17	**79**	**48**	**1**	**145**	**637**
Total Volume	205	361	219	3	788	267	247	61	3	578	55	320	67	10	452	73	296	176	7	552	2370
% App. Total	26	45.8	27.8	0.4		46.2	42.7	10.6	0.5		12.2	70.8	14.8	2.2		13.2	53.6	31.9	1.3		
PHF	.813	.876	.913	.250	.891	.902	.823	.693	.375	.944	.809	.879	.761	.417	.837	.913	.914	.917	.583	.914	.930
Cars & Peds	205	360	218	3	786	264	245	61	3	573	51	319	66	10	446	73	294	176	7	550	2355
% Cars & Peds	100	99.7	99.5	100	99.7	98.9	99.2	100	100	99.1	92.7	99.7	98.5	100	98.7	100	99.3	100	100	99.6	99.4
Trucks & Buses	0	1	1	0	2	2	0	0	0	2	4	1	1	0	6	0	1	0	0	1	11
% Trucks & Buses	0	0.3	0.5	0	0.3	0.7	0	0	0	0.3	7.3	0.3	1.5	0	1.3	0	0.3	0	0	0.2	0.5
Bikes by Direction	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	0	1	0	0	1	4
% Bikes by Direction	0	0	0	0	0	0.4	0.8	0	0	0.5	0	0	0	0	0	0	0.3	0	0	0.2	0.2



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N/S: Bishop Street
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City, State: Framingham, MA
Client: VAI/B. Guen

File Name : 04626AAA
Site Code : 7156
Start Date : 10/24/2015
Page No : 1

Groups Printed- Cars & Peds

	Bishop Street From North				Waverly Street (Route 135) From East				Bishop Street From South				Waverly Street (Route 135) 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	27	76	46	0	57	61	12	0	13	79	23	0	15	87	29	4	529
11:15 AM	34	75	41	0	59	61	13	5	11	62	15	0	20	67	27	0	490
11:30 AM	42	98	41	0	45	56	7	2	13	57	19	0	19	73	21	2	495
11:45 AM	41	76	40	0	48	59	20	2	18	75	18	0	12	77	50	0	536
Total	144	325	168	0	209	237	52	9	55	273	75	0	66	304	127	6	2050
12:00 PM	44	75	60	0	54	75	22	1	11	83	16	0	16	79	43	3	582
12:15 PM	48	103	48	0	71	49	15	2	15	74	17	1	20	57	38	0	558
12:30 PM	50	80	54	3	74	61	15	0	10	72	11	3	20	80	47	3	583
12:45 PM	63	102	56	0	65	60	9	0	15	90	22	6	17	78	48	1	632
Total	205	360	218	3	264	245	61	3	51	319	66	10	73	294	176	7	2355
01:00 PM	43	90	48	1	56	52	12	1	17	72	12	1	18	81	34	1	539
01:15 PM	44	76	36	0	60	55	11	1	13	70	14	2	15	70	31	0	498
01:30 PM	50	91	49	0	64	49	13	0	11	85	21	0	19	84	33	0	569
01:45 PM	59	82	58	0	65	60	15	1	15	93	20	2	18	75	39	0	602
Total	196	339	191	1	245	216	51	3	56	320	67	5	70	310	137	1	2208
Grand Total	545	1024	577	4	718	698	164	15	162	912	208	15	209	908	440	14	6613
Apprch %	25.3	47.6	26.8	0.2	45	43.8	10.3	0.9	12.5	70.3	16	1.2	13.3	57.8	28	0.9	
Total %	8.2	15.5	8.7	0.1	10.9	10.6	2.5	0.2	2.4	13.8	3.1	0.2	3.2	13.7	6.7	0.2	

	Bishop Street From North					Waverly Street (Route 135) From East					Bishop Street From South					Waverly Street (Route 135) 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 12:00 PM																					
12:00 PM	44	75	60	0	179	54	75	22	1	152	11	83	16	0	110	16	79	43	3	141	582
12:15 PM	48	103	48	0	199	71	49	15	2	137	15	74	17	1	107	20	57	38	0	115	558
12:30 PM	50	80	54	3	187	74	61	15	0	150	10	72	11	3	96	20	80	47	3	150	583
12:45 PM	63	102	56	0	221	65	60	9	0	134	15	90	22	6	133	17	78	48	1	144	632
Total Volume	205	360	218	3	786	264	245	61	3	573	51	319	66	10	446	73	294	176	7	550	2355
% App. Total	26.1	45.8	27.7	0.4		46.1	42.8	10.6	0.5		11.4	71.5	14.8	2.2		13.3	53.5	32	1.3		
PHF	.813	.874	.908	.250	.889	.892	.817	.693	.375	.942	.850	.886	.750	.417	.838	.913	.919	.917	.583	.917	.932

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City, State: Framingham, MA
Client: VAI/B. Guen

File Name : 04626AAA
Site Code : 7156
Start Date : 10/24/2015
Page No : 1

Groups Printed- Trucks & Buses

	Bishop Street From North				Waverly Street (Route 135) From East				Bishop Street From South				Waverly Street (Route 135) 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	1	0	0	2	0	0	0	0	1	0	0	4
11:15 AM	1	0	0	0	0	1	3	0	0	0	0	0	0	1	0	0	6
11:30 AM	0	0	0	0	0	2	0	0	2	1	0	0	0	0	0	0	5
11:45 AM	0	1	0	0	0	1	0	0	0	1	1	0	0	0	0	0	4
Total	1	1	0	0	0	5	3	0	4	2	1	0	0	2	0	0	19
12:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
12:15 PM	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
12:30 PM	0	1	1	0	0	0	0	0	1	0	0	0	0	1	0	0	4
12:45 PM	0	0	0	0	2	0	0	0	1	1	0	0	0	0	0	0	4
Total	0	1	1	0	2	0	0	0	4	1	1	0	0	1	0	0	11
01:00 PM	0	1	1	0	0	2	0	0	0	0	0	0	1	1	0	0	6
01:15 PM	0	2	0	0	1	1	0	0	0	1	0	0	0	0	0	0	5
01:30 PM	0	1	1	0	0	1	0	0	0	0	0	0	0	1	0	0	4
01:45 PM	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0	3
Total	0	5	2	0	1	4	0	0	1	1	0	0	1	3	0	0	18
Grand Total	1	7	3	0	3	9	3	0	9	4	2	0	1	6	0	0	48
Apprch %	9.1	63.6	27.3	0	20	60	20	0	60	26.7	13.3	0	14.3	85.7	0	0	
Total %	2.1	14.6	6.2	0	6.2	18.8	6.2	0	18.8	8.3	4.2	0	2.1	12.5	0	0	

	Bishop Street From North					Waverly Street (Route 135) From East					Bishop Street From South					Waverly Street (Route 135) 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	1	0	0	1	2	0	0	0	2	0	1	0	0	1	4
11:15 AM	1	0	0	0	1	0	1	3	0	4	0	0	0	0	0	0	1	0	0	1	6
11:30 AM	0	0	0	0	0	0	2	0	0	2	2	1	0	0	3	0	0	0	0	0	5
11:45 AM	0	1	0	0	1	0	1	0	0	1	0	1	1	0	2	0	0	0	0	0	4
Total Volume	1	1	0	0	2	0	5	3	0	8	4	2	1	0	7	0	2	0	0	2	19
% App. Total	50	50	0	0		0	62.5	37.5	0		57.1	28.6	14.3	0		0	100	0	0		
PHF	.250	.250	.000	.000	.500	.000	.625	.250	.000	.500	.500	.500	.250	.000	.583	.000	.500	.000	.000	.500	.792

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City, State: Framingham, MA
Client: VAI/B. Guen

File Name : 04626AAA
Site Code : 7156
Start Date : 10/24/2015
Page No : 1

Groups Printed- Bikes by Direction

	Bishop Street From North				Waverly Street (Route 135) From East				Bishop Street From South				Waverly Street (Route 135) 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	4	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5
11:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	3
Total	0	6	0	0	2	0	0	0	0	0	0	0	0	1	0	0	9
12:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
12:15 PM	0	0	0	0	0	2	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	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Total	0	0	0	0	1	2	0	0	0	0	0	0	0	1	0	0	4
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	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	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
01:45 PM	0	0	1	0	0	0	0	0	1	1	0	0	0	1	0	0	4
Total	0	1	1	0	0	0	0	0	1	1	0	0	0	2	0	0	6
Grand Total	0	7	1	0	3	2	0	0	1	1	0	0	0	4	0	0	19
Apprch %	0	87.5	12.5	0	60	40	0	0	50	50	0	0	0	100	0	0	
Total %	0	36.8	5.3	0	15.8	10.5	0	0	5.3	5.3	0	0	0	21.1	0	0	

	Bishop Street From North					Waverly Street (Route 135) From East					Bishop Street From South					Waverly Street (Route 135) 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 11:15 AM																					
11:15 AM	0	4	0	0	4	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5
11:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11:45 AM	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	3
12:00 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	6	0	0	6	3	0	0	0	3	0	0	0	0	0	0	1	0	0	1	10
% App. Total	0	100	0	0		100	0	0	0		0	0	0	0		0	100	0	0		
PHF	.000	.375	.000	.000	.375	.750	.000	.000	.000	.750	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.500

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City, State: Framingham, MA
Client: VAI/B. Guen

File Name : 04626BBB
Site Code : 7156
Start Date : 10/24/2015
Page No : 1

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

	Bishop Street From North			Bishop Street From South			Howard Street From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
11:00 AM	3	99	0	123	42	0	42	0	4	313
11:15 AM	2	90	0	105	51	0	63	0	0	311
11:30 AM	2	124	2	82	41	0	61	0	0	312
11:45 AM	3	106	1	141	41	0	53	0	0	345
Total	10	419	3	451	175	0	219	0	4	1281
12:00 PM	1	110	5	135	52	0	61	0	0	364
12:15 PM	3	126	3	123	60	0	75	0	3	393
12:30 PM	0	120	0	145	47	1	66	0	0	379
12:45 PM	2	143	0	151	57	0	83	1	1	438
Total	6	499	8	554	216	1	285	1	4	1574
01:00 PM	0	125	2	111	49	1	54	0	0	342
01:15 PM	9	101	0	124	46	0	49	0	0	329
01:30 PM	5	129	0	125	61	0	86	0	1	407
01:45 PM	4	126	2	137	66	0	82	1	0	418
Total	18	481	4	497	222	1	271	1	1	1496
Grand Total	34	1399	15	1502	613	2	775	2	9	4351
Apprch %	2.3	96.6	1	70.9	29	0.1	98.6	0.3	1.1	
Total %	0.8	32.2	0.3	34.5	14.1	0	17.8	0	0.2	
Cars & Peds	32	1386	15	1496	608	2	770	2	8	4319
% Cars & Peds	94.1	99.1	100	99.6	99.2	100	99.4	100	88.9	99.3
Trucks & Buses	0	7	0	3	4	0	3	0	0	17
% Trucks & Buses	0	0.5	0	0.2	0.7	0	0.4	0	0	0.4
Bikes by Direction	2	6	0	3	1	0	2	0	1	15
% Bikes by Direction	5.9	0.4	0	0.2	0.2	0	0.3	0	11.1	0.3

	Bishop Street From North				Bishop Street From South				Howard Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 12:00 PM													
12:00 PM	1	110	5	116	135	52	0	187	61	0	0	61	364
12:15 PM	3	126	3	132	123	60	0	183	75	0	3	78	393
12:30 PM	0	120	0	120	145	47	1	193	66	0	0	66	379
12:45 PM	2	143	0	145	151	57	0	208	83	1	1	85	438
Total Volume	6	499	8	513	554	216	1	771	285	1	4	290	1574
% App. Total	1.2	97.3	1.6		71.9	28	0.1		98.3	0.3	1.4		
PHF	.500	.872	.400	.884	.917	.900	.250	.927	.858	.250	.333	.853	.898
Cars & Peds	6	498	8	512	553	213	1	767	283	1	4	288	1567
% Cars & Peds	100	99.8	100	99.8	99.8	98.6	100	99.5	99.3	100	100	99.3	99.6
Trucks & Buses	0	0	0	0	1	3	0	4	1	0	0	1	5
% Trucks & Buses	0	0	0	0	0.2	1.4	0	0.5	0.4	0	0	0.3	0.3
Bikes by Direction	0	1	0	1	0	0	0	0	1	0	0	1	2
% Bikes by Direction	0	0.2	0	0.2	0	0	0	0	0.4	0	0	0.3	0.1

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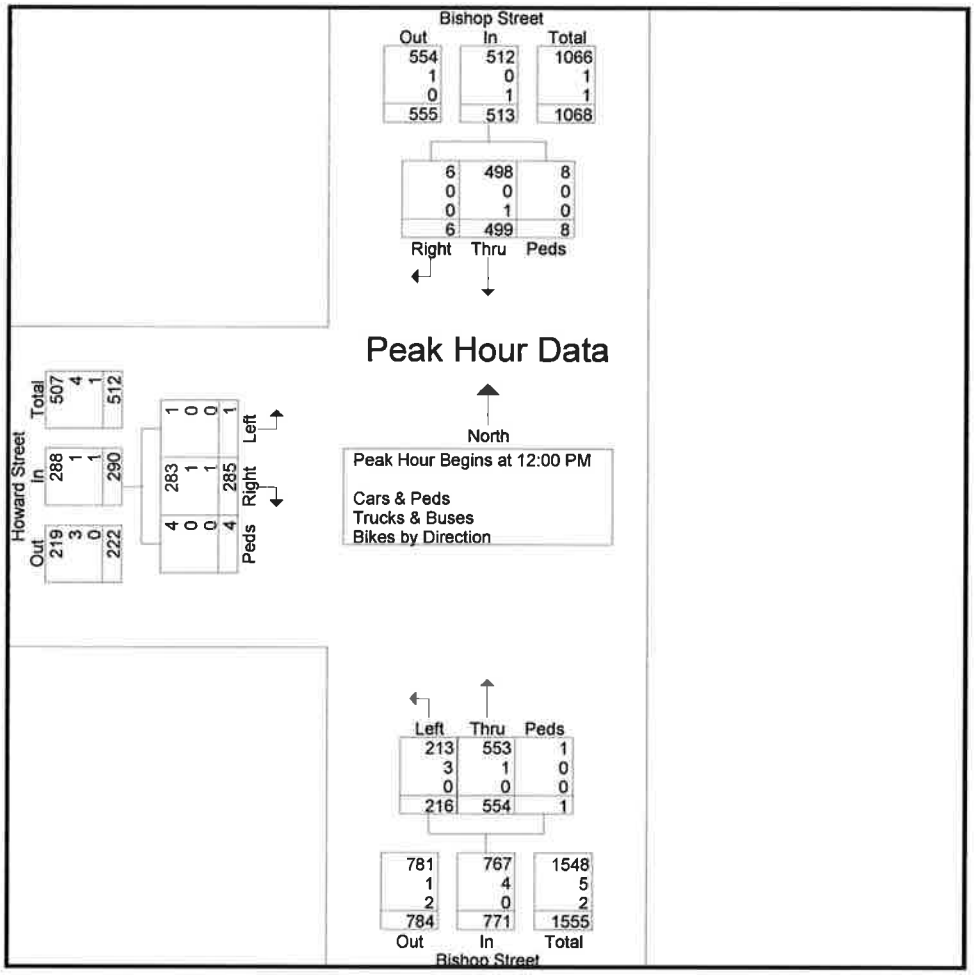
File Name : 04626BBB
Site Code : 7156
Start Date : 10/24/2015
Page No : 1

	Bishop Street From North				Bishop Street From South				Howard Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 12:00 PM													
12:00 PM	1	110	5	116	135	52	0	187	61	0	0	61	364
12:15 PM	3	126	3	132	123	60	0	183	75	0	3	78	393
12:30 PM	0	120	0	120	145	47	1	193	66	0	0	66	379
12:45 PM	2	143	0	145	151	57	0	208	83	1	1	85	438
Total Volume	6	499	8	513	554	216	1	771	285	1	4	290	1574
% App. Total	1.2	97.3	1.6		71.9	28	0.1		98.3	0.3	1.4		
PHF	.500	.872	.400	.884	.917	.900	.250	.927	.858	.250	.333	.853	.898
Cars & Peds	6	498	8	512	553	213	1	767	283	1	4	288	1567
% Cars & Peds	100	99.8	100	99.8	99.8	98.6	100	99.5	99.3	100	100	99.3	99.6
Trucks & Buses	0	0	0	0	1	3	0	4	1	0	0	1	5
% Trucks & Buses	0	0	0	0	0.2	1.4	0	0.5	0.4	0	0	0.3	0.3
Bikes by Direction	0	1	0	1	0	0	0	0	1	0	0	1	2
% Bikes by Direction	0	0.2	0	0.2	0	0	0	0	0.4	0	0	0.3	0.1



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City, State: Framingham, MA
Client: VAI/B. Guen

File Name : 04626BBB
Site Code : 7156
Start Date : 10/24/2015
Page No : 1

Groups Printed- Cars & Peds

	Bishop Street From North			Bishop Street From South			Howard Street From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
11:00 AM	3	99	0	123	42	0	42	0	4	313
11:15 AM	1	86	0	104	50	0	63	0	0	304
11:30 AM	2	123	2	81	41	0	61	0	0	310
11:45 AM	3	105	1	139	41	0	52	0	0	341
Total	9	413	3	447	174	0	218	0	4	1268
12:00 PM	1	110	5	135	52	0	61	0	0	364
12:15 PM	3	125	3	122	60	0	75	0	3	391
12:30 PM	0	120	0	145	47	1	65	0	0	378
12:45 PM	2	143	0	151	54	0	82	1	1	434
Total	6	498	8	553	213	1	283	1	4	1567
01:00 PM	0	124	2	111	49	1	53	0	0	340
01:15 PM	9	99	0	123	45	0	49	0	0	325
01:30 PM	5	127	0	125	61	0	85	0	0	403
01:45 PM	3	125	2	137	66	0	82	1	0	416
Total	17	475	4	496	221	1	269	1	0	1484
Grand Total	32	1386	15	1496	608	2	770	2	8	4319
Apprch %	2.2	96.7	1	71	28.9	0.1	98.7	0.3	1	
Total %	0.7	32.1	0.3	34.6	14.1	0	17.8	0	0.2	

	Bishop Street From North				Bishop Street From South				Howard Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 12:00 PM													
12:00 PM	1	110	**5**	116	135	52	0	187	61	0	0	61	364
12:15 PM	**3**	125	3	131	122	**60**	0	182	75	0	**3**	78	391
12:30 PM	0	120	0	120	145	47	**1**	193	65	0	0	65	378
12:45 PM	2	**143**	0	**145**	**151**	54	0	**205**	**82**	**1**	1	**84**	**434**
Total Volume	6	498	8	512	553	213	1	767	283	1	4	288	1567
% App. Total	1.2	97.3	1.6		72.1	27.8	0.1		98.3	0.3	1.4		
PHF	.500	.871	.400	.883	.916	.888	.250	.935	.863	.250	.333	.857	.903

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N/S: Bishop Street
W: Howard Street
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Client: VAI/B. Guen

File Name : 04626BBB
Site Code : 7156
Start Date : 10/24/2015
Page No : 1

Groups Printed- Trucks & Buses

	Bishop Street From North			Bishop Street From South			Howard Street From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	1	0	0	0	0	0	0	0	1
11:30 AM	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	1	0	0	0	0	0	1
Total	0	1	0	1	0	0	0	0	0	2
12:00 PM	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	1	0	0	0	0	0	1
12:30 PM	0	0	0	0	0	0	1	0	0	1
12:45 PM	0	0	0	0	3	0	0	0	0	3
Total	0	0	0	1	3	0	1	0	0	5
01:00 PM	0	1	0	0	0	0	1	0	0	2
01:15 PM	0	2	0	1	1	0	0	0	0	4
01:30 PM	0	2	0	0	0	0	1	0	0	3
01:45 PM	0	1	0	0	0	0	0	0	0	1
Total	0	6	0	1	1	0	2	0	0	10
Grand Total	0	7	0	3	4	0	3	0	0	17
Apprch %	0	100	0	42.9	57.1	0	100	0	0	
Total %	0	41.2	0	17.6	23.5	0	17.6	0	0	

	Bishop Street From North				Bishop Street From South				Howard Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 12:00 PM													
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
12:30 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
12:45 PM	0	0	0	0	0	3	0	3	0	0	0	0	3
Total Volume	0	0	0	0	1	3	0	4	1	0	0	1	5
% App. Total	0	0	0		25	75	0		100	0	0		
PHF	.000	.000	.000	.000	.250	.250	.000	.333	.250	.000	.000	.250	.417

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Client: VAI/B. Guen

File Name : 04626BBB
Site Code : 7156
Start Date : 10/24/2015
Page No : 1

Groups Printed- Bikes by Direction

	Bishop Street From North			Bishop Street From South			Howard Street From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
11:00 AM	0	0	0	0	0	0	0	0	0	0
11:15 AM	1	3	0	1	1	0	0	0	0	6
11:30 AM	0	1	0	1	0	0	0	0	0	2
11:45 AM	0	1	0	1	0	0	1	0	0	3
Total	1	5	0	3	1	0	1	0	0	11
12:00 PM	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	1	0	0	0	0	0	0	0	1
12:30 PM	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	1	0	0	1
Total	0	1	0	0	0	0	1	0	0	2
01:00 PM	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0	0	1	1
01:45 PM	1	0	0	0	0	0	0	0	0	1
Total	1	0	0	0	0	0	0	0	1	2
Grand Total	2	6	0	3	1	0	2	0	1	15
Apprch %	25	75	0	75	25	0	66.7	0	33.3	
Total %	13.3	40	0	20	6.7	0	13.3	0	6.7	

	Bishop Street From North				Bishop Street From South				Howard Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 11:00 AM													
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	1	3	0	4	1	1	0	2	0	0	0	0	6
11:30 AM	0	1	0	1	1	0	0	1	0	0	0	0	2
11:45 AM	0	1	0	1	1	0	0	1	1	0	0	1	3
Total Volume	1	5	0	6	3	1	0	4	1	0	0	1	11
% App. Total	16.7	83.3	0		75	25	0		100	0	0		
PHF	.250	.417	.000	.375	.750	.250	.000	.500	.250	.000	.000	.250	.458

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Client: VAI/B. Guen

File Name : 04626CCC
Site Code : 7156
Start Date : 10/24/2015
Page No : 1

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

	Bishop Street From North				Clark Street From East				Bishop Street From South				Clark Street 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	91	0	0	1	0	0	0	1	113	14	0	7	0	4	1	232
11:15 AM	0	87	0	1	0	0	0	2	0	83	17	2	6	0	3	3	204
11:30 AM	1	102	1	0	0	0	1	0	0	83	10	0	10	0	2	1	211
11:45 AM	4	83	0	0	0	0	0	0	0	127	15	1	8	0	1	0	239
Total	5	363	1	1	1	0	1	2	1	406	56	3	31	0	10	5	886
12:00 PM	4	99	0	0	0	0	0	1	0	109	19	0	11	0	1	1	245
12:15 PM	2	96	0	0	0	0	0	0	1	94	15	1	14	0	4	5	232
12:30 PM	3	105	0	1	0	0	0	1	0	131	10	0	5	0	1	0	257
12:45 PM	1	104	0	0	1	0	0	0	0	128	16	0	8	1	2	2	263
Total	10	404	0	1	1	0	0	2	1	462	60	1	38	1	8	8	997
01:00 PM	1	106	0	0	0	0	1	0	0	109	9	0	7	0	3	0	236
01:15 PM	5	104	0	0	0	0	0	1	0	109	19	0	5	0	2	0	245
01:30 PM	0	121	0	0	1	0	0	0	1	114	4	0	14	0	4	0	259
01:45 PM	1	106	0	0	0	1	0	0	0	116	14	0	10	0	2	0	250
Total	7	437	0	0	1	1	1	1	1	448	46	0	36	0	11	0	990
Grand Total	22	1204	1	2	3	1	2	5	3	1316	162	4	105	1	29	13	2873
Apprch %	1.8	98	0.1	0.2	27.3	9.1	18.2	45.5	0.2	88.6	10.9	0.3	70.9	0.7	19.6	8.8	
Total %	0.8	41.9	0	0.1	0.1	0	0.1	0.2	0.1	45.8	5.6	0.1	3.7	0	1	0.5	
Cars & Peds	21	1197	1	2	3	0	2	5	3	1310	162	4	105	1	28	13	2857
% Cars & Peds	95.5	99.4	100	100	100	0	100	100	100	99.5	100	100	100	100	96.6	100	99.4
Trucks & Buses	1	3	0	0	0	0	0	0	0	2	0	0	0	0	1	0	7
% Trucks & Buses	4.5	0.2	0	0	0	0	0	0	0	0.2	0	0	0	0	3.4	0	0.2
Bikes by Direction	0	4	0	0	0	1	0	0	0	4	0	0	0	0	0	0	9
% Bikes by Direction	0	0.3	0	0	0	100	0	0	0	0.3	0	0	0	0	0	0	0.3

	Bishop Street From North					Clark Street From East					Bishop Street From South					Clark Street 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 01:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:30 PM																					
12:30 PM	3	105	0	1	109	0	0	0	1	1	0	131	10	0	141	5	0	1	0	6	257
12:45 PM	1	104	0	0	105	1	0	0	0	1	0	128	16	0	144	8	1	2	2	13	263
01:00 PM	1	106	0	0	107	0	0	1	0	1	0	109	9	0	118	7	0	3	0	10	236
01:15 PM	5	104	0	0	109	0	0	0	1	1	0	109	19	0	128	5	0	2	0	7	245
Total Volume	10	419	0	1	430	1	0	1	2	4	0	477	54	0	531	25	1	8	2	36	1001
% App. Total	2.3	97.4	0	0.2		25	0	25	50		0	89.8	10.2	0		69.4	2.8	22.2	5.6		
PHF	.500	.988	.000	.250	.986	.250	.000	.250	.500	1.000	.000	.910	.711	.000	.922	.781	.250	.667	.250	.692	.952
Cars & Peds	10	418	0	1	429	1	0	1	2	4	0	476	54	0	530	25	1	8	2	36	999
% Cars & Peds	100	99.8	0	100	99.8	100	0	100	100	100	0	99.8	100	0	99.8	100	100	100	100	100	99.8
Trucks & Buses	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Trucks & Buses	0	0.2	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0	0.2	0	0	0	0	0	0.1

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File Name : 04626CCC
Site Code : 7156
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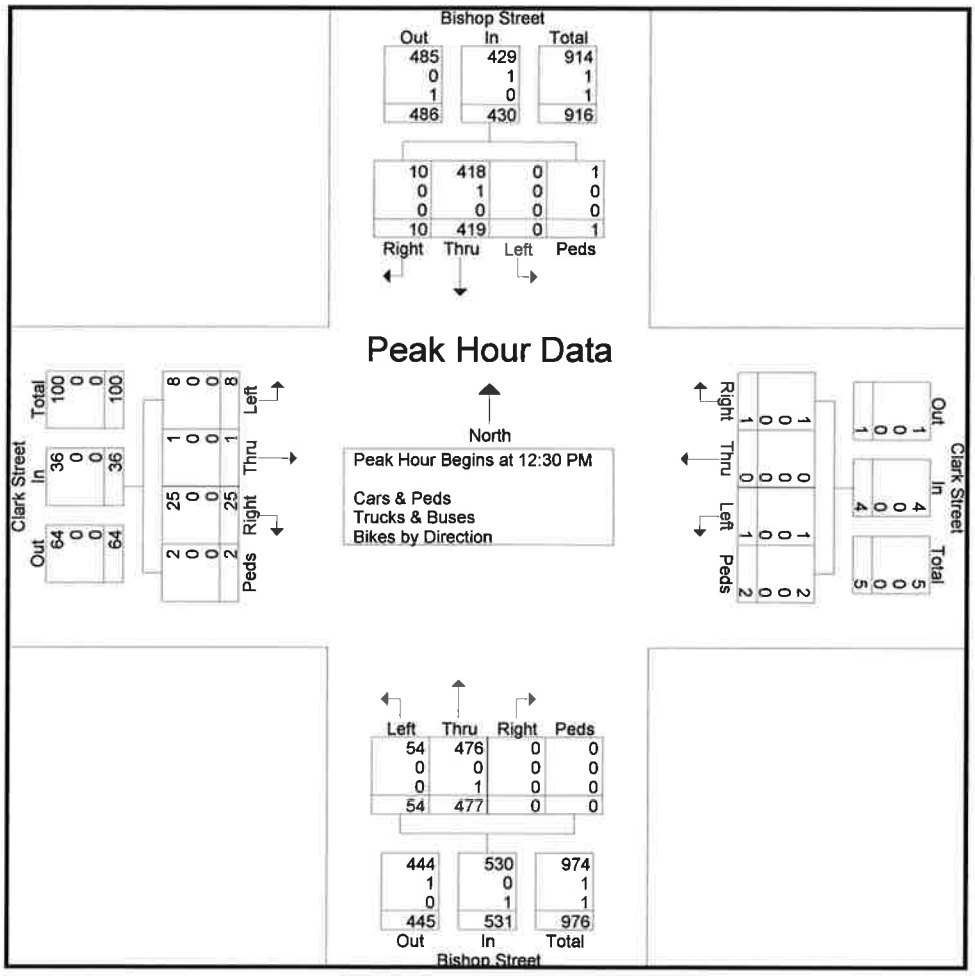
	Bishop Street From North					Clark Street From East					Bishop Street From South					Clark Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:30 PM																					
12:30 PM	3	105	0	1	109	0	0	0	1	1	0	131	10	0	141	5	0	1	0	6	257
12:45 PM	1	104	0	0	105	1	0	0	0	1	0	128	16	0	144	8	1	2	2	13	263
01:00 PM	1	106	0	0	107	0	0	1	0	1	0	109	9	0	118	7	0	3	0	10	236
01:15 PM	5	104	0	0	109	0	0	0	1	1	0	109	19	0	128	5	0	2	0	7	245
Total Volume	10	419	0	1	430	1	0	1	2	4	0	477	54	0	531	25	1	8	2	36	1001
% App. Total	2.3	97.4	0	0.2		25	0	25	50		0	89.8	10.2	0		69.4	2.8	22.2	5.6		
PHF	.500	.988	.000	.250	.986	.250	.000	.250	.500	1.000	.000	.910	.711	.000	.922	.781	.250	.667	.250	.692	.952
Cars & Peds	10	418	0	1	429	1	0	1	2	4	0	476	54	0	530	25	1	8	2	36	999
% Cars & Peds	100	99.8	0	100	99.8	100	0	100	100	100	0	99.8	100	0	99.8	100	100	100	100	100	99.8
Trucks & Buses	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Trucks & Buses	0	0.2	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0	0.2	0	0	0	0	0	0.1



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Groups Printed- Cars & Peds

	Bishop Street From North				Clark Street From East				Bishop Street From South				Clark Street 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	91	0	0	1	0	0	0	1	113	14	0	7	0	4	1	232
11:15 AM	0	85	0	1	0	0	0	2	0	83	17	2	6	0	3	3	202
11:30 AM	0	102	1	0	0	0	1	0	0	82	10	0	10	0	1	1	208
11:45 AM	4	83	0	0	0	0	0	0	0	124	15	1	8	0	1	0	236
Total	4	361	1	1	1	0	1	2	1	402	56	3	31	0	9	5	878
12:00 PM	4	99	0	0	0	0	0	1	0	109	19	0	11	0	1	1	245
12:15 PM	2	96	0	0	0	0	0	0	1	94	15	1	14	0	4	5	232
12:30 PM	3	105	0	1	0	0	0	1	0	131	10	0	5	0	1	0	257
12:45 PM	1	104	0	0	1	0	0	0	0	127	16	0	8	1	2	2	262
Total	10	404	0	1	1	0	0	2	1	461	60	1	38	1	8	8	996
01:00 PM	1	106	0	0	0	0	1	0	0	109	9	0	7	0	3	0	236
01:15 PM	5	103	0	0	0	0	0	1	0	109	19	0	5	0	2	0	244
01:30 PM	0	119	0	0	1	0	0	0	1	114	4	0	14	0	4	0	257
01:45 PM	1	104	0	0	0	0	0	0	0	115	14	0	10	0	2	0	246
Total	7	432	0	0	1	0	1	1	1	447	46	0	36	0	11	0	983
Grand Total	21	1197	1	2	3	0	2	5	3	1310	162	4	105	1	28	13	2857
Apprch %	1.7	98	0.1	0.2	30	0	20	50	0.2	88.6	11	0.3	71.4	0.7	19	8.8	
Total %	0.7	41.9	0	0.1	0.1	0	0.1	0.2	0.1	45.9	5.7	0.1	3.7	0	1	0.5	

	Bishop Street From North					Clark Street From East					Bishop Street From South					Clark Street 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 01:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:30 PM																					
12:30 PM	3	105	0	1	109	0	0	0	1	1	0	131	10	0	141	5	0	1	0	6	257
12:45 PM	1	104	0	0	105	1	0	0	0	1	0	127	16	0	143	8	1	2	2	13	262
01:00 PM	1	106	0	0	107	0	0	1	0	1	0	109	9	0	118	7	0	3	0	10	236
01:15 PM	5	103	0	0	108	0	0	0	1	1	0	109	19	0	128	5	0	2	0	7	244
Total Volume	10	418	0	1	429	1	0	1	2	4	0	476	54	0	530	25	1	8	2	36	999
% App. Total	2.3	97.4	0	0.2		25	0	25	50		0	89.8	10.2	0		69.4	2.8	22.2	5.6		
PHF	.500	.986	.000	.250	.984	.250	.000	.250	.500	1.000	.000	.908	.711	.000	.927	.781	.250	.667	.250	.692	.953

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File Name : 04626CCC
Site Code : 7156
Start Date : 10/24/2015
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Groups Printed- Trucks & Buses

	Bishop Street From North				Clark Street From East				Bishop Street From South				Clark Street 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	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11:30 AM	1	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	3
11:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Total	1	1	0	0	0	0	0	0	0	2	0	0	0	0	1	0	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	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	0	0
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	0	0	1
01:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Grand Total	1	3	0	0	0	0	0	0	0	2	0	0	0	0	1	0	7
Apprch %	25	75	0	0	0	0	0	0	0	100	0	0	0	0	100	0	
Total %	14.3	42.9	0	0	0	0	0	0	0	28.6	0	0	0	0	14.3	0	

	Bishop Street From North					Clark Street From East					Bishop Street From South					Clark Street 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 01:15 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	0	0	0	0
11:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11:30 AM	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	3
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total Volume	1	1	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	5
% App. Total	50	50	0	0		0	0	0	0		0	100	0	0		0	0	100	0		
PHF	.250	.250	.000	.000	.500	.000	.000	.000	.000	.000	.000	.500	.000	.000	.500	.000	.000	.250	.000	.250	.417

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City, State: Framingham, MA
Client: VAI/B. Guen

File Name : 04626CCC
Site Code : 7156
Start Date : 10/24/2015
Page No : 1

Groups Printed- Bikes by Direction

	Bishop Street From North				Clark Street From East				Bishop Street From South				Clark Street 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	1	0	0	0	0	0	0	0	0	0	0	0	0	0	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	2	0	0	0	0	0	0	2
Total	0	1	0	0	0	0	0	0	0	2	0	0	0	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	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	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
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
01:45 PM	0	2	0	0	0	1	0	0	0	1	0	0	0	0	0	0	4
Total	0	3	0	0	0	1	0	0	0	1	0	0	0	0	0	0	5
Grand Total	0	4	0	0	0	1	0	0	0	4	0	0	0	0	0	0	9
Apprch %	0	100	0	0	0	100	0	0	0	100	0	0	0	0	0	0	
Total %	0	44.4	0	0	0	11.1	0	0	0	44.4	0	0	0	0	0	0	

	Bishop Street From North					Clark Street From East					Bishop Street From South					Clark Street 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 01:15 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	0	0	0	0
11:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	2	0	0	2	0	0	0	0	0	2
Total Volume	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.375

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City, State: Framingham, MA
Client: VAI/B. Guen

File Name : 04626DDD
Site Code : 7156
Start Date : 10/24/2015
Page No : 1

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

	Bishop Street From North				Lawrence Street From East				Bishop Street From South				Lawrence Street 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	1	89	0	0	0	0	0	0	0	112	3	0	1	0	3	2	211
11:15 AM	3	85	0	0	0	0	0	0	0	87	2	0	2	0	0	3	182
11:30 AM	2	106	0	0	1	0	0	0	0	80	5	0	2	0	3	1	200
11:45 AM	2	83	0	0	0	0	0	0	1	127	2	0	2	0	3	2	222
Total	8	363	0	0	1	0	0	0	1	406	12	0	7	0	9	8	815
12:00 PM	0	102	0	0	0	1	0	1	0	110	5	0	4	1	5	4	233
12:15 PM	0	92	0	0	0	0	0	0	0	94	5	0	5	0	1	4	201
12:30 PM	3	100	0	1	0	0	0	0	0	126	4	0	6	0	3	1	244
12:45 PM	3	99	0	0	0	0	0	0	0	125	4	0	4	0	2	1	238
Total	6	393	0	1	0	1	0	1	0	455	18	0	19	1	11	10	916
01:00 PM	3	104	0	0	0	0	0	0	0	100	2	0	5	0	3	1	218
01:15 PM	3	104	0	0	0	0	0	1	0	102	6	0	6	0	3	0	225
01:30 PM	4	117	0	0	0	0	0	0	0	114	5	0	2	0	0	0	242
01:45 PM	0	99	0	0	0	0	0	0	0	113	5	0	6	0	1	1	225
Total	10	424	0	0	0	0	0	1	0	429	18	0	19	0	7	2	910
Grand Total	24	1180	0	1	1	1	0	2	1	1290	48	0	45	1	27	20	2641
Apprch %	2	97.9	0	0.1	25	25	0	50	0.1	96.3	3.6	0	48.4	1.1	29	21.5	
Total %	0.9	44.7	0	0	0	0	0	0.1	0	48.8	1.8	0	1.7	0	1	0.8	
Cars & Peds	24	1171	0	1	1	1	0	2	1	1283	48	0	44	1	27	20	2624
% Cars & Peds	100	99.2	0	100	100	100	0	100	100	99.5	100	0	97.8	100	100	100	99.4
Trucks & Buses	0	4	0	0	0	0	0	0	0	3	0	0	0	0	0	0	7
% Trucks & Buses	0	0.3	0	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0.3
Bikes by Direction	0	5	0	0	0	0	0	0	0	4	0	0	1	0	0	0	10
% Bikes by Direction	0	0.4	0	0	0	0	0	0	0	0.3	0	0	2.2	0	0	0	0.4

	Bishop Street From North					Lawrence Street From East					Bishop Street From South					Lawrence Street 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 01:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:30 PM																					
12:30 PM	3	100	0	1	104	0	0	0	0	0	0	126	4	0	130	6	0	3	1	10	244
12:45 PM	3	99	0	0	102	0	0	0	0	0	0	125	4	0	129	4	0	2	1	7	238
01:00 PM	3	104	0	0	107	0	0	0	0	0	0	100	2	0	102	5	0	3	1	9	218
01:15 PM	3	104	0	0	107	0	0	0	1	1	0	102	6	0	108	6	0	3	0	9	225
Total Volume	12	407	0	1	420	0	0	0	1	1	0	453	16	0	469	21	0	11	3	35	925
% App. Total	2.9	96.9	0	0.2		0	0	0	100		0	96.6	3.4	0		60	0	31.4	8.6		
PHF	1.000	.978	.000	.250	.981	.000	.000	.000	.250	.250	.000	.899	.667	.000	.902	.875	.000	.917	.750	.875	.948
Cars & Peds	12	406	0	1	419	0	0	0	1	1	0	452	16	0	468	21	0	11	3	35	923
% Cars & Peds	100	99.8	0	100	99.8	0	0	0	100	100	0	99.8	100	0	99.8	100	0	100	100	100	99.8
Trucks & Buses	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Trucks & Buses	0	0.2	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0	0.2	0	0	0	0	0	0.1

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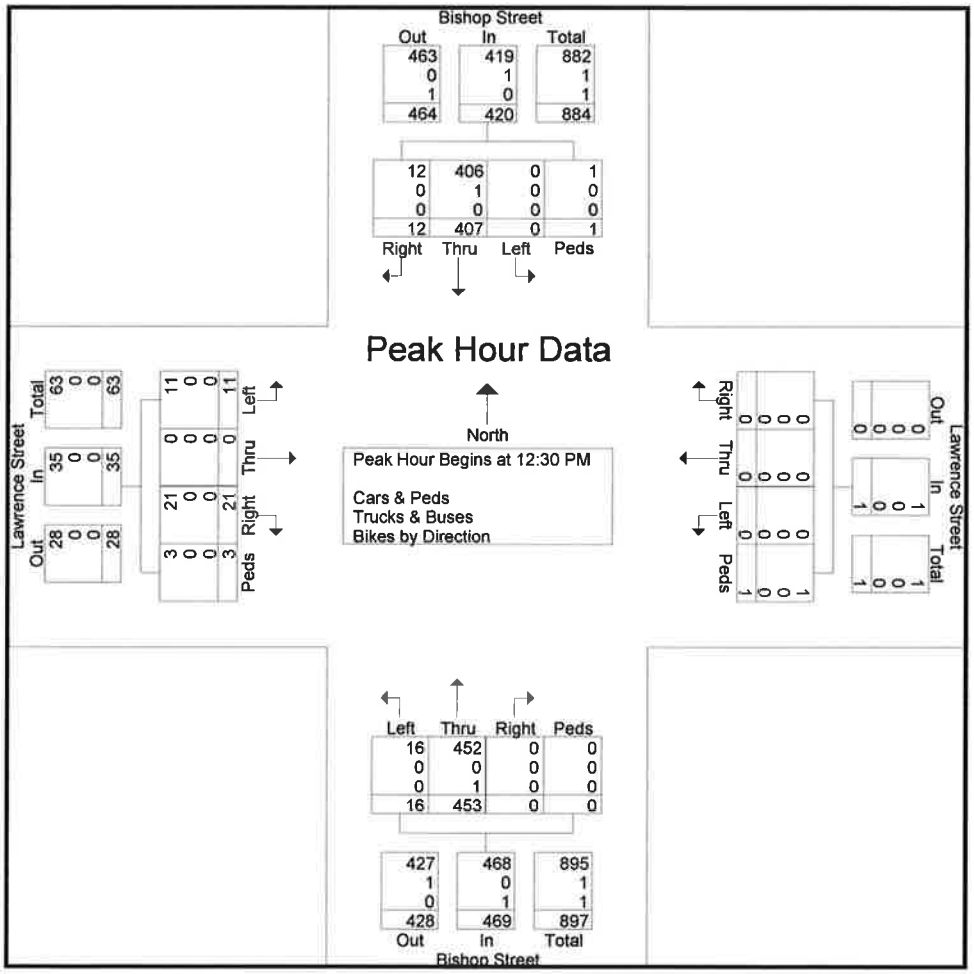
City, State: Framingham, MA
Client: VAI/B. Guen

File Name : 04626DDD
Site Code : 7156
Start Date : 10/24/2015
Page No : 1

	Bishop Street From North					Lawrence Street From East					Bishop Street From South					Lawrence Street 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 01:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:30 PM																					
12:30 PM	**3**	100	0	**1**	104	0	0	0	0	0	0	**126**	**4**	0	**130**	**6**	**0**	**3**	**1**	**10**	**244**
12:45 PM	3	99	0	0	102	0	0	0	0	0	0	125	**4**	0	129	**4**	**0**	2	**1**	7	238
01:00 PM	3	**104**	0	0	**107**	0	0	0	0	0	0	100	2	0	102	5	**0**	3	**1**	9	218
01:15 PM	**3**	**104**	**0**	**0**	**107**	**0**	**0**	**0**	**1**	**1**	**0**	**102**	**6**	**0**	**108**	**6**	**0**	**3**	**0**	**9**	**225**
Total Volume	12	407	0	1	420	0	0	0	1	1	0	453	16	0	469	21	0	11	3	35	925
% App. Total	2.9	96.9	0	0.2		0	0	0	100		0	96.6	3.4	0		60	0	31.4	8.6		
PHF	1.000	.978	.000	.250	.981	.000	.000	.000	.250	.250	.000	.899	.667	.000	.902	.875	.000	.917	.750	.875	.948
Cars & Peds	12	406	0	1	419	0	0	0	1	1	0	452	16	0	468	21	0	11	3	35	923
% Cars & Peds	100	99.8	0	100	99.8	0	0	0	100	100	0	99.8	100	0	99.8	100	0	100	100	100	99.8
Trucks & Buses	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Trucks & Buses	0	0.2	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1
Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
% Bikes by Direction	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0	0.2	0	0	0	0	0	0.1



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Client: VAI/B. Guen

File Name : 04626DDD
Site Code : 7156
Start Date : 10/24/2015
Page No : 1

Groups Printed- Cars & Peds

	Bishop Street From North				Lawrence Street From East				Bishop Street From South				Lawrence Street 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	1	89	0	0	0	0	0	0	0	112	3	0	1	0	3	2	211
11:15 AM	3	82	0	0	0	0	0	0	0	87	2	0	2	0	0	3	179
11:30 AM	2	104	0	0	1	0	0	0	0	78	5	0	2	0	3	1	196
11:45 AM	2	83	0	0	0	0	0	0	1	124	2	0	2	0	3	2	219
Total	8	358	0	0	1	0	0	0	1	401	12	0	7	0	9	8	805
12:00 PM	0	102	0	0	0	1	0	1	0	110	5	0	4	1	5	4	233
12:15 PM	0	92	0	0	0	0	0	0	0	94	5	0	5	0	1	4	201
12:30 PM	3	100	0	1	0	0	0	0	0	126	4	0	6	0	3	1	244
12:45 PM	3	99	0	0	0	0	0	0	0	124	4	0	4	0	2	1	237
Total	6	393	0	1	0	1	0	1	0	454	18	0	19	1	11	10	915
01:00 PM	3	104	0	0	0	0	0	0	0	100	2	0	5	0	3	1	218
01:15 PM	3	103	0	0	0	0	0	1	0	102	6	0	6	0	3	0	224
01:30 PM	4	116	0	0	0	0	0	0	0	114	5	0	1	0	0	0	240
01:45 PM	0	97	0	0	0	0	0	0	0	112	5	0	6	0	1	1	222
Total	10	420	0	0	0	0	0	1	0	428	18	0	18	0	7	2	904
Grand Total	24	1171	0	1	1	1	0	2	1	1283	48	0	44	1	27	20	2624
Apprch %	2	97.9	0	0.1	25	25	0	50	0.1	96.3	3.6	0	47.8	1.1	29.3	21.7	
Total %	0.9	44.6	0	0	0	0	0	0.1	0	48.9	1.8	0	1.7	0	1	0.8	

	Bishop Street From North					Lawrence Street From East					Bishop Street From South					Lawrence Street 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 01:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:30 PM																					
12:30 PM	3	100	0	1	104	0	0	0	0	0	0	126	4	0	130	6	0	3	1	10	244
12:45 PM	3	99	0	0	102	0	0	0	0	0	0	124	4	0	128	4	0	2	1	7	237
01:00 PM	3	104	0	0	107	0	0	0	0	0	0	100	2	0	102	5	0	3	1	9	218
01:15 PM	3	103	0	0	106	0	0	0	1	1	0	102	6	0	108	6	0	3	0	9	224
Total Volume	12	406	0	1	419	0	0	0	1	1	0	452	16	0	468	21	0	11	3	35	923
% App. Total	2.9	96.9	0	0.2		0	0	0	100		0	96.6	3.4	0		60	0	31.4	8.6		
PHF	1.000	.976	.000	.250	.979	.000	.000	.000	.250	.250	.000	.897	.667	.000	.900	.875	.000	.917	.750	.875	.946

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Client: VAI/B. Guen

File Name : 04626DDD
Site Code : 7156
Start Date : 10/24/2015
Page No : 1

Groups Printed- Trucks & Buses

	Bishop Street From North				Lawrence Street From East				Bishop Street From South				Lawrence Street 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	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11:30 AM	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	3
11:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Total	0	2	0	0	0	0	0	0	0	3	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	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	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	0	0
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	0	0	1
01:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
01:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Grand Total	0	4	0	0	0	0	0	0	0	3	0	0	0	0	0	0	7
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	0	0	0	0	
Total %	0	57.1	0	0	0	0	0	0	0	42.9	0	0	0	0	0	0	

	Bishop Street From North					Lawrence Street From East					Bishop Street From South					Lawrence Street 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 01:15 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	0	0	0	0
11:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
11:30 AM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total Volume	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	5
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.500	.000	.000	.500	.000	.000	.000	.000	.000	.000	.375	.000	.000	.375	.000	.000	.000	.000	.000	.417

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N/S: Bishop Street
E/W: Lawrence Street
City, State: Framingham, MA
Client: VAI/B. Guen

File Name : 04626DDD
Site Code : 7156
Start Date : 10/24/2015
Page No : 1

Groups Printed- Bikes by Direction

	Bishop Street From North				Lawrence Street From East				Bishop Street From South				Lawrence Street 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	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
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	2	0	0	0	0	0	0	2
Total	0	3	0	0	0	0	0	0	0	2	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	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	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
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	1	0	0	0	1
01:45 PM	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
Total	0	2	0	0	0	0	0	0	0	1	0	0	1	0	0	0	4
Grand Total	0	5	0	0	0	0	0	0	0	4	0	0	1	0	0	0	10
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	100	0	0	0	
Total %	0	50	0	0	0	0	0	0	0	40	0	0	10	0	0	0	

	Bishop Street From North					Lawrence Street From East					Bishop Street From South					Lawrence Street 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 01:15 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	0	0	0	0
11:15 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
11:30 AM	0	1	0	0	1	0	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	0	0	2	0	0	2	0	0	0	0	0	2
Total Volume	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	5
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.375	.000	.000	.375	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.625

SEASONAL ADJUSTMENT DATA

2 AVERAGE DAILY TRAFFIC

2.1 FUNCTIONAL CLASSIFICATION OF ROADWAYS

NMCOG uses the HPMS Road Inventory Functional Classification Code for the Commonwealth of Massachusetts in categorizing each count performed. The classification of roadways is produced by MassDOT with funding provided by the Federal Highway Administration (FHWA) through its State Planning and Research Program. The counts are separated into urban (U) or rural (R) designations and coded based on the following functional classifications:

0 = Local
1 = Interstate
2 = Principal Arterial
3 = Rural Minor Arterial or Urban Principal Arterial
5 = Urban Minor Arterial or Rural Major Collector
6 = Urban Collector or Rural Minor Collector

These classifications are determined based on the role the roadway plays within the transportation network. The level of mobility for each class increases from the low mobility local road class to the high mobility Interstate classification. Providing an example to further explain the classifications, the traffic count location "Rock Street East of Mount Vernon Street in Lowell" is known as a collector road in an urban area. Thus the functional classification would be designated as "U6". Map 2.1 shows the Northern Middlesex regional roadway network with functional classifications designated throughout.

2.2 AVERAGE DAILY TRAFFIC

Average Daily Traffic (ADT) counts represent the average number of vehicles passing a specified point during a 24-hour time period over an entire year. NMCOG counts specific locations for a minimum of 48 hours during the week. Data is collected and then averaged to produce average weekday traffic (AWD) volume. The AWD is then multiplied by an axle correction factor and a seasonal adjustment factor to determine the ADT volume presented in this report. A copy of MassDOT's 2013 seasonal adjustment factors and the 2013 axle correction factors is presented in Tables 2.1 and 2.1a.

Table 2.1: MassDOT Highway Division - Statewide Traffic Data Collection: 2013 Adjustment Factors

2013 Weekday Seasonal Factors Factor Group	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Group 2: Rural Major Collector, R5, R6 & R0	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 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 6: Urban Arterials, Collectors, & Rural Arterials, U2, U3, U5, U6, R2,R3	1.03	1.01	0.96	0.92	0.91	0.90	0.92	0.92	0.93	0.92	0.97	0.97

VEHICLE TRAVEL SPEED DATA

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Client: VAI/B. Guen

04626Aspeed
Site Code: 7156

Northbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	Total
10/22/15	0	1	3	3	4	4	2	0	0	0	0	0	0	17
01:00	0	0	1	1	4	4	1	0	0	0	0	0	0	11
02:00	0	0	0	1	1	0	0	0	0	0	0	0	0	2
03:00	0	0	1	2	6	3	0	0	0	0	0	0	0	12
04:00	0	0	1	1	9	10	1	0	0	0	0	0	0	22
05:00	0	0	0	11	41	19	3	0	0	0	0	0	0	74
06:00	1	10	33	116	124	38	4	1	0	0	0	0	0	327
07:00	0	4	105	215	160	31	3	2	0	0	0	0	0	520
08:00	1	12	95	252	111	24	4	0	0	0	0	0	0	499
09:00	3	7	42	164	157	28	3	0	0	0	0	0	0	404
10:00	0	10	44	102	111	40	7	1	0	0	0	0	0	315
11:00	0	2	48	136	112	33	3	1	0	0	0	0	0	335
12 PM	0	9	45	100	119	59	5	0	1	0	0	0	0	338
13:00	1	7	50	141	125	38	11	0	0	0	0	0	0	373
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	1	25	76	153	147	32	8	0	0	0	0	0	0	442
19:00	0	13	52	115	95	23	2	1	0	0	0	0	0	301
20:00	2	4	24	81	90	28	3	0	0	0	0	0	0	232
21:00	0	6	22	77	77	29	3	0	0	0	0	0	0	214
22:00	0	1	2	33	73	21	3	1	0	0	0	0	0	134
23:00	0	4	5	17	29	18	3	0	1	0	0	0	0	77
Total	9	115	649	1721	1595	482	69	7	2	0	0	0	0	4649
Percent	0.2%	2.5%	14.0%	37.0%	34.3%	10.4%	1.5%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	

Daily

15th Percentile :	25 MPH
50th Percentile :	30 MPH
85th Percentile :	35 MPH
95th Percentile :	39 MPH
Mean Speed(Average) :	30 MPH
10 MPH Pace Speed :	26-35 MPH
Number in Pace :	3316
Percent in Pace :	71.3%
Number of Vehicles > 30 MPH :	2155
Percent of Vehicles > 30 MPH :	46.4%

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Site Code: 7156

Northbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	Total
10/23/15	0	0	2	5	14	3	3	0	0	0	0	0	0	27
01:00	0	1	1	3	5	3	2	0	0	0	0	0	0	15
02:00	0	0	0	1	5	5	1	0	0	0	0	0	0	12
03:00	0	1	0	0	5	5	3	0	0	1	0	0	0	15
04:00	0	0	1	3	6	7	2	1	0	0	0	0	0	20
05:00	0	0	2	18	46	29	7	1	0	0	0	0	0	103
06:00	0	2	30	124	120	39	5	0	0	0	0	0	0	320
07:00	0	10	82	200	147	40	7	0	0	0	0	0	0	486
08:00	1	5	86	237	137	28	4	0	0	0	0	0	0	498
09:00	6	10	52	158	140	42	4	0	0	0	0	0	0	412
10:00	3	9	42	96	139	36	3	0	1	0	0	0	0	329
11:00	1	5	65	164	130	34	6	1	1	0	0	0	0	407
12 PM	0	4	79	235	120	41	8	2	0	0	0	0	0	489
13:00	0	10	37	156	138	43	8	2	0	0	0	0	0	394
14:00	0	4	55	162	122	32	9	0	0	0	0	0	0	384
15:00	0	10	66	197	97	20	2	0	0	0	0	0	0	392
16:00	2	40	152	203	86	10	0	0	0	0	0	0	0	493
17:00	0	11	104	192	104	22	1	0	0	0	0	0	0	434
18:00	4	45	130	145	46	14	0	0	0	0	0	0	0	384
19:00	0	2	54	155	145	30	4	0	0	0	0	0	0	390
20:00	1	0	22	91	113	21	6	1	0	0	0	0	0	255
21:00	0	0	16	82	90	26	4	0	0	0	0	0	0	218
22:00	0	0	15	50	81	30	10	2	0	0	0	0	0	188
23:00	0	1	6	19	39	15	2	0	0	1	0	0	0	83
Total	18	170	1099	2696	2075	575	101	10	2	2	0	0	0	6748
Percent	0.3%	2.5%	16.3%	40.0%	30.7%	8.5%	1.5%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	

Daily

15th Percentile :	24 MPH
50th Percentile :	29 MPH
85th Percentile :	35 MPH
95th Percentile :	39 MPH
Mean Speed(Average) :	30 MPH
10 MPH Pace Speed :	26-35 MPH
Number in Pace :	4771
Percent in Pace :	70.7%
Number of Vehicles > 30 MPH :	2765
Percent of Vehicles > 30 MPH :	41.0%

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04626Aspeed
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Northbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	Total
10/24/15	0	0	3	17	27	12	4	0	0	0	0	0	0	63
01:00	0	0	1	11	17	5	5	0	0	0	0	0	0	39
02:00	0	0	0	6	13	8	1	0	0	0	0	0	0	28
03:00	0	0	0	2	7	8	0	0	0	0	0	0	0	17
04:00	0	0	0	1	8	6	0	0	0	0	0	0	0	15
05:00	0	0	2	9	21	6	1	0	0	0	0	0	0	39
06:00	0	0	3	32	56	24	3	0	0	0	0	0	0	118
07:00	0	0	6	64	98	40	3	0	0	0	0	0	0	211
08:00	0	2	14	66	130	61	10	1	1	0	0	0	0	285
09:00	0	0	19	92	159	54	4	2	0	0	0	0	0	330
10:00	0	0	19	120	181	56	8	0	0	0	0	0	0	384
11:00	0	4	35	141	157	50	6	1	0	0	0	0	0	394
12 PM	0	0	51	157	201	44	8	0	0	0	0	0	0	461
13:00	0	8	28	147	164	53	11	3	1	0	0	0	0	415
14:00	0	4	46	141	175	42	6	0	1	0	0	0	0	415
15:00	0	0	19	150	145	54	12	2	0	0	0	0	0	382
16:00	0	2	25	159	166	64	3	0	0	0	0	0	0	419
17:00	1	2	42	177	167	33	4	0	0	0	0	0	0	426
18:00	1	3	35	145	137	27	3	1	0	0	0	0	0	352
19:00	0	0	19	118	120	32	2	1	0	0	0	0	0	292
20:00	0	0	15	73	92	29	2	1	0	0	0	0	0	212
21:00	0	1	19	88	64	22	2	1	0	0	0	0	0	197
22:00	0	0	12	37	56	31	7	0	0	0	0	0	0	143
23:00	0	0	8	22	60	21	9	0	0	0	0	0	0	120
Total	2	26	421	1975	2421	782	114	13	3	0	0	0	0	5757
Percent	0.0%	0.5%	7.3%	34.3%	42.1%	13.6%	2.0%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	

Daily

15th Percentile :	27 MPH
50th Percentile :	31 MPH
85th Percentile :	36 MPH
95th Percentile :	39 MPH
Mean Speed(Average) :	31 MPH
10 MPH Pace Speed :	26-35 MPH
Number in Pace :	4396
Percent in Pace :	76.4%
Number of Vehicles > 30 MPH :	3333
Percent of Vehicles > 30 MPH :	57.9%

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Northbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	Total
10/25/15	0	0	5	32	44	17	4	0	0	0	0	0	0	102
01:00	0	0	2	4	10	7	2	0	0	0	0	0	0	25
02:00	0	0	0	7	11	4	3	0	0	0	0	0	0	25
03:00	0	0	0	7	11	4	3	0	0	0	0	0	0	25
04:00	0	0	0	3	0	6	0	0	0	0	0	0	0	9
05:00	0	0	1	2	13	10	1	0	0	0	0	0	0	27
06:00	0	0	5	15	20	13	5	0	0	0	0	0	0	58
07:00	0	0	0	11	40	19	4	1	0	0	0	0	0	75
08:00	0	1	6	36	64	44	11	2	0	0	0	0	0	164
09:00	0	0	12	54	98	42	10	0	1	0	0	0	0	217
10:00	0	0	11	78	145	72	15	1	0	0	0	0	0	322
11:00	0	0	14	83	155	68	11	2	2	0	0	0	0	335
12 PM	0	1	33	136	192	53	7	3	1	0	0	0	0	426
13:00	0	0	26	120	199	70	14	0	1	0	0	0	0	430
14:00	1	0	10	99	174	50	5	4	0	0	0	0	0	343
15:00	0	0	16	93	135	49	5	2	0	0	0	0	0	300
16:00	0	1	6	70	155	46	8	0	0	0	0	0	0	286
17:00	1	3	8	80	129	55	10	2	0	0	0	0	0	288
18:00	2	2	18	114	103	20	5	0	0	0	0	0	0	264
19:00	0	0	6	66	110	19	6	0	0	0	0	0	0	207
20:00	0	3	8	45	80	31	7	0	0	0	0	0	0	174
21:00	0	0	13	39	81	27	3	0	0	0	0	0	0	163
22:00	0	0	7	27	45	15	5	1	0	0	0	0	0	100
23:00	0	1	6	13	26	12	5	0	0	0	0	0	0	63
Total	4	12	213	1234	2040	753	149	18	5	0	0	0	0	4428
Percent	0.1%	0.3%	4.8%	27.9%	46.1%	17.0%	3.4%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	

Daily

15th Percentile :	27 MPH
50th Percentile :	32 MPH
85th Percentile :	37 MPH
95th Percentile :	40 MPH
Mean Speed(Average) :	32 MPH
10 MPH Pace Speed :	26-35 MPH
Number in Pace :	3274
Percent in Pace :	73.9%
Number of Vehicles > 30 MPH :	2965
Percent of Vehicles > 30 MPH :	67.0%

Grand Total	33	323	2382	7626	8131	2592	433	48	12	2	0	0	0	21582

Overall

15th Percentile :	26 MPH
50th Percentile :	31 MPH
85th Percentile :	35 MPH
95th Percentile :	39 MPH
Mean Speed(Average) :	31 MPH
10 MPH Pace Speed :	26-35 MPH
Number in Pace :	15757
Percent in Pace :	73.0%
Number of Vehicles > 30 MPH :	11218
Percent of Vehicles > 30 MPH :	52.0%

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Southbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	Total
10/22/15	0	1	2	8	9	3	1	0	0	0	0	0	0	24
01:00	0	0	3	1	5	4	1	0	0	0	0	0	0	14
02:00	1	0	1	3	1	3	0	0	0	0	0	0	0	9
03:00	0	1	1	1	4	2	0	0	0	0	0	0	0	9
04:00	0	0	0	3	8	5	0	0	0	0	0	0	0	16
05:00	0	2	5	16	34	9	3	1	0	0	0	0	0	70
06:00	0	2	19	49	98	27	6	1	0	0	0	0	0	202
07:00	2	6	34	155	132	26	5	0	2	0	0	0	0	362
08:00	1	13	64	166	116	32	3	0	0	0	0	0	0	395
09:00	1	15	41	91	124	30	5	0	0	0	0	0	0	307
10:00	0	6	35	108	127	26	1	1	0	0	0	0	0	304
11:00	4	9	26	99	102	32	3	0	0	0	0	0	0	275
12 PM	0	10	33	101	123	30	4	0	0	0	0	0	0	301
13:00	0	4	19	74	88	29	5	0	0	0	0	0	0	219
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00	126	114	107	58	12	3	0	0	0	0	0	0	0	420
19:00	31	46	80	152	53	8	0	0	0	0	0	0	0	370
20:00	0	10	25	125	93	27	2	1	0	0	0	0	0	283
21:00	1	4	30	125	95	18	1	0	0	0	0	0	0	274
22:00	0	0	9	41	63	30	5	0	0	0	0	0	0	148
23:00	0	0	6	18	41	11	6	0	0	0	0	0	0	82
Total	167	243	540	1394	1328	355	51	4	2	0	0	0	0	4084
Percent	4.1%	6.0%	13.2%	34.1%	32.5%	8.7%	1.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	

Daily

15th Percentile :	22 MPH
50th Percentile :	29 MPH
85th Percentile :	35 MPH
95th Percentile :	38 MPH
Mean Speed(Average) :	29 MPH
10 MPH Pace Speed :	26-35 MPH
Number in Pace :	2722
Percent in Pace :	66.7%
Number of Vehicles > 30 MPH :	1740
Percent of Vehicles > 30 MPH :	42.6%

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

Bishop Street
north of Clark Street
City, State: Framingham, MA
Client: VAI/B. Guen

04626Aspeed
Site Code: 7156

Southbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	Total
10/23/15	0	0	1	7	17	10	1	0	0	0	0	0	0	36
01:00	0	0	2	5	7	7	2	0	0	0	0	0	0	23
02:00	0	0	1	4	5	2	2	0	0	0	0	0	0	14
03:00	0	1	0	1	3	2	0	0	0	0	0	0	0	7
04:00	0	0	3	3	10	1	1	0	0	0	0	0	0	18
05:00	0	1	2	11	32	10	5	0	0	0	0	0	0	61
06:00	1	3	13	79	88	28	4	1	0	0	0	0	0	217
07:00	3	19	49	133	140	29	6	0	0	0	0	0	0	379
08:00	5	18	66	180	140	32	4	1	1	0	0	0	0	447
09:00	1	6	38	102	119	33	4	0	1	0	0	0	0	304
10:00	0	3	27	89	137	44	6	0	0	0	0	0	0	306
11:00	6	8	25	88	136	48	6	0	0	0	0	0	0	317
12 PM	5	12	30	121	133	23	3	1	0	0	0	0	0	328
13:00	2	13	50	150	162	29	2	1	0	0	0	0	0	409
14:00	26	33	77	147	110	24	6	0	0	0	0	0	0	423
15:00	48	41	104	161	89	14	1	0	0	0	0	0	0	458
16:00	119	82	76	70	21	4	0	0	0	0	0	0	0	372
17:00	53	70	119	143	46	12	0	0	0	0	0	0	0	443
18:00	130	74	103	113	25	5	1	0	0	0	0	0	0	451
19:00	15	12	50	168	118	11	1	0	0	0	0	0	0	375
20:00	0	3	24	119	115	27	5	0	0	0	0	0	0	293
21:00	1	1	31	104	88	22	1	0	0	0	0	0	0	248
22:00	0	0	22	75	73	35	1	0	0	0	0	0	0	206
23:00	1	0	8	19	73	15	4	1	0	0	0	0	0	121
Total	416	400	921	2092	1887	467	66	5	2	0	0	0	0	6256
Percent	6.6%	6.4%	14.7%	33.4%	30.2%	7.5%	1.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	

Daily

15th Percentile :	21 MPH
50th Percentile :	29 MPH
85th Percentile :	34 MPH
95th Percentile :	38 MPH
Mean Speed(Average) :	28 MPH
10 MPH Pace Speed :	26-35 MPH
Number in Pace :	3979
Percent in Pace :	63.6%
Number of Vehicles > 30 MPH :	2427
Percent of Vehicles > 30 MPH :	38.8%

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04626Aspeed
Site Code: 7156

Southbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	Total
10/24/15	0	0	4	12	14	10	4	0	0	0	0	0	0	44
01:00	0	0	1	11	20	14	2	1	0	0	0	0	0	49
02:00	0	0	0	8	7	3	1	0	0	0	0	0	0	19
03:00	0	0	2	4	6	5	0	0	0	0	0	0	0	17
04:00	0	0	0	3	7	2	0	0	0	0	0	0	0	12
05:00	0	0	3	5	11	8	0	0	0	0	0	0	0	27
06:00	0	3	2	22	32	21	5	1	0	0	0	0	0	86
07:00	0	0	4	21	64	30	6	1	0	0	0	0	0	126
08:00	0	3	10	39	79	61	9	1	0	0	0	0	0	202
09:00	1	3	11	87	120	37	4	0	0	0	0	0	0	263
10:00	0	1	10	85	123	61	9	1	0	0	0	0	0	290
11:00	0	4	14	93	176	56	8	0	0	0	0	0	0	351
12 PM	0	2	25	144	173	56	2	1	0	0	0	0	0	403
13:00	2	2	40	147	171	49	0	0	0	0	0	0	0	411
14:00	1	1	22	151	152	51	3	0	0	0	0	0	0	381
15:00	0	4	53	161	164	46	4	0	0	0	0	0	0	432
16:00	0	1	24	146	187	44	5	0	0	0	0	0	0	407
17:00	2	2	42	170	145	21	1	0	0	0	0	0	0	383
18:00	0	11	48	183	123	14	1	2	0	0	0	0	0	382
19:00	0	2	35	139	106	26	0	1	0	0	0	0	0	309
20:00	0	1	23	119	91	19	2	0	0	0	0	0	0	255
21:00	0	1	22	89	79	23	4	2	0	0	0	0	0	220
22:00	0	0	16	49	78	25	3	1	0	0	0	0	0	172
23:00	0	1	2	36	48	15	3	1	0	0	0	0	0	106
Total	6	42	413	1924	2176	697	76	13	0	0	0	0	0	5347
Percent	0.1%	0.8%	7.7%	36.0%	40.7%	13.0%	1.4%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	

Daily

15th Percentile :	26 MPH
50th Percentile :	31 MPH
85th Percentile :	35 MPH
95th Percentile :	39 MPH
Mean Speed(Average) :	31 MPH
10 MPH Pace Speed :	26-35 MPH
Number in Pace :	4100
Percent in Pace :	76.7%
Number of Vehicles > 30 MPH :	2962
Percent of Vehicles > 30 MPH :	55.4%

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Client: VAI/B. Guen

04626Aspeed
Site Code: 7156

Southbound

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	Total
10/25/15	0	0	2	17	39	10	3	1	0	0	0	0	0	72
01:00	0	0	2	8	22	6	3	1	0	0	0	0	0	42
02:00	0	0	5	7	11	5	1	0	0	0	0	0	0	29
03:00	0	0	1	5	7	2	0	1	0	0	0	0	0	16
04:00	0	0	0	1	7	1	1	1	0	0	0	0	0	11
05:00	0	0	5	1	5	2	1	0	0	0	0	0	0	14
06:00	0	3	4	13	11	13	1	0	0	0	0	0	0	45
07:00	0	0	2	14	36	24	3	0	0	0	0	0	0	79
08:00	1	1	8	26	47	35	6	0	0	0	0	0	0	124
09:00	0	1	12	61	100	42	4	4	0	0	0	0	0	224
10:00	0	0	12	65	113	42	9	1	0	0	0	0	0	242
11:00	0	3	10	95	109	55	3	1	0	0	0	0	0	276
12 PM	1	8	32	104	153	43	5	1	0	0	0	0	0	347
13:00	0	2	23	110	158	51	5	0	0	0	0	0	0	349
14:00	0	1	9	98	154	46	5	0	0	0	0	0	0	313
15:00	0	0	13	68	154	62	3	1	0	0	0	0	0	301
16:00	0	0	15	60	171	55	5	0	0	0	0	0	0	306
17:00	0	0	21	120	129	30	4	1	0	0	0	0	0	305
18:00	0	3	21	131	127	33	0	0	0	0	0	0	0	315
19:00	0	3	16	75	116	25	5	0	0	0	0	0	0	240
20:00	0	0	6	53	78	17	4	0	0	0	0	0	0	158
21:00	0	2	10	46	50	17	1	0	0	1	0	0	0	127
22:00	0	0	10	23	49	12	2	0	0	0	0	0	0	96
23:00	0	0	4	13	23	12	2	0	0	0	0	0	0	54
Total	2	27	243	1214	1869	640	76	13	0	1	0	0	0	4085
Percent	0.0%	0.7%	5.9%	29.7%	45.8%	15.7%	1.9%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	
Grand Total	591	712	2117	6624	7260	2159	269	35	4	1	0	0	0	19772

Daily

15th Percentile :	27 MPH
50th Percentile :	32 MPH
85th Percentile :	36 MPH
95th Percentile :	40 MPH
Mean Speed(Average) :	32 MPH
10 MPH Pace Speed :	26-35 MPH
Number in Pace :	3083
Percent in Pace :	75.5%
Number of Vehicles > 30 MPH :	2599
Percent of Vehicles > 30 MPH :	63.6%

Overall

15th Percentile :	24 MPH
50th Percentile :	30 MPH
85th Percentile :	35 MPH
95th Percentile :	39 MPH
Mean Speed(Average) :	30 MPH
10 MPH Pace Speed :	26-35 MPH
Number in Pace :	13884
Percent in Pace :	70.2%
Number of Vehicles > 30 MPH :	9728
Percent of Vehicles > 30 MPH :	49.2%

PUBLIC TRANSPORTATION SCHEDULE AND FARE INFORMATIONS

FRAMINGHAM/WORCESTER LINE Train Schedule Effective July 1, 2014

Massachusetts Bay Transportation Authority

Keolis

Monday to Friday

Inbound to Boston

ZONE	STATION	TRAIN #	500	502	504	582	506	508	510	512	514	516	518	520	522	524	526	528	530	532	534	536	538	540	542	544
			AM											PM												AM
	Bikes Allowed		🚲									🚲	🚲	🚲	🚲	🚲	🚲	🚲	🚲	🚲	🚲	🚲	🚲	🚲	🚲	🚲
8	Worcester	♿	4:45	5:20	5:45	6:05	6:35	7:00	-	7:35	-	8:40	10:45	12:10	1:50	2:50	3:55	4:40	-	5:50	-	7:50	8:30	9:30	11:10	12:10
8	Grafton	♿	4:58	5:33	5:58	6:18	6:48	7:13	-	7:48	-	8:53	10:58	12:23	2:03	3:03	4:08	4:53	-	6:03	-	8:03	8:43	9:43	11:23	f12:23
7	Westborough	♿	5:03	5:38	6:03	6:23	6:53	7:18	-	7:53	-	8:57	11:02	12:27	2:07	3:07	4:12	4:57	-	6:07	-	8:07	8:47	9:47	11:27	f12:27
6	Southborough	♿	5:12	5:47	6:12	6:32	7:02	7:27	-	8:02	-	9:06	11:11	12:36	2:16	3:16	4:21	5:06	-	6:16	-	8:16	8:55	9:55	11:35	f12:35
6	Ashland	♿	5:17	5:52	6:17	6:37	7:07	7:32	-	8:07	-	9:10	11:15	12:40	2:20	3:20	4:25	5:10	-	6:20	-	8:20	8:59	9:59	11:39	f12:38
5	Framingham	♿	5:29	6:04	6:29	6:48	7:19	7:44	8:02	8:18	8:45	9:21	11:26	12:51	2:31	3:31	4:36	5:21	6:15	6:31	6:45	8:31	9:09	10:09	11:49	f12:48
4	West Natick	♿	5:34	6:10	6:35	-	7:24	7:50	8:07	8:23	8:50	9:26	11:31	12:56	2:36	3:36	4:41	5:26	6:20	6:36	6:50	-	9:14	10:14	11:54	f12:51
4	Natick Center		5:39	6:15	6:40	-	7:29	7:55	8:12	8:28	8:55	9:31	11:36	1:01	2:41	3:41	4:46	5:31	6:25	6:41	6:55	-	9:18	10:18	11:58	f12:54
3	Wellesley Square		5:45	-	6:46	-	7:35	-	8:18	8:34	9:01	9:37	11:41	1:07	2:46	3:46	4:52	5:37	6:31	6:47	7:01	-	9:23	10:23	12:02	f12:58
3	Wellesley Hills		5:49	-	6:50	-	7:39	-	8:22	8:38	9:05	9:41	11:45	1:11	2:50	3:50	4:56	5:41	6:35	6:51	7:05	-	9:26	10:26	12:05	f1:01
3	Wellesley Farms		5:52	-	6:53	-	7:42	-	8:25	8:41	9:08	9:44	11:48	1:14	2:53	3:53	4:59	5:44	6:38	6:54	7:08	-	9:29	10:29	12:08	f1:03
2	Auburndale		5:57	-	6:59	-	7:47	-	8:30	8:46	9:13	-	11:53	-	f2:58	f3:58	-	-	-	-	-	-	-	-	f12:13	f1:06
2	West Newton		6:00	-	7:02	-	7:50	-	8:33	-	9:16	-	11:56	-	f3:01	f4:01	-	-	-	-	-	-	-	-	f12:16	f1:09
1	Newtonville		6:04	-	7:06	-	7:54	-	8:37	-	9:20	-	11:59	-	f3:04	f4:04	-	-	-	-	-	-	-	-	f12:19	f1:11
1A	Yawkey	♿	L6:14	L6:38	L7:17	L7:10	L8:04	L8:18	L8:47	L8:58	L9:30	L9:59	L12:09	L1:29	L3:14	L4:14	L5:14	L5:59	L6:53	L7:09	L7:23	L8:54	L9:47	L10:47	L12:27	L1:19
1A	Back Bay	♿	L6:19	L6:43	L7:22	L7:15	L8:09	L8:23	L8:52	L9:03	L9:35	L10:04	L12:14	L1:34	L3:19	L4:19	L5:19	L6:04	L6:58	L7:14	L7:28	L8:59	L9:52	L10:52	L12:32	L1:24
1A	South Station	♿	6:24	6:48	7:27	7:20	8:14	8:28	8:57	9:08	9:40	10:09	12:19	1:39	3:24	4:24	5:24	6:09	7:03	7:19	7:33	9:04	9:57	10:57	12:37	1:29

Trains in purple box indicate peak period trains.

Monday to Friday

Outbound from Boston

ZONE	STATION	TRAIN #	501	503	505	507	509	511	513	515	517	519	521	523	525	527	529	583	531	533	535	537	539	541	543	545
			AM											PM												
	Bikes Allowed		🚲	🚲	🚲	🚲	🚲	🚲	🚲	🚲	🚲	🚲	🚲									🚲	🚲	🚲	🚲	🚲
1A	South Station	♿	4:20	5:45	7:00	7:15	7:45	9:00	10:15	12:05	1:05	2:05	2:55	4:05	4:25	5:00	5:15	5:30	5:35	6:05	6:40	7:20	8:35	9:25	10:25	11:25
1A	Back Bay	♿	-	5:51	7:06	7:21	7:51	9:06	10:21	12:11	1:11	2:11	3:01	4:11	4:31	5:06	5:21	5:36	5:41	6:11	6:46	7:26	8:41	9:31	10:31	11:31
1A	Yawkey	♿	f4:30	5:56	7:11	7:26	7:56	9:11	10:26	12:16	1:16	2:16	3:06	4:16	4:36	5:11	5:26	5:41	5:46	6:16	6:51	7:31	8:46	9:36	10:36	11:36
1	Newtonville		-	-	-	-	f8:06	-	f10:34	f12:24	f1:24	2:24	3:14	-	4:46	-	5:36	-	5:56	6:25	7:00	7:40	8:55	9:45	10:45	11:45
2	West Newton		-	-	-	-	f8:08	-	f10:36	f12:26	f1:26	2:27	3:17	-	4:50	-	5:40	-	6:00	6:29	7:04	7:44	8:59	9:49	10:49	11:49
2	Auburndale		-	-	-	-	f8:10	-	f10:38	f12:28	f1:28	2:30	3:20	-	4:53	-	5:43	-	6:03	6:32	7:07	7:47	9:02	9:52	10:52	11:52
3	Wellesley Farms		-	6:09	-	-	8:14	9:25	10:42	12:32	1:32	2:34	3:24	-	4:58	-	5:48	-	6:08	6:36	7:12	7:51	9:06	9:56	10:56	11:56
3	Wellesley Hills		-	6:12	7:27	-	8:17	9:28	10:45	12:35	1:35	2:37	3:27	-	5:01	-	5:51	-	6:11	6:39	7:15	7:54	9:09	9:59	10:59	11:59
3	Wellesley Square		-	6:16	7:31	-	8:20	9:32	10:49	12:39	1:39	2:41	3:31	-	5:05	-	5:55	-	6:15	6:43	7:19	7:58	9:13	10:03	11:03	12:03
4	Natick Center		-	6:20	7:35	-	8:24	9:38	10:55	12:45	1:45	2:47	3:37	-	5:11	-	6:01	-	6:21	6:49	7:25	8:04	9:19	10:09	11:09	12:09
4	West Natick	♿	-	6:25	7:39	-	L8:28	9:43	11:00	12:50	1:50	2:52	3:42	4:37	L5:17	5:34	L6:07	-	6:26	6:55	7:32	8:10	9:25	10:15	11:15	12:15
5	Framingham	♿	5:00	6:30	7:44	7:51	8:33	9:48	11:06	12:56	1:56	2:58	3:48	4:43	5:23	5:42	6:13	6:06	6:31	7:00	7:37	8:15	9:30	10:20	11:20	12:20
6	Ashland	♿	-	6:37	7:51	-	-	9:54	11:12	1:02	2:02	3:04	3:54	4:49	-	5:48	-	6:12	6:38	7:06	7:43	8:21	9:36	10:26	11:26	12:26
6	Southborough	♿	-	6:42	7:56	-	-	9:59	11:17	1:07	2:07	3:09	3:59	4:54	-	5:53	-	6:17	6:43	7:11	7:48	8:26	9:41	10:31	11:31	12:31
7	Westborough	♿	-	6:51	8:05	-	-	10:08	11:26	1:16	2:16	3:18	4:08	5:04	-	6:03	-	6:26	6:52	7:20	7:57	8:35	9:50	10:40	11:40	12:40
8	Grafton	♿	L5:20	L6:59	L8:13	-	-	L10:15	L11:32	L1:22	L2:22	L3:24	L4:14	L5:10	-	L6:10	-	L6:32	L6:58	L7:26	L8:03	L8:41	L9:56	L10:46	L11:47	L12:46
8	Worcester	♿	5:35	7:13	8:27	-	-	10:29	11:46	1:36	2:36	3:38	4:28	5:25	-	6:25	-	6:47	7:13	7:40	8:17	8:55	10:10	11:00	12:00	1:00

Trains in purple box indicate peak period trains.

Saturday & Sunday

Inbound to Boston

ZONE	STATION	SATURDAY TRAIN # / SUNDAY TRAIN #	1500 / 2500	1502 / 2502	1504 / 2504	1506 / 2506	1508 / 2508	1510 / 2510	1512 / 2512	1514 / 2514	1516 / 2516
			AM			PM					
	Bikes Allowed		🚲	🚲	🚲	🚲	🚲	🚲	🚲	🚲	🚲
8	Worcester	♿	7:00	8:30	10:30	12:30	2:30	4:30	6:30	8:30	11:00
8	Grafton	♿	7:13	8:43	10:43	12:43	2:43	4:43	6:43	8:43	11:13
7	Westborough	♿	7:17	8:47	10:47	12:47	2:47	4:47	6:47	8:47	11:17
6	Southborough	♿	7:25	8:55	10:55	12:55	2:55	4:55	6:55	8:55	11:25
6	Ashland	♿	7:30	9:00	11:00	1:00	3:00	5:00	7:00	9:00	11:30
5	Framingham	♿	7:40	9:10	11:10	1:10	3:10	5:10	7:10	9:10	11:40
4	West Natick	♿	7:44	9:14	11:14	1:14	3:14	5:14	7:14	9:14	11:44
4	Natick Center		7:49	9:19	11:19	1:19	3:19	5:19	7:19	9:19	11:49
3	Wellesley Square		7:54	9:24	11:24	1:24	3:24	5:24	7:24	9:24	11:54
3	Wellesley Hills		7:57	9:27	11:27	1:27	3:27	5:27	7:27	9:27	11:57
3	Wellesley Farms		8:00	9:30	11:30	1:30	3:30	5:30	7:30	9:30	12:00
2	Auburndale		8:05	9:35	11:35	1:35	3:35	5:35	7:35	9:35	12:05
2	West Newton		8:08	9:38	11:38	1:38	3:38	5:38	7:38	9:38	12:08
1	Newtonville		8:11	9:41	11:41	1:41	3:41	5:41	7:41	9:41	12:11
1A	Yawkey	♿	L8:21	L9:51	L11:51	L1:51	L3:51	L5:51	L7:51	L9:51	L12:21
1A	Back Bay	♿	L8:25	L9:55	L11:55	L1:55	L3:55	L5:55	L7:55	L9:55	L12:25
1A	South Station	♿	8:30	10:00	12:00	2:00	4:00	6:00	8:00	10:00	12:30

Saturday & Sunday

Outbound from Boston

ZONE	STATION	SATURDAY TRAIN # / SUNDAY TRAIN #	1501 / 2501	1503 / 2503	1505 / 2505	1507 / 2507	1509 / 2509	1511 / 2511	1513 / 2513	1515 / 2515	1517 / 2517
			AM			PM					
	Bikes Allowed		🚲	🚲	🚲	🚲	🚲	🚲	🚲	🚲	🚲
1A	South Station	♿	6:40	8:40	10:40	12:40	2:40	4:40	6:40	8:40	11:00
1A	Back Bay	♿	6:46	8:46	10:46	12:46	2:46	4:46	6:46	8:46	11:06
1A	Yawkey	♿	6:50	8:50	10:50	12:50	2:50	4:50	6:50	8:50	11:10
1	Newtonville		6:58	8:58	10:58	12:58	2:58	4:58	6:58	8:58	11:18
2	West Newton		7:01	9:01	11:01	1:01	3:01	5:01	7:01	9:01	11:21
2	Auburndale		7:04	9:04	11:04	1:04	3:04	5:04	7:04	9:04	11:24
3	Wellesley Farms		7:09	9:09	11:09	1:09	3:09	5:09	7:09	9:09	11:29
3	Wellesley Hills		7:12	9:12	11:12	1:12	3:12	5:12	7:12	9:12	11:32
3	Wellesley Square		7:15	9:15	11:15	1:15	3:15	5:15	7:15	9:15	11:35
4	Natick Center		7:20	9:20	11:20	1:20	3:20	5:20	7:20	9:20	11:40
4	West Natick	♿	7:26	9:26	11:26	1:26	3:26	5:26	7:26	9:26	11:46
5	Framingham	♿	7:31	9:31	11:31	1:31	3:31	5:31	7:31	9:31	11:51
6	Ashland	♿	7:37	9:37	11:37	1:37	3:37	5:37	7:37	9:37	11:57
6	Southborough	♿	7:41	9:41	11:41	1:41	3:41	5:41	7:41	9:41	12:01
7	Westborough	♿	7:50	9:50	11:50	1:50	3:50	5:50	7:50	9:50	12:10
8	Grafton	♿	L7:55	L9:55	L11:55	L1:55	L3:55	L5:55	L7:55	L9:55	L12:15
8	Worcester	♿	8:10	10:10	12:10	2:10	4:10	6:10	8:10	10:10	12:30

Keep in Mind

This schedule will be effective from July 1, 2014, and will replace the schedule of March 10, 2014.

Holiday Service:

Saturday service: Presidents' Day, 4th of July (train #1517 may be held for 30 minutes after the 4th of July fireworks).

Sunday service: New Year's Day, Memorial Day, Labor Day, Thanksgiving Day, Christmas Day.

All other holidays: For other holiday schedules, please check MBTA.com or call 617-222-3200.

Times in purple with "f" indicate a flag stop: Passengers must tell the conductor that they wish to leave. Passengers waiting to board must be visible on the platform for the train to stop.

Times in blue indicate an early departure (L stop): The train may leave ahead of schedule at these stops.

Bikes: Bicycles are allowed on trains with the bicycle symbol shown below the train number.

Make your train on time. Download the official MBTA Commuter Rail mobile app. Get schedule info, train progress, and alerts easily and conveniently.

Stay connected with us on Twitter.

Visit MBTA.com.

Call MBTA Customer Service at 617-222-3200.

- Business Center
- Customer Support
  - Contact Us
  - Customer Comment
  - Cleanliness Complaint
  - Customer Bill of Rights
  - Forms
  - Your Rights and Title VI
  - Privacy Policy
  - Terms of Use
- Safety
  - Emergency Instructions
  - Security
  - Transit Safety Tips
  - Operation Lifesaver
- Transit Police
  - The Department
  - Divisions
  - Transit Police Service Areas
  - Crime Statistics
  - See Something? Say Something
  - MBTA Security Inspections
  - Transit Police Blog
  - FAQ
  - Contact Us

Schedules & Maps

Schedules & Maps » Commuter Rail » Framingham

Framingham

417 Waverly St Framingham, MA 01702

For train information at Framingham Station tune to 1640 AM

This MBTA station is accessible (Accessibility Key)

Parking

Parking Spaces: 166

Average Weekday Availability: <28%

Parking Rate: $4.00

Park & Pay By Phone
Location # : 4254
Lot B 4282

Accessible Spaces: 4

Bike Spaces: 10

Managed By: LAZ Parking
(781) 794-1791
Website

Comments:
Additional parking located near 2 FranklinStreet, Framingham Ma, 01702. LAZ Parking is responsible for parking lot snow removal, maintenance and fee collection. Please contact MBTA Customer Service regarding station and platform snow removal, cleanliness and maintenance issues.

Commuter Rail Lines

Framingham/Worcester Line

Enlarge Map and Get Driving Directions

MBTA Services Nearby

Plan your trip

From Framingham to:

(Address or intersection)

Preferences: Minimize Time

Using: All services

☐ Trip must be accessible

Plan your trip

Service Alerts

Framingham/Worcester Line:
1 Current

Track Change: Board all Worcester Line trains on the inbound side platforms at westboro and grafton stations until later today

Click here for all service alerts

Fare Information

Travel anywhere on the MBTA system for the same price.
See all Fares & Passes information.

Transit Mode	Passes / Tickets
Rail	**$2.10 - $11.50** Zones 1A - 10
	$75 - $362 Monthly Pass, unlimited travel to and from your zone plus travel on all bus, subway and Inner Harbor Ferry.
	50% Seniors and Persons with Disabilities

Accessibility Key (Back to Top)

- Elevator
- Escalator
- Mini-high
- Mobile Lift

Massachusetts Bay Transportation Authority

Commuter Rail Fares and Passes

Commuter Rail fares are based on a "Zone" and "Interzone" system with Zone 1A servicing the Greater Boston area and Zones 1 through 10 servicing communities and suburban areas outside of Boston. Each Commuter Rail station's zone is identified in the chart below.

Zone Fares

"Zone fares" are intended for direct travel between any suburban area commuter rail station to a Zone 1A station and the Greater Boston area, including North Station, South Station, and Back Bay. Your fare or pass is based on the Zone from which you are travelling.

For example, if your commute includes boarding the Lowell Line at Lowell Station (Zone 6) and getting off the train at North Station (Zone 1A), you would buy one single ride Zone 6 ticket.

Interzone Fares

"Interzone fares" are intended for travel between suburban area stations outside of the Zone 1A Greater Boston area. Interzone fares and passes are NOT valid for travel to Zone 1A stations, including North Station, South Station, and Back Bay. Interzone monthly pass and ticket fares are based on TOTAL zones "travelled" in.

For example, if your commute includes boarding the Lowell Line at Lowell Station (Zone 6) and getting off the train at Anderson/Woburn Station (Zone 2), you would pass through three zones and would buy one single ride Interzone 5 ticket.

Effective July 1, 2012, Commuter Rail tickets will have the following expiration periods:

- All 10-ride tickets will be sold with an expiration time limit of ninety (90) days.
- Single ride tickets will be sold with an expiration time limit of ninety (90) days.

ZONE	RIDE FARE	MONTHLY PASS	10-RIDE PASS[1]	CASH-ON-BOARD	
1A	$2.10[2]	$75.00[3]	$21.00	$5.10	Buy Now
1	$5.75[2]	$182.00[4]	$57.50	$8.75	Buy Now
Interzone 1 [7]	$2.75	$86.00[6]			Buy Now
2	$6.25[2]	$198.00[4]	$62.50	$9.25	Buy Now

Interzone 2 [7]	$3.25	$105.00[6]			Buy Now
3	$7.00[2]	$222.00[4]	$70.00	$10.00	Buy Now
Interzone 3 [7]	$3.50	$114.00[6]			Buy Now
4	$7.50[2]	$239.00[4]	$75.00	$10.50	Buy Now
Interzone 4 [7]	$3.75	$124.00[6]			Buy Now
5	$8.50[2]	$265.00[4]	$85.00	$11.50	Buy Now
Interzone 5 [7]	$4.25	$141.00[6]			Buy Now
6	$9.25[2]	$289.00[5]	$92.50	$12.25	Buy Now
Interzone 6 [7]	$4.75	$159.00[6]			Buy Now
7	$9.75[2]	$306.00[5]	$97.50	$12.75	Buy Now
Interzone 7 [7]	$5.25	$175.00[6]			Buy Now
8	$10.50[2]	$330.00[5]	$105.00	$13.50	Buy Now
Interzone 8 [7]	$5.75	$193.00[6]			Buy Now
9	$11.00[2]	$345.00[5]	$110.00	$14.00	Buy Now
Interzone 9 [7]	$6.25	$211.00[6]			Buy Now
10	$11.50[2]	$362.00[5]	$115.00	$14.50	Buy Now

Seniors and Persons with Disabilities **50% Off Rides**

(Blind persons ride for free) Percentage off based on Commuter Rail 'ride' fares noted above.
Requires a Senior/TAP ID or Mass Commission for the Blind ID.
10-Ride Tickets available based on ten half fares.

Children 11 years old and under **Free**

Children under the age of twelve ride free when accompanied by an adult with a limit of two children for each adult.

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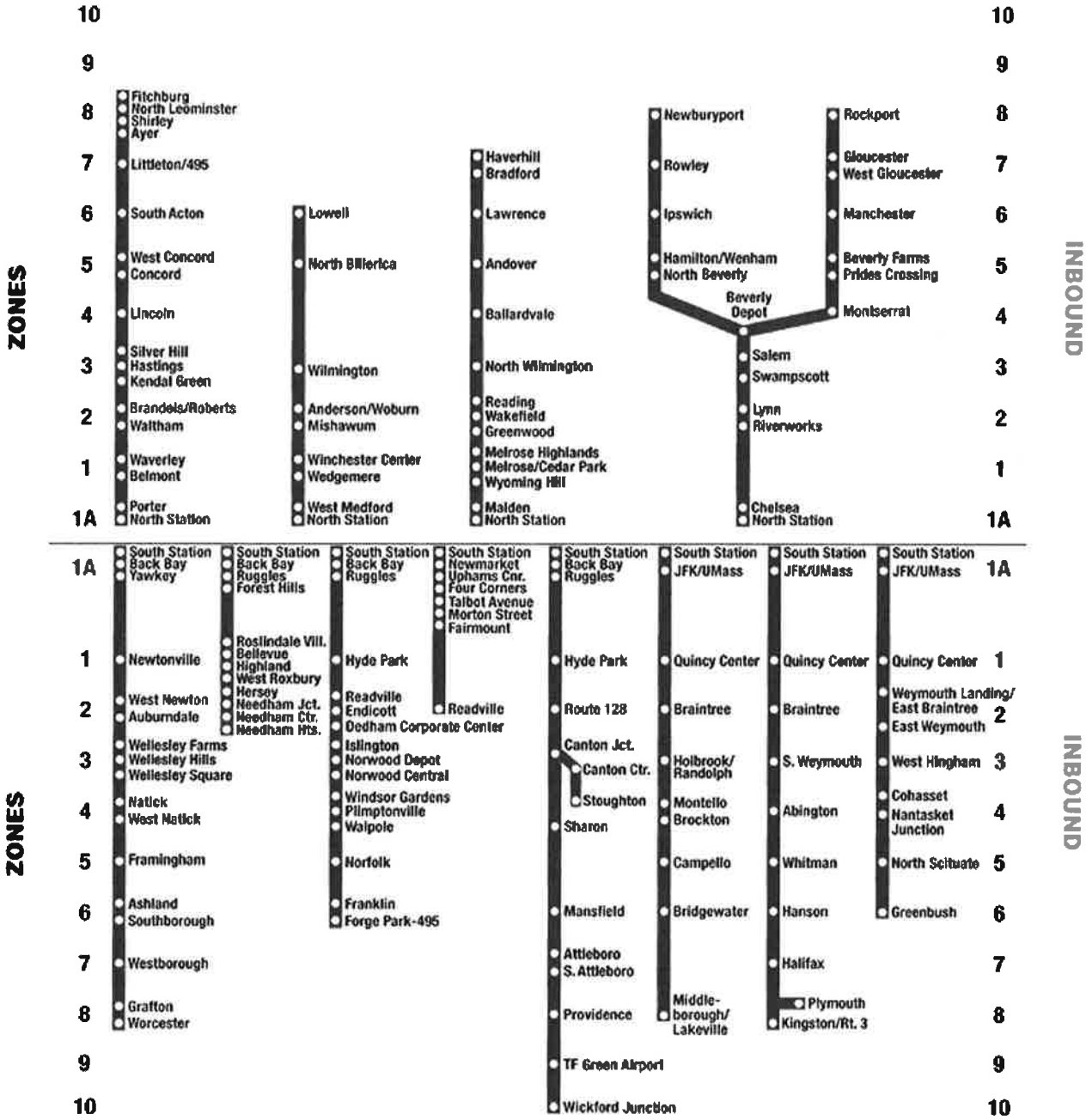
Commuter Rail Zone Chart



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[1] 10-Ride passes cannot be bought online.

[2] A $3.00 surcharge wil be added to tickets purchased on-board all trains departing from North Station, South Station, and Back Bay Station. Monday-through-Friday customers will be charged $3.00 surcharge by the conductor when a ticket is purchased on board from a station with an MBTA ticket vending machine or where a Ticket Vendor is open. A list of these stations can be found on the MBTA website here: http://www.mbta.com/fares_and_passes/sales_locations/

[3] Zone passes valid on Local Bus, Subway, and Inner Harbor Ferries.

[4] Zone passes valid on Local Bus, Subway, Express Bus, and Inner Harbor Ferries.

[5] Zone passes valid on Local Bus, Subway, Express Bus, Inner Harbor Ferries, and Commuter Boat.

[6] Interzone passes valid on Local bus.

[7] Interzone tickets and passes are not available on our automated ticket vending machines. Interzone tickets and passes are sold on our mTicketing app, at ticket sales offices, at retail sales outlets, and passes are sold online. A list of sales locations can be found here: http://www.mbta.com/fares_and_passes/sales_locations/

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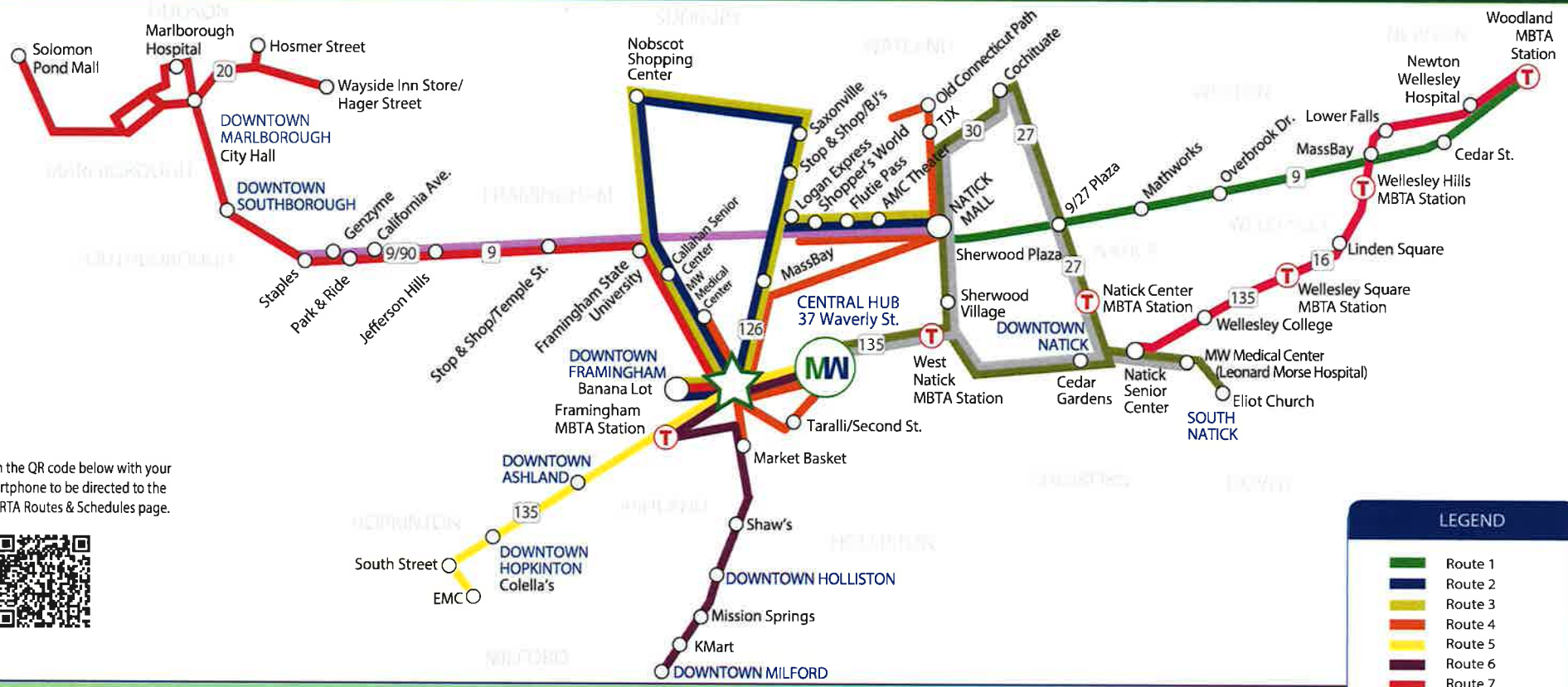
METROWEST REGIONAL TRANSIT AUTHORITY

Public Transportation System



Scan the QR code below with your smartphone to be directed to the MWRTA Routes & Schedules page.

LEGEND

- Route 1
- Route 2
- Route 3
- Route 4
- Route 5
- Route 6
- Route 7
- Route 8
- Route 9
- Route 10
- Route 11
- Scheduled Stop Location
- New MWRTA Hub
- The MWRTA uses the "flag down" system.

MetroWest Regional Transit Authority

From Solomon Pond Mall in Marlborough to Woodland Station in Newton—We've got you covered.

MetroWest Regional Transit Authority (MWTRA) provides public transportation along twelve different bus routes connecting the entire MetroWest community.

We provide access to all major area employers, medical facilities, and shopping locations. MWRTA also connects commuters with the Massachusetts Bay Transportation Authority (MBTA) system. The commuter rail connection can take you eastbound or westbound to Boston or Worcester.

Go Green! Be friendly to our environment and be mindful of your carbon footprint.

Customer Service & Travel Information
Please call 508.935.2222 or visit us online at mwrta.com.

@mwrta

www.mwrta.com 508.935.2222

MetroWest Regional Transit Authority

Service Announcements (4)

Date: Feb 2nd

New Tracking Interface

Please note that we are in the process of updating our GPS application to better serve our customer. Please try to track our buses at the following address: http://vc.mwrta.com/fixedroute.html

Date: 10/19/2015

Adult Charlie Card Fare Increase

Beginning November 1, 2015, the Adult Charlie Card fare of $1.10 will be increased to $1.25. This will be the only fare that will be increasing at this time.

Date: 10/07/2015

Routes 5 and 6 Notice

Attention Route 5 and 6 Riders: Routes 5 and 6 have been recently revised and updated and the new corresponding schedules will go into effect Monday, October 26, 2015. To view the updated schedules, please look under the Routes and Schedules page for NEW Rte 5 and NEW Rte 6 schedules.

Date: 04/29/2014

SERVICE ANNOUNCEMENT

Attention all Rte. 8 passengers. Please be advised that due to construction on Linden St. the Wellesley Rte. 8 may be detoured. The Wellesley Square MBTA will still be serviced, however expect delays. Also, due to construction on Oak St. / Rte. 9 Natick, the bus will be temporarily seeking an alternative route down Bacon St. to Rte 27.

Rates & Passes

The following are the latest fare rates for our services.

MWRTA uses the "flag down" system. This allows you to wave down a bus in transit anywhere along the route, as well as at noted stops. The bus will stop to pick you up, as long as it is safe to do so. Due to various unexpected conditions, traffic, weather, we recommend to arrive ten minutes before the scheduled stop time, and to wait at least ten minutes after the scheduled departure time.

See below for Fare Information, Pass Information, Transfers, Commuter Checks, Weather Emergencies, and Holidays. If you have further questions, please call us at 1-888-996-9782 or 508-935-2222.

***MWRTA Bus Rates & Pass Information**

You may pay with exact fare on the buses, or obtain a Charlie Card to load value on, from either the bus driver, or at the office of the MWRTA, 37 Waverly Street, (Route 135), Framingham, MA 01702, You may also obtain

Charlie Cards from the Treasurer's office at Framingham Town Hall, and the Town Clerk's office at Natick Town Hall. Value can be added to Charlie Cards on all MWRTA fixed route buses. Please note: When using a Charlie Card, your fare cost is reduced! See the fare charts below.

Cash Fares	Cash Rate	Charlie Card Rate
Adults	$1.50	$1.10
Students under the age of 18, or with current school ID	$1.00	N/A
Children under the age of six when accompanied by an adult	Free	N/A
Senior (65 years or older), with photo ID indicating date of birth / MWRTA Senior Pass	$0.75	$0.70
Individuals with disabilities with valid MWRTA Transportation Access Pass, MBTA Transportation Access Pass, or a Medicare Card.	$0.75	$0.70

***Blind persons ride free with a Massachusetts Commission for the Blind ID Card.*

***Children under 12 must be accompanied by an adult.*

MWRTA now accepts the MBTA Charlie Card on all of its fixed route buses. Patrons are encouraged to obtain a Charlie Card, either online at the MBTA Website or at the MWRTA Central Hub, located at 37 Waverly St, Framingham MA, during our normal business hours. Charlie Cards can be loaded directly on any MWRTA bus. Drivers will have available Charlie Cards and will assist patrons in loading value.

Please Note:

Students- The MBTA Student Charlie Card is not honored on the MWRTA system. Students may use an Adult Charlie Card and be charged the $1.10 fare or continue to pay $1.00 in cash.

Senior/Disabled- Senior/Disabled patrons must obtain a Transportation Access Pass (TAP) Card from the MWRTA Central Hub or the MBTA Access Pass Office in order to receive the Senior/Disabled Charlie Card fare. Information for obtaining a TAP card can be found below or via the MBTA Website.

CharlieTickets- MBTA Charlie Tickets are not honored on the MWRTA system. MWRTA buses only accept the plastic CharlieCards.

MBTA Monthly Passes- The only fare medium on the Charlie Card honored on the MWRTA system is stored value. Any MBTA pass product (i.e. monthly pass) is not honored on the MWRTA system.

10 Ride Passes- MWRTA no longer accepts the older 10 ride pass for fare payment. These have been out of circulation for quite some time.

Reduced Fare Identification Cards

Senior ID (Charlie Card) Transportation Pass
Anyone over 65 with photo identification as proof of age.

Transportation (Charlie Card) Access Pass
Disabled under 65 with approved application, available at MWRTA Offices.

The passes can be used to receive reduced fare on all fixed route busses and trains statewide. All passes have Charlie Card capability.

These Identification Cards may be obtained by visiting the MWRTA administrative offices at 37 Waverly St, Framingham.
Monday - Friday - between the hours of 8:00am - 4:00pm

Replacement Card Policy:
Card 1&2 - free of charge
Card 3 - $5.00 fee
Card 4 - $10.00 fee
The MWRTA will not issue more than 4 cards to any one individual.

MWRTA Payment and Service Information

Transfer coupons are available on all buses and are good for transfers between all route buses. Riders wishing to transfer from one bus to another, free of charge, must ask the driver for a transfer coupon and then present the coupon to the driver of the next bus. The transfer must be used within 30 minutes.

Commuter Checks

Commuter Checks are vouchers that are redeemed for prepaid Charlie Cards. They are provided tax-free by employers in amounts up to $100 per month. Commuter Checks are an employee benefit. Contact your Human Resources Department to find out if your company offers this service

For more information see www.commutercheck.com or call 800-727-9436.

Weather Emergencies

The service schedule is subject to change during a weather emergency. Any interruption of service will be posted under Service Announcements, located on the Home page, or you can call 508-935-2222 or 888-996-9782 to confirm the schedule.

Holidays:

There is also ***no*** fixed route bus service provided on the following holidays:

- New Year's Day
- Patriot's Day

- Memorial Day
- Independence Day
- Thanksgiving Day
- Christmas Day

MetroWest Regional Transit Authority | 37 Waverly St, Framingham, MA. 01702
Phone: 508-935-2222 | Toll Free: 1-888-996-9782 | Fax: 508-935-2225
Copyright © 2015 MetroWest Regional Transit Authority (MWRTA)

MASSDOT CRASH RATE WORKSHEETS

Moving Massachusetts Forward. massDOT Highway

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Framingham COUNT DATE : Oct-15

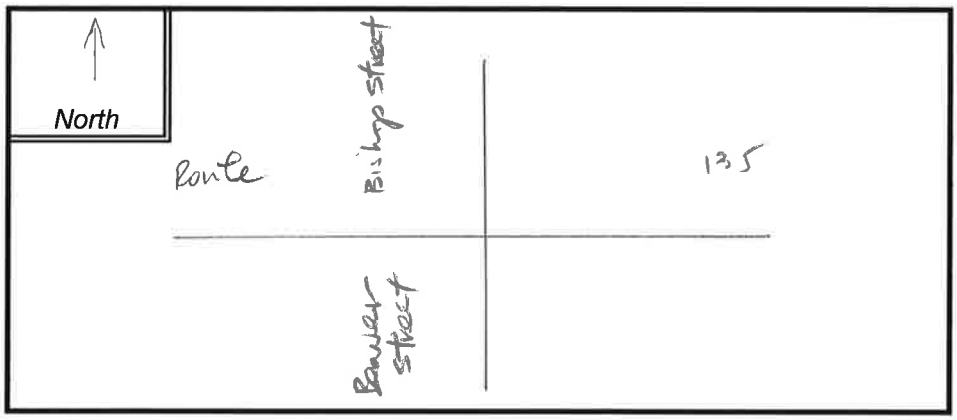
DISTRICT : 3 UNSIGNALIZED : [ ] SIGNALIZED : [X]

~ INTERSECTION DATA ~

MAJOR STREET : Route 135

MINOR STREET(S) : Bishop Street/Beaver Street

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 (PM) :	532	1,160	464	621		2,777

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **30,856**

TOTAL # OF CRASHES : 68 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **13.60**

CRASH RATE CALCULATION : 1.21

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

Comments : Above MassDOT District 3 crash rate

Project Title & Date: Transportation Impact Assessment - 10/30/15

Moving Massachusetts Forward. massDOT Highway

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Framingham COUNT DATE : Oct-15

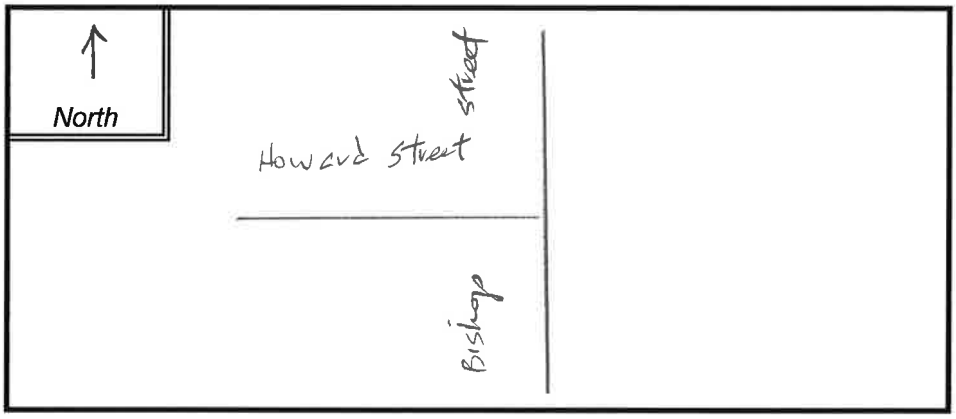
DISTRICT : 3 UNSIGNALIZED : [ ] SIGNALIZED : [X]

~ INTERSECTION DATA ~

MAJOR STREET : Bishop Street

MINOR STREET(S) : Howard Street

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 (PM) :	837	621	547			2,005

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **22,278**

TOTAL # OF CRASHES : 13 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **2.60**

CRASH RATE CALCULATION : 0.32 RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : Below MassDOT District 3 crash rate

Project Title & Date: Transportation Impact Assessment - 10/30/15

Moving Massachusetts Forward. massDOT Highway

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Framingham COUNT DATE : Oct-15

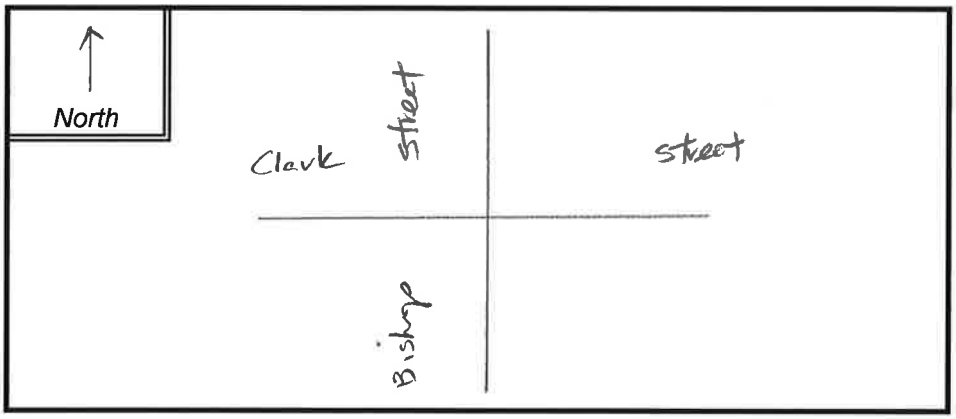
DISTRICT : 3 UNSIGNALIZED : X SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Bishop Street

MINOR STREET(S) : Clark Street

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 (PM) :	542	539	23	62		1,166

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **12,956**

TOTAL # OF CRASHES : 3 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **0.60**

CRASH RATE CALCULATION : 0.13 RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : Below MassDOT District 3 crash rate

Project Title & Date: Transportation Impact Assessment - 10/30/15

Moving Massachusetts Forward. massDOT Highway

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Framingham COUNT DATE : Oct-15

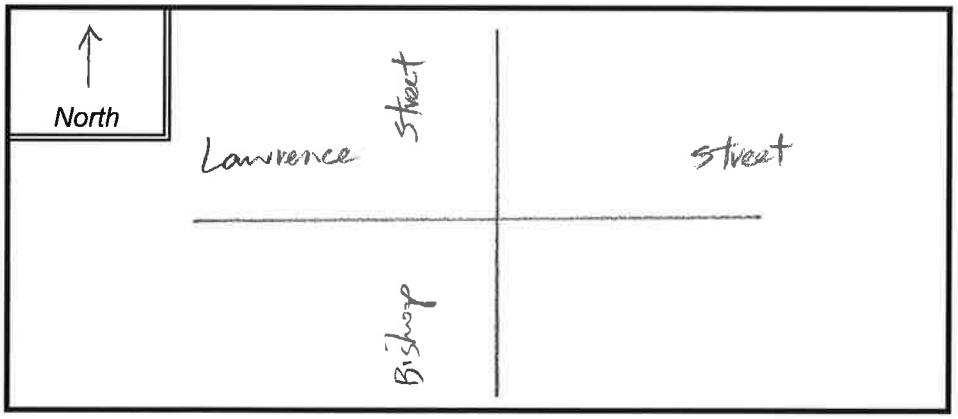
DISTRICT : 3 UNSIGNALIZED : X SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Bishop Street

MINOR STREET(S) : Lawrence Street

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 (PM) :	527	557	34	19		1,137

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **12,633**

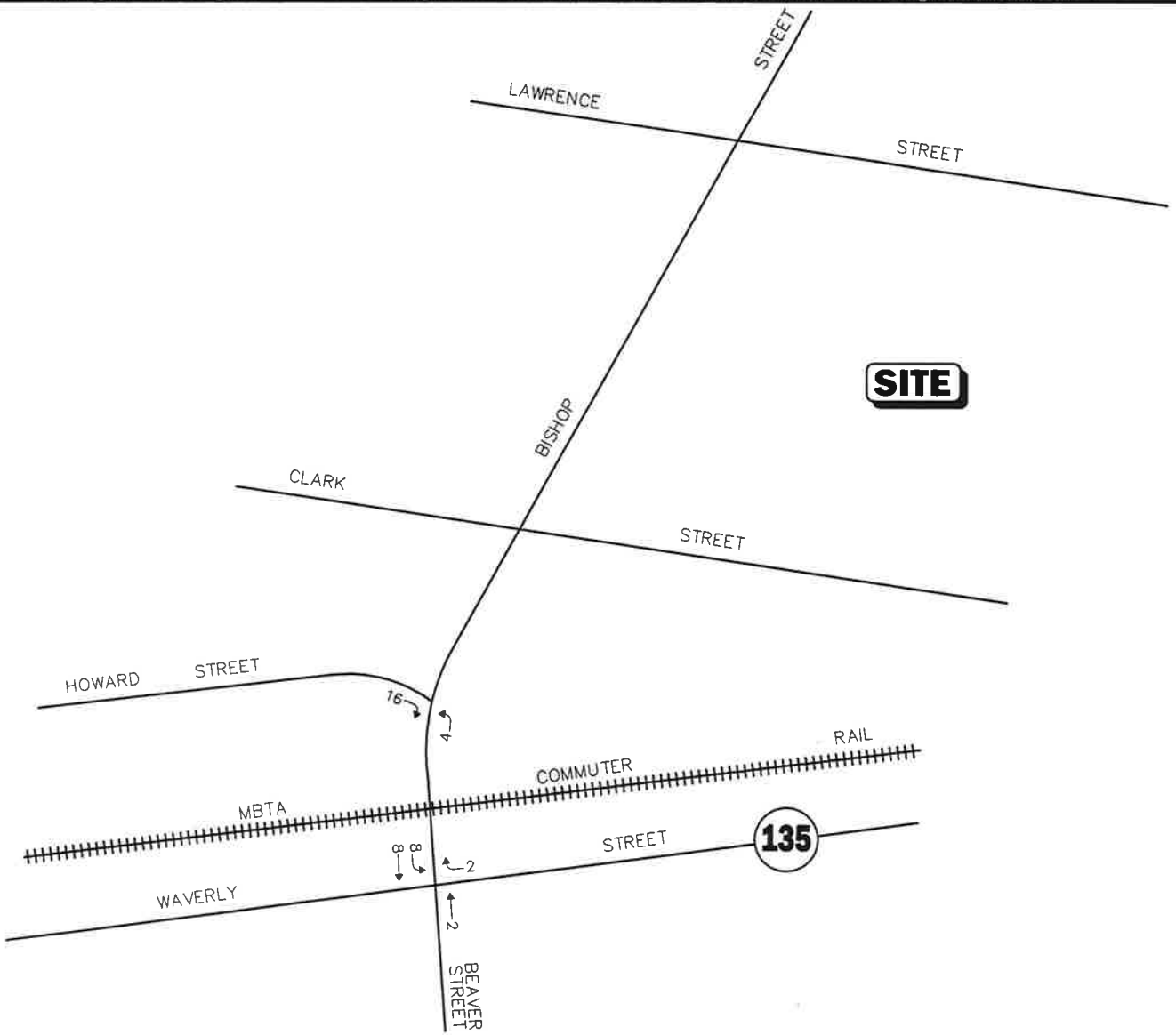
TOTAL # OF CRASHES : 1 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **0.20**

CRASH RATE CALCULATION : 0.04 RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : Below MassDOT District 3 crash rate

Project Title & Date: Transportation Impact Assessment - 10/30/15

SITE-SPECIFIC DEVELOPMENT TRAFFIC-VOLUME NETWORKS



Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure A-1

39 Grant Street
Residential Development
Weekday Morning
Peak Hour Traffic Volumes

Vanasse & Associates, Inc.
Transportation Engineers & Planners

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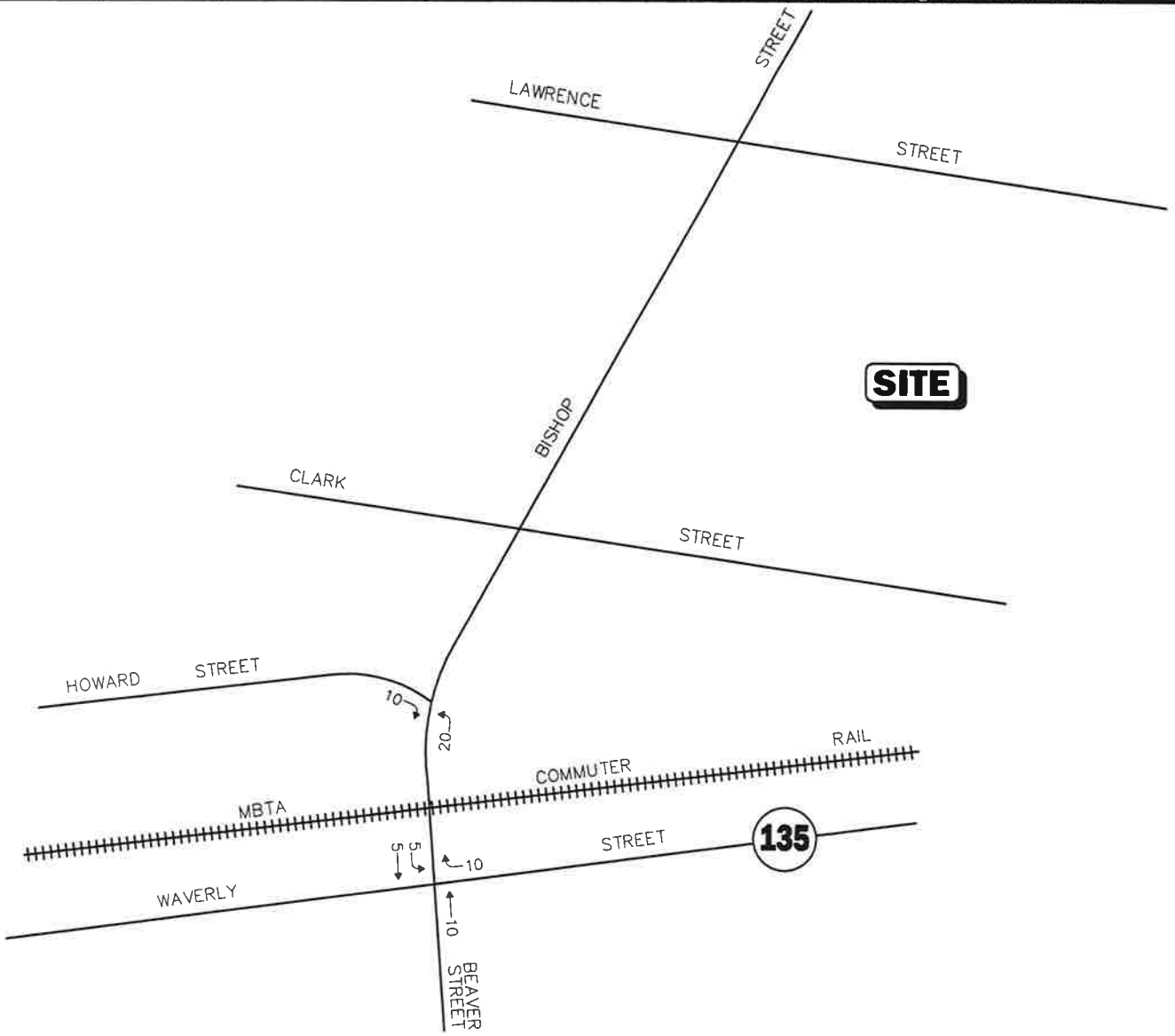

Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure A-2

39 Grant Street
Residential Development
Weekday Evening
Peak Hour Traffic Volumes

Vanasse & Associates, Inc.
Transportation Engineers & Planners

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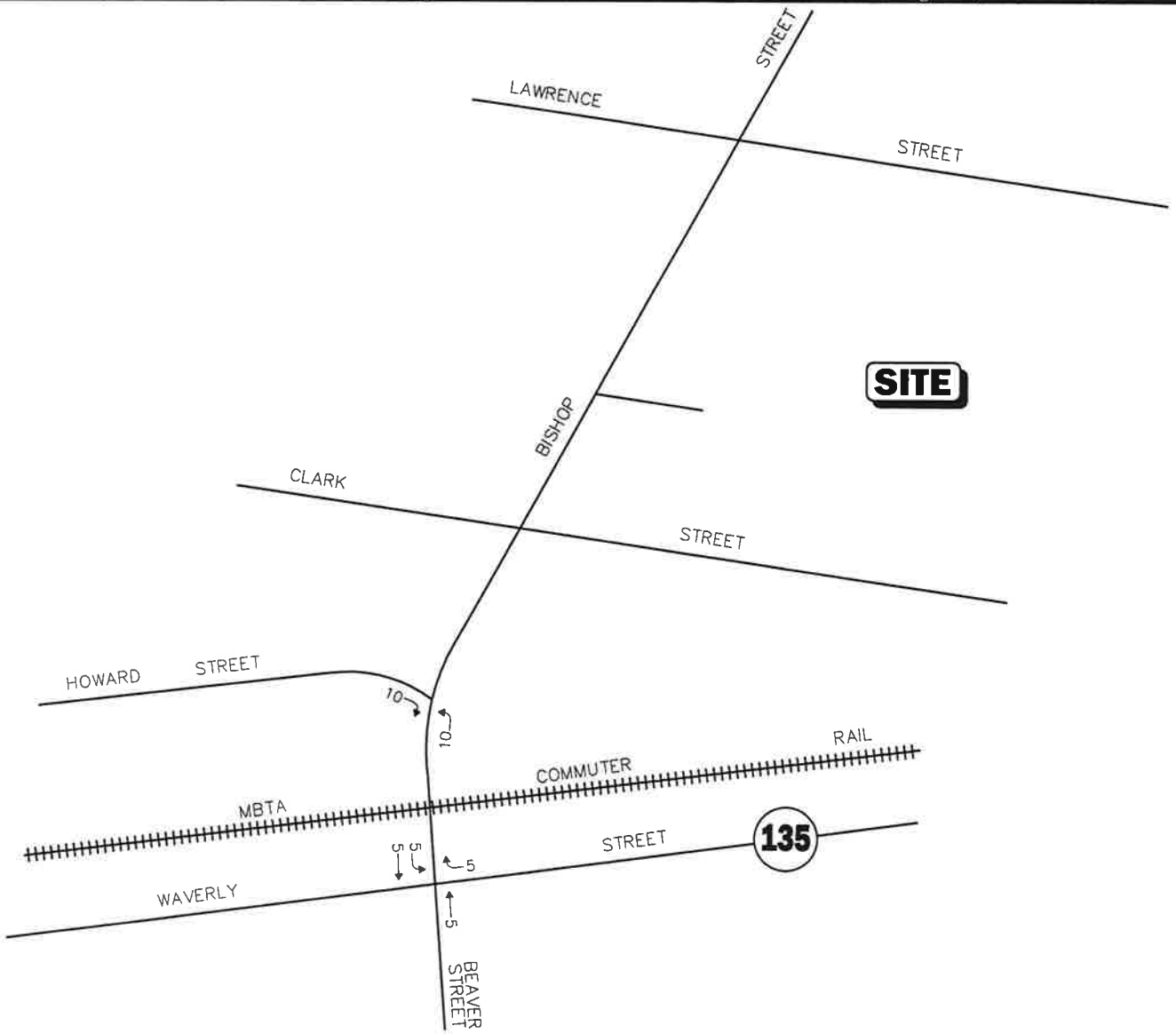

Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure A-3

39 Grant Street
Residential Development
Saturday Midday
Peak Hour Traffic Volumes

Vanasse & Associates, Inc.
Transportation Engineers & Planners

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Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure A-4

Proposed Residential Development
Weekday Morning
Peak Hour Traffic Volumes

Vanasse & Associates, Inc.
Transportation Engineers & Planners

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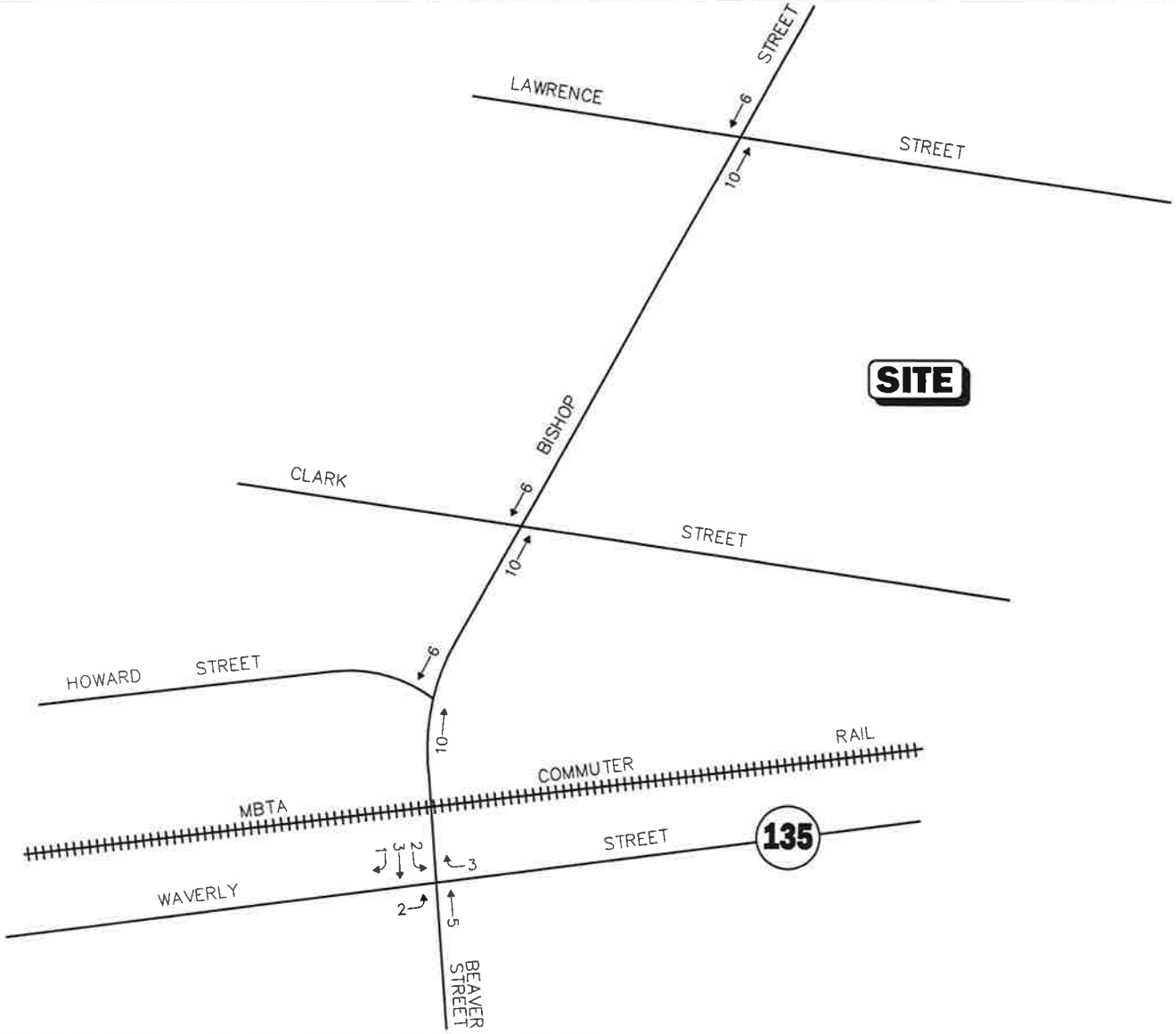

Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure A-5

Proposed Residential Development
Weekday Evening
Peak Hour Traffic Volumes

Vanasse & Associates, Inc.

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Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Not To Scale

Figure A-6

Proposed Residential Development
Saturday Midday
Peak Hour Traffic Volumes

Vanasse & Associates, Inc.
Transportation Engineers & Planners

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GENERAL BACKGROUND TRAFFIC GROWTH

General Background Traffic Growth

STA.	CITY/TOWN	ROUTE/STREET	LOCATION	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Average Annual
4157	FRAMINGHAM	BEACON ST.	NORTH OF RTE.9			7600			7000			6600		-2.32%
4018	FRAMINGHAM	FOUNTAIN ST.	EAST OF WINTER ST.		11700			11800			11200			-0.72%
4017	FRAMINGHAM	GROVE ST.	NORTH OF MASSACHUSETTS TURNPIKE			3600			3600			3000		-2.96%
4924	FRAMINGHAM	RTE.135	EAST OF RTE.126		15400			17100			15700			0.36%
4019	FRAMINGHAM	UNION AVE.	SOUTH OF WAYTE AVE.					25400			18100			-10.68%
4016	FRAMINGHAM	WATER ST.	WEST OF NICKOLAS RD.			11900			12500					1.65%
4156	FRAMINGHAM	WINCH ST.	WEST OF GROVE ST.			1300			1600			1300		0.16%
														-2.07%

TRIP-GENERATION CALCULATIONS

VAI Calculations

Job:	Ashland	Job Number:	7156
Location:	Herb Chambers	Date:	10/14/15
Title:	Traffic Count	Sheet:	1 of 1
Calculated by:	SRF	Checked by:	

Start Time	Cars In	Cars Out	Trucks In	Trucks Out	Total	Hourly Total
7:00 AM	4	0	0	0	4	
7:15	6	1	0	0	7	
7:30	10	0	0	0	10	
7:45	3	1	0	0	4	25
8:00	4	1	0	0	5	26
8:15	2	0	0	0	2	21
8:30	4	2	0	0	6	17
8:45	2	3	0	0	5	18
Total	35	8	0	0	43	
Pk Hr Total	23	3	0	0	26	

VAI Calculations

Job:	Ashland	Job Number:	7156
Location:	Herb Chambers	Date:	10/13/15
Title:	Traffic Count	Sheet:	1 of 1
Calculated by:	SRF	Checked by:	

Start Time	Cars In	Cars Out	Trucks In	Trucks Out	Total	Hourly Total
4:00 PM	0	1	0	0	1	
4:15	1	1	0	0	2	
4:30	5	6	0	0	11	
4:45	2	2	0	0	4	18
5:00	3	15	0	0	18	35
5:15	0	3	0	0	3	36
5:30	0	7	0	0	7	32
5:45	0	2	0	0	2	30
Total	11	37	0	0	48	
Pk Hr Total	10	26	0	0	36	

VAI Calculations

Job:	Natick	Job Number:	7156
Location:	Herb Chambers	Date:	10/1/15
Title:	Traffic Count	Sheet:	1 of 1
Calculated by:	SRF	Checked by:	

Start Time	Cars In	Cars Out	Trucks In	Trucks Out	Total	Hourly Total
7:00 AM	0	0	0	0	0	
7:15	3	0	0	0	3	
7:30	0	1	0	0	1	
7:45	1	0	0	0	1	5
8:00	2	1	0	0	3	8
8:15	2	1	0	0	3	8
8:30	6	3	0	0	9	16
8:45	1	2	0	0	3	18
Total	15	8	0	0	23	
Pk Hr Total	11	7	0	0	18	

VAI Calculations

Job:	Natick	Job Number:	7156
Location:	Herb Chambers	Date:	10/1/15
Title:	Traffic Count	Sheet:	1 of 1
Calculated by:	SRF	Checked by:	

Start Time	Cars In	Cars Out	Trucks In	Trucks Out	Total	Hourly Total
4:00 PM	2	3	0	0	5	
4:15	0	0	0	0	0	
4:30	0	0	0	0	0	
4:45	2	3	0	0	5	10
5:00	1	3	0	0	4	9
5:15	1	2	0	0	3	12
5:30	2	3	0	0	5	17
5:45	2	2	0	0	4	16
Total	10	16	0	0	26	
Pk Hr Total	6	11	0	0	17	

Accurate Counts
978-664-2565

N/S Street : Chambers Motor Cars
E/W Street : West Central Street
City/State : Natick, MA
Weather : Rain

File Name : 71560001
Site Code : 71560001
Start Date : 10/3/2015
Page No : 1

Groups Printed- Cars

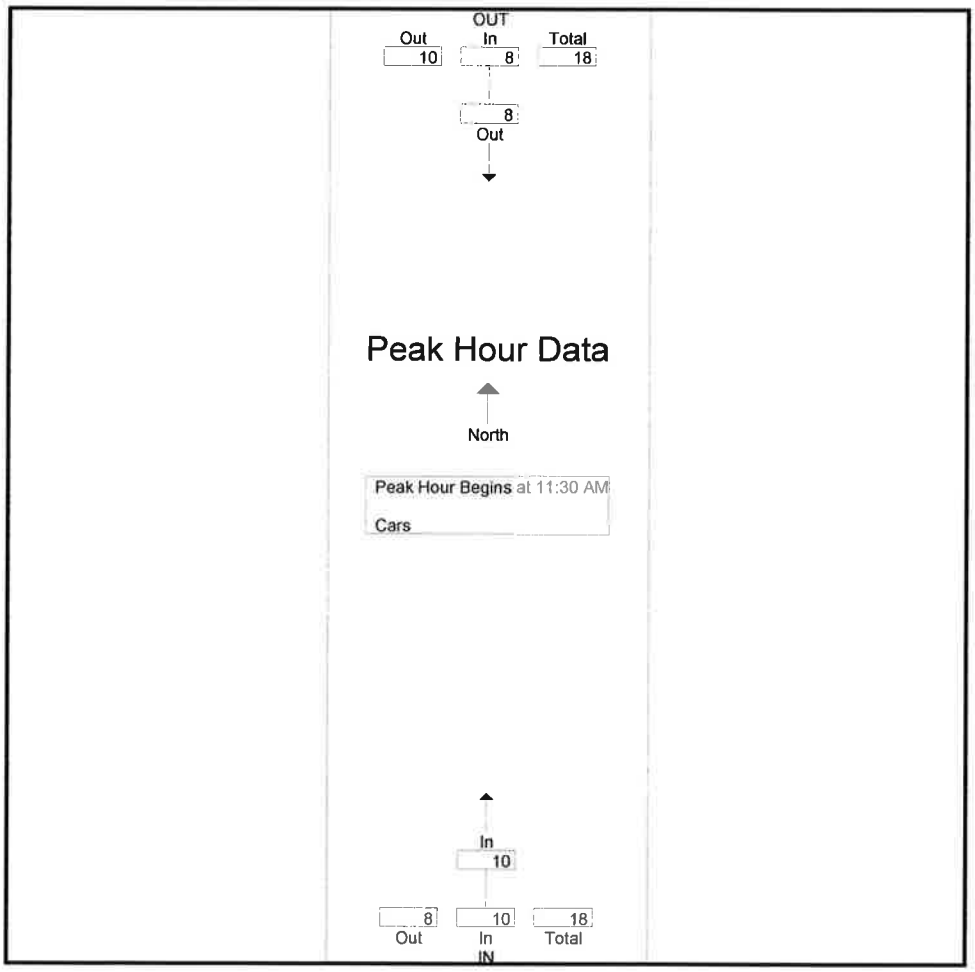
	OUT From North	IN From South	
Start Time	Out	In	Int. Total
11:00 AM	1	1	2
11:15 AM	1	0	1
11:30 AM	0	4	4
11:45 AM	2	1	3
Total	4	6	10
12:00 PM	4	4	8
12:15 PM	2	1	3
12:30 PM	1	1	2
12:45 PM	0	0	0
Total	7	6	13
01:00 PM	1	1	2
01:15 PM	1	2	3
01:30 PM	2	2	4
01:45 PM	1	1	2
Total	5	6	11
Grand Total	16	18	34
Apprch %	100	100	
Total %	47.1	52.9	

Accurate Counts
978-664-2565

N/S Street : Chambers Motor Cars
E/W Street : West Central Street
City/State : Natick, MA
Weather : Rain

File Name : 71560001
Site Code : 71560001
Start Date : 10/3/2015
Page No : 2

	OUT From North		IN From South		
Start Time	Out	App. Total	In	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 11:30 AM					
11:30 AM	0	0	4	4	4
11:45 AM	2	2	1	1	3
12:00 PM	4	4	4	4	8
12:15 PM	2	2	1	1	3
Total Volume	8	8	10	10	18
% App. Total	100		100		
PHF	.500	.500	.625	.625	.563



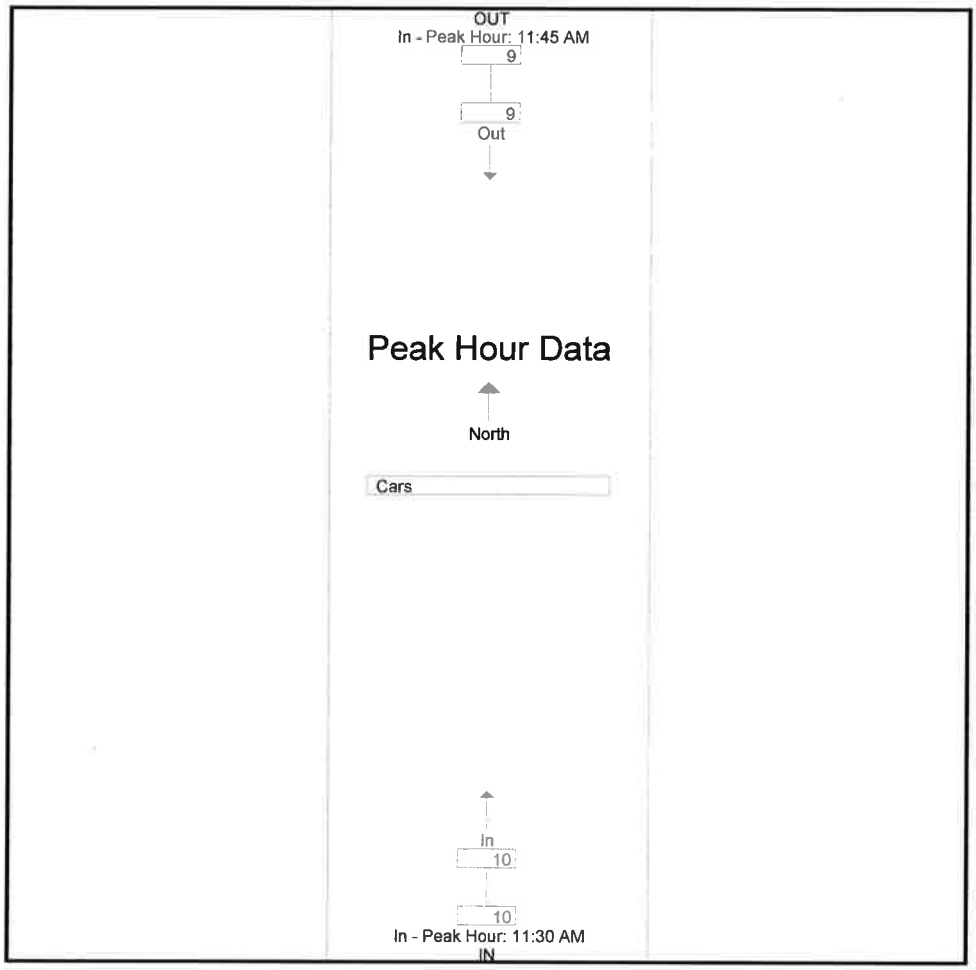
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	11:45 AM		11:30 AM	
+0 mins.	2	2	4	4
+15 mins.	4	4	1	1
+30 mins.	2	2	4	4
+45 mins.	1	1	1	1
Total Volume	9	9	10	10
% App. Total	100		100	
PHF	.563	.563	.625	.625

Accurate Counts
978-664-2565

N/S Street : Chambers Motor Cars
E/W Street : West Central Street
City/State : Natick, MA
Weather : Rain

File Name : 71560001
Site Code : 71560001
Start Date : 10/3/2015
Page No : 3



CAPACITY ANALYSIS WORKSHEETS

Waverly Street at Beaver Street and Bishop Street
Bishop Street at Howard Street
Bishop Street at Clark Street
Bishop Street at Lawrence Street
Bishop Street at the North Project Site Driveway
Bishop Street at the South Project Site Driveway
Clark Street at the Project Site Driveway

Waverly Street at Beaver Street and Bishop Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	159	342	72	44	218	307	50	442	48	198	357	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	13	12	12	10	12	12	12	12	12
Satd. Flow (prot)	1728	1817	0	1743	1845	1538	1685	3510	0	1703	3403	0
Flt Permitted	0.950			0.498			0.453			0.242		
Satd. Flow (perm)	1728	1817	0	914	1845	1538	803	3510	0	434	3403	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8				327		8			66	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		380			393			753			151	
Travel Time (s)		8.6			8.9			17.1			3.4	
Peak Hour Factor	0.90	0.90	0.90	0.94	0.94	0.94	0.92	0.92	0.92	0.95	0.95	0.95
Heavy Vehicles (%)	1%	2%	1%	7%	3%	5%	0%	1%	4%	6%	1%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	177	460	0	47	232	327	54	532	0	208	536	0
Turn Type	Prot	NA		D.Pm	NA	custom	Perm	NA		custom	NA	
Protected Phases	4	5						2		1	2	
Permitted Phases		4		5	5	5	2			1 2	1	
Detector Phase	4	5		5	5	5	2	2		1	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0		10.0	24.0	
Total Split (s)	19.0	29.0		29.0	29.0	29.0	38.0	38.0		37.0	38.0	
Total Split (%)	13.4%	20.4%		20.4%	20.4%	20.4%	26.8%	26.8%		26.1%	26.8%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lag						Lag	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes						Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	None		C-Max	None	
Act Effct Green (s)	24.4	59.2		30.7	30.7	30.7	34.0	34.0		70.8	74.8	
Actuated g/C Ratio	0.17	0.42		0.22	0.22	0.22	0.24	0.24		0.50	0.53	
v/c Ratio	0.60	0.60		0.24	0.58	0.56	0.28	0.63		0.38	0.29	
Control Delay	62.6	34.9		48.7	56.0	8.5	48.9	51.5		20.4	19.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		4.4	8.0	
Total Delay	62.6	34.9		48.7	56.0	8.5	48.9	51.5		24.8	27.9	
LOS	E	C		D	E	A	D	D		C	C	
Approach Delay		42.6			29.8			51.2			27.0	
Approach LOS		D			C			D			C	
Queue Length 50th (ft)	153	307		35	187	0	41	230		142	215	
Queue Length 95th (ft)	227	419		77	285	85	85	294		235	279	
Internal Link Dist (ft)		300			313			673			71	
Turn Bay Length (ft)												
Base Capacity (vph)	297	763		198	401	590	192	846		545	1824	
Starvation Cap Reductn	0	0		0	0	0	0	0		261	1238	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	

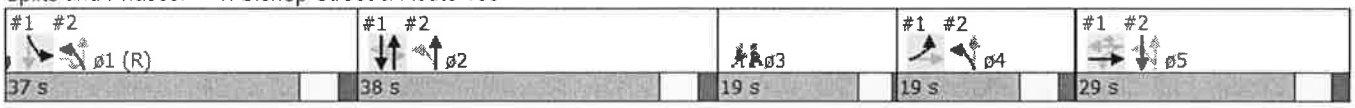
Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	19.0
Total Split (%)	13%
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
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	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.60	0.60		0.24	0.58	0.55	0.28	0.63		0.73	0.91	

Intersection Summary

Area Type: Other
Cycle Length: 142
Actuated Cycle Length: 142
Offset: 0 (0%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 37.0 Intersection LOS: D
Intersection Capacity Utilization 63.8% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: Bishop Street & Route 135



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	139	272	53	74	269	278	62	420	50	247	671	242
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	13	12	12	10	12	12	12	12	12
Satd. Flow (prot)	1728	1837	0	1793	1900	1615	1685	3545	0	1770	3466	0
Flt Permitted	0.950			0.489			0.301			0.264		
Satd. Flow (perm)	1728	1837	0	923	1900	1615	534	3545	0	492	3466	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				299		8			51	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		380			393			753			151	
Travel Time (s)		8.6			8.9			17.1			3.4	
Peak Hour Factor	0.90	0.90	0.90	0.93	0.93	0.93	0.93	0.93	0.93	0.96	0.96	0.96
Heavy Vehicles (%)	1%	1%	0%	4%	0%	0%	0%	0%	2%	2%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	154	361	0	80	289	299	67	506	0	257	951	0
Turn Type	Prot	NA		D.Pm	NA	custom	Perm	NA		pm+pt	NA	
Protected Phases	4	5						2		1	2	
Permitted Phases		4		5	5	5	2			2	1	
Detector Phase	4	5		5	5	5	2	2		1	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0		10.0	24.0	
Total Split (s)	19.0	29.0		29.0	29.0	29.0	38.0	38.0		37.0	38.0	
Total Split (%)	13.4%	20.4%		20.4%	20.4%	20.4%	26.8%	26.8%		26.1%	26.8%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lag						Lag	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes						Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	None		C-Max	None	
Act Effct Green (s)	15.0	44.0		25.0	25.0	25.0	34.0	34.0		86.0	90.0	
Actuated g/C Ratio	0.11	0.31		0.18	0.18	0.18	0.24	0.24		0.61	0.63	
v/c Ratio	0.85	0.63		0.49	0.87	0.56	0.53	0.59		0.34	0.43	
Control Delay	98.0	46.9		64.5	81.6	9.8	64.0	50.4		12.0	18.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		10.6	51.1	
Total Delay	98.0	46.9		64.5	81.6	9.8	64.0	50.4		22.7	69.0	
LOS	F	D		E	F	A	E	D		C	E	
Approach Delay		62.2			47.4			52.0			59.2	
Approach LOS		E			D			D			E	
Queue Length 50th (ft)	142	281		68	263	0	54	216		147	446	
Queue Length 95th (ft)	#268	393		126	#421	85	112	277		m174	m412	
Internal Link Dist (ft)		300			313			673			71	
Turn Bay Length (ft)												
Base Capacity (vph)	182	574		162	334	530	127	854		765	2215	
Starvation Cap Reductn	0	0		0	0	0	0	0		472	1382	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	

Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	19.0
Total Split (%)	13%
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
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	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.85	0.63		0.49	0.87	0.56	0.53	0.59		0.88	1.14	

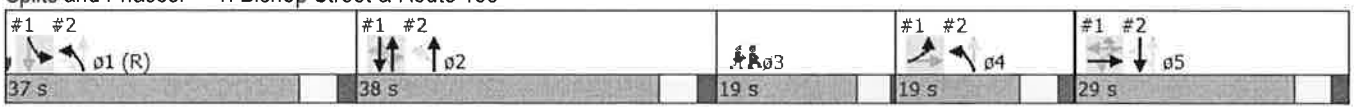
Intersection Summary

Area Type: Other
Cycle Length: 142
Actuated Cycle Length: 142
Offset: 0 (0%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 55.7 Intersection LOS: E
Intersection Capacity Utilization 64.9% ICU Level of Service C
Analysis Period (min) 15

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Bishop Street & Route 135



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	177	296	73	61	247	269	67	324	55	219	361	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	13	12	12	10	12	12	12	12	12
Satd. Flow (prot)	1745	1843	0	1865	1881	1599	1652	3495	0	1805	3415	0
Flt Permitted	0.950			0.524			0.410			0.246		
Satd. Flow (perm)	1745	1843	0	1029	1881	1599	713	3495	0	467	3415	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11				286		12			93	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		380			393			753			151	
Travel Time (s)		8.6			8.9			17.1			3.4	
Peak Hour Factor	0.91	0.91	0.91	0.94	0.94	0.94	0.84	0.84	0.84	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%	2%	0%	7%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	195	405	0	65	263	286	80	451	0	246	636	0
Turn Type	Prot	NA		D.Pm	NA	custom	Perm	NA		pm+pt	NA	
Protected Phases	4	5						2		1	2	
Permitted Phases		4		5	5	5	2			2	1	
Detector Phase	4	5		5	5	5	2	2		1	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0		10.0	24.0	
Total Split (s)	26.0	36.0		36.0	36.0	36.0	31.0	31.0		30.0	31.0	
Total Split (%)	18.3%	25.4%		25.4%	25.4%	25.4%	21.8%	21.8%		21.1%	21.8%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lag						Lag	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes						Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	None		C-Max	None	
Act Effct Green (s)	20.5	55.5		31.0	31.0	31.0	27.0	27.0		74.5	78.5	
Actuated g/C Ratio	0.14	0.39		0.22	0.22	0.22	0.19	0.19		0.52	0.55	
v/c Ratio	0.78	0.56		0.29	0.64	0.50	0.59	0.67		0.36	0.33	
Control Delay	79.1	35.6		49.9	58.2	8.0	71.9	57.5		19.5	20.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		6.8	19.8	
Total Delay	79.1	35.6		49.9	58.2	8.0	71.9	57.5		26.3	40.0	
LOS	E	D		D	E	A	E	E		C	D	
Approach Delay		49.8			34.0			59.6			36.2	
Approach LOS		D			C			E			D	
Queue Length 50th (ft)	174	273		50	221	0	68	200		176	282	
Queue Length 95th (ft)	#278	378		97	318	76	119	241		268	333	
Internal Link Dist (ft)		300			313			673			71	
Turn Bay Length (ft)												
Base Capacity (vph)	270	740		231	423	581	135	674		692	1928	
Starvation Cap Reductn	0	0		0	0	0	0	0		390	1293	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	

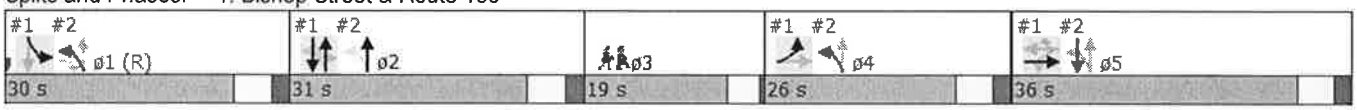
Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	19.0
Total Split (%)	13%
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
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	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.72	0.55		0.28	0.62	0.49	0.59	0.67		0.81	1.00	

Intersection Summary

Area Type: Other
Cycle Length: 142
Actuated Cycle Length: 142
Offset: 0 (0%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 43.5 Intersection LOS: D
Intersection Capacity Utilization 59.6% **ICU Level of Service B**
Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Bishop Street & Route 135



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	170	367	77	47	234	333	54	478	51	223	396	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	13	12	12	10	12	12	12	12	12
Satd. Flow (prot)	1728	1817	0	1743	1845	1538	1685	3514	0	1703	3407	0
Flt Permitted	0.950			0.483			0.429			0.207		
Satd. Flow (perm)	1728	1817	0	886	1845	1538	761	3514	0	371	3407	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8				354		7			64	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		380			393			753			151	
Travel Time (s)		8.6			8.9			17.1			3.4	
Peak Hour Factor	0.90	0.90	0.90	0.94	0.94	0.94	0.92	0.92	0.92	0.95	0.95	0.95
Heavy Vehicles (%)	1%	2%	1%	7%	3%	5%	0%	1%	4%	6%	1%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	189	494	0	50	249	354	59	575	0	235	591	0
Turn Type	Prot	NA		D.Pm	NA	custom	Perm	NA		custom	NA	
Protected Phases	4	5						2		1	2	
Permitted Phases		4		5	5	5	2			1 2	1	
Detector Phase	4	5		5	5	5	2	2		1	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0		10.0	24.0	
Total Split (s)	19.0	29.0		29.0	29.0	29.0	38.0	38.0		37.0	38.0	
Total Split (%)	13.4%	20.4%		20.4%	20.4%	20.4%	26.8%	26.8%		26.1%	26.8%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lag						Lag	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes						Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	None		C-Max	None	
Act Effct Green (s)	26.7	61.7		31.0	31.0	31.0	34.0	34.0		68.3	72.3	
Actuated g/C Ratio	0.19	0.43		0.22	0.22	0.22	0.24	0.24		0.48	0.51	
v/c Ratio	0.58	0.62		0.26	0.62	0.58	0.32	0.68		0.47	0.33	
Control Delay	60.2	34.5		50.1	57.7	8.6	50.5	53.2		21.0	20.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		12.1	47.1	
Total Delay	60.2	34.5		50.1	57.7	8.6	50.5	53.2		33.2	67.1	
LOS	E	C		D	E	A	D	D		C	E	
Approach Delay		41.6			30.5			52.9			57.5	
Approach LOS		D			C			D			E	
Queue Length 50th (ft)	162	338		38	207	0	45	253		168	250	
Queue Length 95th (ft)	240	459		81	310	90	92	320		267	310	
Internal Link Dist (ft)		300			313			673			71	
Turn Bay Length (ft)												
Base Capacity (vph)	325	794		193	402	612	182	846		499	1765	
Starvation Cap Reductn	0	0		0	0	0	0	0		235	1219	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	

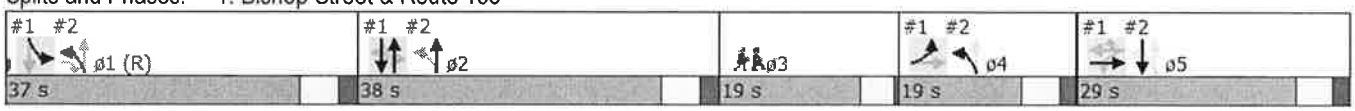
Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	19.0
Total Split (%)	13%
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
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	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.58	0.62		0.26	0.62	0.58	0.32	0.68		0.89	1.08	

Intersection Summary

Area Type: Other
Cycle Length: 142
Actuated Cycle Length: 142
Offset: 0 (0%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 46.3 Intersection LOS: D
Intersection Capacity Utilization 67.9% **ICU Level of Service C**
Analysis Period (min) 15

Splits and Phases: 1: Bishop Street & Route 135



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	151	292	57	79	288	311	66	465	54	272	727	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	13	12	12	10	12	12	12	12	12
Satd. Flow (prot)	1728	1839	0	1793	1900	1615	1685	3545	0	1770	3466	0
Flt Permitted	0.950			0.428			0.279			0.221		
Satd. Flow (perm)	1728	1839	0	808	1900	1615	495	3545	0	412	3466	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				334		8			51	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		380			393			753			151	
Travel Time (s)		8.6			8.9			17.1			3.4	
Peak Hour Factor	0.90	0.90	0.90	0.93	0.93	0.93	0.93	0.93	0.93	0.96	0.96	0.96
Heavy Vehicles (%)	1%	1%	0%	4%	0%	0%	0%	0%	2%	2%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	168	387	0	85	310	334	71	558	0	283	1028	0
Turn Type	Prot	NA		D.Pm	NA	custom	Perm	NA		custom	NA	
Protected Phases	4	5						2		1	2	
Permitted Phases		4		5	5	5	2			1 2	1	
Detector Phase	4	5		5	5	5	2	2		1	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0		10.0	24.0	
Total Split (s)	19.0	29.0		29.0	29.0	29.0	38.0	38.0		37.0	38.0	
Total Split (%)	13.4%	20.4%		20.4%	20.4%	20.4%	26.8%	26.8%		26.1%	26.8%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lag						Lag	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes						Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	None		C-Max	None	
Act Effct Green (s)	15.0	44.0		25.0	25.0	25.0	34.0	34.0		86.0	90.0	
Actuated g/C Ratio	0.11	0.31		0.18	0.18	0.18	0.24	0.24		0.61	0.63	
v/c Ratio	0.92	0.67		0.60	0.93	0.60	0.60	0.65		0.38	0.46	
Control Delay	111.4	48.8		72.7	91.3	9.8	70.9	52.2		12.3	18.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		19.4	51.1	
Total Delay	111.4	48.8		72.7	91.3	9.8	70.9	52.2		31.7	69.8	
LOS	F	D		E	F	A	E	D		C	E	
Approach Delay		67.8			51.8			54.3			61.6	
Approach LOS		E			D			D			E	
Queue Length 50th (ft)	156	307		73	286	0	59	243		167	488	
Queue Length 95th (ft)	#301	426		#142	#465	90	#130	308		m184	m421	
Internal Link Dist (ft)		300			313			673			71	
Turn Bay Length (ft)												
Base Capacity (vph)	182	574		142	334	559	118	854		746	2215	
Starvation Cap Reductn	0	0		0	0	0	0	0		450	1384	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	

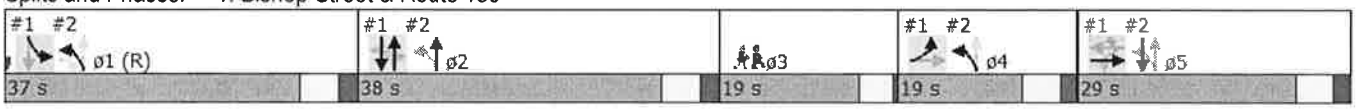
Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	19.0
Total Split (%)	13%
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
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	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.92	0.67		0.60	0.93	0.60	0.60	0.65		0.96	1.24	

Intersection Summary

Area Type: Other
Cycle Length: 142
Actuated Cycle Length: 142
Offset: 0 (0%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 135
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.13
Intersection Signal Delay: 59.0 Intersection LOS: E
Intersection Capacity Utilization 68.9% **ICU Level of Service C**
Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Bishop Street & Route 135



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	192	317	78	65	265	295	72	356	59	243	336	222
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	13	12	12	10	12	12	12	12	12
Satd. Flow (prot)	1745	1843	0	1865	1881	1599	1652	3499	0	1805	3393	0
Flt Permitted	0.950			0.510			0.414			0.202		
Satd. Flow (perm)	1745	1843	0	1001	1881	1599	720	3499	0	384	3393	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11				314		12			130	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		380			393			753			151	
Travel Time (s)		8.6			8.9			17.1			3.4	
Peak Hour Factor	0.91	0.91	0.91	0.94	0.94	0.94	0.84	0.84	0.84	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%	2%	0%	7%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	211	434	0	69	282	314	86	494	0	273	627	0
Turn Type	Prot	NA		D.Pm	NA	custom	Perm	NA		pm+pt	NA	
Protected Phases	4	5						2		1	2	
Permitted Phases		4		5	5	5	2			2	1	
Detector Phase	4	5		5	5	5	2	2		1	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0		10.0	24.0	
Total Split (s)	26.0	36.0		36.0	36.0	36.0	31.0	31.0		30.0	31.0	
Total Split (%)	18.3%	25.4%		25.4%	25.4%	25.4%	21.8%	21.8%		21.1%	21.8%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lag						Lag	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes						Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	None		C-Max	None	
Act Effct Green (s)	21.1	56.6		31.5	31.5	31.5	27.0	27.0		73.4	77.4	
Actuated g/C Ratio	0.15	0.40		0.22	0.22	0.22	0.19	0.19		0.52	0.55	
v/c Ratio	0.81	0.59		0.31	0.68	0.52	0.63	0.73		0.41	0.33	
Control Delay	82.3	36.1		50.5	59.6	8.0	74.7	60.0		20.0	18.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		10.4	24.3	
Total Delay	82.3	36.1		50.5	59.6	8.0	74.7	60.0		30.4	43.1	
LOS	F	D		D	E	A	E	E		C	D	
Approach Delay		51.2			34.3			62.2			39.3	
Approach LOS		D			C			E			D	
Queue Length 50th (ft)	190	299		54	240	0	74	223		201	249	
Queue Length 95th (ft)	#312	411		102	343	81	#128	265		297	303	
Internal Link Dist (ft)		300			313			673			71	
Turn Bay Length (ft)												
Base Capacity (vph)	270	747		225	423	603	136	675		662	1907	
Starvation Cap Reductn	0	0		0	0	0	0	0		353	1291	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	

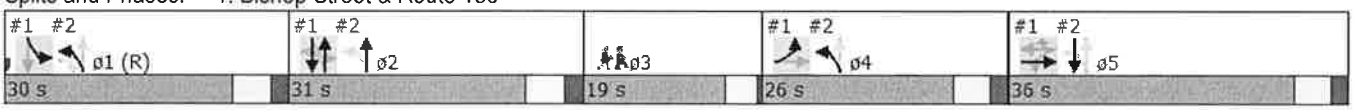
Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	19.0
Total Split (%)	13%
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
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	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.78	0.58		0.31	0.67	0.52	0.63	0.73		0.88	1.02	

Intersection Summary

Area Type: Other
Cycle Length: 142
Actuated Cycle Length: 142
Offset: 0 (0%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 45.6 Intersection LOS: D
Intersection Capacity Utilization 63.5% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Bishop Street & Route 135



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	172	367	77	47	234	339	54	488	51	225	398	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	13	12	12	10	12	12	12	12	12
Satd. Flow (prot)	1728	1817	0	1743	1845	1538	1685	3514	0	1703	3407	0
Flt Permitted	0.950			0.483			0.428			0.199		
Satd. Flow (perm)	1728	1817	0	886	1845	1538	759	3514	0	357	3407	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8				361		7			64	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		380			393			753			151	
Travel Time (s)		8.6			8.9			17.1			3.4	
Peak Hour Factor	0.90	0.90	0.90	0.94	0.94	0.94	0.92	0.92	0.92	0.95	0.95	0.95
Heavy Vehicles (%)	1%	2%	1%	7%	3%	5%	0%	1%	4%	6%	1%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	191	494	0	50	249	361	59	585	0	237	594	0
Turn Type	Prot	NA		D.Pm	NA	custom	Perm	NA		custom	NA	
Protected Phases	4	5						2		1	2	
Permitted Phases		4		5	5	5	2			1 2	1	
Detector Phase	4	5		5	5	5	2	2		1	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0		10.0	24.0	
Total Split (s)	19.0	29.0		29.0	29.0	29.0	38.0	38.0		37.0	38.0	
Total Split (%)	13.4%	20.4%		20.4%	20.4%	20.4%	26.8%	26.8%		26.1%	26.8%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lag						Lag	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes						Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	None		C-Max	None	
Act Effct Green (s)	27.1	61.9		30.9	30.9	30.9	34.0	34.0		68.1	72.1	
Actuated g/C Ratio	0.19	0.44		0.22	0.22	0.22	0.24	0.24		0.48	0.51	
v/c Ratio	0.58	0.62		0.26	0.62	0.59	0.33	0.69		0.48	0.34	
Control Delay	59.9	34.3		50.3	58.0	8.7	50.6	53.6		21.1	20.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		13.6	54.0	
Total Delay	59.9	34.3		50.3	58.0	8.7	50.6	53.6		34.7	74.0	
LOS	E	C		D	E	A	D	D		C	E	
Approach Delay		41.4			30.4			53.3			62.8	
Approach LOS		D			C			D			E	
Queue Length 50th (ft)	163	338		38	207	0	45	258		171	253	
Queue Length 95th (ft)	242	459		81	310	90	92	326		272	314	
Internal Link Dist (ft)		300			313			673			71	
Turn Bay Length (ft)												
Base Capacity (vph)	329	797		192	400	616	181	846		494	1760	
Starvation Cap Reductn	0	0		0	0	0	0	0		232	1220	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	

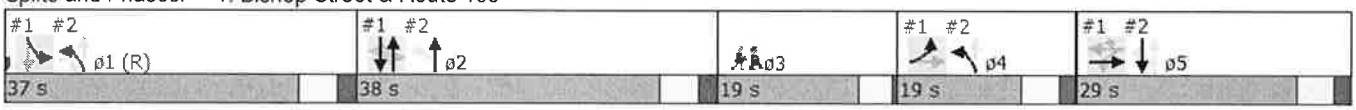
Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	19.0
Total Split (%)	13%
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
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	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.58	0.62		0.26	0.62	0.59	0.33	0.69		0.90	1.10	

Intersection Summary

Area Type: Other
Cycle Length: 142
Actuated Cycle Length: 142
Offset: 0 (0%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 47.9 Intersection LOS: D
Intersection Capacity Utilization 68.2% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 1: Bishop Street & Route 135



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	152	292	57	79	288	314	66	469	54	279	738	262
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	13	12	12	10	12	12	12	12	12
Satd. Flow (prot)	1728	1839	0	1793	1900	1615	1685	3549	0	1770	3469	0
Flt Permitted	0.950			0.428			0.275			0.218		
Satd. Flow (perm)	1728	1839	0	808	1900	1615	488	3549	0	406	3469	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				338		8			50	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		380			393			753			151	
Travel Time (s)		8.6			8.9			17.1			3.4	
Peak Hour Factor	0.90	0.90	0.90	0.93	0.93	0.93	0.93	0.93	0.93	0.96	0.96	0.96
Heavy Vehicles (%)	1%	1%	0%	4%	0%	0%	0%	0%	2%	2%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	169	387	0	85	310	338	71	562	0	291	1042	0
Turn Type	Prot	NA		D.Pm	NA	custom	Perm	NA		custom	NA	
Protected Phases	4	5						2		1	2	
Permitted Phases		4		5	5	5	2			1 2	1	
Detector Phase	4	5		5	5	5	2	2		1	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0		10.0	24.0	
Total Split (s)	19.0	29.0		29.0	29.0	29.0	38.0	38.0		37.0	38.0	
Total Split (%)	13.4%	20.4%		20.4%	20.4%	20.4%	26.8%	26.8%		26.1%	26.8%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lag						Lag	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes						Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	None		C-Max	None	
Act Effct Green (s)	15.0	44.0		25.0	25.0	25.0	34.0	34.0		86.0	90.0	
Actuated g/C Ratio	0.11	0.31		0.18	0.18	0.18	0.24	0.24		0.61	0.63	
v/c Ratio	0.93	0.67		0.60	0.93	0.60	0.61	0.66		0.39	0.47	
Control Delay	112.5	48.8		72.7	91.3	9.9	72.1	52.3		12.7	19.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		23.0	51.1	
Total Delay	112.5	48.8		72.7	91.3	9.9	72.1	52.3		35.6	70.3	
LOS	F	D		E	F	A	E	D		D	E	
Approach Delay		68.2			51.6			54.5			62.7	
Approach LOS		E			D			D			E	
Queue Length 50th (ft)	157	307		73	286	0	59	245		176	497	
Queue Length 95th (ft)	#302	426		#142	#465	90	#132	311		m190	m421	
Internal Link Dist (ft)		300			313			673			71	
Turn Bay Length (ft)												
Base Capacity (vph)	182	574		142	334	562	116	855		745	2216	
Starvation Cap Reductn	0	0		0	0	0	0	0		447	1388	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	

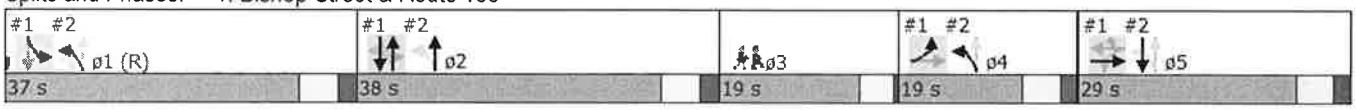
Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	19.0
Total Split (%)	13%
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
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	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.93	0.67		0.60	0.93	0.60	0.61	0.66		0.98	1.26	

Intersection Summary

Area Type: Other
Cycle Length: 142
Actuated Cycle Length: 142
Offset: 0 (0%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 135
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.16
Intersection Signal Delay: 59.5 Intersection LOS: E
Intersection Capacity Utilization 69.3% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Bishop Street & Route 135



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	194	317	78	65	265	300	72	365	59	245	399	223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	13	12	12	10	12	12	12	12	12
Satd. Flow (prot)	1745	1843	0	1865	1881	1599	1652	3500	0	1805	3415	0
Flt Permitted	0.950			0.510			0.386			0.191		
Satd. Flow (perm)	1745	1843	0	1001	1881	1599	671	3500	0	363	3415	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11				319		11			91	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		380			393			753			151	
Travel Time (s)		8.6			8.9			17.1			3.4	
Peak Hour Factor	0.91	0.91	0.91	0.94	0.94	0.94	0.84	0.84	0.84	0.89	0.89	0.89
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%	2%	0%	7%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	213	434	0	69	282	319	86	505	0	275	699	0
Turn Type	Prot	NA		D.Pm	NA	custom	Perm	NA		pm+pt	NA	
Protected Phases	4	5						2		1	2	
Permitted Phases		4		5	5	5	2			2	1	
Detector Phase	4	5		5	5	5	2	2		1	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	24.0	24.0		24.0	24.0	24.0	24.0	24.0		10.0	24.0	
Total Split (s)	26.0	36.0		36.0	36.0	36.0	31.0	31.0		30.0	31.0	
Total Split (%)	18.3%	25.4%		25.4%	25.4%	25.4%	21.8%	21.8%		21.1%	21.8%	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0		-2.0	-2.0	-2.0	-2.0	-2.0		-2.0	-2.0	
Total Lost Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Lead/Lag	Lag						Lag	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes						Yes	Yes		Yes	Yes	
Recall Mode	None	None		None	None	None	None	None		C-Max	None	
Act Effct Green (s)	21.1	56.7		31.6	31.6	31.6	27.0	27.0		73.3	77.3	
Actuated g/C Ratio	0.15	0.40		0.22	0.22	0.22	0.19	0.19		0.52	0.54	
v/c Ratio	0.82	0.58		0.31	0.67	0.53	0.68	0.75		0.42	0.37	
Control Delay	83.0	36.0		50.5	59.5	8.0	80.2	60.9		20.2	20.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		11.2	41.2	
Total Delay	83.0	36.0		50.5	59.5	8.0	80.2	60.9		31.3	62.0	
LOS	F	D		D	E	A	F	E		C	E	
Approach Delay		51.5			34.0			63.7			53.3	
Approach LOS		D			C			E			D	
Queue Length 50th (ft)	192	299		54	240	0	75	229		205	324	
Queue Length 95th (ft)	#318	411		102	343	81	#140	271		m298	371	
Internal Link Dist (ft)		300			313			673			71	
Turn Bay Length (ft)												
Base Capacity (vph)	270	748		225	423	607	127	674		657	1899	
Starvation Cap Reductn	0	0		0	0	0	0	0		349	1246	
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	

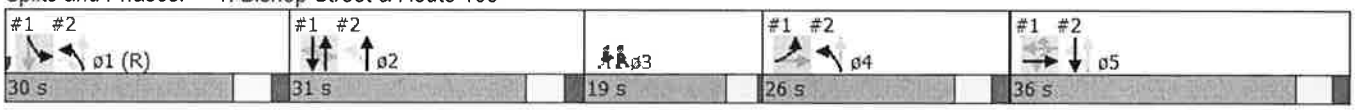
Lane Group	ø3
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	3
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	19.0
Total Split (%)	13%
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
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	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.79	0.58		0.31	0.67	0.53	0.68	0.75		0.89	1.07	

Intersection Summary

Area Type: Other
Cycle Length: 142
Actuated Cycle Length: 142
Offset: 0 (0%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 50.6 Intersection LOS: D
Intersection Capacity Utilization 63.9% ICU Level of Service B
Analysis Period (min) 15
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: 1: Bishop Street & Route 135



Bishop Street at Howard Street

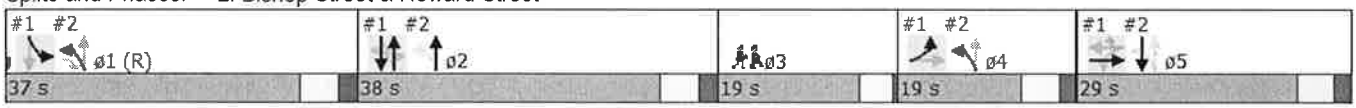
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø3	ø4
Lane Configurations								
Volume (vph)	0	268	226	682	439	7		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	10	12	14	13	12		
Satd. Flow (prot)	0	2576	0	3685	3651	0		
Flt Permitted				0.571				
Satd. Flow (perm)	0	2576	0	2130	3651	0		
Right Turn on Red		No				Yes		
Satd. Flow (RTOR)					1			
Link Speed (mph)	30			30	30			
Link Distance (ft)	435			151	583			
Travel Time (s)	9.9			3.4	13.3			
Peak Hour Factor	0.95	0.95	0.86	0.86	0.92	0.92		
Heavy Vehicles (%)	0%	3%	4%	3%	2%	0%		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	282	0	1056	485	0		
Turn Type		custom	custom	NA	NA			
Protected Phases			1 4	2	5		3	4
Permitted Phases		1	2 5	1 2 4 5	5			
Detector Phase		1	1 4	2	5			
Switch Phase								
Minimum Initial (s)		4.0		4.0	4.0		4.0	4.0
Minimum Split (s)		10.0		24.0	24.0		20.0	24.0
Total Split (s)		37.0		38.0	29.0		19.0	19.0
Total Split (%)		26.1%		26.8%	20.4%		13%	13%
Yellow Time (s)		4.0		4.0	4.0		3.5	4.0
All-Red Time (s)		2.0		2.0	2.0		0.5	2.0
Lost Time Adjust (s)		-2.0		-2.0	-2.0			
Total Lost Time (s)		4.0		4.0	4.0			
Lead/Lag		Lead		Lag			Lead	Lag
Lead-Lag Optimize?		Yes		Yes			Yes	Yes
Recall Mode		C-Max		None	None		None	None
Act Effct Green (s)		36.8		134.0	30.7			
Actuated g/C Ratio		0.26		0.94	0.22			
v/c Ratio		0.42		0.44	0.61			
Control Delay		47.3		0.7	53.6			
Queue Delay		0.0		0.3	56.3			
Total Delay		47.3		1.0	109.9			
LOS		D		A	F			
Approach Delay				1.0	109.9			
Approach LOS				A	F			
Queue Length 50th (ft)		128		0	207			
Queue Length 95th (ft)		180		0	275			
Internal Link Dist (ft)	355			71	503			
Turn Bay Length (ft)								
Base Capacity (vph)		667		2382	794			
Starvation Cap Reductn		0		652	0			
Spillback Cap Reductn		4		0	416			
Storage Cap Reductn		0		0	0			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø3	ø4
Reduced v/c Ratio		0.43		0.61	1.28			

Intersection Summary

Area Type: Other
Cycle Length: 142
Actuated Cycle Length: 142
Offset: 0 (0%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 37.1 Intersection LOS: D
Intersection Capacity Utilization 44.4% **ICU Level of Service A**
Analysis Period (min) 15

Splits and Phases: 2: Bishop Street & Howard Street



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø3	ø4
Lane Configurations								
Volume (vph)	0	547	298	539	613	8		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	10	12	14	13	12		
Satd. Flow (prot)	0	2627	0	3748	3686	0		
Flt Permitted				0.520				
Satd. Flow (perm)	0	2627	0	1983	3686	0		
Right Turn on Red		No				Yes		
Satd. Flow (RTOR)					1			
Link Speed (mph)	30			30	30			
Link Distance (ft)	435			151	583			
Travel Time (s)	9.9			3.4	13.3			
Peak Hour Factor	0.97	0.97	0.92	0.92	0.92	0.92		
Heavy Vehicles (%)	0%	1%	1%	1%	1%	0%		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	564	0	910	675	0		
Turn Type		custom	custom	NA	NA			
Protected Phases			1 4	2	5		3	4
Permitted Phases		1	2 5	1 2 4 5	5			
Detector Phase		1	1 4	2	5			
Switch Phase								
Minimum Initial (s)		4.0		4.0	4.0		4.0	4.0
Minimum Split (s)		10.0		24.0	24.0		20.0	24.0
Total Split (s)		37.0		38.0	29.0		19.0	19.0
Total Split (%)		26.1%		26.8%	20.4%		13%	13%
Yellow Time (s)		4.0		4.0	4.0		3.5	4.0
All-Red Time (s)		2.0		2.0	2.0		0.5	2.0
Lost Time Adjust (s)		-2.0		-2.0	-2.0			
Total Lost Time (s)		4.0		4.0	4.0			
Lead/Lag		Lead		Lag			Lead	Lag
Lead-Lag Optimize?		Yes		Yes			Yes	Yes
Recall Mode		C-Max		None	None		None	None
Act Effct Green (s)		52.0		134.0	25.0			
Actuated g/C Ratio		0.37		0.94	0.18			
v/c Ratio		0.59		0.40	1.04			
Control Delay		39.4		0.6	101.9			
Queue Delay		0.0		0.4	29.0			
Total Delay		39.4		1.0	130.9			
LOS		D		A	F			
Approach Delay				1.0	130.9			
Approach LOS				A	F			
Queue Length 50th (ft)		238		1	~353			
Queue Length 95th (ft)		307		0	#482			
Internal Link Dist (ft)	355			71	503			
Turn Bay Length (ft)								
Base Capacity (vph)		962		2293	649			
Starvation Cap Reductn		0		827	0			
Spillback Cap Reductn		4		0	345			
Storage Cap Reductn		0		0	0			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø3	ø4
Reduced v/c Ratio		0.59		0.62	2.22			

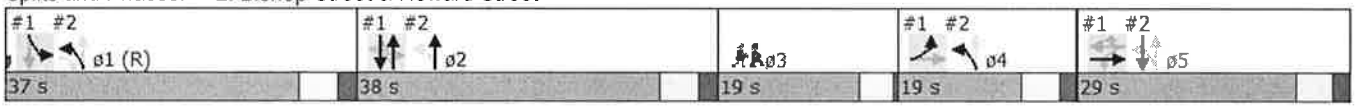
Intersection Summary

Area Type: Other
Cycle Length: 142
Actuated Cycle Length: 142
Offset: 0 (0%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 125
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 51.9 Intersection LOS: D
Intersection Capacity Utilization 47.4% ICU Level of Service A
Analysis Period (min) 15

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

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

Splits and Phases: 2: Bishop Street & Howard Street



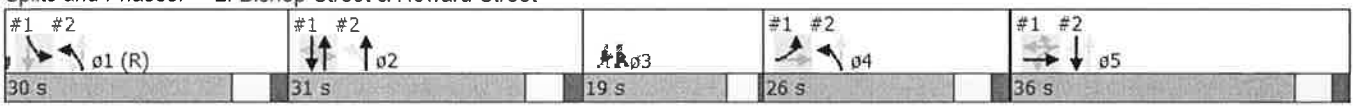
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø3	ø4
Lane Configurations								
Volume (vph)	0	286	216	554	499	6		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	10	12	14	13	12		
Satd. Flow (prot)	0	2627	0	3786	3723	0		
Flt Permitted				0.554				
Satd. Flow (perm)	0	2627	0	2127	3723	0		
Right Turn on Red		No				Yes		
Satd. Flow (RTOR)					1			
Link Speed (mph)	30			30	30			
Link Distance (ft)	435			151	583			
Travel Time (s)	9.9			3.4	13.3			
Peak Hour Factor	0.85	0.85	0.93	0.93	0.88	0.88		
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	336	0	828	574	0		
Turn Type		custom	custom	NA	NA			
Protected Phases			1 4	2	5		3	4
Permitted Phases		1	2 5	1 2 4 5	5			
Detector Phase		1	1 4	2	5			
Switch Phase								
Minimum Initial (s)		4.0		4.0	4.0		4.0	4.0
Minimum Split (s)		10.0		24.0	24.0		20.0	24.0
Total Split (s)		30.0		31.0	36.0		19.0	26.0
Total Split (%)		21.1%		21.8%	25.4%		13%	18%
Yellow Time (s)		4.0		4.0	4.0		3.5	4.0
All-Red Time (s)		2.0		2.0	2.0		0.5	2.0
Lost Time Adjust (s)		-2.0		-2.0	-2.0			
Total Lost Time (s)		4.0		4.0	4.0			
Lead/Lag		Lead		Lag			Lead	Lag
Lead-Lag Optimize?		Yes		Yes			Yes	Yes
Recall Mode		C-Max		None	None		None	None
Act Effct Green (s)		47.5		134.0	31.0			
Actuated g/C Ratio		0.33		0.94	0.22			
v/c Ratio		0.38		0.36	0.71			
Control Delay		38.4		0.4	56.4			
Queue Delay		0.0		0.5	54.7			
Total Delay		38.4		0.9	111.1			
LOS		D		A	F			
Approach Delay				0.9	111.1			
Approach LOS				A	F			
Queue Length 50th (ft)		138		0	257			
Queue Length 95th (ft)		176		0	315			
Internal Link Dist (ft)	355			71	503			
Turn Bay Length (ft)								
Base Capacity (vph)		878		2322	839			
Starvation Cap Reductn		0		956	0			
Spillback Cap Reductn		3		0	409			
Storage Cap Reductn		0		0	0			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø3	ø4
Reduced v/c Ratio		0.38		0.61	1.33			

Intersection Summary

Area Type: Other
Cycle Length: 142
Actuated Cycle Length: 142
Offset: 0 (0%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 44.5 Intersection LOS: D
Intersection Capacity Utilization 42.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Bishop Street & Howard Street



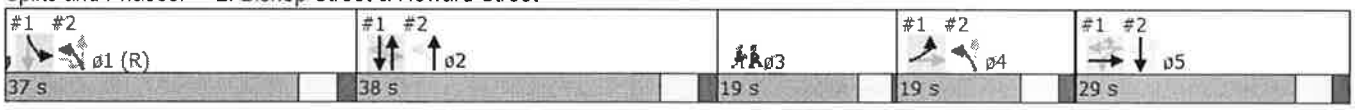
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø3	ø4
Lane Configurations								
Volume (vph)	0	303	246	735	481	8		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	10	12	14	13	12		
Satd. Flow (prot)	0	2576	0	3685	3647	0		
Flt Permitted				0.551				
Satd. Flow (perm)	0	2576	0	2055	3647	0		
Right Turn on Red		No				Yes		
Satd. Flow (RTOR)					1			
Link Speed (mph)	30			30	30			
Link Distance (ft)	435			151	583			
Travel Time (s)	9.9			3.4	13.3			
Peak Hour Factor	0.95	0.95	0.86	0.86	0.92	0.92		
Heavy Vehicles (%)	0%	3%	4%	3%	2%	0%		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	319	0	1141	532	0		
Turn Type		custom	custom	NA	NA			
Protected Phases			1 4	2	5		3	4
Permitted Phases		1	2 5	1 2 4 5	5			
Detector Phase		1	1 4	2	5			
Switch Phase								
Minimum Initial (s)		4.0		4.0	4.0		4.0	4.0
Minimum Split (s)		10.0		24.0	24.0		20.0	24.0
Total Split (s)		37.0		38.0	29.0		19.0	19.0
Total Split (%)		26.1%		26.8%	20.4%		13%	13%
Yellow Time (s)		4.0		4.0	4.0		3.5	4.0
All-Red Time (s)		2.0		2.0	2.0		0.5	2.0
Lost Time Adjust (s)		-2.0		-2.0	-2.0			
Total Lost Time (s)		4.0		4.0	4.0			
Lead/Lag		Lead		Lag			Lead	Lag
Lead-Lag Optimize?		Yes		Yes			Yes	Yes
Recall Mode		C-Max		None	None		None	None
Act Effct Green (s)		34.3		134.0	31.0			
Actuated g/C Ratio		0.24		0.94	0.22			
v/c Ratio		0.51		0.49	0.67			
Control Delay		50.6		0.8	55.4			
Queue Delay		0.0		0.4	55.6			
Total Delay		50.6		1.2	111.0			
LOS		D		A	F			
Approach Delay				1.2	111.0			
Approach LOS				A	F			
Queue Length 50th (ft)		148		3	234			
Queue Length 95th (ft)		203		0	307			
Internal Link Dist (ft)	355			71	503			
Turn Bay Length (ft)								
Base Capacity (vph)		621		2329	797			
Starvation Cap Reductn		0		583	0			
Spillback Cap Reductn		4		0	403			
Storage Cap Reductn		0		0	0			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø3	ø4
Reduced v/c Ratio		0.52		0.65	1.35			

Intersection Summary

Area Type: Other
Cycle Length: 142
Actuated Cycle Length: 142
Offset: 0 (0%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 38.4 Intersection LOS: D
Intersection Capacity Utilization 47.7% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Bishop Street & Howard Street



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø3	ø4
Lane Configurations								
Volume (vph)	0	596	339	588	663	9		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	10	12	14	13	12		
Satd. Flow (prot)	0	2627	0	3744	3687	0		
Flt Permitted				0.512				
Satd. Flow (perm)	0	2627	0	1952	3687	0		
Right Turn on Red		No				Yes		
Satd. Flow (RTOR)					1			
Link Speed (mph)	30			30	30			
Link Distance (ft)	435			151	583			
Travel Time (s)	9.9			3.4	13.3			
Peak Hour Factor	0.97	0.97	0.92	0.92	0.92	0.92		
Heavy Vehicles (%)	0%	1%	1%	1%	1%	0%		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	614	0	1007	731	0		
Turn Type		custom	custom	NA	NA			
Protected Phases			1 4	2	5		3	4
Permitted Phases		1	2 5	1 2 4 5	5			
Detector Phase		1	1 4	2	5			
Switch Phase								
Minimum Initial (s)		4.0		4.0	4.0		4.0	4.0
Minimum Split (s)		10.0		24.0	24.0		20.0	24.0
Total Split (s)		37.0		38.0	29.0		19.0	19.0
Total Split (%)		26.1%		26.8%	20.4%		13%	13%
Yellow Time (s)		4.0		4.0	4.0		3.5	4.0
All-Red Time (s)		2.0		2.0	2.0		0.5	2.0
Lost Time Adjust (s)		-2.0		-2.0	-2.0			
Total Lost Time (s)		4.0		4.0	4.0			
Lead/Lag		Lead		Lag			Lead	Lag
Lead-Lag Optimize?		Yes		Yes			Yes	Yes
Recall Mode		C-Max		None	None		None	None
Act Effct Green (s)		52.0		134.0	25.0			
Actuated g/C Ratio		0.37		0.94	0.18			
v/c Ratio		0.64		0.44	1.13			
Control Delay		40.9		0.7	127.3			
Queue Delay		0.0		0.6	7.2			
Total Delay		40.9		1.3	134.4			
LOS		D		A	F			
Approach Delay				1.3	134.4			
Approach LOS				A	F			
Queue Length 50th (ft)		265		3	~410			
Queue Length 95th (ft)		339		m4	#542			
Internal Link Dist (ft)	355			71	503			
Turn Bay Length (ft)								
Base Capacity (vph)		962		2271	649			
Starvation Cap Reductn		0		782	0			
Spillback Cap Reductn		4		0	351			
Storage Cap Reductn		0		0	0			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø3	ø4
Reduced v/c Ratio		0.64		0.68	2.45			

Intersection Summary

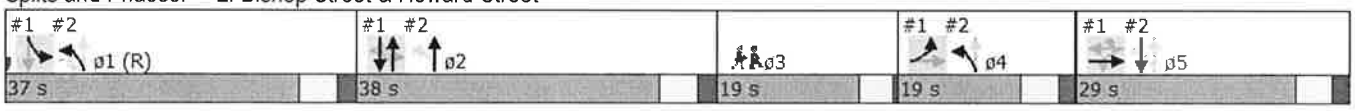
Area Type: Other
Cycle Length: 142
Actuated Cycle Length: 142
Offset: 0 (0%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 135
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.13
Intersection Signal Delay: 53.0 Intersection LOS: D
Intersection Capacity Utilization 51.4% ICU Level of Service A
Analysis Period (min) 15

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

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Bishop Street & Howard Street



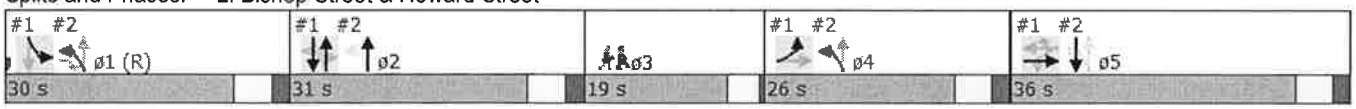
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø3	ø4
Lane Configurations								
Volume (vph)	0	317	241	602	544	6		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	10	12	14	13	12		
Satd. Flow (prot)	0	2627	0	3786	3723	0		
Flt Permitted				0.539				
Satd. Flow (perm)	0	2627	0	2070	3723	0		
Right Turn on Red		No				Yes		
Satd. Flow (RTOR)					1			
Link Speed (mph)	30			30	30			
Link Distance (ft)	435			151	583			
Travel Time (s)	9.9			3.4	13.3			
Peak Hour Factor	0.85	0.85	0.93	0.93	0.88	0.88		
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	373	0	906	625	0		
Turn Type		custom	custom	NA	NA			
Protected Phases			1 4	2	5		3	4
Permitted Phases		1	2 5	1 2 4 5	5			
Detector Phase		1	1 4	2	5			
Switch Phase								
Minimum Initial (s)		4.0		4.0	4.0		4.0	4.0
Minimum Split (s)		10.0		24.0	24.0		20.0	24.0
Total Split (s)		30.0		31.0	36.0		19.0	26.0
Total Split (%)		21.1%		21.8%	25.4%		13%	18%
Yellow Time (s)		4.0		4.0	4.0		3.5	4.0
All-Red Time (s)		2.0		2.0	2.0		0.5	2.0
Lost Time Adjust (s)		-2.0		-2.0	-2.0			
Total Lost Time (s)		4.0		4.0	4.0			
Lead/Lag		Lead		Lag			Lead	Lag
Lead-Lag Optimize?		Yes		Yes			Yes	Yes
Recall Mode		C-Max		None	None		None	None
Act Effct Green (s)		46.4		134.0	31.5			
Actuated g/C Ratio		0.33		0.94	0.22			
v/c Ratio		0.44		0.40	0.76			
Control Delay		39.9		0.5	58.1			
Queue Delay		0.0		0.6	53.7			
Total Delay		39.9		1.1	111.9			
LOS		D		A	F			
Approach Delay				1.1	111.9			
Approach LOS				A	F			
Queue Length 50th (ft)		156		0	285			
Queue Length 95th (ft)		196		0	345			
Internal Link Dist (ft)	355			71	503			
Turn Bay Length (ft)								
Base Capacity (vph)		857		2279	839			
Starvation Cap Reductn		0		888	0			
Spillback Cap Reductn		3		0	385			
Storage Cap Reductn		0		0	0			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø3	ø4
Reduced v/c Ratio		0.44		0.65	1.38			

Intersection Summary

Area Type: Other
Cycle Length: 142
Actuated Cycle Length: 142
Offset: 0 (0%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 45.1 Intersection LOS: D
Intersection Capacity Utilization 45.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Bishop Street & Howard Street



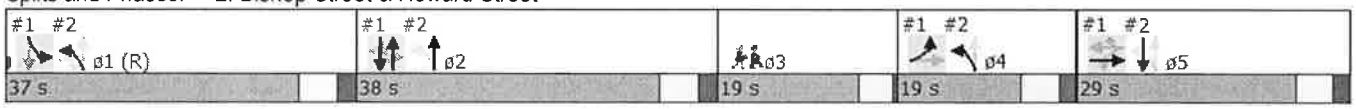
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø3	ø4
Lane Configurations								
Volume (vph)	0	303	246	753	486	8		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	10	12	14	13	12		
Satd. Flow (prot)	0	2576	0	3685	3647	0		
Flt Permitted				0.550				
Satd. Flow (perm)	0	2576	0	2051	3647	0		
Right Turn on Red		No				Yes		
Satd. Flow (RTOR)					1			
Link Speed (mph)	30			30	30			
Link Distance (ft)	435			151	583			
Travel Time (s)	9.9			3.4	13.3			
Peak Hour Factor	0.95	0.95	0.86	0.86	0.92	0.92		
Heavy Vehicles (%)	0%	3%	4%	3%	2%	0%		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	319	0	1162	537	0		
Turn Type		custom	custom	NA	NA			
Protected Phases			1 4	2	5		3	4
Permitted Phases		1	2 5	1 2 4 5	5			
Detector Phase		1	1 4	2	5			
Switch Phase								
Minimum Initial (s)		4.0		4.0	4.0		4.0	4.0
Minimum Split (s)		10.0		24.0	24.0		20.0	24.0
Total Split (s)		37.0		38.0	29.0		19.0	19.0
Total Split (%)		26.1%		26.8%	20.4%		13%	13%
Yellow Time (s)		4.0		4.0	4.0		3.5	4.0
All-Red Time (s)		2.0		2.0	2.0		0.5	2.0
Lost Time Adjust (s)		-2.0		-2.0	-2.0			
Total Lost Time (s)		4.0		4.0	4.0			
Lead/Lag		Lead		Lag			Lead	Lag
Lead-Lag Optimize?		Yes		Yes			Yes	Yes
Recall Mode		C-Max		None	None		None	None
Act Effct Green (s)		34.1		134.0	30.9			
Actuated g/C Ratio		0.24		0.94	0.22			
v/c Ratio		0.52		0.50	0.68			
Control Delay		50.7		0.8	55.8			
Queue Delay		0.0		0.4	55.6			
Total Delay		50.7		1.2	111.4			
LOS		D		A	F			
Approach Delay				1.2	111.4			
Approach LOS				A	F			
Queue Length 50th (ft)		148		4	237			
Queue Length 95th (ft)		203		0	310			
Internal Link Dist (ft)	355			71	503			
Turn Bay Length (ft)								
Base Capacity (vph)		617		2326	793			
Starvation Cap Reductn		0		575	0			
Spillback Cap Reductn		4		0	401			
Storage Cap Reductn		0		0	0			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø3	ø4
Reduced v/c Ratio		0.52		0.66	1.37			

Intersection Summary

Area Type: Other
Cycle Length: 142
Actuated Cycle Length: 142
Offset: 0 (0%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 38.4 Intersection LOS: D
Intersection Capacity Utilization 48.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Bishop Street & Howard Street



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø3	ø4
Lane Configurations								
Volume (vph)	0	596	339	596	673	9		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	10	12	14	13	12		
Satd. Flow (prot)	0	2627	0	3744	3694	0		
Flt Permitted				0.511				
Satd. Flow (perm)	0	2627	0	1948	3694	0		
Right Turn on Red		No				Yes		
Satd. Flow (RTOR)					1			
Link Speed (mph)	30			30	30			
Link Distance (ft)	435			151	583			
Travel Time (s)	9.9			3.4	13.3			
Peak Hour Factor	0.97	0.97	0.92	0.92	0.92	0.92		
Heavy Vehicles (%)	0%	1%	1%	1%	1%	0%		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	614	0	1016	742	0		
Turn Type		custom	custom	NA	NA			
Protected Phases			1 4	2	5		3	4
Permitted Phases		1	2 5	1 2 4 5	5			
Detector Phase		1	1 4	2	5			
Switch Phase								
Minimum Initial (s)		4.0		4.0	4.0		4.0	4.0
Minimum Split (s)		10.0		24.0	24.0		20.0	24.0
Total Split (s)		37.0		38.0	29.0		19.0	19.0
Total Split (%)		26.1%		26.8%	20.4%		13%	13%
Yellow Time (s)		4.0		4.0	4.0		3.5	4.0
All-Red Time (s)		2.0		2.0	2.0		0.5	2.0
Lost Time Adjust (s)		-2.0		-2.0	-2.0			
Total Lost Time (s)		4.0		4.0	4.0			
Lead/Lag		Lead		Lag			Lead	Lag
Lead-Lag Optimize?		Yes		Yes			Yes	Yes
Recall Mode		C-Max		None	None		None	None
Act Effct Green (s)		52.0		134.0	25.0			
Actuated g/C Ratio		0.37		0.94	0.18			
v/c Ratio		0.64		0.45	1.14			
Control Delay		40.9		0.7	131.7			
Queue Delay		0.0		0.6	7.2			
Total Delay		40.9		1.3	138.9			
LOS		D		A	F			
Approach Delay				1.3	138.9			
Approach LOS				A	F			
Queue Length 50th (ft)		265		4	~421			
Queue Length 95th (ft)		339		m5	#553			
Internal Link Dist (ft)	355			71	503			
Turn Bay Length (ft)								
Base Capacity (vph)		962		2268	651			
Starvation Cap Reductn		0		776	0			
Spillback Cap Reductn		4		0	353			
Storage Cap Reductn		0		0	0			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø3	ø4
Reduced v/c Ratio		0.64		0.68	2.49			

Intersection Summary

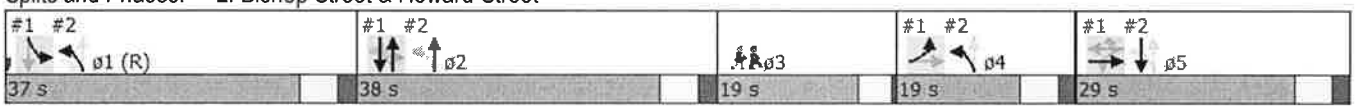
Area Type: Other
Cycle Length: 142
Actuated Cycle Length: 142
Offset: 0 (0%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 135
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.14
Intersection Signal Delay: 54.6 Intersection LOS: D
Intersection Capacity Utilization 51.9% ICU Level of Service A
Analysis Period (min) 15

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

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

m **Volume for 95th percentile queue is metered by upstream signal.**

Splits and Phases: 2: Bishop Street & Howard Street



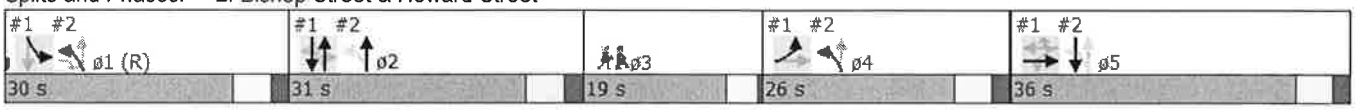
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø3	ø4
Lane Configurations								
Volume (vph)	0	317	241	618	550	6		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	10	12	14	13	12		
Satd. Flow (prot)	0	2627	0	3786	3723	0		
Flt Permitted				0.539				
Satd. Flow (perm)	0	2627	0	2070	3723	0		
Right Turn on Red		No				Yes		
Satd. Flow (RTOR)					1			
Link Speed (mph)	30			30	30			
Link Distance (ft)	435			151	583			
Travel Time (s)	9.9			3.4	13.3			
Peak Hour Factor	0.85	0.85	0.93	0.93	0.88	0.88		
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	373	0	924	632	0		
Turn Type		custom	custom	NA	NA			
Protected Phases			1 4	2	5		3	4
Permitted Phases		1	2 5	1 2 4 5	5			
Detector Phase		1	1 4	2	5			
Switch Phase								
Minimum Initial (s)		4.0		4.0	4.0		4.0	4.0
Minimum Split (s)		10.0		24.0	24.0		20.0	24.0
Total Split (s)		30.0		31.0	36.0		19.0	26.0
Total Split (%)		21.1%		21.8%	25.4%		13%	18%
Yellow Time (s)		4.0		4.0	4.0		3.5	4.0
All-Red Time (s)		2.0		2.0	2.0		0.5	2.0
Lost Time Adjust (s)		-2.0		-2.0	-2.0			
Total Lost Time (s)		4.0		4.0	4.0			
Lead/Lag		Lead		Lag			Lead	Lag
Lead-Lag Optimize?		Yes		Yes			Yes	Yes
Recall Mode		C-Max		None	None		None	None
Act Effct Green (s)		46.3		134.0	31.6			
Actuated g/C Ratio		0.33		0.94	0.22			
v/c Ratio		0.44		0.41	0.76			
Control Delay		40.0		0.6	58.4			
Queue Delay		0.0		0.6	54.4			
Total Delay		40.0		1.2	112.8			
LOS		D		A	F			
Approach Delay				1.2	112.8			
Approach LOS				A	F			
Queue Length 50th (ft)		156		0	288			
Queue Length 95th (ft)		196		0	350			
Internal Link Dist (ft)	355			71	503			
Turn Bay Length (ft)								
Base Capacity (vph)		855		2279	839			
Starvation Cap Reductn		0		883	0			
Spillback Cap Reductn		3		0	420			
Storage Cap Reductn		0		0	0			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø3	ø4
Reduced v/c Ratio		0.44		0.66	1.51			

Intersection Summary

Area Type: Other
Cycle Length: 142
Actuated Cycle Length: 142
Offset: 0 (0%), Referenced to phase 1:SBTL, Start of Green
Natural Cycle: 105
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.82
Intersection Signal Delay: 45.3 Intersection LOS: D
Intersection Capacity Utilization 46.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 2: Bishop Street & Howard Street



Bishop Street at Clark Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	20	30	14	5	2	87	524	14	15	399	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	15	12	12	13	12	12	14	12
Satd. Flow (prot)	0	1998	0	0	1995	0	0	1885	0	0	1974	0
Flt Permitted		0.988			0.968			0.993			0.998	
Satd. Flow (perm)	0	1998	0	0	1995	0	0	1885	0	0	1974	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		267			515			583			374	
Travel Time (s)		6.1			11.7			13.3			8.5	
Peak Hour Factor	0.70	0.70	0.70	0.55	0.55	0.55	0.83	0.83	0.83	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	3%	3%	7%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	95	0	0	38	0	0	753	0	0	492	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 69.9% ICU Level of Service C
Analysis Period (min) 15

Intersection	
Intersection Delay, s/veh	5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	16	20	30	14	5	2	87	524	14	15	399	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	55	55	55	83	83	83	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	3	3	7	0	2	0
Mvmt Flow	23	29	43	25	9	4	105	631	17	17	453	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1354	1356	464	1383	1358	640	475	0	0	648	0	0
Stage 1	498	498	-	849	849	-	-	-	-	-	-	-
Stage 2	856	858	-	534	509	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.3	3.5	4	3.3	2.227	-	-	2.2	-	-
Pot Capacity-1 Maneuver	128	151	602	122	150	479	1082	-	-	947	-	-
Stage 1	558	548	-	358	380	-	-	-	-	-	-	-
Stage 2	355	376	-	534	541	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	104	125	602	81	124	479	1082	-	-	947	-	-
Mov Capacity-2 Maneuver	104	125	-	81	124	-	-	-	-	-	-	-
Stage 1	473	535	-	304	322	-	-	-	-	-	-	-
Stage 2	290	319	-	458	528	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	44.7	64.4	1.2	0.3
HCM LOS	E	F		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1082	-	-	181	97	947	-	-
HCM Lane V/C Ratio	0.097	-	-	0.521	0.394	0.018	-	-
HCM Control Delay (s)	8.684	0	-	44.7	64.4	8.871	0	-
HCM Lane LOS	A	A		E	F	A	A	
HCM 95th %tile Q(veh)	0.321	-	-	2.626	1.599	0.055	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	2	58	19	15	28	48	486	8	5	512	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	15	12	12	13	12	12	14	12
Satd. Flow (prot)	0	1903	0	0	1933	0	0	1934	0	0	2017	0
Flt Permitted		0.991			0.985			0.996				
Satd. Flow (perm)	0	1903	0	0	1933	0	0	1934	0	0	2017	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		267			515			583			374	
Travel Time (s)		6.1			11.7			13.3			8.5	
Peak Hour Factor	0.92	0.92	0.92	0.57	0.57	0.57	0.94	0.94	0.94	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	79	0	0	108	0	0	577	0	0	567	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 70.6% ICU Level of Service C
Analysis Period (min) 15

Intersection	
Intersection Delay, s/veh	4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	13	2	58	19	15	28	48	486	8	5	512	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	57	57	57	94	94	94	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	0	0
Mvmt Flow	14	2	63	33	26	49	51	517	9	5	539	23

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1222	1189	551	1217	1196	521	562	0	0	526	0	0
Stage 1	561	561	-	623	623	-	-	-	-	-	-	-
Stage 2	661	628	-	594	573	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	158	190	538	159	188	559	1019	-	-	1051	-	-
Stage 1	516	513	-	477	481	-	-	-	-	-	-	-
Stage 2	455	479	-	495	507	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	120	175	538	131	173	559	1019	-	-	1051	-	-
Mov Capacity-2 Maneuver	120	175	-	131	173	-	-	-	-	-	-	-
Stage 1	479	509	-	443	447	-	-	-	-	-	-	-
Stage 2	363	445	-	432	503	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.9	36.4	0.8	0.1
HCM LOS	C	E		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1019	-	-	321	220	1051	-	-
HCM Lane V/C Ratio	0.05	-	-	0.247	0.494	0.005	-	-
HCM Control Delay (s)	8.719	0	-	19.9	36.4	8.443	0	-
HCM Lane LOS	A	A		C	E	A	A	
HCM 95th %tile Q(veh)	0.158	-	-	0.955	2.488	0.015	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	1	5	1	0	1	34	477	0	0	419	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	15	12	12	13	12	12	14	12
Satd. Flow (prot)	0	1980	0	0	1901	0	0	1957	0	0	2021	0
Flt Permitted		0.974			0.976			0.997				
Satd. Flow (perm)	0	1980	0	0	1901	0	0	1957	0	0	2021	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		267			515			583			374	
Travel Time (s)		6.1			11.7			13.3			8.5	
Peak Hour Factor	0.69	0.69	0.69	1.00	1.00	1.00	0.92	0.92	0.92	0.99	0.99	0.99
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	17	0	0	2	0	0	555	0	0	433	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 63.0% ICU Level of Service B
Analysis Period (min) 15

Intersection	
Intersection Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	6	1	5	1	0	1	34	477	0	0	419	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	69	69	100	100	100	92	92	92	99	99	99
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	9	1	7	1	0	1	37	518	0	0	423	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1021	1020	428	1025	1025	518	433	0	0	518	0	0
Stage 1	428	428	-	592	592	-	-	-	-	-	-	-
Stage 2	593	592	-	433	433	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	217	239	631	215	237	562	1137	-	-	1058	-	-
Stage 1	609	588	-	496	497	-	-	-	-	-	-	-
Stage 2	496	497	-	605	585	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	209	228	631	204	226	562	1137	-	-	1058	-	-
Mov Capacity-2 Maneuver	209	228	-	204	226	-	-	-	-	-	-	-
Stage 1	581	588	-	473	474	-	-	-	-	-	-	-
Stage 2	472	474	-	597	585	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.1	17.1	0.6	0
HCM LOS	C	C		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1137	-	-	293	299	1058	-	-
HCM Lane V/C Ratio	0.033	-	-	0.059	0.007	-	-	-
HCM Control Delay (s)	8.273	0	-	18.1	17.1	0	-	-
HCM Lane LOS	A	A		C	C	A		
HCM 95th %tile Q(veh)	0.101	-	-	0.188	0.02	0	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	21	32	15	5	2	93	566	15	16	438	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	15	12	12	13	12	12	14	12
Satd. Flow (prot)	0	1996	0	0	1993	0	0	1886	0	0	1974	0
Flt Permitted		0.988			0.967			0.993			0.998	
Satd. Flow (perm)	0	1996	0	0	1993	0	0	1886	0	0	1974	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		267			515			583			374	
Travel Time (s)		6.1			11.7			13.3			8.5	
Peak Hour Factor	0.70	0.70	0.70	0.55	0.55	0.55	0.83	0.83	0.83	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	3%	3%	7%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	100	0	0	40	0	0	812	0	0	539	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 74.9% ICU Level of Service D
Analysis Period (min) 15

Intersection	
Intersection Delay, s/veh	7.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	17	21	32	15	5	2	93	566	15	16	438	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	55	55	55	83	83	83	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	3	3	7	0	2	0
Mvmt Flow	24	30	46	27	9	4	112	682	18	18	498	23

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1466	1469	509	1498	1472	691	520	0	0	700	0	0
Stage 1	545	545	-	915	915	-	-	-	-	-	-	-
Stage 2	921	924	-	583	557	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.3	3.5	4	3.3	2.227	-	-	2.2	-	-
Pot Capacity-1 Maneuver	107	129	568	102	128	448	1041	-	-	906	-	-
Stage 1	526	522	-	329	354	-	-	-	-	-	-	-
Stage 2	327	351	-	502	515	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	84	103	568	62	102	448	1041	-	-	906	-	-
Mov Capacity-2 Maneuver	84	103	-	62	102	-	-	-	-	-	-	-
Stage 1	433	507	-	271	291	-	-	-	-	-	-	-
Stage 2	259	289	-	422	501	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	66.3	100.3	1.2	0.3
HCM LOS	F	F		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1041	-	-	151	74	906	-	-
HCM Lane V/C Ratio	0.108	-	-	0.662	0.541	0.02	-	-
HCM Control Delay (s)	8.875	0	-	66.3	100.3	9.055	0	-
HCM Lane LOS	A	A		F	F	A	A	
HCM 95th %tile Q(veh)	0.361	-	-	3.716	2.293	0.061	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	2	62	20	16	30	51	531	9	5	555	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	15	12	12	13	12	12	14	12
Satd. Flow (prot)	0	1903	0	0	1931	0	0	1934	0	0	2017	0
Flt Permitted		0.991			0.985			0.996				
Satd. Flow (perm)	0	1903	0	0	1931	0	0	1934	0	0	2017	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		267			515			583			374	
Travel Time (s)		6.1			11.7			13.3			8.5	
Peak Hour Factor	0.92	0.92	0.92	0.57	0.57	0.57	0.94	0.94	0.94	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	84	0	0	116	0	0	629	0	0	614	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 75.8%	ICU Level of Service D
Analysis Period (min) 15	

Intersection	
Intersection Delay, s/veh	5.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	14	2	62	20	16	30	51	531	9	5	555	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	57	57	57	94	94	94	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	0	0
Mvmt Flow	15	2	67	35	28	53	54	565	10	5	584	25

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1326	1290	597	1320	1298	570	609	0	0	574	0	0
Stage 1	607	607	-	678	678	-	-	-	-	-	-	-
Stage 2	719	683	-	642	620	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	134	165	507	135	163	525	979	-	-	1009	-	-
Stage 1	487	489	-	445	455	-	-	-	-	-	-	-
Stage 2	423	452	-	466	483	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	96	150	507	108	149	525	979	-	-	1009	-	-
Mov Capacity-2 Maneuver	96	150	-	108	149	-	-	-	-	-	-	-
Stage 1	448	485	-	409	418	-	-	-	-	-	-	-
Stage 2	326	415	-	399	479	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	23.6	50.2	0.8	0.1
HCM LOS	C	F		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	979	-	-	277	189	1009	-	-
HCM Lane V/C Ratio	0.055	-	-	0.306	0.613	0.005	-	-
HCM Control Delay (s)	8.893	0	-	23.6	50.2	8.587	0	-
HCM Lane LOS	A	A		C	F	A	A	
HCM 95th %tile Q(veh)	0.176	-	-	1.257	3.447	0.016	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	1	5	1	0	1	36	520	0	0	458	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	15	12	12	13	12	12	14	12
Satd. Flow (prot)	0	1980	0	0	1901	0	0	1957	0	0	2021	0
Flt Permitted		0.974			0.976			0.997				
Satd. Flow (perm)	0	1980	0	0	1901	0	0	1957	0	0	2021	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		267			515			583			374	
Travel Time (s)		6.1			11.7			13.3			8.5	
Peak Hour Factor	0.69	0.69	0.69	1.00	1.00	1.00	0.92	0.92	0.92	0.99	0.99	0.99
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	17	0	0	2	0	0	604	0	0	474	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 66.9%	ICU Level of Service C
Analysis Period (min) 15	

Intersection	
Intersection Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	6	1	5	1	0	1	36	520	0	0	458	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	69	69	100	100	100	92	92	92	99	99	99
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	9	1	7	1	0	1	39	565	0	0	463	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1112	1111	468	1116	1117	565	474	0	0	565	0	0
Stage 1	468	468	-	643	643	-	-	-	-	-	-	-
Stage 2	644	643	-	473	474	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	188	211	599	187	209	528	1099	-	-	1017	-	-
Stage 1	579	565	-	465	472	-	-	-	-	-	-	-
Stage 2	465	472	-	576	561	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	180	200	599	176	198	528	1099	-	-	1017	-	-
Mov Capacity-2 Maneuver	180	200	-	176	198	-	-	-	-	-	-	-
Stage 1	549	565	-	441	447	-	-	-	-	-	-	-
Stage 2	440	447	-	568	561	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20	18.7	0.5	0
HCM LOS	C	C		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1099	-	-	257	264	1017	-	-
HCM Lane V/C Ratio	0.036	-	-	0.068	0.008	-	-	-
HCM Control Delay (s)	8.397	0	-	20	18.7	0	-	-
HCM Lane LOS	A	A		C	C	A		
HCM 95th %tile Q(veh)	0.111	-	-	0.216	0.023	0	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Volume (vph)	17	23	32	15	6	2	93	584	15	16	443	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	15	12	12	13	12	12	14	12
Satd. Flow (prot)	0	2000	0	0	1999	0	0	1886	0	0	1974	0
Flt Permitted		0.988			0.969			0.993			0.998	
Satd. Flow (perm)	0	2000	0	0	1999	0	0	1886	0	0	1974	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		267			137			583			150	
Travel Time (s)		6.1			3.1			13.3			3.4	
Peak Hour Factor	0.70	0.70	0.70	0.55	0.55	0.55	0.83	0.83	0.83	0.88	0.88	0.88
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	3%	3%	7%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	103	0	0	42	0	0	834	0	0	544	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 76.3% ICU Level of Service D
Analysis Period (min) 15

Intersection	
Intersection Delay, s/veh	9.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	17	23	32	15	6	2	93	584	15	16	443	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	55	55	55	83	83	83	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	3	3	7	0	2	0
Mvmt Flow	24	33	46	27	11	4	112	704	18	18	503	23

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1495	1497	515	1527	1500	713	526	0	0	722	0	0
Stage 1	551	551	-	937	937	-	-	-	-	-	-	-
Stage 2	944	946	-	590	563	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.3	3.5	4	3.3	2.227	-	-	2.2	-	-
Pot Capacity-1 Maneuver	102	124	564	97	123	435	1036	-	-	889	-	-
Stage 1	522	519	-	320	346	-	-	-	-	-	-	-
Stage 2	317	343	-	497	512	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	78	99	564	56	98	435	1036	-	-	889	-	-
Mov Capacity-2 Maneuver	78	99	-	56	98	-	-	-	-	-	-	-
Stage 1	428	504	-	262	283	-	-	-	-	-	-	-
Stage 2	248	281	-	415	497	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	78.4	117.2	1.2	0.3
HCM LOS	F	F		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1036	-	-	142	69	889	-	-
HCM Lane V/C Ratio	0.108	-	-	0.724	0.606	0.02	-	-
HCM Control Delay (s)	8.896	0	-	78.4	117.2	9.134	0	-
HCM Lane LOS	A	A		F	F	A	A	
HCM 95th %tile Q(veh)	0.363	-	-	4.229	2.61	0.063	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	3	62	20	18	30	51	539	9	5	575	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	15	12	12	13	12	12	14	12
Satd. Flow (prot)	0	1908	0	0	1937	0	0	1934	0	0	2017	0
Flt Permitted		0.991			0.986			0.996				
Satd. Flow (perm)	0	1908	0	0	1937	0	0	1934	0	0	2017	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		267			187			583			150	
Travel Time (s)		6.1			4.3			13.3			3.4	
Peak Hour Factor	0.92	0.92	0.92	0.57	0.57	0.57	0.94	0.94	0.94	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	85	0	0	120	0	0	637	0	0	635	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 76.5% ICU Level of Service D
Analysis Period (min) 15

Intersection	
Intersection Delay, s/veh	6.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	14	3	62	20	18	30	51	539	9	5	575	24
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	57	57	57	94	94	94	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	0	0
Mvmt Flow	15	3	67	35	32	53	54	573	10	5	605	25

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1357	1319	618	1351	1328	578	631	0	0	583	0	0
Stage 1	628	628	-	687	687	-	-	-	-	-	-	-
Stage 2	729	691	-	664	641	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	127	158	493	129	157	519	961	-	-	1001	-	-
Stage 1	474	479	-	440	450	-	-	-	-	-	-	-
Stage 2	417	449	-	453	473	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	88	144	493	102	143	519	961	-	-	1001	-	-
Mov Capacity-2 Maneuver	88	144	-	102	143	-	-	-	-	-	-	-
Stage 1	435	475	-	403	413	-	-	-	-	-	-	-
Stage 2	317	412	-	385	469	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	25.8	58.1	0.8	0.1
HCM LOS	D	F		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	961	-	-	258	179	1001	-	-
HCM Lane V/C Ratio	0.056	-	-	0.333	0.666	0.005	-	-
HCM Control Delay (s)	8.97	0	-	25.8	58.1	8.615	0	-
HCM Lane LOS	A	A		D	F	A	A	
HCM 95th %tile Q(veh)	0.179	-	-	1.405	3.928	0.016	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Volume (vph)	6	3	5	1	1	1	36	536	0	0	464	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	15	12	12	13	12	12	14	12
Satd. Flow (prot)	0	2007	0	0	1964	0	0	1957	0	0	2021	0
Flt Permitted		0.978			0.984			0.997				
Satd. Flow (perm)	0	2007	0	0	1964	0	0	1957	0	0	2021	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		267			187			583			150	
Travel Time (s)		6.1			4.3			13.3			3.4	
Peak Hour Factor	0.69	0.69	0.69	1.00	1.00	1.00	0.92	0.92	0.92	0.99	0.99	0.99
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	20	0	0	3	0	0	622	0	0	480	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 67.8% ICU Level of Service C
Analysis Period (min) 15

Intersection	
Intersection Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	6	3	5	1	1	1	36	536	0	0	464	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	69	69	69	100	100	100	92	92	92	99	99	99
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	9	4	7	1	1	1	39	583	0	0	469	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1136	1135	474	1141	1141	583	480	0	0	583	0	0
Stage 1	474	474	-	661	661	-	-	-	-	-	-	-
Stage 2	662	661	-	480	480	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	181	204	595	179	202	516	1093	-	-	1001	-	-
Stage 1	575	561	-	455	463	-	-	-	-	-	-	-
Stage 2	454	463	-	571	558	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	173	193	595	167	191	516	1093	-	-	1001	-	-
Mov Capacity-2 Maneuver	173	193	-	167	191	-	-	-	-	-	-	-
Stage 1	545	561	-	431	438	-	-	-	-	-	-	-
Stage 2	428	438	-	560	558	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.5	21	0.5	0
HCM LOS	C	C		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1093	-	-	239	228	1001	-	-
HCM Lane V/C Ratio	0.036	-	-	0.085	0.013	-	-	-
HCM Control Delay (s)	8.416	0	-	21.5	21	0	-	-
HCM Lane LOS	A	A		C	C	A		
HCM 95th %tile Q(veh)	0.111	-	-	0.276	0.04	0	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Bishop Street at Lawrence Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	4	11	3	5	2	11	529	2	3	419	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	13	12	12	13	12
Satd. Flow (prot)	0	1887	0	0	1830	0	0	1920	0	0	1922	0
Flt Permitted		0.986			0.984			0.999				
Satd. Flow (perm)	0	1887	0	0	1830	0	0	1920	0	0	1922	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		312			660			374			236	
Travel Time (s)		7.1			15.0			8.5			5.4	
Peak Hour Factor	0.72	0.72	0.72	0.46	0.46	0.46	0.80	0.80	0.80	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	9%	9%	20%	0%	10%	2%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	29	0	0	22	0	0	677	0	0	460	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 45.3% ICU Level of Service A
Analysis Period (min) 15

Intersection	
Intersection Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	6	4	11	3	5	2	11	529	2	3	419	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	46	46	46	80	80	80	93	93	93
Heavy Vehicles, %	0	0	9	9	20	0	10	2	0	0	2	0
Mvmt Flow	8	6	15	7	11	4	14	661	2	3	451	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1158	1151	454	1161	1153	663	457	0	0	664	0	0
Stage 1	460	460	-	690	690	-	-	-	-	-	-	-
Stage 2	698	691	-	471	463	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.381	3.581	4.18	3.3	2.29	-	-	2.2	-	-
Pot Capacity-1 Maneuver	175	200	592	167	183	465	1063	-	-	935	-	-
Stage 1	585	569	-	424	420	-	-	-	-	-	-	-
Stage 2	434	449	-	560	535	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	162	195	592	156	178	465	1063	-	-	935	-	-
Mov Capacity-2 Maneuver	162	195	-	156	178	-	-	-	-	-	-	-
Stage 1	573	567	-	415	411	-	-	-	-	-	-	-
Stage 2	410	440	-	538	533	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	19.6	25.9	0.2	0.1
HCM LOS	C	D		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1063	-	-	276	194	935	-	-
HCM Lane V/C Ratio	0.013	-	-	0.106	0.112	0.003	-	-
HCM Control Delay (s)	8.431	0	-	19.6	25.9	8.864	0	-
HCM Lane LOS	A	A		C	D	A	A	
HCM 95th %tile Q(veh)	0.039	-	-	0.351	0.372	0.01	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	4	13	6	6	7	23	497	7	3	520	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	13	12	12	13	12
Satd. Flow (prot)	0	1929	0	0	1736	0	0	1948	0	0	1948	0
Flt Permitted		0.976			0.985			0.998				
Satd. Flow (perm)	0	1929	0	0	1736	0	0	1948	0	0	1948	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		312			660			374			236	
Travel Time (s)		7.1			15.0			8.5			5.4	
Peak Hour Factor	0.85	0.85	0.85	0.71	0.71	0.71	0.91	0.91	0.91	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	9%	17%	17%	14%	0%	0%	29%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	40	0	0	26	0	0	579	0	0	586	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 52.8% ICU Level of Service A
Analysis Period (min) 15

Intersection	
Intersection Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	17	4	13	6	6	7	23	497	7	3	520	34
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	71	71	71	91	91	91	95	95	95
Heavy Vehicles, %	0	0	9	17	17	14	0	0	29	0	0	0
Mvmt Flow	20	5	15	8	8	10	25	546	8	3	547	36

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1182	1176	565	1183	1190	550	583	0	0	554	0	0
Stage 1	572	572	-	601	601	-	-	-	-	-	-	-
Stage 2	610	604	-	582	589	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.381	3.653	4.153	3.426	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	168	193	511	155	176	512	1001	-	-	1026	-	-
Stage 1	509	508	-	462	466	-	-	-	-	-	-	-
Stage 2	485	491	-	474	472	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	154	185	511	143	169	512	1001	-	-	1026	-	-
Mov Capacity-2 Maneuver	154	185	-	143	169	-	-	-	-	-	-	-
Stage 1	491	506	-	445	449	-	-	-	-	-	-	-
Stage 2	450	473	-	454	470	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	25.4	24.8	0.4	0
HCM LOS	D	C		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1001	-	-	216	208	1026	-	-
HCM Lane V/C Ratio	0.025	-	-	0.185	0.129	0.003	-	-
HCM Control Delay (s)	8.69	0	-	25.4	24.8	8.52	0	-
HCM Lane LOS	A	A		D	C	A	A	
HCM 95th %tile Q(veh)	0.078	-	-	0.662	0.435	0.009	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Volume (vph)	11	0	21	0	0	0	16	468	0	0	408	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	13	12	12	13	12
Satd. Flow (prot)	0	1819	0	0	1840	0	0	1959	0	0	1955	0
Flt Permitted		0.984						0.998				
Satd. Flow (perm)	0	1819	0	0	1840	0	0	1959	0	0	1955	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		312			660			374			236	
Travel Time (s)		7.1			15.0			8.5			5.4	
Peak Hour Factor	0.88	0.88	0.88	0.92	0.92	0.92	0.90	0.90	0.90	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	9%	17%	17%	14%	0%	0%	29%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	36	0	0	0	0	0	538	0	0	428	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	11	0	21	0	0	0	16	468	0	0	408	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	92	92	92	90	90	90	98	98	98
Heavy Vehicles, %	0	0	9	17	17	14	0	0	29	0	0	0
Mvmt Flow	12	0	24	0	0	0	18	520	0	0	416	12

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	978	978	422	990	985	520	429	0	0	520	0	0
Stage 1	422	422	-	556	556	-	-	-	-	-	-	-
Stage 2	556	556	-	434	429	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.381	3.653	4.153	3.426	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	232	252	617	212	234	533	1141	-	-	1056	-	-
Stage 1	613	592	-	490	489	-	-	-	-	-	-	-
Stage 2	519	516	-	572	559	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	228	246	617	200	229	533	1141	-	-	1056	-	-
Mov Capacity-2 Maneuver	228	246	-	200	229	-	-	-	-	-	-	-
Stage 1	600	592	-	479	478	-	-	-	-	-	-	-
Stage 2	508	505	-	550	559	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.2	0	0.3	0
HCM LOS	C	A		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1141	-	-	389	0	1056	-	-
HCM Lane V/C Ratio	0.016	-	-	0.093	+	-	-	-
HCM Control Delay (s)	8.205	0	-	15.2	0	0	-	-
HCM Lane LOS	A	A		C	A	A		
HCM 95th %tile Q(veh)	0.047	-	-	0.307	+	0	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	4	12	3	5	2	12	571	2	3	459	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	13	12	12	13	12
Satd. Flow (prot)	0	1875	0	0	1830	0	0	1920	0	0	1922	0
Flt Permitted		0.987			0.984			0.999				
Satd. Flow (perm)	0	1875	0	0	1830	0	0	1920	0	0	1922	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		312			660			374			236	
Travel Time (s)		7.1			15.0			8.5			5.4	
Peak Hour Factor	0.72	0.72	0.72	0.46	0.46	0.46	0.80	0.80	0.80	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	9%	9%	20%	0%	10%	2%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	31	0	0	22	0	0	731	0	0	503	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 48.3% ICU Level of Service A
Analysis Period (min) 15

Intersection	
Intersection Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	6	4	12	3	5	2	12	571	2	3	459	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	46	46	46	80	80	80	93	93	93
Heavy Vehicles, %	0	0	9	9	20	0	10	2	0	0	2	0
Mvmt Flow	8	6	17	7	11	4	15	714	2	3	494	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1256	1249	497	1259	1251	715	500	0	0	716	0	0
Stage 1	503	503	-	745	745	-	-	-	-	-	-	-
Stage 2	753	746	-	514	506	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.381	3.581	4.18	3.3	2.29	-	-	2.2	-	-
Pot Capacity-1 Maneuver	150	175	559	143	159	434	1024	-	-	894	-	-
Stage 1	555	545	-	395	396	-	-	-	-	-	-	-
Stage 2	405	424	-	531	511	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	137	170	559	132	154	434	1024	-	-	894	-	-
Mov Capacity-2 Maneuver	137	170	-	132	154	-	-	-	-	-	-	-
Stage 1	542	542	-	386	386	-	-	-	-	-	-	-
Stage 2	380	414	-	507	508	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.5	29.8	0.2	0.1
HCM LOS	C	D		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1024	-	-	248	167	894	-	-
HCM Lane V/C Ratio	0.015	-	-	0.123	0.13	0.004	-	-
HCM Control Delay (s)	8.568	0	-	21.5	29.8	9.041	0	-
HCM Lane LOS	A	A		C	D	A	A	
HCM 95th %tile Q(veh)	0.045	-	-	0.415	0.438	0.011	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Volume (vph)	18	4	14	6	6	8	25	543	7	3	564	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	13	12	12	13	12
Satd. Flow (prot)	0	1928	0	0	1731	0	0	1948	0	0	1948	0
Flt Permitted		0.976			0.985			0.998				
Satd. Flow (perm)	0	1928	0	0	1731	0	0	1948	0	0	1948	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		312			660			374			236	
Travel Time (s)		7.1			15.0			8.5			5.4	
Peak Hour Factor	0.85	0.85	0.85	0.71	0.71	0.71	0.91	0.91	0.91	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	9%	17%	17%	14%	0%	0%	29%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	42	0	0	27	0	0	632	0	0	635	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 56.9% ICU Level of Service B
Analysis Period (min) 15

Intersection	
Intersection Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	18	4	14	6	6	8	25	543	7	3	564	36
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	71	71	71	91	91	91	95	95	95
Heavy Vehicles, %	0	0	9	17	17	14	0	0	29	0	0	0
Mvmt Flow	21	5	16	8	8	11	27	597	8	3	594	38

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1284	1278	613	1285	1293	601	632	0	0	604	0	0
Stage 1	619	619	-	655	655	-	-	-	-	-	-	-
Stage 2	665	659	-	630	638	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.381	3.653	4.153	3.426	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	143	168	480	132	152	479	960	-	-	984	-	-
Stage 1	480	483	-	431	440	-	-	-	-	-	-	-
Stage 2	453	464	-	445	448	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	129	160	480	120	145	479	960	-	-	984	-	-
Mov Capacity-2 Maneuver	129	160	-	120	145	-	-	-	-	-	-	-
Stage 1	460	481	-	413	422	-	-	-	-	-	-	-
Stage 2	415	445	-	423	446	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	30	27.9	0.4	0
HCM LOS	D	D		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	960	-	-	186	185	984	-	-
HCM Lane V/C Ratio	0.029	-	-	0.228	0.152	0.003	-	-
HCM Control Delay (s)	8.86	0	-	30	27.9	8.67	0	-
HCM Lane LOS	A	A		D	D	A	A	
HCM 95th %tile Q(veh)	0.088	-	-	0.845	0.525	0.01	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	0	23	0	0	0	17	510	0	0	446	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	13	12	12	13	12
Satd. Flow (prot)	0	1824	0	0	1840	0	0	1959	0	0	1955	0
Flt Permitted		0.983						0.998				
Satd. Flow (perm)	0	1824	0	0	1840	0	0	1959	0	0	1955	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		312			660			374			236	
Travel Time (s)		7.1			15.0			8.5			5.4	
Peak Hour Factor	0.88	0.88	0.88	0.92	0.92	0.92	0.90	0.90	0.90	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	9%	17%	17%	14%	0%	0%	29%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	40	0	0	0	0	0	586	0	0	468	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 50.6% ICU Level of Service A
Analysis Period (min) 15

Intersection	
Intersection Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	12	0	23	0	0	0	17	510	0	0	446	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	92	92	92	90	90	90	98	98	98
Heavy Vehicles, %	0	0	9	17	17	14	0	0	29	0	0	0
Mvmt Flow	14	0	26	0	0	0	19	567	0	0	455	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1066	1066	462	1079	1072	567	468	0	0	567	0	0
Stage 1	462	462	-	604	604	-	-	-	-	-	-	-
Stage 2	604	604	-	475	468	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.381	3.653	4.153	3.426	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	202	224	585	183	207	501	1104	-	-	1015	-	-
Stage 1	584	568	-	460	465	-	-	-	-	-	-	-
Stage 2	489	491	-	543	537	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	198	218	585	171	202	501	1104	-	-	1015	-	-
Mov Capacity-2 Maneuver	198	218	-	171	202	-	-	-	-	-	-	-
Stage 1	569	568	-	449	453	-	-	-	-	-	-	-
Stage 2	477	479	-	519	537	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.6	0	0.3	0
HCM LOS	C	A		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1104	-	-	350	0	1015	-	-
HCM Lane V/C Ratio	0.017	-	-	0.114	+	-	-	-
HCM Control Delay (s)	8.318	0	-	16.6	0	0	-	-
HCM Lane LOS	A	A		C	A	A		
HCM 95th %tile Q(veh)	0.052	-	-	0.381	+	0	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	4	14	3	5	2	13	576	2	3	478	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	13	12	12	13	12
Satd. Flow (prot)	0	1865	0	0	1830	0	0	1920	0	0	1922	0
Flt Permitted		0.988			0.984			0.999				
Satd. Flow (perm)	0	1865	0	0	1830	0	0	1920	0	0	1922	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		312			92			124			236	
Travel Time (s)		7.1			2.1			2.8			5.4	
Peak Hour Factor	0.72	0.72	0.72	0.46	0.46	0.46	0.80	0.80	0.80	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	9%	9%	20%	0%	10%	2%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	0	22	0	0	738	0	0	523	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 49.3% ICU Level of Service A
Analysis Period (min) 15

Intersection	
Intersection Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	6	4	14	3	5	2	13	576	2	3	478	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	72	72	72	46	46	46	80	80	80	93	93	93
Heavy Vehicles, %	0	0	9	9	20	0	10	2	0	0	2	0
Mvmt Flow	8	6	19	7	11	4	16	720	2	3	514	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1285	1279	517	1290	1281	721	520	0	0	723	0	0
Stage 1	524	524	-	754	754	-	-	-	-	-	-	-
Stage 2	761	755	-	536	527	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.381	3.581	4.18	3.3	2.29	-	-	2.2	-	-
Pot Capacity-1 Maneuver	143	167	545	136	153	431	1007	-	-	889	-	-
Stage 1	540	533	-	391	392	-	-	-	-	-	-	-
Stage 2	401	420	-	516	500	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	130	162	545	125	148	431	1007	-	-	889	-	-
Mov Capacity-2 Maneuver	130	162	-	125	148	-	-	-	-	-	-	-
Stage 1	525	530	-	380	381	-	-	-	-	-	-	-
Stage 2	375	409	-	490	498	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.7	31	0.2	0.1
HCM LOS	C	D		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1007	-	-	249	160	889	-	-
HCM Lane V/C Ratio	0.016	-	-	0.134	0.136	0.004	-	-
HCM Control Delay (s)	8.634	0	-	21.7	31	9.064	0	-
HCM Lane LOS	A	A		C	D	A	A	
HCM 95th %tile Q(veh)	0.049	-	-	0.456	0.459	0.011	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	18	4	15	6	6	8	27	563	7	3	572	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	13	12	12	13	12
Satd. Flow (prot)	0	1917	0	0	1731	0	0	1949	0	0	1948	0
Flt Permitted		0.977			0.985			0.998				
Satd. Flow (perm)	0	1917	0	0	1731	0	0	1949	0	0	1948	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		312			107			95			236	
Travel Time (s)		7.1			2.4			2.2			5.4	
Peak Hour Factor	0.85	0.85	0.85	0.71	0.71	0.71	0.91	0.91	0.91	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	9%	17%	17%	14%	0%	0%	29%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	44	0	0	27	0	0	657	0	0	643	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 59.5% ICU Level of Service B
Analysis Period (min) 15

Intersection	
Intersection Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	18	4	15	6	6	8	27	563	7	3	572	36
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	71	71	71	91	91	91	95	95	95
Heavy Vehicles, %	0	0	9	17	17	14	0	0	29	0	0	0
Mvmt Flow	21	5	18	8	8	11	30	619	8	3	602	38

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1319	1313	621	1321	1328	623	640	0	0	626	0	0
Stage 1	627	627	-	682	682	-	-	-	-	-	-	-
Stage 2	692	686	-	639	646	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.381	3.653	4.153	3.426	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	135	160	475	124	145	465	954	-	-	965	-	-
Stage 1	475	479	-	416	428	-	-	-	-	-	-	-
Stage 2	437	451	-	440	445	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	121	152	475	112	137	465	954	-	-	965	-	-
Mov Capacity-2 Maneuver	121	152	-	112	137	-	-	-	-	-	-	-
Stage 1	452	477	-	396	407	-	-	-	-	-	-	-
Stage 2	398	429	-	417	443	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	31.5	29.5	0.4	0
HCM LOS	D	D		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	954	-	-	179	175	965	-	-
HCM Lane V/C Ratio	0.031	-	-	0.243	0.161	0.003	-	-
HCM Control Delay (s)	8.895	0	-	31.5	29.5	8.743	0	-
HCM Lane LOS	A	A		D	D	A	A	
HCM 95th %tile Q(veh)	0.096	-	-	0.915	0.559	0.01	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	0	25	0	0	0	18	516	0	0	463	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	13	12	12	13	12
Satd. Flow (prot)	0	1819	0	0	1840	0	0	1959	0	0	1955	0
Flt Permitted		0.984						0.998				
Satd. Flow (perm)	0	1819	0	0	1840	0	0	1959	0	0	1955	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		312			107			104			236	
Travel Time (s)		7.1			2.4			2.4			5.4	
Peak Hour Factor	0.88	0.88	0.88	0.92	0.92	0.92	0.90	0.90	0.90	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	9%	17%	17%	14%	0%	0%	29%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	42	0	0	0	0	0	593	0	0	485	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 51.7%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Intersection Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	12	0	25	0	0	0	18	516	0	0	463	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	92	92	92	90	90	90	98	98	98
Heavy Vehicles, %	0	0	9	17	17	14	0	0	29	0	0	0
Mvmt Flow	14	0	28	0	0	0	20	573	0	0	472	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1092	1092	479	1106	1099	573	486	0	0	573	0	0
Stage 1	479	479	-	613	613	-	-	-	-	-	-	-
Stage 2	613	613	-	493	486	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.381	3.653	4.153	3.426	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	194	216	573	176	200	497	1087	-	-	1010	-	-
Stage 1	571	558	-	455	460	-	-	-	-	-	-	-
Stage 2	483	486	-	531	527	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	190	210	573	164	195	497	1087	-	-	1010	-	-
Mov Capacity-2 Maneuver	190	210	-	164	195	-	-	-	-	-	-	-
Stage 1	556	558	-	443	448	-	-	-	-	-	-	-
Stage 2	470	473	-	505	527	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.8	0	0.3	0
HCM LOS	C	A		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1087	-	-	346	0	1010	-	-
HCM Lane V/C Ratio	0.018	-	-	0.122	+	-	-	-
HCM Control Delay (s)	8.374	0	-	16.8	0	0	-	-
HCM Lane LOS	A	A		C	A	A		
HCM 95th %tile Q(veh)	0.056	-	-	0.411	+	0	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Bishop Street at the North Project Site Driveway

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	1	5	586	0	21	474
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1639	0	1863	0	0	1859
Flt Permitted	0.992					0.998
Satd. Flow (perm)	1639	0	1863	0	0	1859
Link Speed (mph)	30		30			30
Link Distance (ft)	142		100			124
Travel Time (s)	3.2		2.3			2.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	6	0	637	0	0	538
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 52.0%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	1	5	586	0	21	474
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	5	637	0	23	515

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1198	637	0	0	637	0
Stage 1	637	-	-	-	-	-
Stage 2	561	-	-	-	-	-
Follow-up Headway	3.518	3.318	-	-	2.218	-
Pot Capacity-1 Maneuver	205	477	-	-	947	-
Stage 1	527	-	-	-	-	-
Stage 2	571	-	-	-	-	-
Time blocked-Platoon, %			-	-		-
Mov Capacity-1 Maneuver	198	477	-	-	947	-
Mov Capacity-2 Maneuver	198	-	-	-	-	-
Stage 1	527	-	-	-	-	-
Stage 2	552	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.5	0	0.4
HCM LOS	B		

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	386	947	-
HCM Lane V/C Ratio	-	-	0.017	0.024	-
HCM Control Delay (s)	-	-	14.5	8.895	0
HCM Lane LOS			B	A	A
HCM 95th %tile Q(veh)	-	-	0.052	0.074	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	2	20	577	0	9	584
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1625	0	1863	0	0	1861
Flt Permitted	0.996					0.999
Satd. Flow (perm)	1625	0	1863	0	0	1861
Link Speed (mph)	30		30			30
Link Distance (ft)	107		130			95
Travel Time (s)	2.4		3.0			2.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	24	0	627	0	0	645
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 47.9%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Intersection Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	2	20	577	0	9	584
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	22	627	0	10	635

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1281	627	0	0	627	0
Stage 1	627	-	-	-	-	-
Stage 2	654	-	-	-	-	-
Follow-up Headway	3.518	3.318	-	-	2.218	-
Pot Capacity-1 Maneuver	183	484	-	-	955	-
Stage 1	532	-	-	-	-	-
Stage 2	517	-	-	-	-	-
Time blocked-Platoon, %			-	-		-
Mov Capacity-1 Maneuver	180	484	-	-	955	-
Mov Capacity-2 Maneuver	180	-	-	-	-	-
Stage 1	532	-	-	-	-	-
Stage 2	509	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.1	0	0.1
HCM LOS	B		

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	420	955	-
HCM Lane V/C Ratio	-	-	0.057	0.01	-
HCM Control Delay (s)	-	-	14.1	8.809	0
HCM Lane LOS			B	A	A
HCM 95th %tile Q(veh)	-	-	0.18	0.031	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	1	6	528	0	19	469
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1633	0	1863	0	0	1859
Flt Permitted	0.994					0.998
Satd. Flow (perm)	1633	0	1863	0	0	1859
Link Speed (mph)	30		30			30
Link Distance (ft)	120		121			104
Travel Time (s)	2.7		2.8			2.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	574	0	0	531
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 50.1% ICU Level of Service A
Analysis Period (min) 15

Intersection	
Intersection Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	1	6	528	0	19	469
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	7	574	0	21	510

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1125	574	0	0	574	0
Stage 1	574	-	-	-	-	-
Stage 2	551	-	-	-	-	-
Follow-up Headway	3.518	3.318	-	-	2.218	-
Pot Capacity-1 Maneuver	227	518	-	-	999	-
Stage 1	563	-	-	-	-	-
Stage 2	577	-	-	-	-	-
Time blocked-Platoon, %			-	-		-
Mov Capacity-1 Maneuver	220	518	-	-	999	-
Mov Capacity-2 Maneuver	220	-	-	-	-	-
Stage 1	563	-	-	-	-	-
Stage 2	560	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.4	0	0.3
HCM LOS	B		

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	434	999	-
HCM Lane V/C Ratio	-	-	0.018	0.021	-
HCM Control Delay (s)	-	-	13.4	8.68	0
HCM Lane LOS			B	A	A
HCM 95th %tile Q(veh)	-	-	0.053	0.063	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Bishop Street at the South Project Site Driveway

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	4	1	585	18	0	475
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1744	0	1855	0	0	1863
Flt Permitted	0.962					
Satd. Flow (perm)	1744	0	1855	0	0	1863
Link Speed (mph)	30		30			30
Link Distance (ft)	120		150			100
Travel Time (s)	2.7		3.4			2.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	0	656	0	0	516
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 41.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	4	1	585	18	0	475
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	1	636	20	0	516

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1162	646	0	0	655	0
Stage 1	646	-	-	-	-	-
Stage 2	516	-	-	-	-	-
Follow-up Headway	3.518	3.318	-	-	2.218	-
Pot Capacity-1 Maneuver	216	472	-	-	932	-
Stage 1	522	-	-	-	-	-
Stage 2	599	-	-	-	-	-
Time blocked-Platoon, %			-	-		-
Mov Capacity-1 Maneuver	216	472	-	-	932	-
Mov Capacity-2 Maneuver	216	-	-	-	-	-
Stage 1	522	-	-	-	-	-
Stage 2	599	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.2	0	0
HCM LOS	C		

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	242	932	-
HCM Lane V/C Ratio	-	-	0.022	-	-
HCM Control Delay (s)	-	-	20.2	0	-
HCM Lane LOS			C	A	
HCM 95th %tile Q(veh)	-	-	0.069	0	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	18	2	575	8	0	586
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1761	0	1859	0	0	1863
Flt Permitted	0.957					
Satd. Flow (perm)	1761	0	1859	0	0	1863
Link Speed (mph)	30		30			30
Link Distance (ft)	112		150			130
Travel Time (s)	2.5		3.4			3.0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	22	0	634	0	0	637
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 40.8%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Intersection Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	18	2	575	8	0	586
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	2	625	9	0	637

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1266	629	0	0	634	0
Stage 1	629	-	-	-	-	-
Stage 2	637	-	-	-	-	-
Follow-up Headway	3.518	3.318	-	-	2.218	-
Pot Capacity-1 Maneuver	187	482	-	-	949	-
Stage 1	531	-	-	-	-	-
Stage 2	527	-	-	-	-	-
Time blocked-Platoon, %			-	-		-
Mov Capacity-1 Maneuver	187	482	-	-	949	-
Mov Capacity-2 Maneuver	187	-	-	-	-	-
Stage 1	531	-	-	-	-	-
Stage 2	527	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	25.3	0	0
HCM LOS	D		

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	199	949	-
HCM Lane V/C Ratio	-	-	0.109	-	-
HCM Control Delay (s)	-	-	25.3	0	-
HCM Lane LOS			D	A	
HCM 95th %tile Q(veh)	-	-	0.362	0	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	5	1	527	16	0	470
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1747	0	1855	0	0	1863
Flt Permitted	0.960					
Satd. Flow (perm)	1747	0	1855	0	0	1863
Link Speed (mph)	30		30			30
Link Distance (ft)	110		150			121
Travel Time (s)	2.5		3.4			2.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	6	0	590	0	0	511
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 38.7% ICU Level of Service A
Analysis Period (min) 15

Intersection	
Intersection Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	5	1	527	16	0	470
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	1	573	17	0	511

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1093	582	0	0	590	0
Stage 1	582	-	-	-	-	-
Stage 2	511	-	-	-	-	-
Follow-up Headway	3.518	3.318	-	-	2.218	-
Pot Capacity-1 Maneuver	237	513	-	-	985	-
Stage 1	559	-	-	-	-	-
Stage 2	602	-	-	-	-	-
Time blocked-Platoon, %			-	-		-
Mov Capacity-1 Maneuver	237	513	-	-	985	-
Mov Capacity-2 Maneuver	237	-	-	-	-	-
Stage 1	559	-	-	-	-	-
Stage 2	602	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.2	0	0
HCM LOS	C		

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	260	985	-
HCM Lane V/C Ratio	-	-	0.025	-	-
HCM Control Delay (s)	-	-	19.2	0	-
HCM Lane LOS			C	A	
HCM 95th %tile Q(veh)	-	-	0.077	0	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Clark Street at the Project Site Driveway

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	2	52	22	0	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1859	1863	0	1611	0
Flt Permitted		0.998				
Satd. Flow (perm)	0	1859	1863	0	1611	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		137	378		76	
Travel Time (s)		3.1	8.6		1.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	59	24	0	1	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 14.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	2	52	22	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	57	24	0	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	24	0	-	0	85	24
Stage 1	-	-	-	-	24	-
Stage 2	-	-	-	-	61	-
Follow-up Headway	2.218	-	-	-	3.518	3.318
Pot Capacity-1 Maneuver	1591	-	-	-	916	1052
Stage 1	-	-	-	-	999	-
Stage 2	-	-	-	-	962	-
Time blocked-Platoon, %		-	-	-		
Mov Capacity-1 Maneuver	1591	-	-	-	915	1052
Mov Capacity-2 Maneuver	-	-	-	-	915	-
Stage 1	-	-	-	-	999	-
Stage 2	-	-	-	-	961	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	8.4
HCM LOS			A

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1591	-	-	-	1052
HCM Lane V/C Ratio	0.001	-	-	-	0.001
HCM Control Delay (s)	7.266	0	-	-	8.4
HCM Lane LOS	A	A			A
HCM 95th %tile Q(veh)	0.004	-	-	-	0.003

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	1	16	66	0	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1857	1863	0	1611	0
Flt Permitted		0.997				
Satd. Flow (perm)	0	1857	1863	0	1611	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		187	328		97	
Travel Time (s)		4.3	7.5		2.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	18	72	0	2	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 13.5% ICU Level of Service A
Analysis Period (min) 15

Intersection	
Intersection Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	1	16	66	0	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	17	72	0	0	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	72	0	-	0	92	72
Stage 1	-	-	-	-	72	-
Stage 2	-	-	-	-	20	-
Follow-up Headway	2.218	-	-	-	3.518	3.318
Pot Capacity-1 Maneuver	1528	-	-	-	908	990
Stage 1	-	-	-	-	951	-
Stage 2	-	-	-	-	1003	-
Time blocked-Platoon, %		-	-	-		
Mov Capacity-1 Maneuver	1528	-	-	-	907	990
Mov Capacity-2 Maneuver	-	-	-	-	907	-
Stage 1	-	-	-	-	951	-
Stage 2	-	-	-	-	1002	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	8.6
HCM LOS			A

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1528	-	-	-	990
HCM Lane V/C Ratio	0.001	-	-	-	0.002
HCM Control Delay (s)	7.358	0	-	-	8.6
HCM Lane LOS	A	A			A
HCM 95th %tile Q(veh)	0.002	-	-	-	0.007

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	2	1	2	0	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	1803	1863	0	1611	0
Flt Permitted		0.968				
Satd. Flow (perm)	0	1803	1863	0	1611	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		187	328		105	
Travel Time (s)		4.3	7.5		2.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	3	2	0	1	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 13.3%	ICU Level of Service A
Analysis Period (min) 15	

Intersection	
Intersection Delay, s/veh	3.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	2	1	2	0	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	1	2	0	0	1

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	2	0	-	0	7	2
Stage 1	-	-	-	-	2	-
Stage 2	-	-	-	-	5	-
Follow-up Headway	2.218	-	-	-	3.518	3.318
Pot Capacity-1 Maneuver	1620	-	-	-	1014	1082
Stage 1	-	-	-	-	1021	-
Stage 2	-	-	-	-	1018	-
Time blocked-Platoon, %		-	-	-		
Mov Capacity-1 Maneuver	1620	-	-	-	1013	1082
Mov Capacity-2 Maneuver	-	-	-	-	1013	-
Stage 1	-	-	-	-	1021	-
Stage 2	-	-	-	-	1017	-

Approach	EB	WB	SB
HCM Control Delay, s	4.8	0	8.3
HCM LOS			A

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1620	-	-	-	1082
HCM Lane V/C Ratio	0.001	-	-	-	0.001
HCM Control Delay (s)	7.225	0	-	-	8.3
HCM Lane LOS	A	A			A
HCM 95th %tile Q(veh)	0.004	-	-	-	0.003

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

SIMTRAFFIC QUEUING REPORTS

Intersection: 1: Bishop Street & Route 135

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	208	367	37	353	95	53	294	293	74	89	94
Average Queue (ft)	169	352	7	342	19	46	271	218	72	78	78
95th Queue (ft)	243	365	31	351	82	61	324	292	74	91	94
Link Distance (ft)	333	333	343	343	343	718	718	718	71	71	71
Upstream Blk Time (%)		83		96					22	35	38
Queuing Penalty (veh)		0		0					53	82	90
Storage Bay Dist (ft)											
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 2: Bishop Street & Howard Street

Movement	EB	EB	NB	NB	SB	SB
Directions Served	R	R	LT	T	T	TR
Maximum Queue (ft)	390	393	77	34	228	530
Average Queue (ft)	318	298	70	23	176	427
95th Queue (ft)	433	438	88	43	245	611
Link Distance (ft)	384	384	71	71	523	523
Upstream Blk Time (%)	18	18	2			27
Queuing Penalty (veh)	0	0	11			59
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Bishop Street & Clark Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	92	31	98	245
Average Queue (ft)	39	12	38	89
95th Queue (ft)	90	37	116	240
Link Distance (ft)	224	486	523	312
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1: Bishop Street & Route 135

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	348	385	37	324	38	96	203	151	75	88	105
Average Queue (ft)	194	360	7	324	8	80	169	96	69	74	89
95th Queue (ft)	331	385	31	324	33	107	204	187	81	85	107
Link Distance (ft)	333	333	343	343	343	718	718	718	71	71	71
Upstream Blk Time (%)	18	89		100					13	45	46
Queuing Penalty (veh)	0	0		0					51	175	176
Storage Bay Dist (ft)											
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 2: Bishop Street & Howard Street

Movement	EB	EB	NB	NB	SB	SB
Directions Served	R	R	LT	T	T	TR
Maximum Queue (ft)	392	391	37	55	222	533
Average Queue (ft)	380	365	18	18	144	530
95th Queue (ft)	391	417	44	56	231	536
Link Distance (ft)	384	384	71	71	523	523
Upstream Blk Time (%)	73	67		0		69
Queuing Penalty (veh)	0	0		0		204
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Bishop Street & Clark Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	93	222	94	317
Average Queue (ft)	55	109	19	258
95th Queue (ft)	108	225	81	446
Link Distance (ft)	224	486	523	312
Upstream Blk Time (%)				58
Queuing Penalty (veh)				313
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1: Bishop Street & Route 135

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	249	348	116	354	55	182	200	176	74	93	108
Average Queue (ft)	188	348	37	344	11	96	175	133	73	76	87
95th Queue (ft)	276	349	107	352	47	189	208	209	75	91	114
Link Distance (ft)	333	333	343	343	343	718	718	718	71	71	71
Upstream Blk Time (%)		39		92					19	44	47
Queuing Penalty (veh)		0		0					50	115	123
Storage Bay Dist (ft)											
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 2: Bishop Street & Howard Street

Movement	EB	EB	NB	SB	SB
Directions Served	R	R	LT	T	TR
Maximum Queue (ft)	361	379	31	444	445
Average Queue (ft)	335	339	10	346	320
95th Queue (ft)	372	417	31	470	443
Link Distance (ft)	384	384	71	523	523
Upstream Blk Time (%)		44			
Queuing Penalty (veh)		0			
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 3: Bishop Street & Clark Street

Movement	EB
Directions Served	LTR
Maximum Queue (ft)	28
Average Queue (ft)	6
95th Queue (ft)	24
Link Distance (ft)	224
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 1: Bishop Street & Route 135

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	332	367	37	358	55	50	330	263	73	82	97
Average Queue (ft)	207	352	7	345	11	27	269	218	50	73	80
95th Queue (ft)	388	365	31	356	47	55	327	262	82	81	98
Link Distance (ft)	333	333	343	343	343	718	718	718	71	71	71
Upstream Blk Time (%)	0	83		92					12	30	41
Queuing Penalty (veh)	0	0		0					31	77	108
Storage Bay Dist (ft)											
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 2: Bishop Street & Howard Street

Movement	EB	EB	NB	NB	SB	SB
Directions Served	R	R	LT	T	T	TR
Maximum Queue (ft)	397	396	76	54	103	531
Average Queue (ft)	371	346	62	28	64	528
95th Queue (ft)	448	481	89	68	130	532
Link Distance (ft)	384	384	71	71	523	523
Upstream Blk Time (%)	68	64	2	0		70
Queuing Penalty (veh)	0	0	10	1		171
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Bishop Street & Clark Street

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	50	51	313
Average Queue (ft)	26	16	263
95th Queue (ft)	53	51	376
Link Distance (ft)	224	486	312
Upstream Blk Time (%)			44
Queuing Penalty (veh)			207
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 1: Bishop Street & Route 135

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	333	348	155	356	78	74	310	309	74	92	94
Average Queue (ft)	204	348	144	344	16	50	236	189	69	79	76
95th Queue (ft)	315	349	153	354	67	75	306	294	80	93	91
Link Distance (ft)	333	333	343	343	343	718	718	718	71	71	71
Upstream Blk Time (%)	0	75		99					11	41	41
Queuing Penalty (veh)	0	0		0					48	174	173
Storage Bay Dist (ft)											
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 2: Bishop Street & Howard Street

Movement	EB	EB	NB	NB	SB	SB
Directions Served	R	R	LT	T	T	TR
Maximum Queue (ft)	399	399	74	39	338	538
Average Queue (ft)	396	390	37	15	279	531
95th Queue (ft)	405	402	76	45	390	539
Link Distance (ft)	384	384	71	71	523	523
Upstream Blk Time (%)	96	84	0			73
Queuing Penalty (veh)	0	0	1			233
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Bishop Street & Clark Street

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	239	270	317
Average Queue (ft)	151	120	274
95th Queue (ft)	278	287	405
Link Distance (ft)	224	486	312
Upstream Blk Time (%)	31		62
Queuing Penalty (veh)	0		359
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 1: Bishop Street & Route 135

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	248	348	158	351	74	119	224	241	73	92	97
Average Queue (ft)	140	348	95	337	15	75	201	182	68	75	87
95th Queue (ft)	236	348	181	348	63	114	244	233	80	89	102
Link Distance (ft)	333	333	343	343	343	718	718	718	71	71	71
Upstream Blk Time (%)		84		89					19	37	46
Queuing Penalty (veh)		0		0					54	106	131
Storage Bay Dist (ft)											
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 2: Bishop Street & Howard Street

Movement	EB	EB	NB	NB	SB	SB
Directions Served	R	R	LT	T	T	TR
Maximum Queue (ft)	399	399	95	42	422	531
Average Queue (ft)	342	319	42	15	393	528
95th Queue (ft)	483	481	95	45	427	532
Link Distance (ft)	384	384	71	71	523	523
Upstream Blk Time (%)	30	4	1			56
Queuing Penalty (veh)	0	0	5			131
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Bishop Street & Clark Street

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	28	29	313
Average Queue (ft)	22	6	185
95th Queue (ft)	40	25	394
Link Distance (ft)	224	486	312
Upstream Blk Time (%)			12
Queuing Penalty (veh)			58
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 1: Bishop Street & Route 135

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	348	348	29	347	170	50	495	412	73	92	91
Average Queue (ft)	198	348	9	336	34	26	391	306	72	76	81
95th Queue (ft)	343	349	28	345	147	54	520	396	74	89	93
Link Distance (ft)	333	333	343	343	343	718	718	718	71	71	71
Upstream Blk Time (%)	0	79		88					24	43	43
Queuing Penalty (veh)	0	0		0					63	113	113
Storage Bay Dist (ft)											
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 2: Bishop Street & Howard Street

Movement	EB	EB	NB	NB	SB	SB
Directions Served	R	R	LT	T	T	TR
Maximum Queue (ft)	396	361	120	87	272	536
Average Queue (ft)	357	310	64	50	225	528
95th Queue (ft)	436	393	129	100	292	535
Link Distance (ft)	384	384	71	71	523	523
Upstream Blk Time (%)	52		4	2		63
Queuing Penalty (veh)	0		22	10		155
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Bishop Street & Clark Street

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	155	95	149	92
Average Queue (ft)	70	44	30	71
95th Queue (ft)	143	108	128	130
Link Distance (ft)	224	84	523	82
Upstream Blk Time (%)		10		58
Queuing Penalty (veh)		2		279
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1: Bishop Street & Route 135

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	187	348	179	346	74	72	270	213	72	90	127
Average Queue (ft)	144	348	94	336	15	60	242	158	58	78	85
95th Queue (ft)	193	348	184	344	64	76	268	266	86	92	121
Link Distance (ft)	333	333	343	343	343	718	718	718	71	71	71
Upstream Blk Time (%)		67		94					10	44	46
Queuing Penalty (veh)		0		0					44	189	195
Storage Bay Dist (ft)											
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 2: Bishop Street & Howard Street

Movement	EB	EB	NB	NB	SB	SB
Directions Served	R	R	LT	T	T	TR
Maximum Queue (ft)	399	394	66	43	123	537
Average Queue (ft)	376	366	42	9	79	526
95th Queue (ft)	401	402	68	37	128	535
Link Distance (ft)	384	384	71	71	523	523
Upstream Blk Time (%)	43	42	1			78
Queuing Penalty (veh)	0	0	6			256
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Bishop Street & Clark Street

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	220	134	94
Average Queue (ft)	173	106	91
95th Queue (ft)	237	173	98
Link Distance (ft)	224	134	83
Upstream Blk Time (%)	31	46	77
Queuing Penalty (veh)	0	32	468
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 1: Bishop Street & Route 135

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	319	348	57	351	110	96	314	245	74	96	112
Average Queue (ft)	267	347	18	340	37	67	238	196	54	80	86
95th Queue (ft)	346	351	57	349	114	100	301	239	100	99	111
Link Distance (ft)	333	333	343	343	343	718	718	718	71	71	71
Upstream Blk Time (%)	0	33		83					13	42	43
Queuing Penalty (veh)	0	0		0					38	120	125
Storage Bay Dist (ft)											
Storage Blk Time (%)											
Queuing Penalty (veh)											

Intersection: 2: Bishop Street & Howard Street

Movement	EB	EB	NB	NB	SB	SB
Directions Served	R	R	LT	T	T	TR
Maximum Queue (ft)	399	383	96	70	92	531
Average Queue (ft)	366	345	60	31	70	529
95th Queue (ft)	419	415	108	69	101	533
Link Distance (ft)	384	384	71	71	523	523
Upstream Blk Time (%)	75	1	4	0		78
Queuing Penalty (veh)	0	0	18	2		184
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 3: Bishop Street & Clark Street

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	27	28	97
Average Queue (ft)	5	6	92
95th Queue (ft)	23	24	100
Link Distance (ft)	224	523	83
Upstream Blk Time (%)			74
Queuing Penalty (veh)			354
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			