

MALDEN, MASSACHUSETTS

11 Dartmouth Street

TRANSPORTATION STUDY

Prepared for
Quaker Lane Capital

Prepared by
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Executive Summary

Howard Stein Hudson (HSH) prepared a Traffic Impact Study (TIS) on behalf of Quaker Lane Capital for their proposed office building located at 11 Dartmouth Street in Malden, Massachusetts. The Project typifies an ideal Transit-Oriented Development (TOD) located in a vibrant walkable central business district proximate to the Orange Line, commuter rail, and bus hub at Malden Center station. The target tenant profile is comprised of smaller companies with a predominantly millennial workforce focused on the innovation economy. These tenants tend to take alternative modes of transportation to work and keep unconventional work hours, thereby decreasing weekday peak hour traffic. In summary, this study demonstrates that the proposed office building has minimal adverse impact on traffic and parking, as highlighted below.

Traffic: The project will add a small number of trips to the surrounding roadway network and can accommodate the project's new trips without difficulty. New peak-hour trip generation only accounts for 6.4% of Dartmouth Street's maximum hourly capacity and translates into two additional cars per minute, which is marginally noticeable. Furthermore, the analysis of study area intersections indicates only a few locations will see small changes in delay. These small changes can be mitigated through traffic signal timing adjustments.

Parking: The Malden Central Business District zoning overlay only requires parking for residential whereas office is exempt. However, in order to be responsive to the concerns raised by the City of Malden, the project Proponent will construct approximately 75 subgrade parking spaces, which reflects a ratio of 0.5 parking spaces/1,000 sf of office. Moreover, the Proponent is exploring public and private options to increase the parking supply, up to 1 space/1,000 sf, should it be needed. This is reasonable for a dense, urban, walkable, transit-oriented downtown area. The City of Boston is about to release guidelines that suggest a maximum of 0.10 spaces/1,000 sf in the downtown core. Other large cities across North America have similarly low parking requirements. Downtown Malden has direct access to numerous forms of public transit which will enable employees to avoid the use of a car.

In conclusion, the issues surrounding parking and traffic are inextricably linked. The more parking that is provided, the more congested the streets become. Forward thinking transportation planning will cultivate a dynamic downtown environment that is not dominated by the needs of the automobile because people can get here by other modes.



Introduction

In accordance with the City of Malden Zoning Ordinance, proponents of major construction projects are required to submit a transportation study to the City that assesses existing and future traffic conditions. This study, prepared by HSH for Quaker Lane Capital (the Proponent), presents the traffic and parking impacts associated with the proposed office tower development (the Project), located at 11 Dartmouth Street in Malden, Massachusetts. This report has been prepared in conjunction with the Special Permit Application.

Project Description

The Project will consist of the demolition of the existing structure and the construction of a new, 11-story, approximately 150,000 sf office building with an approximately 3,000 sf ground floor commercial component. The existing building consists of a three-story, approximately 17,000 sf office building (occupied by the Dartmouth Corporate Center), with a private parking lot. The Project is being marketed to small start-up companies. It is not expected that any tenant will occupy an entire floor. The Project will continue to utilize the existing private way to the north of the building. On-site parking will be in two underground garage levels and provide approximately 75 spaces to building tenants.

Study Area

The extent of the study area generally includes Main Street to the east, Centre Street to the south, Washington Street to the west, and Mountain Avenue to the north. The study area intersections were defined collaboratively with the City and includes the following ten intersections:

- Main Street/Florence Street (signalized);
- Main Street/Salem Street/Ferry Street (signalized);
- Main Street/Pleasant Street (signalized);
- Main Street/Exchange Street (signalized);
- Main Street/Centre Street (signalized);
- Florence Street/Washington Street (signalized);
- Pleasant Street/Dartmouth Street/Middlesex Street (unsignalized);
- Florence Street/Ramsdell Road (unsignalized);
- Dartmouth Street/Ramsdell Road (unsignalized); and
- Mountain Avenue/Dartmouth Street (unsignalized).

The study area intersections are shown in **Figure 1**.



Figure 1. Study Area





Study Methodology

This transportation study and its supporting analyses were conducted in accordance with the Massachusetts Department of Transportation (MassDOT) guidelines and are described below.

The Existing (2020) Condition analysis includes an inventory of the existing transportation conditions such as traffic characteristics, parking and curb usage, transit operations, pedestrian and bicycle facilities, and car and bike share services. Existing counts for vehicles, bicycles, and pedestrians were collected at the study area intersections. A traffic data collection effort forms the basis for the transportation analysis conducted as part of this evaluation.

The future transportation conditions analysis evaluates potential transportation impacts associated with the Project. The long-term transportation impacts are evaluated for the year 2027, based on a seven-year horizon from the year of the filing of this traffic study.

The No-Build (2027) Condition analysis includes general background traffic growth, traffic growth associated with specific developments (not including this Project), and transportation improvements that are planned in the vicinity of the Project site.

The Build (2027) Condition analysis includes a net increase in traffic volume due to the addition of Project-generated trip estimates to the traffic volumes developed as part of the No-Build (2027) Condition analysis. The transportation study identified expected roadway, parking, transit, pedestrian, and bicycle accommodations, as well as loading capabilities and deficiencies.

The final part of the transportation study identifies measures to mitigate Project-related impacts and to address any traffic, pedestrian, bicycle, transit, safety, or construction related issues that are necessary to accommodate the Project.

Existing Traffic Condition

Existing Roadway Condition

The study area includes the following roadways described below, categorized according to the Massachusetts Office of Transportation Planning classifications. All roadways are under the jurisdiction of the City of Malden. Roadway geometry descriptions are based on field observations.

Centre Street (Route 60) is an urban principal arterial that consists of two travel lanes in each direction, separated by an approximately four-foot raised and landscaped median. Centre Street



runs east-west between Eastern Avenue to the east and Pleasant Street to the west. Exclusive right and left turn lanes are provided at key intersections. Parking is not permitted along Centre Street. Sidewalks are provided along both sides of the roadway.

Main Street, an urban principal arterial, is oriented north-south with one travel lane in each direction between the Melrose City line and the Everett City Line. Exclusive right- and left-turn lanes are provided at key locations. South of Florence Street, Main Street widens and is divided by a raised landscaped median on its approach to Salem Street and Ferry Street, with a combination of flush and raised medians between Salem Street and Centre Street. On-street parking is provided along both sides of Main Street. Sidewalks are provided along both sides of the roadway in the project area.

Exchange Street, an urban minor arterial approximately 0.3 miles in length, runs east-west between Main Street to the east and Commercial Street to the west. Exchange Street runs one-way eastbound and operates as a single travel lane, though the roadway is wide enough for parking and valet activity to take place without interrupting flow. Metered on-street parking is provided on both sides of the roadway, generally parallel parking on both sides of the roadway. There is one section between Washington Street South and Middlesex Street that provides head-in angle parking along the north side of Exchange Street. Sidewalks are provided on both sides of Exchange Street.

Pleasant Street, an urban minor arterial, is one-way westbound with one travel lane and one bike lane, between Main Street and the Government Center complex, where it currently ends. Pleasant Street is discontinued by Malden Government Center between Commercial/Florence Street and Exchange Place. In the near-future, Pleasant Street will be reconnected at Florence Street/Commercial Street (see No-build Conditions section for additional detail). Brick sidewalks are provided along both sides of the roadway and on-street parking is provided within the study area. Metered on-street parking is provided on both sides of Pleasant Street within the study area.

Florence Street, an urban collector approximately 0.4 miles in length, connects Pleasant Street and Main Street and runs primarily east-west. Florence Street consists of two travel lanes in each direction divided by a raised landscaped median ranging from six to eleven feet in width with intermittent median breaks. There is a curvilinear alignment on Florence Street between Pleasant and Washington Streets. Sidewalks are provided along both sides of the roadway and on-street parking is prohibited.

Dartmouth Street, an urban collector roadway, is one-way northbound with one travel lane, between Pleasant Street and Garnet Street. North of Garnet Street to Mountain Avenue, Dartmouth Street is two way with one travel lane in each direction. Concrete sidewalks exist along both sides of the roadway from Pleasant Street to the Florence Street overpass where the sidewalk



turns to asphalt along the west side of the roadway and remains concrete along the east side. On-street parking is restricted along both sides of the roadway for approximately 200 feet north of Pleasant Street. Between the Project site driveway and Garnet Street, on-street parking is provided along the west side of the roadway. Between Garnet Street and Ramsdell Road, on-street parking is provided along both sides of the roadway. North of Ramsdell Road, on-street parking is provided along the east side of the roadway.

Washington Street, an urban collector roadway, is oriented north-south between Exchange Street to the south and Fellsway East to the north. Washington Street is primarily a two-way roadway with one travel lane in each direction. The roadway operates as one-way northbound with one travel lane between Pleasant Street and Garnet Street, and as one-way southbound with one travel lane between Pleasant Street and Exchange Street. Within the study area, on-street parking is provided on both sides of the roadway south of Pleasant Street, and along the west side of the roadway north of Pleasant Street. Sidewalks are provided along both sides of the roadway within the project area.

Mountain Avenue, an urban collector roadway approximately 0.6 miles in length, runs east-west between Mount Vernon Street to the east and Summer Street to the west. Mountain Avenue consists of one travel lane in each direction and on-street parking is provided along the south side of the roadway. Sidewalks are provided along both sides of the roadway within the project area.

Existing Intersection Conditions

The study area intersections are described in the following paragraphs.

Main Street/Florence Street is a signalized intersection with three approaches. The Florence Street eastbound approach consists of a 12-foot exclusive left-turn lane and a 12-foot exclusive right-turn lane. The Main Street northbound and southbound approaches each consist of a single 13-foot travel lane. On-street parking is not provided on Florence Street; however, seven-foot, one-hour parking lanes are provided along both sides of Main Street. Crosswalks are provided across all legs of the intersection; a refuge island is provided along the crosswalk across Florence Street. The signal phasing operates in a four-phase configuration. Phase 1 consists of a Main Street northbound leading left-turn/through phase. Phase 2 allows Main Street northbound/southbound traffic to move together. Phase 3 consists of a push-button actuated pedestrian phase, and Phase 4 allows all movements from Florence Street eastbound.

Main Street/Salem Street/Ferry Street is a signalized intersection with four approaches. The Main Street eastbound approach consists of a nine-foot exclusive left-turn lane and a 15-foot general lane. The Salem Street westbound approach consists of one unmarked 20-foot travel lane that functions as two travel lanes, primarily to allow right-turning vehicles to by-pass a queue. The Ferry



Street northbound approach consists of one unmarked 19-foot travel lane that functions as a shared left-turn/through lane and exclusive right-turn lane. The Main Street southbound approach consists of a 17-foot left-turn/through lane and a 19-foot channelized right-turn lane. Crosswalks are provided across all legs of the intersection. One-hour parking is provided along the Ferry Street northbound approach, along the Salem Street eastbound departure, and along the Main Street westbound departure. A bus stop is located along the Main Street southbound approach. The signal operates in three phases. The first phase allows Main Street eastbound left-turning and through traffic to move along with a Main Street southbound right-turn overlap. The second phase allows through traffic on Main Street eastbound and all movements from Salem Street westbound to move. The last phase combines the movements of Ferry Street northbound and Main Street southbound. Pedestrians are accommodated with concurrent pedestrian phases.

Main Street/Pleasant Street is a signalized intersection with two approaches. The Main Street northbound approach consists of a 12-foot exclusive left-turn lane and a 13-foot through lane. The Main Street southbound approach consists of an unmarked 18-foot travel lane which acts as a through lane and a right-turn lane. Pleasant Street runs one-way westbound (away from the intersection). Crosswalks are provided across all legs of the intersection, and pedestrians are accommodated with an exclusive pedestrian phase. Citizens Bank, which is located on the east side of the intersection, has an entrance driveway along the Main Street northbound departure, approximately 35 feet north of the crosswalk across the northern leg of Main Street, and an exit driveway just north of the crosswalk across the southern leg of Main Street. These driveways were not included in traffic analysis presented in this report because they are not controlled by the traffic signal. The signal has only two phases: Main Street northbound/southbound phase and an exclusive pedestrian phase.

Main Street/Exchange Street is a signalized intersection with three approaches. The Exchange Street eastbound approach consists of a 26-foot unmarked travel lane which acts as an exclusive left-turn lane and a through/right-turn lane. The Main Street northbound approach consists of a 12-foot through lane and a 12-foot through/right-turn lane. The Main Street southbound approach consists of an 11-foot shared left-turn/through lane and an 11-foot through lane. Exchange Street runs one-way eastbound, and turns into Irving Street east of the intersection, which also runs one-way eastbound. Crosswalks are provided across all legs of the intersection, and pedestrians are accommodated with an exclusive pedestrian phase. On-street parking is provided on both sides of the northern leg of Main Street, on both sides of Exchange Street, and on both sides of Irving Street in the vicinity of the intersection. The intersection is located just 200 feet south of Pleasant Street and just 200 feet north of Centre Street. The signal phasing at the intersection consists of a Main Street northbound/southbound phase, an Exchange Street eastbound phase, and an exclusive pedestrian phase.



Main Street/Centre Street is a signalized intersection with four approaches. The Centre Street eastbound approach consists of a 10-foot wide exclusive left-turn lane, a 12-foot wide through lane, and a 12-foot wide shared through/right-turn lane. The Centre Street westbound approach consists of an 11-foot wide exclusive left-turn lane, a 12-foot through lane, and a 12-foot shared through/right-turn lane. The Main Street northbound approach consists of a 10-foot wide exclusive left-turn lane, a 12-foot wide through lane, and a 12-foot wide shared through/right-turn lane. The Main Street southbound approach consists of an 11-foot wide left-turn lane, an 11-foot through lane, and an 11-foot shared through/right-turn lane; the left-turn lane and through lane are separated by a channelizing painted gore island. Crosswalks are provided across all legs of the intersection, and pedestrians are accommodated with concurrent pedestrian phases. On-street parking is not provided in the vicinity of the intersection. The signal phasing at the intersection consists of a Main Street northbound/southbound phase, followed by a Centre Street leading left-turn and through phase, followed by a Centre Street eastbound/westbound phase during which left turns are permitted, followed by an extended all-red phase, during which no vehicles or pedestrians are given the right of way. This phase, possibly an exclusive pedestrian phase that was replaced with concurrent phasing but not entirely removed, greatly impacts the efficiency of the traffic signal. Pedestrians were observed crossing the intersection during this phase.

Florence Street/Washington Street is a signalized intersection with four approaches. The Florence Street eastbound approach consists of a 12-foot shared left-turn/through lane and an 11-foot shared through/right-turn lane. The Florence Street westbound approach consists of a 10-foot exclusive left-turn lane, an 11-foot through lane, and a 12-foot shared through/right-turn lane. The Washington Street northbound approach consists of a 12-foot shared left-turn/through lane and an 11-foot exclusive right-turn lane. The Washington Street southbound approach consists of an 11-foot shared left-turn/through/right-turn lane. Crosswalks are provided across all legs of the intersection, and pedestrians are accommodated with concurrent pedestrian phases. On-street parking is provided on the west side of the southern leg of Washington Street for Malden Senior Center visitors only. The signal phasing at this intersection consists of a Washington Street northbound phase, followed by a Florence Street eastbound/westbound phase, an exclusive pedestrian phase, and a Washington Street southbound phase.

Pleasant Street/Dartmouth Street/Middlesex Street is an unsignalized intersection with two approaches. The Pleasant Street westbound approach consists of an approximately 11-foot wide shared through/right-turn lane along with a bike lane. The Middlesex Street northbound approach consists of a shared left-turn/through lane. Crosswalks and curb-ramps exist across the Middlesex Street, Dartmouth Street, and western Pleasant Street legs of the intersection; however, the crosswalks are in poor condition.



Florence Street/Ramsdell Road is an unsignalized intersection with three approaches. The Florence Street eastbound approach consists of an 11-foot shared left-turn/through lane and an 11-foot through lane. The Florence Street westbound approach consists of an 11-foot through lane and a 12-foot shared through/right-turn lane. The Ramsdell Road southbound approach consists of an approximately 13-foot shared left/right-turn lane. Crosswalks and curb ramps are provided across the Ramsdell Road leg of the intersection.

Dartmouth Street/Ramsdell Road is an unsignalized intersection with three approaches. The Ramsdell Road westbound approach consists of an approximately 12-foot wide shared left/right-turn lane. The Dartmouth Street northbound approach consists of a 12-foot wide shared through/right-turn lane. The Dartmouth Street southbound approach consists of a 12-foot wide shared left-turn/through lane. Crosswalks and curb ramps are provided across the Ramsdell Road leg of the intersection.

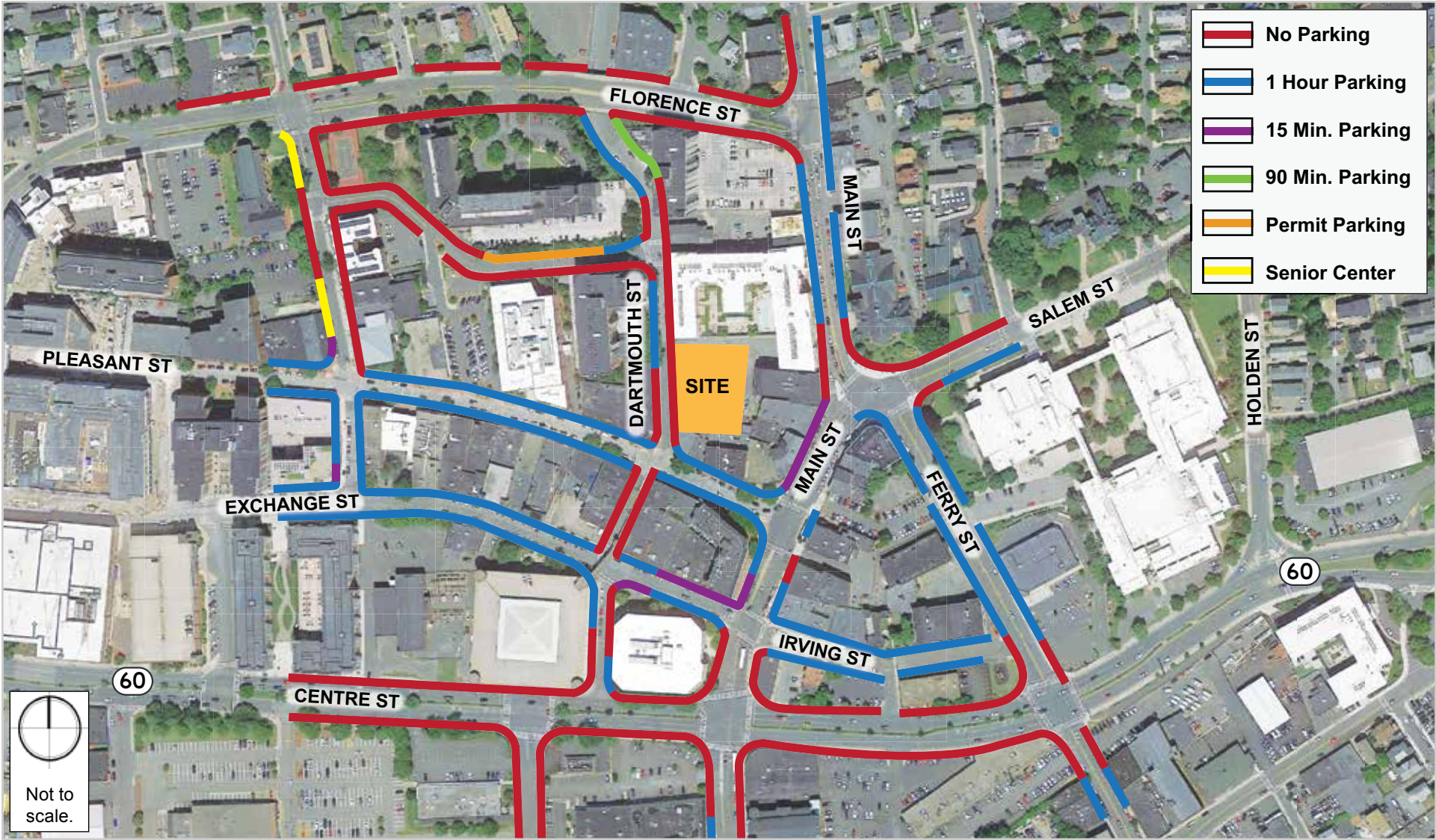
Mountain Avenue/Dartmouth Street is an unsignalized intersection with three approaches. The Mountain Avenue eastbound approach consists of an 11-foot shared through/right-turn lane. The Mountain Avenue westbound approach consists of an 11-foot shared left-turn/through lane. The Dartmouth Street northbound approach consists of an approximately 13-foot shared left/right-turn lane. No crosswalks or curb ramps are provided at this intersection.

On-Street Parking and Curb Use

On-street parking is generally provided in proximity to the site. Pleasant Street, Exchange Street, Main Street, and sections of Dartmouth Street have metered parking with a one-hour time limit. On-street parking is restricted along the east side of Dartmouth Street, adjacent to the Project site. The nearby on-street parking and curb regulations are shown in **Figure 2**.



Figure 2. *On-street Parking and Curb Use*





Existing Car Sharing Services

Car sharing enables easy access to short-term vehicular transportation. Vehicles are rented on an hourly or daily basis, and all vehicle costs (gas, maintenance, insurance, and parking) are included in the rental fee. Vehicles are checked out for a specific time period and returned to their designated location.

Zipcar is the primary company in the greater Boston area car sharing market; however, other companies such as Turo and Getaround also operate within the City of Malden. There are currently four Zipcar locations with access to eight vehicles and two Turo vehicles in the vicinity of the Project site. The nearby car sharing services are shown in **Figure 3**.

Existing Traffic Condition

TRAFFIC DATA COLLECTION

Turning movement counts (TMCs) and vehicle classification counts were conducted during the weekday a.m. and p.m. peak periods (7:00 – 9:00 a.m. and 4:00 – 6:00 p.m., respectively). The TMCs included automobile, truck, pedestrian, and bicycle movements. The traffic volume data for six study area intersections were collected on Tuesday, January 28, 2020, and the remaining four study area intersections were collected on Thursday March 5, 2020. Within the data collection periods, the peak hour was generally identified as 7:30 – 8:30 a.m. and 4:45 – 5:45 p.m. The detailed traffic counts are provided in **Appendix A**.

SEASONAL ADJUSTMENT

It is standard practice to adjust traffic count data by a seasonal factor to obtain average annual volumes. To account for seasonal variation in Malden traffic, the study team reviewed the MassDOT's weekday seasonal adjustment factor for Group U4-7 (Urban Minor Arterials, Major and Minor Collectors, and Local Roads and Streets). The seasonal adjustment factors for January and March are 1.06 and 1.02, respectively. This indicates that average vehicular volumes are 6% lower in January and 2% lower in March, than the annual average. A 6% seasonal adjustment factor was applied to the intersections counted in January and a 2% seasonal adjustment factor was applied to the intersections counted in March. The seasonal adjustment factors were applied as a conservative measure for the analysis to reflect a worst-case scenario.

EXISTING VEHICULAR TRAFFIC VOLUMES

The Existing (2020) Condition traffic volumes for the weekday a.m. and p.m. peak hours are shown in **Figure 4** and **Figure 5**, respectively.



Figure 3. *Car Sharing Locations*





Figure 4. Existing Condition Traffic Volumes, Weekday a.m. Peak Hour

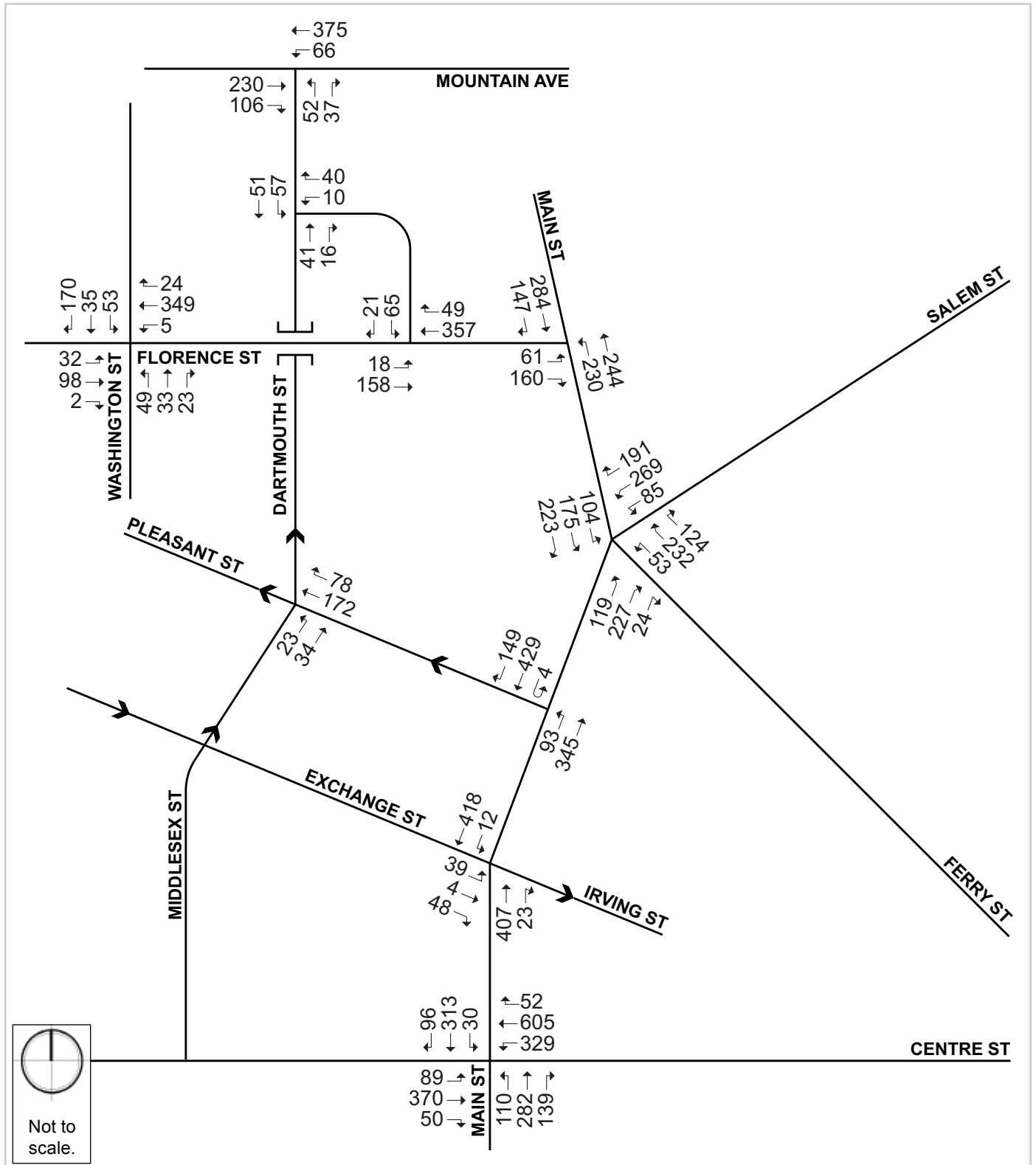
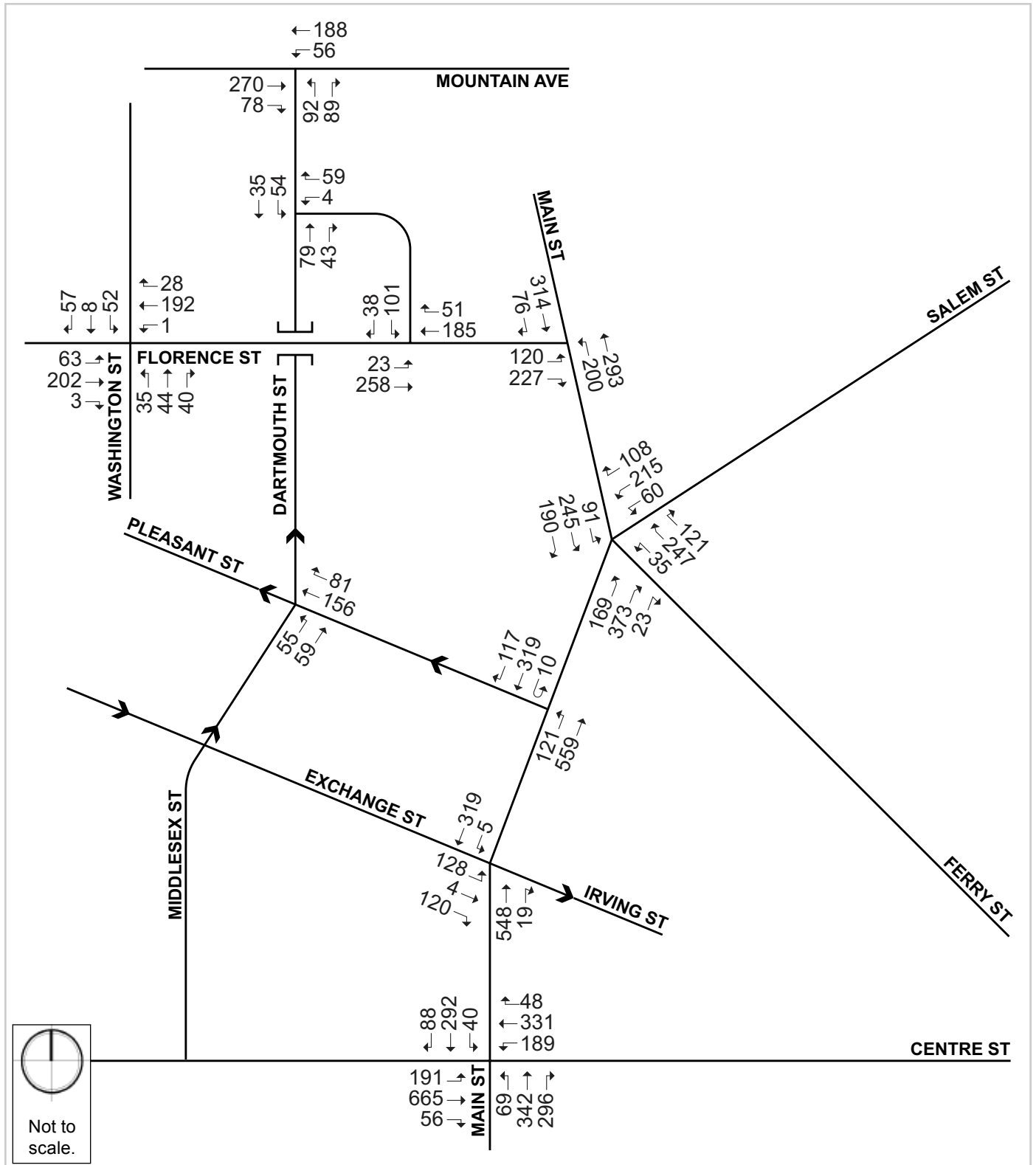




Figure 5. Existing Condition Traffic Volumes, Weekday p.m. Peak Hour





Crash History

The crash data was used to understand safety conditions at the study intersections. The MassDOT IMPACT Portal was used to obtain crash data from the most recent three years of available data, which included data between 2015-2017. While the most recent year of complete crash data is 2017, the IMPACT Portal is updated daily with data that MassDOT considers incomplete as the records have not been verified or closed by all municipal police departments across the Commonwealth.

In MassDOT District 4, where the Project site is located, the average number of crashes is 0.73 crashes per million entering vehicles (MEV) at signalized intersections and 0.57 crashes per MEV at unsignalized intersections. **Table 1** shows the summary information on crashes, including the number per location and the associated crash rates. Crash rate worksheets are provided in **Appendix B**.



Table 1. Crash History at Study Area Intersections, 2015-2017

Characteristic	Main St./ Florence St.	Main St./ Ferry St./ Salem St.	Main St./ Pleasant St.	Main St./ Exchange St.	Main St./ Centre St.	Florence St./ Washington St.	Dartmouth St./ Pleasant St./ Middlesex St.	Mountain Ave./ Dartmouth St.
Year								
2015	3	6	4	4	11	3	3	4
2016	2	9	3	4	18	2	1	3
2017	2	8	6	1	18	1	0	1
Crash Severity								
Property Damage Only	4	8	6	4	29	3	4	3
Injury	2	1	1	1	12	2	0	1
Fatality	0	0	0	0	0	0	0	0
Other/Not Reported	1	14	6	1	6	1	0	4
Crash Type								
Angle	2	6	1	2	16	4	2	3
Rear-end	4	4	5	3	15	1	1	0
Sideswipe	0	10	3	2	4	0	1	1
Pedestrian/Cyclist	1	1	1	1	4	0	0	0
Parked/Fixed Object	0	1	3	0	5	1	0	1
Other/Not Reported	0	1	0	1	3	0	0	3
Pavement Condition								
Dry	6	17	8	6	32	4	4	5
Wet	0	4	1	1	8	0	0	1
Snow/Ice	1	0	1	1	4	2	0	2
Other/Not Reported	0	2	3	1	3	0	0	0
Total Crashes	7	23	13	9	47	6	4	8
Crash Rate ¹	0.50	1.01	1.01	0.69	1.57	0.68	0.99	0.85
District Average	0.73 signalized						0.57 unsignalized	

¹ Crash rate = Crashes per million entering vehicles

Shading indicates a crash rate higher than district average

The unsignalized intersections of Florence Street/Ramsdell Road and Dartmouth Street/Ramsdell Road had zero crashes reported between 2015-2017.

Five intersections exceed the District 4 average crash rates for signalized or unsignalized intersections.



- The signalized intersection of Main Street/Ferry Street/Salem Street has a crash rate of 1.01 per MEV. Of the 23 crashes reported, the most common types were sideswipe crashes. One crash resulted in an injury, and one crash involved a pedestrian.
- The signalized intersection of Main Street/Pleasant Street has a crash rate of 1.01 per MEV. Of the 13 crashes reported, the most common type of crashes were rear end crashes. One crash resulted in an injury, and one involved a pedestrian.
- The signalized intersection of Main Street/Centre Street has a crash rate of 1.57 per MEV. Of the 47 crashes reported, the most common types were angle and rear-end crashes. Twelve resulted in an injury, and three involved a pedestrian.
- The unsignalized intersection of Pleasant Street/Dartmouth Street/Middlesex Street has a crash rate of 0.99 per MEV. The high crash rate at this location is a result of the low vehicle volumes, as the crash rate indicates a comparison between the number of vehicles traveling through the intersection compared to the number of crashes. Of the four crashes reported, the most common type was an angle crash. There were not any crashes that resulted in an injury nor that involved a pedestrian.
- The unsignalized intersection of Mountain Avenue/Dartmouth Street has a crash rate of 0.85 per MEV. Of the eight crashes reported the most common was an angle crash. This could be the result of limited sight distance on Dartmouth Street due to the uphill grade as one approaches Mountain Avenue as well as the on-street parking on both streets. One crash resulted in an injury.

Existing Pedestrian and Bicycle Conditions

Pedestrian infrastructure is available throughout the study area as well as some bicycle accommodations. Sidewalks are generally provided along both sides of every roadway. Crosswalks are provided across all approach legs of signalized intersections as well as across most legs of unsignalized intersections. A crosswalk is not provided across Florence Street at Ramsdell Road; however, pedestrians can use Dartmouth Street for a grade separated route. In December 2013, Malden implemented a pedestrian wayfinding signage program to guide pedestrians and encourage pedestrian activity in Malden Center and throughout Malden. A bike lane is provided on Pleasant Street.

Pedestrian and bicycle volumes were collected concurrently with the vehicular TMCs and are presented in **Figure 6** and **Figure 7**, respectively. Pedestrian activity is high along Main Street and Dartmouth Street. Since the data was collected in January and March, bicycle and pedestrian volumes may be low as pedestrian and bicycle activity is typically higher during the warmer months.



Figure 6. Existing Pedestrian Volumes, Weekday a.m. and p.m. Peak Hours

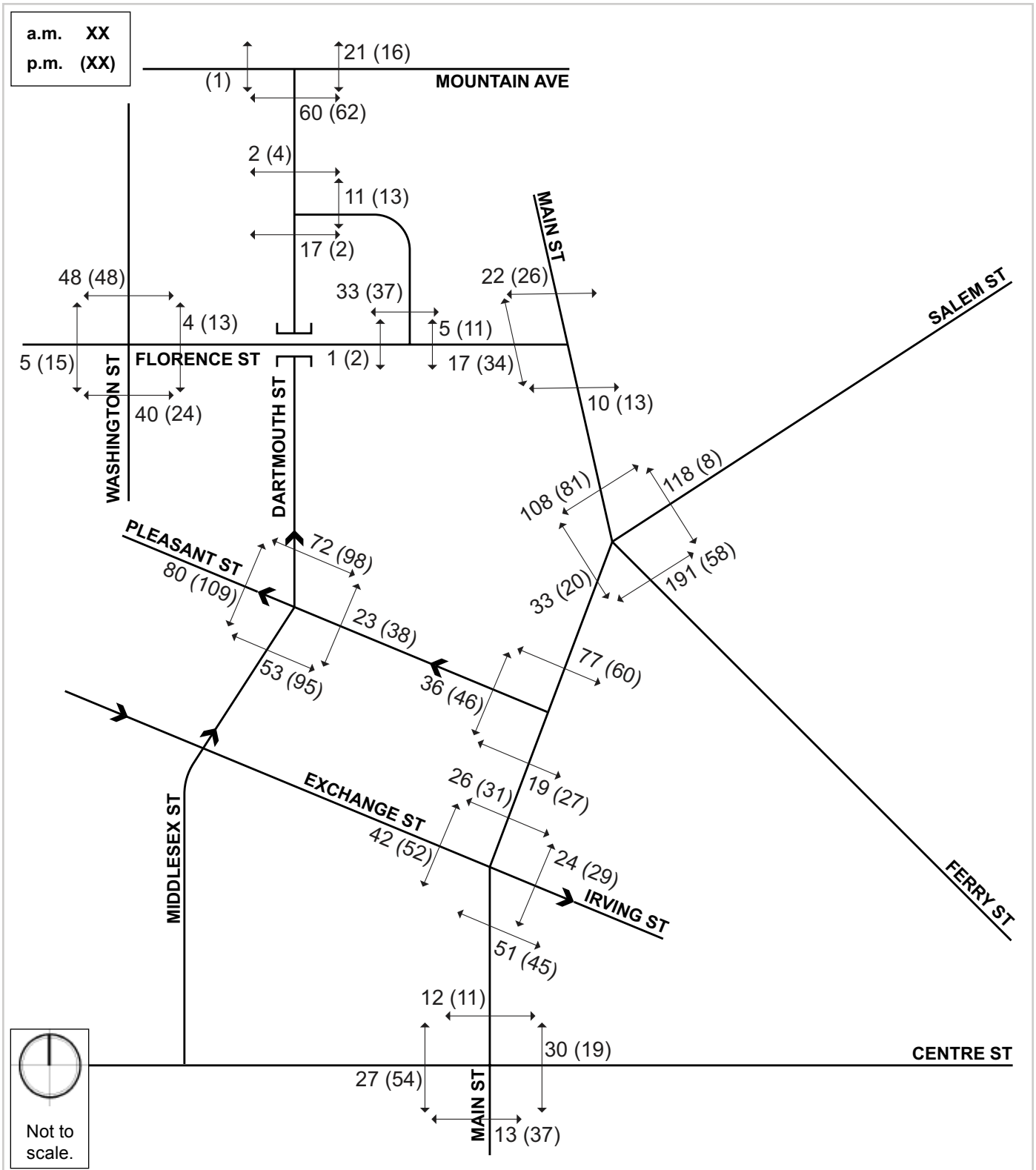
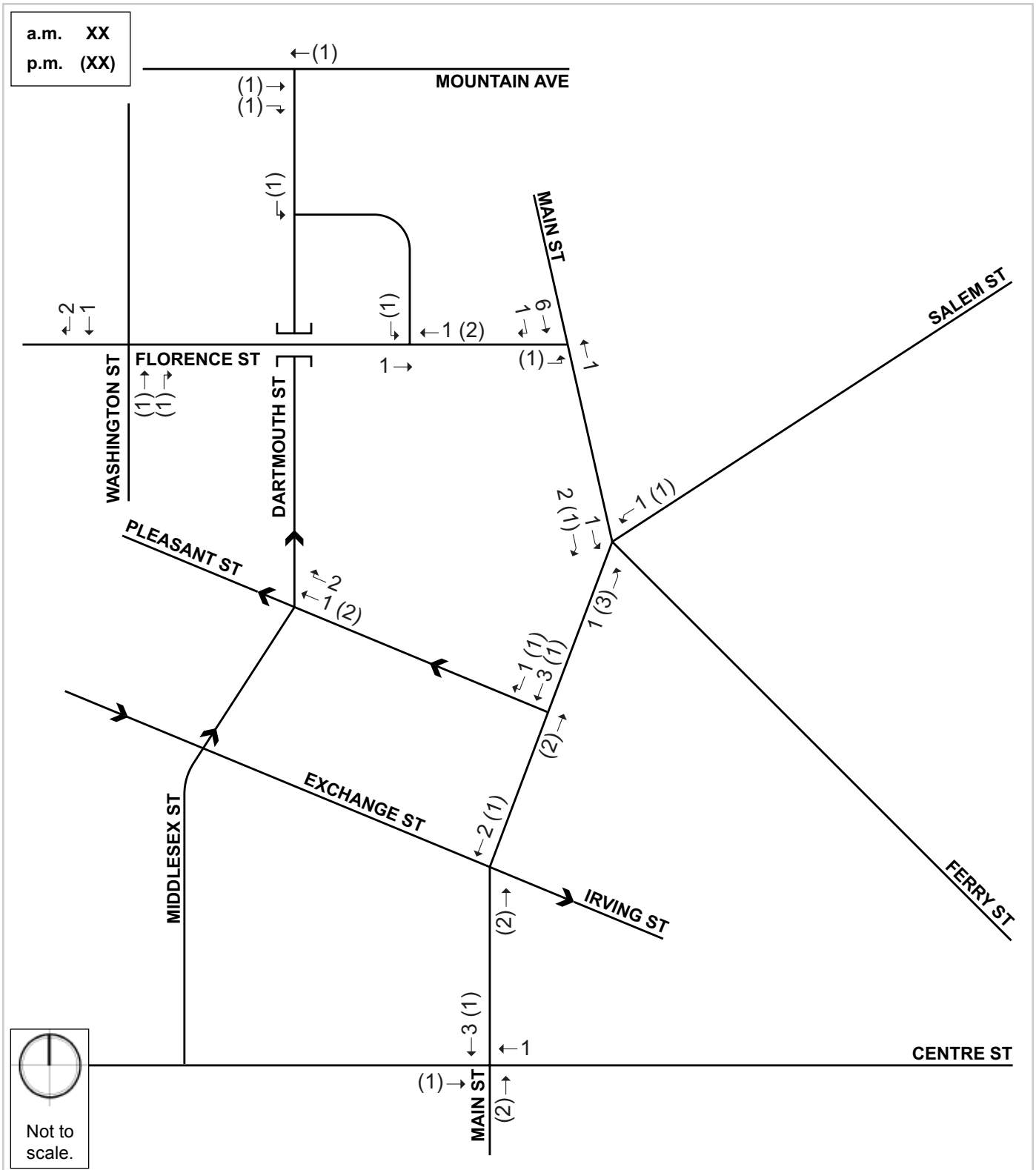




Figure 7. Existing Bicycle Volumes, Weekday a.m. and p.m. Peak Hours





Existing Public Transportation

Downtown Malden is served by a wide variety of Massachusetts Bay Transportation Authority (MBTA) public transportation options, including the Orange Line, the Haverhill commuter rail line, and many bus routes. The Project site is located within one-half mile (10-minute walk) of the Malden Center MBTA station. The services provided at the Malden Center MBTA station are summarized in **Table 2** and mapped in **Figure 8**. The transit-oriented nature of the Project site will allow office workers to rely on public transportation and reduce the need for automobile use.

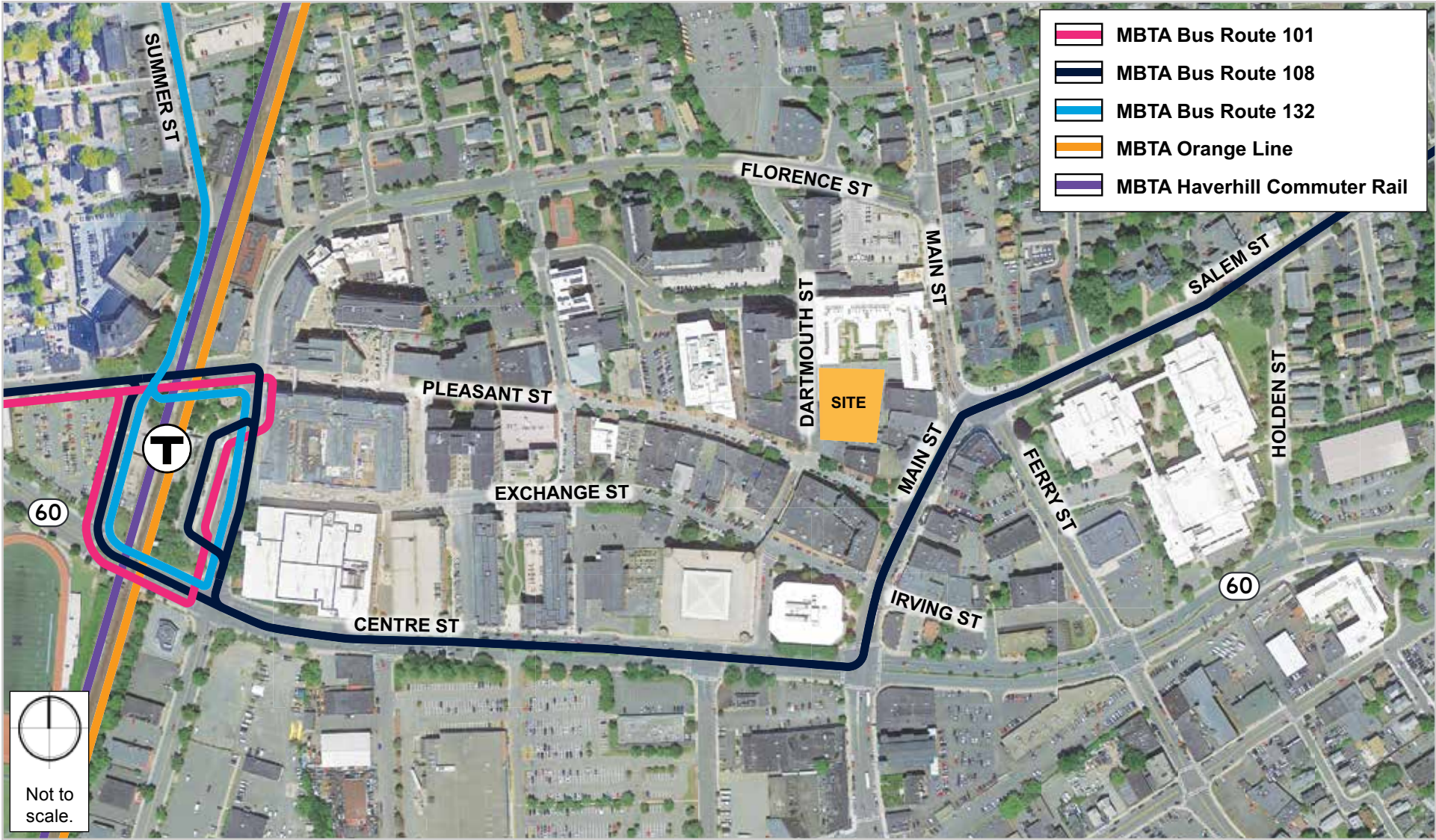
Table 2. MBTA Transit Service in the Study Area

Route	Description	Peak Hour headway (minutes) ¹
Haverhill Line	Haverhill to North Station	30-73
Orange Line	Oak Grove–Forest Hills	5
Route 97	Malden Center Station - Wellington Station	30
Route 99	Boston Regional Medical Center- Wellington Station	40
Route 101	Malden Center Station - Sullivan Square Station	6-20
Route 104	Malden Center Station - Sullivan Square Station	14-30
Route 105	Malden Center Station - Sullivan Square Station	30-65
Route 106	Lebanon Street, Malden/Franklin Square-Wellington Station	20-30
Route 108	Linden Square - Wellington Station	10-30
Route 132	Redstone Shopping Center - Malden Station	30
Route 136	Reading Depot - Malden Station	30-45
Route 137	Reading Depot - Malden Station	30-60
Route 411	Malden Center Station - Revere/Jack Satter House	25-60
Route 430	Saugus Center - Malden Center Station	35-40

1. Headway is the time between vehicles. Source MBTA 2020.



Figure 8. Existing Public Transportation





No-Build (2027) Condition

For transportation impact analyses, it is standard practice to evaluate two future conditions: a No-build Condition (without the proposed project) and a Build Condition (if the project is built). Typically, these conditions are projected to a future date seven years from the expected date of filing, which is known as the Existing Condition year. For this study, the year 2027 has been designated as the future year.

The traffic volumes under the No-build Condition are independent of the proposed Project and include existing traffic plus new traffic resulting from general background growth and any new projects in the area that have been identified by the City of Malden.

Background Traffic Growth and Other Developments

A general background growth rate accounts for changes in demographics, auto usage, auto ownership, and non-specific, minor changes in land use within the study area. A 0.5% annual growth rate was applied to the existing intersection volumes over seven years to account for background growth by 2027.

The Malden Planning Department did not provide information relating to any specific developments within the downtown area; however, the following project has been incorporated into future conditions (in addition to the growth rate):

- **Jefferson at Malden Center** – This project includes the demolition of the existing Malden Government Center, which includes the Malden Police Station and the Malden City Hall, as well as an adjacent parcel housing the First Church in Malden Congregational Church. The Proposed project will be a mixed use, transit-oriented development, which will include residential apartments, retail space, office space, and supporting on-site parking. Additionally, the Project will reopen Pleasant Street to the Commercial Street/Florence Street intersection as well as increase the overall amount of public on-street parking by approximately 15 spaces. New project trips were obtained from the associated traffic impact study.

No-build Condition traffic volumes, which incorporate the background growth rate and additional trips associated with the above project, are shown in **Figure 9** and **Figure 10**.



Figure 9. *No-Build (2027) Condition Traffic Volumes, Weekday a.m. Peak Hour*

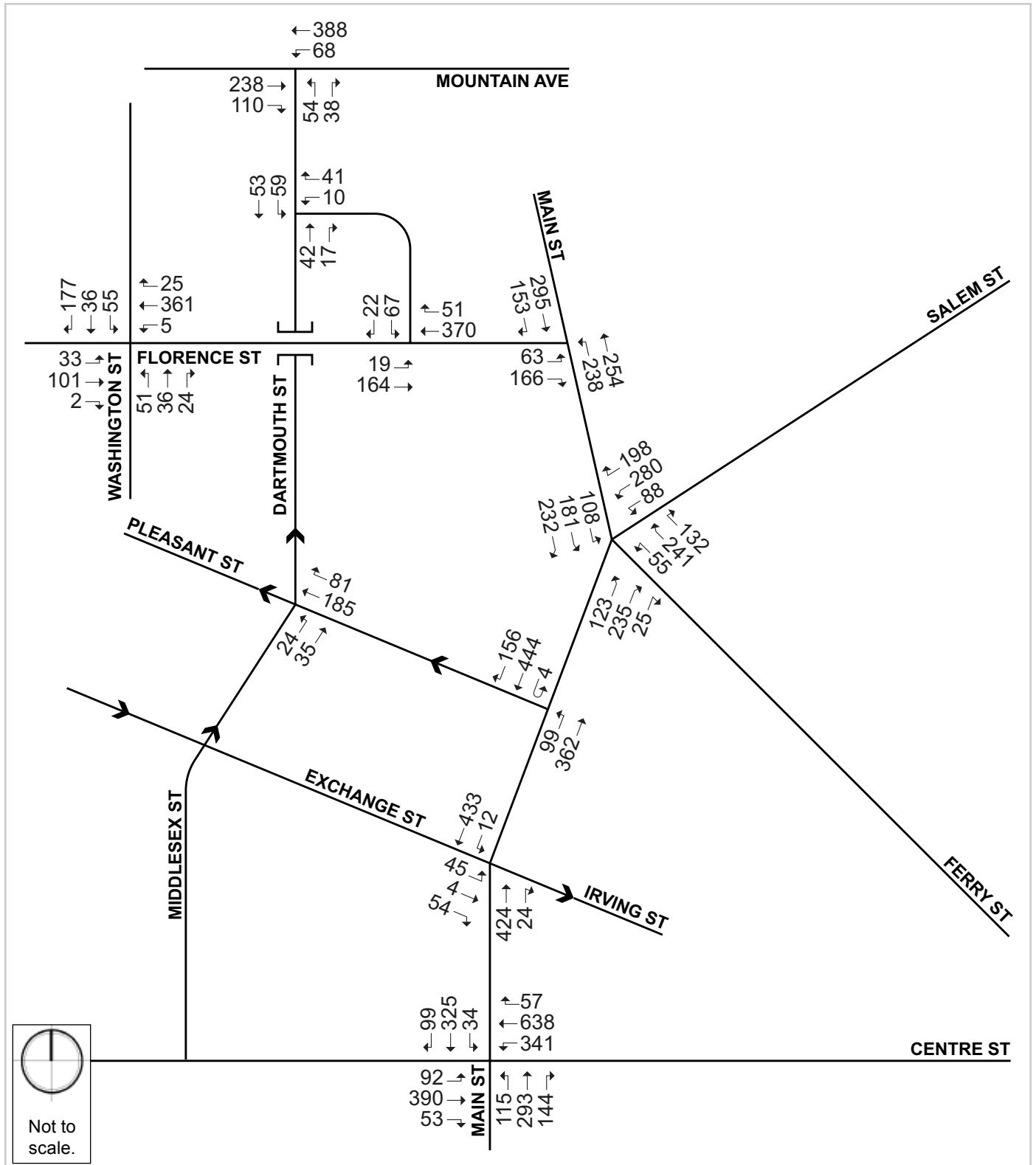
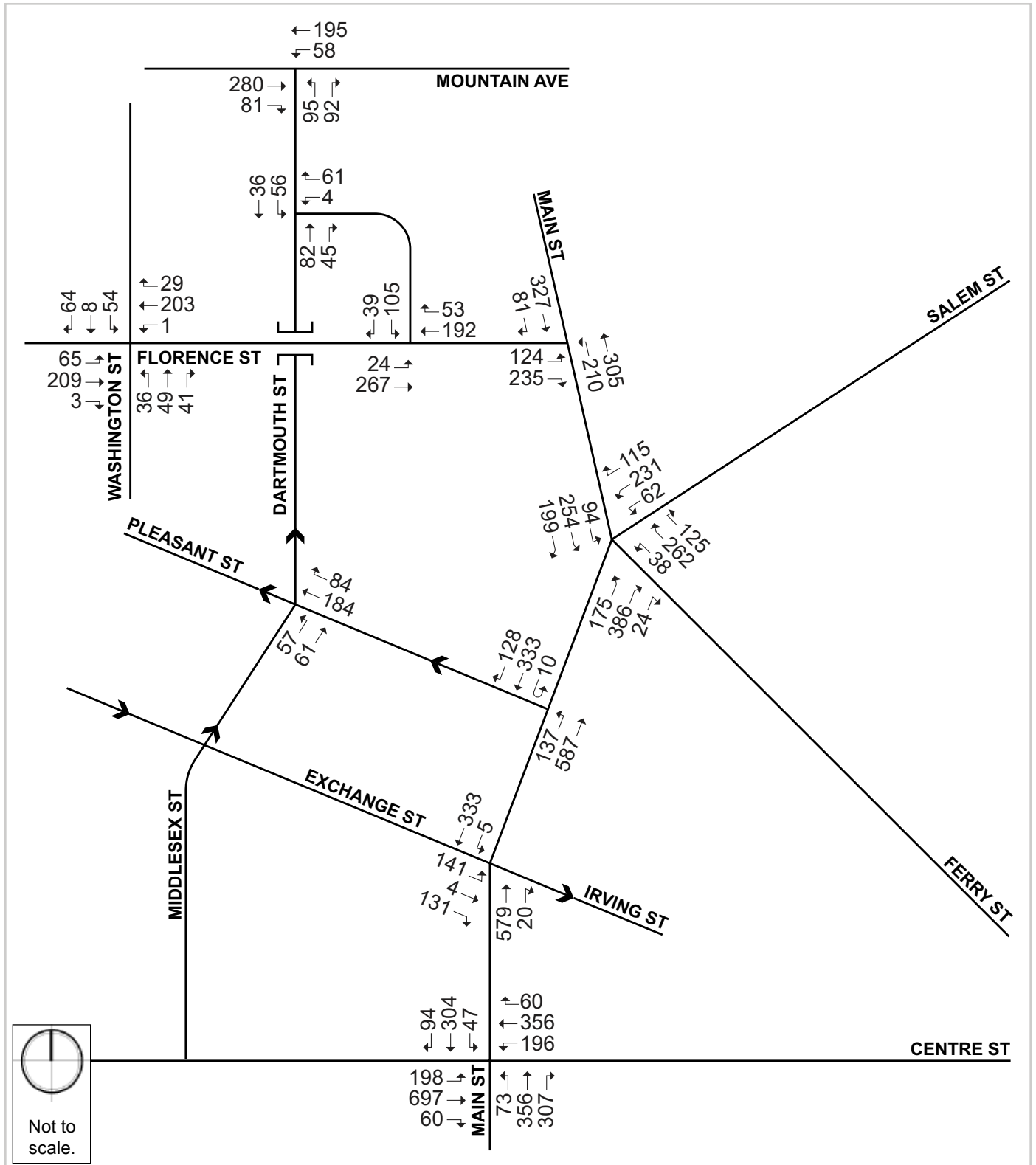




Figure 10. *No-Build (2027) Condition Traffic Volumes, Weekday p.m. Peak Hour*





Other Transportation Improvements

The City of Malden has applied for a grant to make improvements to Dartmouth Street. The planned improvements include repaving, sidewalk and ADA ramp reconstruction, and restriping. Construction of these improvements is expected to begin in July 2020.

Build (2027) Condition

As previously mentioned, the Project will consist of the demolition of the existing structure and the construction of a new, 11-story, approximately 150,000 sf office building with an approximately 3,000 sf ground floor commercial component. The existing building consists of a three-story, approximately 17,000 sf office building (occupied by the Dartmouth Corporate Center), with a private parking lot. The Project will continue to utilize the existing private way to the north of the building. On-site parking will be in two underground garage levels and provide approximately 75 spaces to building tenants. The Proponent will also pursue a lease of some amount of off-site parking from the Malden Redevelopment Authority (MRA).

Site Access and Circulation

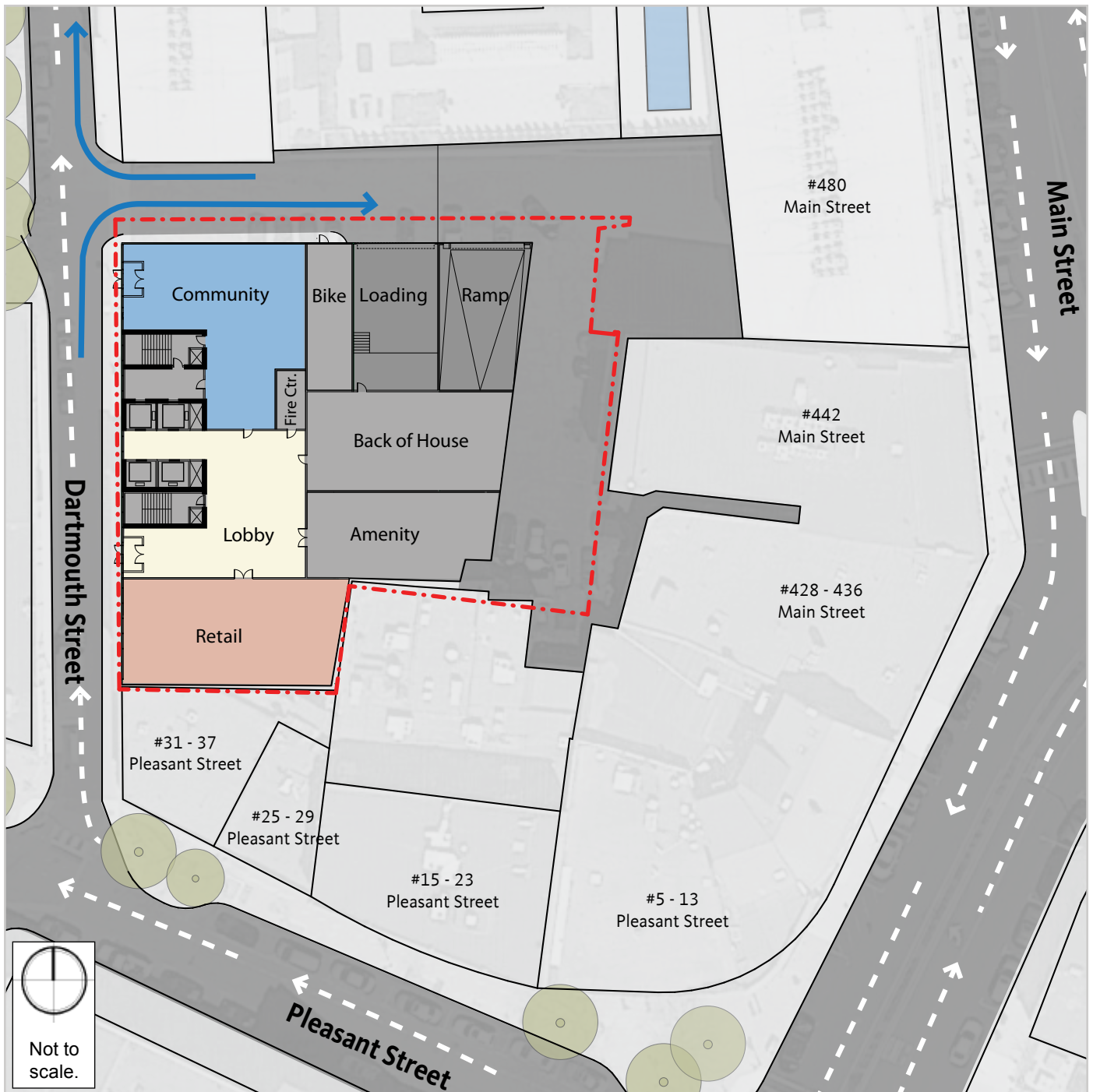
The vehicular access to the parking garage will continue to occur along the private roadway located to the north of the building through the existing curb cut along Dartmouth Street. A dedicated loading area will be provided along the rear of the building. A designated bicycle storage room will be provided on the ground floor for easy access to bicycles. The site plan for the proposed Project is shown in **Figure 11**.

Build Loading and Service Activity

All Project-related deliveries will occur in a dedicated off-street loading area that has been proposed along the east wall, near the southeast corner. The location of this loading area was chosen to minimize the impact along Dartmouth Street as well as at the Project's garage entrance. The loading area will be accessed via the existing curb cut along Dartmouth Street. All Project delivery activity will be managed by an on-site transportation coordinator.



Figure 11. *Site Plan*





Build Parking Condition

The Project has proposed to provide approximately 75 parking spaces in two garage levels, a rate of 0.5 spaces per 1,000 sf. The Proponent has also initiated discussions with the City of Malden Parking Department to determine whether there are parking spaces available for lease off-site should the need arise post construction. Kendall Square in Cambridge, an area with aggressive programs for transportation demand management (TDM) measures, including limiting off-street parking, has an overall parking ratio of 0.1 spaces per 1,000 sf. While the Proponent is not proposing a parking ratio of 0.1 per 1,000 sf, the proposed parking ratio is reasonable in combination with the Proponent's proposed TDM measures as well as the types of businesses to whom the space will be marketed. In addition, according to Section 500.2.8.1 of the City of Malden Zoning Ordinances, all allowed non-residential uses in the Central Business District are not required to conform with the off-street parking requirements.

Project Trip Generation

TRIP GENERATION METHODOLOGY

Determining the future trip generation of the Project is a complex, multi-step process that produces an estimate of vehicle trips, transit trips, and walk/bicycle trips associated with a proposed development and a specific land use program. A project's location and proximity to different travel modes determines how people will travel to and from a site.

To estimate the number of trips expected to be generated by the Project, data published by the Institute of Transportation Engineers (ITE) in the *Trip Generation Manual*¹ were used. ITE provides data to estimate the total number of unadjusted vehicular trips associated with the Project. In an urban setting well-served by transit, adjustments are necessary to account for other travel modes such as walking, bicycling, and transit. To estimate the unadjusted number of vehicular trips for the Project, the following ITE land use code (LUC) was used:

- LUC 710 – General Use Office Building. A general office building houses multiple tenants and is a location where affairs of businesses, commercial, or industrial organizations are conducted. Calculations of the number of trips use ITE's average rate per 1,000 sf.
- LUC 820 – Retail/Shopping Center. A retail/shopping center is an integrated group of commercial establishments that is planned, developed, owned and managed as a unit. A shopping center's composition is related to its market area in terms of size, location and type

¹ Trip Generation Manual, 10th Edition; Institute of Transportation Engineers; Washington, D.C.; 2017.



of store. Of the ITE retail categories, LUC 820 best suits the retail component proposed within the Project. Calculations of the number of trips use ITE’s average rate per 1,000 sf.

TRAVEL MODE SHARES

Travel mode shares reflect the distribution of person trips among automobiles, transit services, and walking/bicycling. The American Census Survey (ACS) Table B08406 – Means of Transportation to Work for Workplace Geography provides work-based travel mode share rates for cities and towns in Massachusetts. The ACS data for the City of Malden was used to develop the travel mode share rates for the office land use. The office mode share was adjusted to reflect the transit-oriented nature of the Project based on other transit-oriented locations in the greater Boston area. The travel mode share rates for the retail use were adopted from other recent traffic studies in the downtown Malden area. The unadjusted vehicular trips were converted to person trips by using vehicle occupancy rates published by the Federal Highway Administration (FHWA); the person trips were then distributed to the mode share rates shown in **Table 3**.

Table 3. Travel Mode Shares, Vehicle Occupancy, and Taxi Rate

Land Use	Travel Mode Share			Vehicle Occupancy	Taxi
	Walk/Bicycle	Transit	Auto		
Office	13%	21%	66%	1.18	3%
Retail	20%	10%	70%	1.82	0%

NET NEW VEHICLE TRIP GENERATION

As previously discussed, the site is currently occupied by the Dartmouth Corporate Center, a three-story office building housing approximately 17,000 sf of general office space. This land use generates a small amount of travel activity related to its office tenants and visitors. When assessing a site with existing active land uses, it is standard practice to estimate existing trips and subtract those trips from the projected new future trips. The result of this process yields “net new” trips that become the basis for traffic analysis.

Table 4 shows the vehicle trips associated with the existing land use to be removed from the site and the vehicle trips associated with the Project by land use. The resulting net new trips reflect the impact of the Project on the surrounding roadway network. Detailed trip generation calculation sheets for the existing site and proposed Project are contained in **Appendix C**.



Table 4. Net New Vehicle Trip Generation

Time Period/ Direction		Existing Trips	New Project Trips		Net New Trips
		Office (17,000 sf)	Office (150,000 sf)	Retail (2,850 sf)	
Daily	In	-57	508	37	488
	Out	-57	508	37	488
	Total	-114	1,016	74	976
a.m. Peak Hour	In	-11	101	2	92
	Out	-2	20	1	19
	Total	-13	121	3	111
p.m. Peak Hour	In	-2	22	3	23
	Out	-11	99	4	92
	Total	-13	121	7	115

Vehicle Trip Distribution

A vehicle trip distribution pattern identifies the various travel paths for vehicles arriving at a destination and the corresponding departure travel paths. New vehicle trips generated by the Project site will include mostly tenant employees and visitors to the businesses. The trip distribution for new Project trips was based on 2018 Census Journey to Work data, previous studies done in the Malden Center area, and knowledge of the roadway system in the area. **Figure 12** shows the trip distribution pattern for Project trips entering the site driveway on Dartmouth Street.

Build Traffic Operations

The distribution pattern was applied to the net new Project trips to develop the Project generated vehicle trips shown in **Figure 13** and **Figure 14**, for the a.m. peak hour and p.m. hour, respectively. Then the Project generated vehicle trips were added to the No-Build traffic volumes to develop the Build (2027) Condition traffic volumes, shown in **Figure 15** and **Figure 16** for the a.m. and p.m. peak hours, respectively.



Figure 12. *Vehicle Trip Distribution*

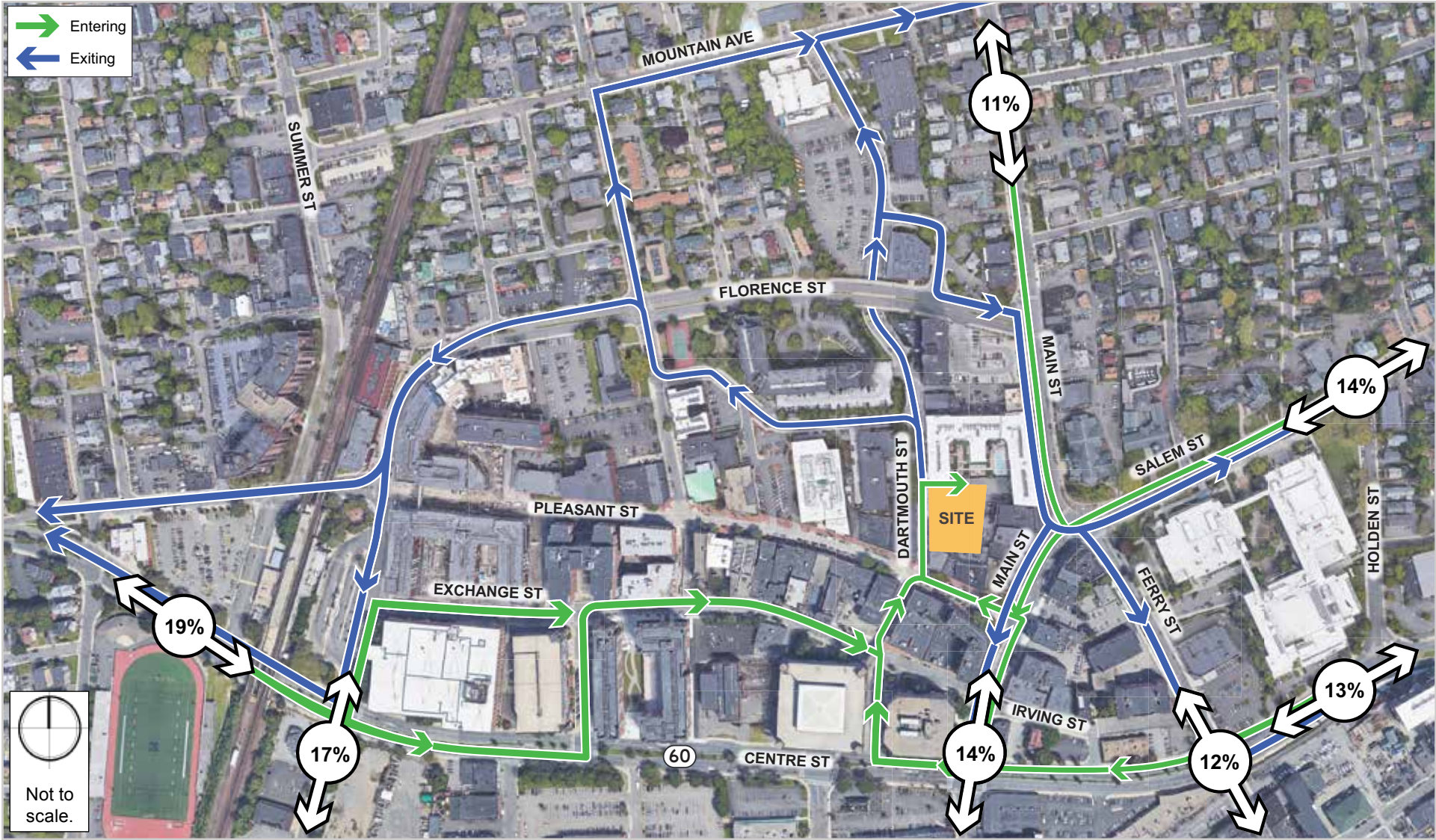




Figure 13. *Net New Project-generated Trips, Weekday a.m. Peak Hour*

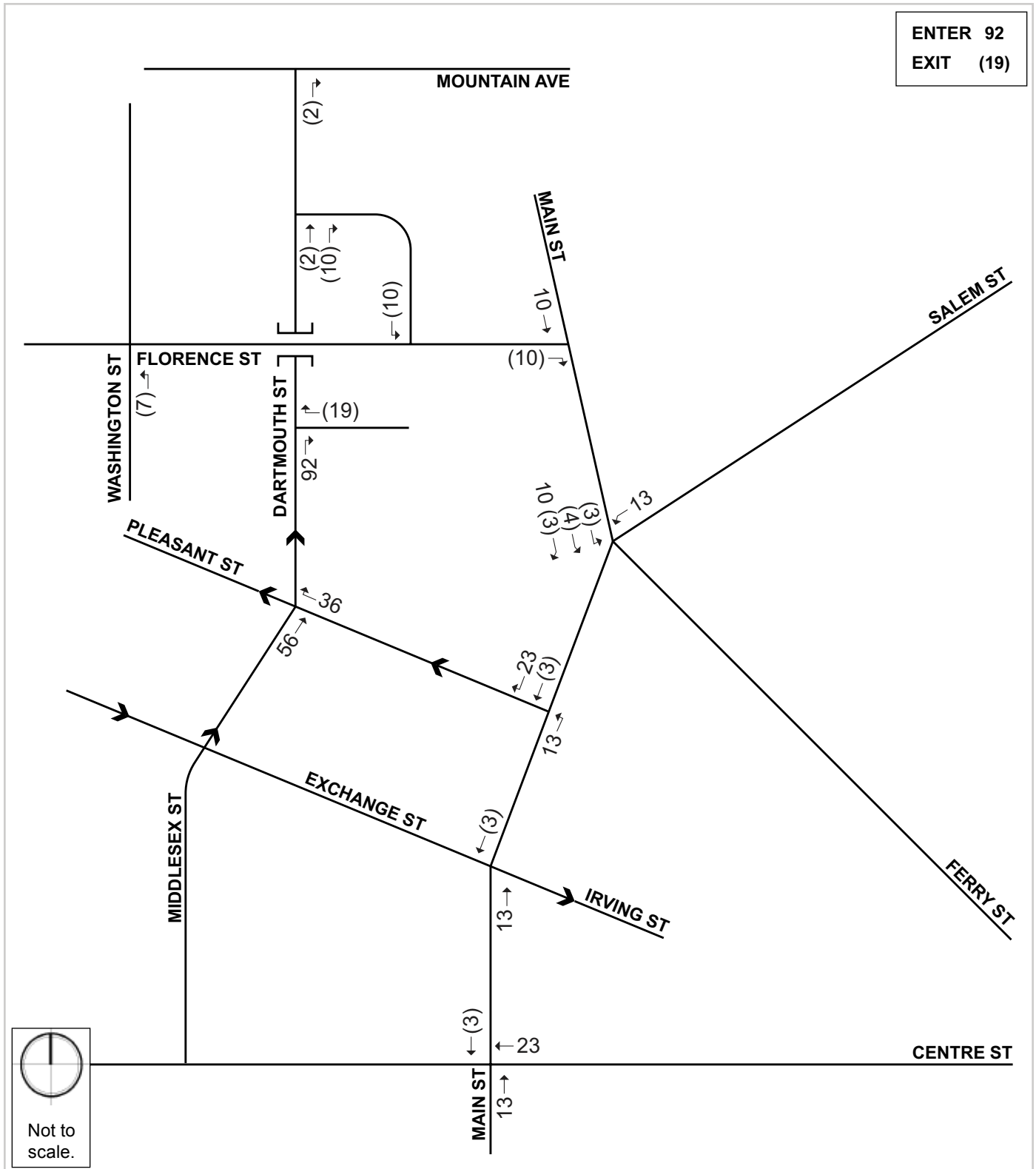




Figure 14. Net New Project-generated Trips, Weekday p.m. Peak Hour

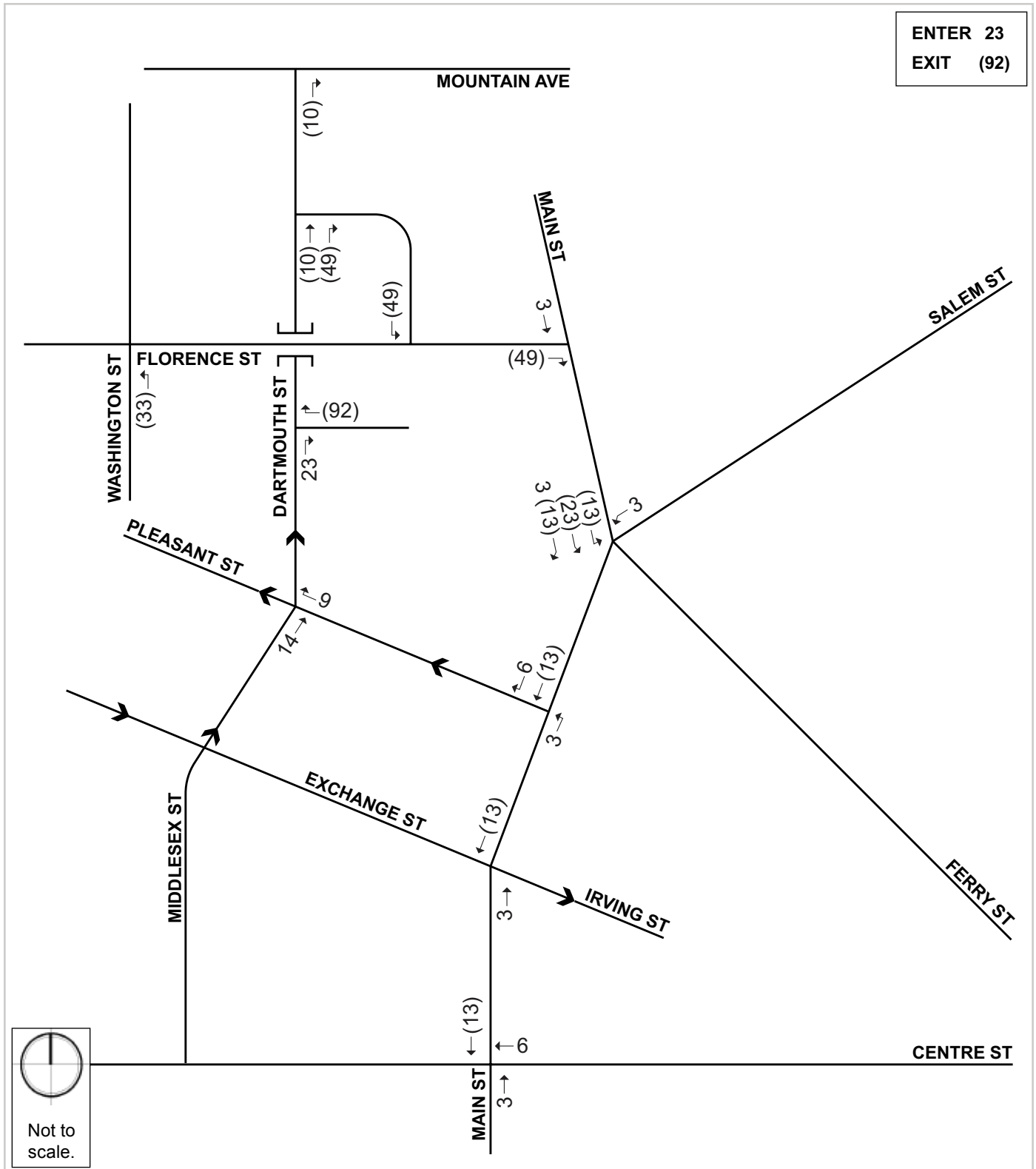




Figure 15. *Build (2027) Condition Traffic Volumes, Weekday a.m. Peak Hour*

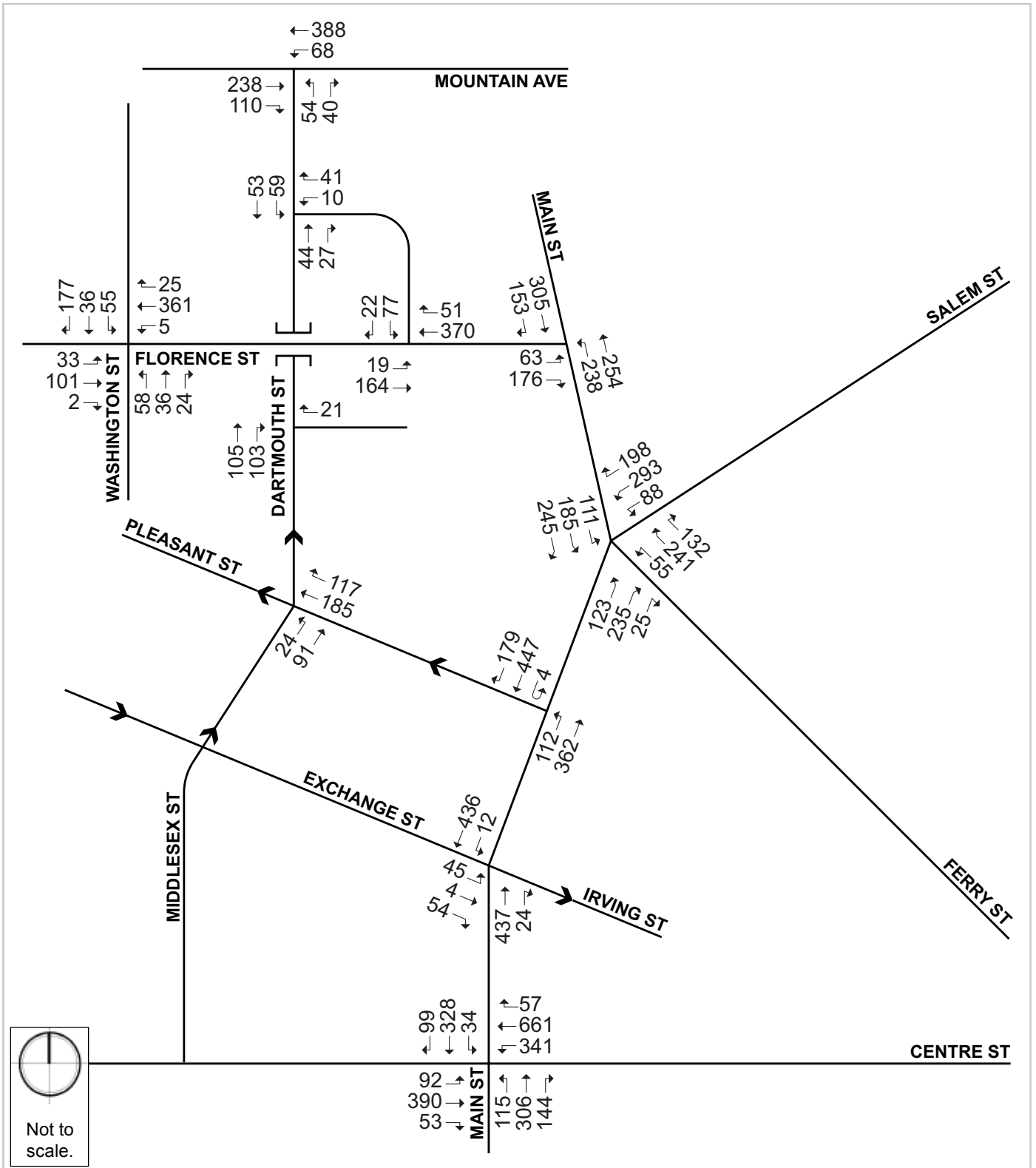
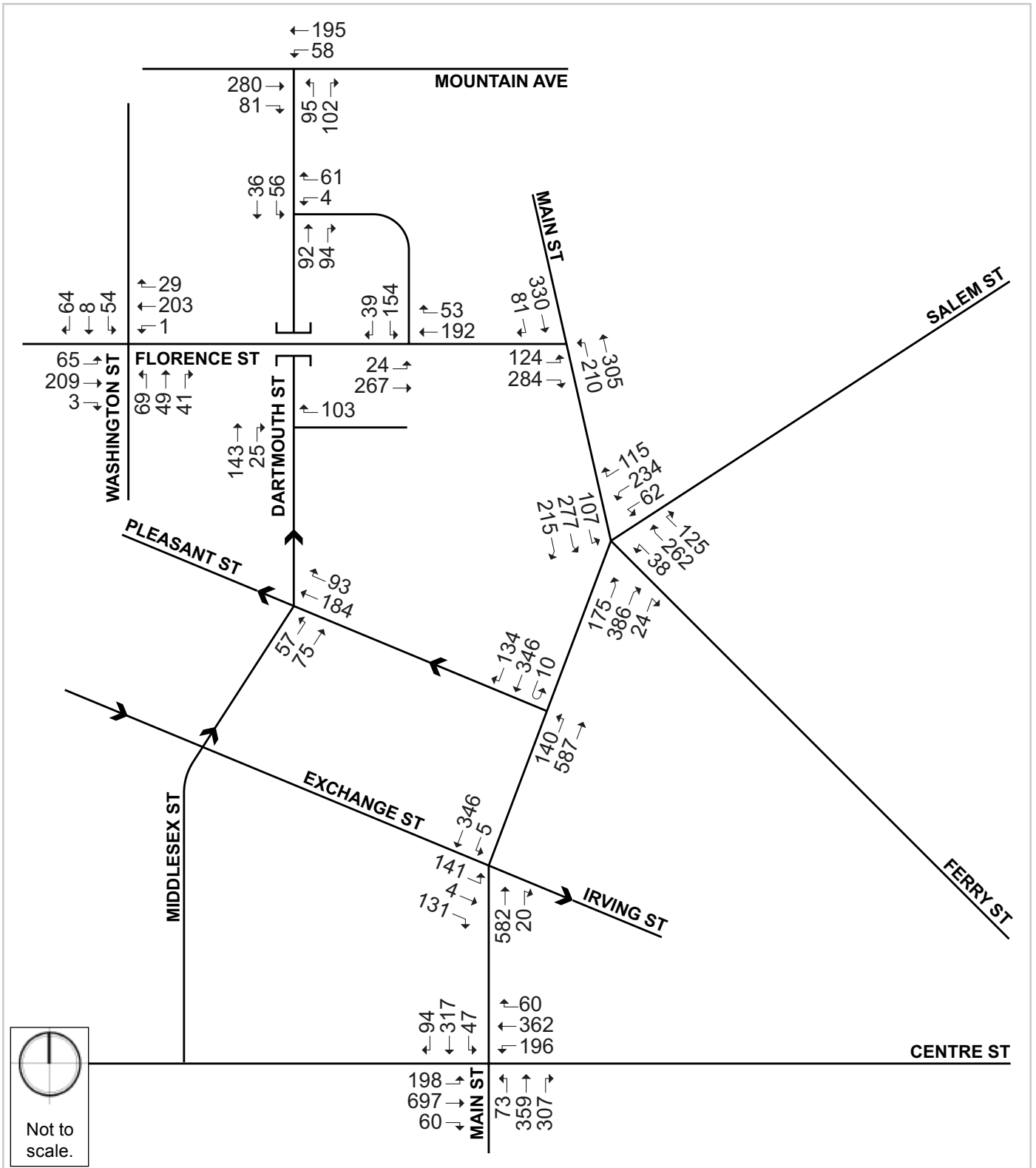




Figure 16. *Build (2027) Condition Traffic Volumes, Weekday p.m. Peak Hour*





Traffic Operations Analysis

The traffic operations analysis is determined through the Level of Service (LOS) and volume to capacity (v/c) calculations which determine a resultant grade based on calculated modal delay, in seconds per vehicle. LOS and delay at the signalized and unsignalized intersections were calculated using Synchro 9.0, which is based on the traffic operational analysis methodology of Synchro. The intersection geometry and traffic volumes play critical roles in determining the LOS and delay.

Table 5 is an excerpt from the Highway Capacity Manual (HCM), which provides LOS criteria for signalized and unsignalized intersections. LOS A defines the most favorable condition, with minimum traffic delay. LOS F represents the worst condition, with significant traffic delay.

Table 5. Level of Service Criteria

Level of Service	Average Stopped Delay (sec./veh.)	
	Signalized Intersection	Unsignalized Intersection
A	0.0–10.0	0.0–10.0
B	10.1–20.0	10.1–15.0
C	20.1–35.0	15.1–25.0
D	35.1–55.0	25.1–35.0
E	55.1–80.0	35.1–50.0
F	>80.0	>50.0

Source: Highway Capacity Manual, 2010. Transportation Research Board.

In accordance with MassDOT guidelines, the peak 15 minutes of data collected during the peak hour were isolated to calculate the peak-hour factors for each approach. The percentage of heavy vehicles was a factor for each approach as well. The City of Malden provided all signal timings and offsets used in the Existing Conditions analysis. These were verified through field observations.

Calibrations and factors used in the Synchro analysis are shown in **Table 6**.



Table 6. Synchro Adjustment Factors

Adjustment Factor	Notes
Vehicle Speed	Based on Posted Speed Limit
Area type	CBD Assumed
Right turn on red	Based on existing conditions
Conflicting peds/bikes	Based on TMC data
Peak-hour Factor	Based on TMC data by approach
Heavy vehicle %	Based on TMC data by movement

An analysis was performed to evaluate the traffic operations for the Existing (2020) Condition, the No-Build (2027) Condition, and the Build (2027) Condition. The traffic operations analysis for weekday a.m. and p.m. peak hours are shown in **Table 7** and **Table 8**, respectively. The detailed Synchro outputs are provided in **Appendix D**.



Table 7. Capacity Analysis Summary, Weekday a.m. Peak Hour

Intersection/ Movement	Existing (2020) Condition					No-Build (2027) Condition					Build (2027) Condition				
	LOS	Delay (s)	V/C ratio	%ile Queue Length		LOS	Delay (s)	V/C ratio	%ile Queue Length		LOS	Delay (s)	V/C ratio	%ile Queue Length	
				50 th (ft)	95 th (ft)				50 th (ft)	95 th (ft)				50 th (ft)	95 th (ft)
Signalized Intersections															
Main St/Florence St	C	28.6	-	-	-	C	32.4	-	-	-	C	33.9	-	-	-
Florence EB L	C	34.7	0.32	26	78	C	34.8	0.32	27	80	C	34.8	0.32	27	80
Florence EB R	B	11.3	0.52	0	54	B	11.3	0.52	0	55	B	11.3	0.54	0	56
Main NB L/T	C	26.4	0.83	97	#491	C	33.8	0.89	120	#538	D	36.4	0.90	126	#548
Main SB T/R	D	37.1	0.81	151	#500	D	38.8	0.83	159	#524	D	40.4	0.85	165	#540
Main St/Ferry St/Salem St	D	44.7	-	-	-	D	47.8	-	-	-	D	49.0	-	-	-
Main EB L	F	134.2	1.05	~108	#194	F	145.9	1.09	~114	#201	F	148.5	1.10	~114	#201
Main EB T/R	B	17.3	0.31	106	137	B	18.4	0.32	111	142	B	19.2	0.33	111	142
Salem WB L	C	24.2	0.30	42	83	C	24.6	0.32	43	86	C	24.7	0.32	43	86
Salem WB T/R	D	45.4	0.87	304	#494	D	51.0	0.91	322	#524	E	55.6	0.94	335	#542
Ferry NB L/T	D	44.8	0.79	196	275	D	48.5	0.83	207	#312	D	48.1	0.83	208	#314
Ferry NB R	A	5.7	0.30	0	33	A	5.7	0.31	0	34	A	5.6	0.31	0	34
Main SB L/T	E	75.0	0.97	205	#340	E	77.0	0.98	215	#355	E	76.7	0.98	222	#364
Main SB R	B	16.4	0.30	97	139	B	16.5	0.31	102	145	B	16.6	0.33	109	153
Main St/Pleasant St	A	0.2	-	-	-	A	0.2	-	-	-	A	0.2	-	-	-
Main NB L/T T	A	0.2	0.23	0	0	A	0.3	0.25	0	0	A	0.3	0.26	0	0
Main SB T T/R	A	0.1	0.19	0	0	A	0.1	0.20	0	0	A	0.1	0.21	0	0
Main St/Exchange St/Irving St	A	4.5	-	-	-	A	4.8	-	-	-	A	4.8	-	-	-
Exchange EB L	C	33.7	0.25	20	46	C	34.2	0.28	23	51	C	34.2	0.28	23	51
Exchange EB T/R	B	13.2	0.26	2	30	B	12.8	0.28	2	31	B	12.8	0.28	2	31
Main NB T T/R	A	2.7	0.21	24	33	A	2.9	0.22	25	35	A	2.9	0.22	26	37
Main SB L/T T	A	2.5	0.17	18	32	A	2.5	0.18	19	35	A	2.6	0.18	20	35
Main St/Centre St	E	56.8	-	-	-	E	62.6	-	-	-	E	63.2	-	-	-
Centre EB L	D	43.2	0.66	51	84	D	45.1	0.68	53	#90	D	45.3	0.68	53	#94
Centre EB T T/R	D	40.4	0.63	166	202	D	40.7	0.65	177	213	D	40.4	0.64	177	213
Centre WB L	F	187.4	1.30	~233	#418	F	218.6	1.38	~264	#461	F	214.8	1.37	~262	#459
Centre WB T T/R	D	48.9	0.84	260	333	D	51.2	0.87	279	#358	D	52.8	0.89	291	#392
Main NB L	C	27.6	0.35	74	110	C	28.0	0.37	78	113	C	28.7	0.38	78	116
Main NB T	C	29.1	0.51	203	248	C	29.6	0.53	214	256	C	31.0	0.57	227	274
Main NB R	C	25.6	0.31	91	127	C	25.7	0.32	94	129	C	26.3	0.32	94	132
Main SB L	B	14.5	0.08	12	28	B	14.7	0.10	13	31	B	14.8	0.10	13	31
Main SB T	D	41.0	0.35	147	214	D	52.6	0.37	153	224	E	57.4	0.37	155	226
Main SB R	A	6.7	0.14	10	38	A	4.3	0.14	0	28	A	7.1	0.14	11	40



Intersection/ Movement	Existing (2020) Condition					No-Build (2027) Condition					Build (2027) Condition				
	LOS	Delay (s)	V/C ratio	%ile Queue Length		LOS	Delay (s)	V/C ratio	%ile Queue Length		LOS	Delay (s)	V/C ratio	%ile Queue Length	
				50 th (ft)	95 th (ft)				50 th (ft)	95 th (ft)				50 th (ft)	95 th (ft)
Florence St/Washington St	C	34.2	-	-	-	D	36.7	-	-	-	D	37.6	-	-	-
Florence EB L/T T/R	C	28.8	0.20	37	60	C	28.6	0.23	38	62	C	28.6	0.23	38	62
Florence WB L	C	27.0	0.02	3	12	C	27.0	0.02	3	12	C	27.0	0.02	3	12
Florence WB T T/R	C	29.5	0.44	115	151	C	30.5	0.50	120	156	C	30.5	0.50	120	156
Washington NB L/T	D	53.1	0.57	66	93	E	59.8	0.67	70	#104	E	64.9	0.73	76	#116
Washington NB R	A	0.9	0.12	0	0	A	1.1	0.13	0	0	A	1.1	0.13	0	0
Washington SB L/T/R	D	41.0	0.78	108	#240	D	45.5	0.83	114	#253	D	45.5	0.83	114	#253
Unsignalized Intersections															
Pleasant St/Dartmouth St/ Middlesex St	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pleasant WB T/R	A	0.0	0.18	-	0	A	0.0	0.19	-	0	A	0.0	0.22	-	0
Middlesex NB L/T	B	12.1	0.12	-	11	B	12.3	0.13	-	11	B	14.4	0.28	-	28
Florence St/Ramsdell Rd	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Florence EB L/T	A	2.3	0.02	-	1	A	2.4	0.02	-	2	A	2.4	0.02	-	2
Florence EB T	A	0.0	0.06	-	0	A	0.0	0.07	-	0	A	0.0	0.07	-	0
Florence WB T	A	0.0	0.17	-	0	A	0.0	0.18	-	0	A	0.0	0.18	-	0
Florence WB T/R	A	0.0	0.12	-	0	A	0.0	0.13	-	0	A	0.0	0.13	-	0
Ramsdell SB L	C	16.8	0.21	-	19	C	17.5	0.22	-	21	C	18.0	0.25	-	25
Ramsdell SB R	B	10.6	0.04	-	3	B	10.7	0.04	-	3	B	10.7	0.04	-	3
Dartmouth St/Ramsdell Rd	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ramsdell WB L/R	A	9.3	0.06	-	5	A	9.3	0.06	-	5	A	9.4	0.06	-	5
Dartmouth NB T/R	A	0.0	0.04	-	0	A	0.0	0.05	-	0	A	0.0	0.06	-	0
Dartmouth SB L/T	A	4.1	0.05	-	4	A	4.1	0.05	-	4	A	4.2	0.05	-	4
Mountain Ave/Dartmouth St	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mountain EB T/R	A	0.0	0.22	-	0	A	0.0	0.23	-	0	A	0.0	0.23	-	0
Mountain WB L/T	A	2.0	0.07	-	6	A	2.0	0.07	-	6	A	2.0	0.07	-	6
Dartmouth NB L/R	C	21.1	0.35	-	38	C	22.5	0.38	-	42	C	22.5	0.38	-	43
Dartmouth St/Site Drive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Driveway WB R	-	-	-	-	-	-	-	-	-	-	A	9.2	0.03	-	2
Dartmouth NB T/R	-	-	-	-	-	-	-	-	-	-	A	0.0	0.13	-	0

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

95th percentile queues do not clear after two cycles. Actual queues may be longer.

Grey shading indicates LOS E or F under the Existing (2020) Condition, or that LOS worsens to LOS E or F in the No-Build (2027) Condition or Build (2027) Condition.



Table 8. Capacity Analysis Summary, Weekday p.m. Peak Hour

Intersection/ Movement	Existing (2020) Condition					No-Build (2027) Condition					Build (2027) Condition				
	LOS	Delay (s)	V/C ratio	%ile Queue Length		LOS	Delay (s)	V/C ratio	%ile Queue Length		LOS	Delay (s)	V/C ratio	%ile Queue Length	
				50 th (ft)	95 th (ft)				50 th (ft)	95 th (ft)				50 th (ft)	95 th (ft)
Signalized Intersections															
Main St/Florence St	D	35.6	-	-	-	D	44.6	-	-	-	D	44.6	-	-	-
Florence EB L	D	35.9	0.49	54	133	D	36.1	0.50	56	137	D	36.1	0.50	56	137
Florence EB R	A	9.6	0.57	0	55	A	9.5	0.57	0	55	A	9.8	0.63	0	58
Main NB L/T	D	38.9	0.90	138	#590	E	58.3	0.99	171	#656	E	60.7	1.00	174	#661
Main SB T/R	D	45.7	0.88	184	#485	D	50.7	0.92	196	#516	D	51.8	0.92	198	#521
Main St/Ferry St/Salem St	D	42.6	-	-	-	D	45.4	-	-	-	D	47.3	-	-	-
Main EB L	F	137.9	1.09	~123	#272	F	157.2	1.14	~142	#281	F	173.0	1.19	~145	#281
Main EB T/R	B	17.3	0.36	127	216	B	19.3	0.38	149	224	C	25.4	0.40	153	224
Salem WB L	C	20.9	0.19	25	59	C	21.7	0.20	28	61	C	22.2	0.21	28	61
Salem WB T/R	C	25.4	0.54	158	271	C	27.6	0.59	188	294	C	29.5	0.62	195	297
Ferry NB L/T	D	45.0	0.78	168	269	D	46.6	0.81	184	#299	D	42.8	0.77	186	#319
Ferry NB R	A	5.5	0.25	0	39	A	5.4	0.25	0	40	A	5.2	0.24	0	40
Main SB L/T	E	72.6	0.97	210	#370	E	73.5	0.97	222	#395	E	70.2	0.97	253	#445
Main SB R	B	16.2	0.25	71	116	B	16.0	0.25	75	122	B	15.9	0.26	82	131
Main St/Pleasant St	A	0.2	-	-	-	A	0.2	-	-	-	A	0.2	-	-	-
Main NB L/T T	A	0.3	0.27	0	0	A	0.3	0.30	0	0	A	0.3	0.30	0	0
Main SB T T/R	A	0.1	0.16	0	0	A	0.1	0.17	0	0	A	0.1	0.17	0	0
Main St/Exchange St/ Irving St	A	8.8	-	-	-	A	9.3	-	-	-	A	9.3	-	-	-
Exchange EB L	D	38.8	0.55	65	119	D	39.1	0.58	72	129	D	39.1	0.58	72	129
Exchange EB T/R	A	9.4	0.38	2	47	A	8.9	0.39	2	48	A	8.9	0.39	2	48
Main NB T T/R	A	4.8	0.25	37	70	A	5.3	0.26	42	82	A	5.3	0.26	43	83
Main SB L/T T	A	3.7	0.15	19	38	A	4.1	0.15	21	45	A	4.1	0.16	22	46
Main St/Centre St	D	39.9	-	-	-	D	42.7	-	-	-	D	43.7	-	-	-
Centre EB L	D	37.1	0.66	100	160	D	40.6	0.71	104	#176	D	41.2	0.72	104	#178
Centre EB T T/R	D	50.5	0.86	271	345	D	52.7	0.88	288	#387	D	52.7	0.88	288	#387
Centre WB L	E	74.7	0.93	100	#242	F	85.5	0.98	104	#260	F	85.5	0.98	104	#260
Centre WB T T/R	D	35.9	0.45	124	173	D	36.4	0.49	138	190	D	36.5	0.50	141	193
Main NB L	C	24.6	0.19	35	73	C	25.0	0.20	37	76	C	25.0	0.20	37	76
Main NB T	C	28.8	0.50	200	303	C	29.6	0.52	212	316	C	29.7	0.53	214	318
Main NB R	C	30.1	0.52	175	277	C	31.0	0.55	185	286	C	31.0	0.55	185	286
Main SB L	B	14.7	0.10	15	34	B	15.0	0.13	18	39	B	15.0	0.13	18	39
Main SB T	D	39.2	0.33	133	197	D	48.7	0.35	139	206	E	56.5	0.36	147	216
Main SB R	A	6.1	0.13	6	33	A	4.4	0.14	0	27	A	4.4	0.14	0	27



Intersection/ Movement	Existing (2020) Condition					No-Build (2027) Condition					Build (2027) Condition				
	LOS	Delay (s)	V/C ratio	%ile Queue Length		LOS	Delay (s)	V/C ratio	%ile Queue Length		LOS	Delay (s)	V/C ratio	%ile Queue Length	
				50 th (ft)	95 th (ft)				50 th (ft)	95 th (ft)				50 th (ft)	95 th (ft)
Florence St/Washington St	C	27.4	-	-	-	C	28.0	-	-	-	C	29.0	-	-	-
Florence EB L/T T/R	C	27.0	0.25	67	110	C	27.3	0.26	70	114	C	28.0	0.26	72	114
Florence WB L	C	26.0	0.00	0	4	C	26.0	0.00	0	4	C	26.0	0.00	0	4
Florence WB T T/R	C	24.6	0.19	54	88	C	25.0	0.20	57	93	C	25.6	0.20	60	93
Washington NB L/T	D	39.5	0.36	46	89	D	39.8	0.38	50	95	D	41.1	0.46	70	124
Washington NB R	A	1.0	0.15	0	0	A	1.0	0.15	0	0	A	0.9	0.14	0	0
Washington SB L/T/R	C	34.9	0.51	43	#110	D	36.2	0.55	47	#122	D	35.5	0.52	48	#122
Unsignalized Intersections															
Pleasant St/Dartmouth St/ Middlesex St	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pleasant WB T/R	A	0.0	0.15	-	0	A	0.0	0.17	-	0	A	0.0	0.18	-	0
Middlesex NB L/T	B	12.7	0.22	-	21	B	13.3	0.24	-	23	B	13.8	0.27	-	27
Florence St/Ramsdell Rd	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Florence EB L/T	A	1.8	0.02	-	2	A	1.9	0.02	-	2	A	1.9	0.02	-	2
Florence EB T	A	0.0	0.11	-	0	A	0.0	0.11	-	0	A	0.0	0.11	-	0
Florence WB T	A	0.0	0.08	-	0	A	0.0	0.09	-	0	A	0.0	0.09	-	0
Florence WB T/R	A	0.0	0.08	-	0	A	0.0	0.08	-	0	A	0.0	0.08	-	0
Ramsdell SB L	B	14.7	0.24	-	23	C	15.1	0.25	-	25	C	17.0	0.37	-	43
Ramsdell SB R	A	9.7	0.05	-	4	A	9.7	0.06	-	4	A	9.7	0.06	-	4
Dartmouth St/Ramsdell Rd	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ramsdell WB L/R	A	9.4	0.08	-	6	A	9.5	0.08	-	7	A	9.7	0.09	-	7
Dartmouth NB T/R	A	0.0	0.08	-	0	A	0.0	0.09	-	0	A	0.0	0.13	-	0
Dartmouth SB L/T	A	4.8	0.05	-	4	A	4.8	0.05	-	4	A	4.9	0.05	-	4
Mountain Ave/ Dartmouth St	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mountain EB T/R	A	0.0	0.24	-	0	A	0.0	0.24	-	0	A	0.0	0.24	-	0
Mountain WB L/T	A	2.5	0.06	-	5	A	2.5	0.06	-	5	A	2.5	0.06	-	5
Dartmouth NB L/R	C	23.2	0.54	-	79	D	25.1	0.58	-	88	D	25.9	0.60	-	95
Dartmouth St/Site Drive	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Driveway WB R	-	-	-	-	-	-	-	-	-	-	A	9.7	0.13	-	11
Dartmouth NB T/R	-	-	-	-	-	-	-	-	-	-	A	0.0	0.11	-	0

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

95th percentile queues do not clear after two cycles. Actual queues may be longer.

Grey shading indicates LOS E or F under the Existing (2020) Condition, or that LOS worsens to LOS E or F in the No-Build (2027) Condition or Build (2027) Condition.



As shown in **Table 7** and **Table 8**, the studied signalized intersections generally have operations at acceptable levels (LOS D or better) under the Existing (2020) Condition, No-Build (2027) Condition, and Build (2027) Condition. Due to the level of new development planned within the area, most increased delays and queues are realized in the No-Build (2027) Condition. Under the Build (2027) Condition, the study area intersections and approaches will generally continue to operate at the same LOS as under the No-Build (2027) Condition with the following three exceptions.

- At the signalized intersection of Main Street/Ferry Street/Salem Street, the Salem Street westbound through/right lane decreases from LOS D to LOS E during the weekday a.m. peak hour under the Build (2020) Condition.
- At the signalized intersection of Main Street/Centre Street, the Main Street southbound through lane decreases from LOS D to LOS E during the weekday a.m. peak hour under the Build (2020) Condition.
- At the signalized intersection of Main Street/Centre Street, the Main Street southbound through lane decreases from LOS D to LOS E during the weekday p.m. peak hour under the Build (2020) Condition.

These impacts can be managed through traffic signal timing adjustments, described later in this report. The studied unsignalized intersections generally have acceptable operations under the Existing Condition, No-Build (2027) Condition, and Build (2027) Condition.

Transportation Demand Management and Mitigation

Transportation Demand Management

While the Project will not significantly impact traffic operations in the study area, the Proponent is committed to implementing a TDM program for Project residents in an effort to minimize the Project's vehicular impacts on the adjacent transportation network. The Project will be marketing to office tenants such as start-ups and other small office tenants and will be emphasizing the transit-oriented nature of the location to potential tenants. TDM measures will promote the use of public transportation (including the MBTA rapid transit, bus, and commuter rail), walking, and bicycling, and other options to reduce single occupant vehicle trips. TDM measures may include, but are not limited to, the following:



- ***Transportation Coordinator*** – The Project will designate a transportation coordinator to manage all transportation issues associated with the Project. The transportation coordinator will oversee transportation issues, including parking, service, loading, and move-in/move-out activity. The transportation coordinator will work with residents as they move in and to raise awareness of public transportation.
- ***Tenant Orientation Packets*** – These packets will provide all new tenants with information about available TDM programs and public transportation options (such as the MBTA rapid transit, bus, and commuter rail service in Malden, as well as the local car-sharing services) including program information, route schedules, maps, and fare information. While tenants may need to drive, bike, or be dropped off, to take advantage of some of these options, their use can reduce the overall impact on the local and regional transportation network.
- ***Transit Subsidy*** – The Proponent and its tenants will work together to provide a transit subsidy program.
- ***Bicycle Storage*** – The Proponent will provide 80 on-site secure bicycle storage spaces for Project tenant employees within the parking garage.
- ***Unbundled Parking*** – The Proponent will separate the rental of on-site parking spaces from tenant leases.
- ***Rideshare Information*** – The Proponent will provide information on area carpool and vanpool participants.
- ***Internal ride-matching*** – The Proponent will encourage tenants to organize an internal ride-matching program for employees who may be more willing to participate in carpooling and vanpooling with fellow employees than will participants in a large regional database.
- ***Guaranteed Ride Home*** – The Proponent will encourage employers to arrange to provide Guaranteed Ride Home when public transit service is not feasible or during hours which transit service is no longer available to an employee's home. Guaranteed Ride Home is designed to rescue commuters who are worried about how they'll get home when an emergency arises. It provides commuters who regularly (twice a week) carpool, vanpool, bike, walk or take transit to work with a free and reliable ride home. Commuters may take advantage of GRH up to four times per year to get home for unexpected emergencies, or for unscheduled overtime if the employer mandates that an employee must stay late.
- ***Transit Screen*** – The Proponent will provide a Transit Screen, which displays up-to-date arrival and departure information relating to different mobility options within the area.



Mitigation

While the associated traffic impacts related to the new Project trips are minimal, the Proponent is committed to implementing TDM measures and the improvements described below. The mitigation measures will enhance both pedestrian and vehicular safety and flow:

- Provide new sidewalks abutting the Project site on both sides of Dartmouth Street from Pleasant Street to the Project site driveway;
- Install pedestrian tactile warning panels at each crosswalk at the intersections of Main Street/Florence Street; and
- Restripe existing crosswalks with thermoplastic (ladder pattern) at the intersections of Pleasant Street/Dartmouth Street/Middlesex Street.

These improvements will be made by the Proponent during or after Project construction, as determined by City of Malden staff.

Additionally, the Project will impact the LOS of three movements at different intersections to LOS E. In accordance with City of Malden requirements, the Proponent must provide mitigation to address the degradation of LOS that were caused by the Project. In this case, the delay to the three movements were a few seconds longer than those in the No-Build (2027) Condition. The LOS were able improved to the No-Build (2027) Condition by making a few minor signal timing adjustments. The resulting capacity analysis summary is shown in **Table 9**.



Table 9. Traffic Capacity Analysis, Mitigation Summary

Intersection/ Movement	Build (2027) Condition					Build-Mitigation (2027) Condition				
	LOS	Delay (s)	V/C ratio	%ile Queue Length		LOS	Delay (s)	V/C ratio	%ile Queue Length	
				50 th (ft)	95 th (ft)				50 th (ft)	95 th (ft)
Weekday a.m. Peak Hour										
Main St/Ferry St/Salem St	D	49.0	-	-	-	D	50.8	-	-	-
Main EB L	F	148.5	1.10	~114	#201	F	190.6	1.22	~124	#210
Main EB T/R	B	19.2	0.33	111	142	B	13.9	0.33	111	142
Salem WB L	C	24.7	0.32	43	86	C	23.8	0.31	43	84
Salem WB T/R	E	55.6	0.94	335	#542	D	50.7	0.92	329	#532
Ferry NB L/T	D	48.1	0.83	208	#314	D	48.1	0.83	208	#14
Ferry NB R	A	5.6	0.31	0	34	A	5.6	0.31	0	34
Main SB L/T	E	76.7	0.98	222	#364	E	76.7	0.98	222	#364
Main SB R	B	16.6	0.33	109	153	B	17.3	0.33	111	157
Main St/Centre St	E	63.2	-	-	-	E	62.4	-	-	-
Centre EB L	D	45.3	0.68	53	#94	D	45.3	0.68	53	#94
Centre EB T T/R	D	40.4	0.64	177	213	D	40.4	0.64	177	213
Centre WB L	F	214.8	1.37	~262	#459	F	214.8	1.37	~262	#459
Centre WB T T/R	D	52.8	0.89	291	#392	D	52.8	0.89	291	#392
Main NB L	C	28.7	0.38	78	116	C	27.7	0.37	76	113
Main NB T	C	31.0	0.57	227	274	C	29.9	0.55	223	269
Main NB R	C	26.3	0.32	94	132	C	25.5	0.32	93	129
Main SB L	B	14.8	0.10	13	31	B	14.2	0.09	13	30
Main SB T	E	57.4	0.37	155	226	D	52.9	0.37	152	221
Main SB R	A	7.1	0.14	11	40	A	6.8	0.14	10	39
Weekday p.m. Peak Hour										
Main St/Centre St	D	43.7	-	-	-	D	42.8	-	-	-
Centre EB L	D	41.2	0.72	104	#178	D	41.2	0.72	104	#178
Centre EB T T/R	D	52.7	0.88	288	#387	D	52.7	0.88	288	#387
Centre WB L	F	85.5	0.98	104	#260	F	85.5	0.98	104	#260
Centre WB T T/R	D	36.5	0.50	141	193	D	36.5	0.50	141	193
Main NB L	C	25.0	0.20	37	76	C	24.2	0.20	37	75
Main NB T	C	29.7	0.53	214	318	C	28.7	0.51	210	312
Main NB R	C	31.0	0.55	185	286	C	29.9	0.53	182	281
Main SB L	B	15.0	0.13	18	39	B	14.4	0.12	18	38
Main SB T	E	56.5	0.36	147	216	D	51.0	0.36	144	212
Main SB R	A	4.4	0.14	0	27	A	4.3	0.13	0	27



HOWARD STEIN HUDSON

Engineers + Planners

Appendix A

Count Data

Client: Mike White
 Project #: 553_C68_HSH
 BTD #: Location 1
 Location: Malden, MA
 Street 1: Main Street
 Street 2: Florence Street
 Count Date: 1/28/2020
 Day of Week: Tuesday
 Weather: Mostly Cloudy, 40°F



PASSENGER CARS & HEAVY VEHICLES COMBINED

Start Time	Main Street Northbound				Main Street Southbound				Florence Street Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	53	44	0	0	0	63	24	0	7	0	16	0	0	0	0
7:15 AM	0	61	45	0	0	0	76	22	0	9	0	30	0	0	0	0
7:30 AM	0	41	49	0	0	0	69	34	0	16	0	41	0	0	0	0
7:45 AM	0	67	59	0	0	0	60	47	0	19	0	41	0	0	0	0
8:00 AM	0	46	60	0	0	0	73	35	0	8	0	35	0	0	0	0
8:15 AM	0	63	62	0	0	0	66	23	0	15	0	34	0	0	0	0
8:30 AM	0	47	43	0	0	0	72	22	0	6	0	37	0	0	0	0
8:45 AM	0	56	49	0	0	0	66	24	0	7	0	32	0	0	0	0

Start Time	Main Street Northbound				Main Street Southbound				Florence Street Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	38	83	0	0	0	72	16	0	29	0	39	0	0	0	0
4:15 PM	0	42	67	0	0	0	53	14	0	23	0	43	0	0	0	0
4:30 PM	0	50	76	0	0	0	69	13	0	20	0	44	0	0	0	0
4:45 PM	0	43	79	0	0	0	66	11	0	23	0	52	0	0	0	0
5:00 PM	0	39	57	0	0	0	64	19	0	29	0	67	0	0	0	0
5:15 PM	0	60	61	0	0	0	71	19	0	37	0	52	0	0	0	0
5:30 PM	0	47	79	0	0	0	95	23	0	24	0	43	0	0	0	0
5:45 PM	0	44	50	0	0	0	54	17	0	33	0	47	0	0	0	0

AM PEAK HOUR 7:30 AM to 8:30 AM	Main Street Northbound				Main Street Southbound				Florence Street Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	217	230	0	0	0	268	139	0	58	0	151	0	0	0	0
PHF	0.89				0.94				0.87				0.00			
HV %	0.0%	4.6%	5.2%	0.0%	0.0%	0.0%	4.5%	1.4%	0.0%	6.9%	0.0%	2.6%	0.0%	0.0%	0.0%	0.0%

PM PEAK HOUR 4:45 PM to 5:45 PM	Main Street Northbound				Main Street Southbound				Florence Street Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	189	276	0	0	0	296	72	0	113	0	214	0	0	0	0
PHF	0.92				0.78				0.85				0.00			
HV %	0.0%	5.3%	0.4%	0.0%	0.0%	0.0%	1.4%	2.8%	0.0%	0.9%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%

Client: Mike White
 Project #: 553_C68_HSH
 BTD #: Location 1
 Location: Malden, MA
 Street 1: Main Street
 Street 2: Florence Street
 Count Date: 1/28/2020
 Day of Week: Tuesday
 Weather: Mostly Cloudy, 40°F

BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701
 Office: 978-746-1259
 DataRequest@BostonTrafficData.com
 www.BostonTrafficData.com

HEAVY VEHICLES

Start Time	Main Street Northbound				Main Street Southbound				Florence Street Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	1	3	0	0	0	2	0	0	1	0	1	0	0	0	0
7:15 AM	0	5	3	0	0	0	6	0	0	0	0	0	0	0	0	0
7:30 AM	0	2	2	0	0	0	3	0	0	2	0	2	0	0	0	0
7:45 AM	0	5	4	0	0	0	2	1	0	1	0	1	0	0	0	0
8:00 AM	0	1	2	0	0	0	3	0	0	1	0	0	0	0	0	0
8:15 AM	0	2	4	0	0	0	4	1	0	0	0	1	0	0	0	0
8:30 AM	0	1	4	0	0	0	5	1	0	0	0	1	0	0	0	0
8:45 AM	0	3	3	0	0	0	3	2	0	1	0	2	0	0	0	0

Start Time	Main Street Northbound				Main Street Southbound				Florence Street Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	2	4	0	0	0	3	2	0	1	0	1	0	0	0	0
4:15 PM	0	0	3	0	0	0	1	1	0	0	0	2	0	0	0	0
4:30 PM	0	2	1	0	0	0	2	0	0	0	0	0	0	0	0	0
4:45 PM	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0
5:00 PM	0	0	0	0	0	0	3	1	0	0	0	0	0	0	0	0
5:15 PM	0	5	1	0	0	0	1	0	0	1	0	0	0	0	0	0
5:30 PM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0

AM PEAK HOUR 7:00 AM to 8:00 AM <i>PHF</i>	Main Street Northbound				Main Street Southbound				Florence Street Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	13	12	0	0	0	13	1	0	4	0	4	0	0	0	0
	0.69				0.58				0.50				0.00			

PM PEAK HOUR 4:00 PM to 5:00 PM <i>PHF</i>	Main Street Northbound				Main Street Southbound				Florence Street Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	5	8	0	0	0	6	4	0	1	0	4	0	0	0	0
	0.54				0.50				0.63				0.00			

Client: Mike White
 Project #: 553_C68_HSH
 BTD #: Location 1
 Location: Malden, MA
 Street 1: Main Street
 Street 2: Florence Street
 Count Date: 1/28/2020
 Day of Week: Tuesday
 Weather: Mostly Cloudy, 40°F



PEDESTRIANS & BICYCLES

Start Time	Main Street Northbound				Main Street Southbound				Florence Street Eastbound				Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	1	0	1	0	3	0	0	1	7	0	0	0	0
7:15 AM	0	0	0	2	0	1	0	2	0	0	1	3	0	0	0	0
7:30 AM	0	0	0	0	0	1	0	5	0	0	0	9	0	0	0	0
7:45 AM	0	0	0	4	0	0	1	4	0	0	0	3	0	0	0	0
8:00 AM	0	0	0	4	0	3	0	6	0	0	0	2	0	0	0	0
8:15 AM	0	1	0	2	0	2	0	7	0	0	0	3	0	0	0	0
8:30 AM	0	0	0	2	0	0	0	6	0	0	0	2	0	0	0	0
8:45 AM	0	0	0	1	0	0	0	5	0	0	0	12	0	0	0	0

Start Time	Main Street Northbound				Main Street Southbound				Florence Street Eastbound				Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	4	0	0	0	6	0	0	0	6	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	12	0	0	0	3	0	0	0	0
4:30 PM	0	1	0	1	0	0	0	8	0	0	0	7	0	0	0	0
4:45 PM	0	0	0	2	0	0	0	7	0	0	0	5	0	0	0	0
5:00 PM	0	0	0	3	0	0	0	12	0	0	0	9	0	0	0	0
5:15 PM	0	0	0	3	0	0	0	3	0	0	0	13	0	0	0	0
5:30 PM	0	0	0	5	0	0	0	4	1	0	0	7	0	0	0	0
5:45 PM	0	0	0	1	0	0	0	2	0	0	0	12	0	0	0	0

AM PEAK HOUR ¹ 7:30 AM to 8:30 AM	Main Street Northbound				Main Street Southbound				Florence Street Eastbound				Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	1	0	10	0	6	1	22	0	0	0	17	0	0	0	0

PM PEAK HOUR ¹ 4:45 PM to 5:45 PM	Main Street Northbound				Main Street Southbound				Florence Street Eastbound				Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	13	0	0	0	26	1	0	0	34	0	0	0	0

¹ NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.

Client: Mike White
 Project #: 553_C68_HSH
 BTD #: Location 2
 Location: Malden, MA
 Street 1: Main Street
 Street 2: Salem Street & Ferry Street
 Count Date: 1/23/2020
 Day of Week: Thursday
 Weather: Mostly Sunny, 40°F

PASSENGER CARS & HEAVY VEHICLES COMBINED

Start Time	Main Street Northeastbound				Main Street Southeastbound				Ferry Street Northwestbound				Salem Street Southwestbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	19	29	3	0	8	40	32	0	4	27	6	0	11	55	37
7:15 AM	0	26	46	7	0	15	48	46	0	7	39	16	0	14	50	48
7:30 AM	0	28	64	7	0	38	33	38	0	18	56	33	0	27	74	44
7:45 AM	0	31	73	7	0	27	48	66	1	16	56	43	0	22	57	46
8:00 AM	0	27	31	2	0	18	36	60	0	9	68	25	0	17	73	42
8:15 AM	0	29	25	5	0	10	41	52	0	10	43	14	0	11	80	27
8:30 AM	0	25	27	3	0	10	48	50	0	7	42	11	0	4	61	28
8:45 AM	0	20	40	6	0	15	38	51	0	13	40	14	0	9	52	41

Start Time	Main Street Northeastbound				Main Street Southeastbound				Ferry Street Northwestbound				Salem Street Southwestbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	1	38	77	6	0	16	59	50	0	11	52	28	0	15	53	25
4:15 PM	1	37	71	6	0	14	60	44	0	5	45	22	0	16	58	21
4:30 PM	2	37	77	6	0	24	50	50	0	9	53	26	0	8	47	27
4:45 PM	1	43	85	3	0	25	64	43	0	12	51	27	0	14	52	26
5:00 PM	2	41	91	4	0	15	54	49	0	8	63	33	0	13	57	29
5:15 PM	1	39	92	9	0	23	58	45	0	7	66	25	0	18	41	27
5:30 PM	1	36	84	6	0	23	55	42	0	6	53	29	0	12	53	20
5:45 PM	1	37	81	6	0	27	61	47	0	4	55	18	0	11	48	23

AM PEAK HOUR 7:15 AM to 8:15 AM	Main Street Northeastbound				Main Street Southeastbound				Ferry Street Northwestbound				Salem Street Southwestbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	112	214	23	0	98	165	210	1	50	219	117	0	80	254	180
PHF	0.79				0.84				0.83				0.89			
HV %	0.0%	13.4%	7.5%	17.4%	0.0%	4.1%	2.4%	1.4%	0.0%	2.0%	1.4%	0.9%	0.0%	1.3%	4.7%	1.1%

PM PEAK HOUR 4:45 PM to 5:45 PM	Main Street Northeastbound				Main Street Southeastbound				Ferry Street Northwestbound				Salem Street Southwestbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	5	159	352	22	0	86	231	179	0	33	233	114	0	57	203	102
PHF	0.95				0.94				0.91				0.91			
HV %	0.0%	5.0%	3.7%	18.2%	0.0%	0.0%	1.3%	3.4%	0.0%	3.0%	3.4%	0.9%	0.0%	3.5%	4.9%	0.0%

Client: Mike White
 Project #: 553_C68_HSH
 BTD #: Location 2
 Location: Malden, MA
 Street 1: Main Street
 Street 2: Salem Street & Ferry Street
 Count Date: 1/23/2020
 Day of Week: Thursday
 Weather: Mostly Sunny, 40°F

HEAVY VEHICLES

Start Time	Main Street Northeastbound				Main Street Southeastbound				Ferry Street Northwestbound				Salem Street Southwestbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	3	4	0	0	0	0	5	0	0	0	0	0	0	2	1
7:15 AM	0	6	3	1	0	0	2	0	0	0	0	0	0	0	4	1
7:30 AM	0	3	4	1	0	0	1	1	0	1	0	1	0	0	1	0
7:45 AM	0	2	6	1	0	2	0	2	0	0	1	0	0	1	3	1
8:00 AM	0	4	3	1	0	2	1	0	0	0	2	0	0	0	4	0
8:15 AM	0	5	2	1	0	0	0	4	0	0	0	1	0	0	3	0
8:30 AM	0	3	3	1	0	0	0	3	0	0	0	2	0	0	4	1
8:45 AM	0	5	4	1	0	0	1	2	0	0	1	1	0	1	5	1

Start Time	Main Street Northeastbound				Main Street Southeastbound				Ferry Street Northwestbound				Salem Street Southwestbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	4	4	1	0	0	2	1	0	2	0	0	0	0	2	0
4:15 PM	0	0	1	1	0	0	0	2	0	0	2	0	0	0	6	1
4:30 PM	0	3	4	1	0	1	1	2	0	0	0	0	0	0	0	1
4:45 PM	0	3	5	1	0	0	0	0	0	0	0	1	0	0	2	0
5:00 PM	0	1	2	1	0	0	2	2	0	1	2	0	0	2	1	0
5:15 PM	0	3	3	0	0	0	0	4	0	0	1	0	0	0	3	0
5:30 PM	0	1	3	2	0	0	1	0	0	0	5	0	0	0	4	0
5:45 PM	0	3	2	1	0	2	1	1	0	0	0	0	0	0	2	0

AM PEAK HOUR 8:00 AM to 9:00 AM <i>PHF</i>	Main Street Northeastbound				Main Street Southeastbound				Ferry Street Northwestbound				Salem Street Southwestbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	17	12	4	0	2	2	9	0	0	3	4	0	1	16	2
	0.83				0.81				0.88				0.68			

PM PEAK HOUR 4:45 PM to 5:45 PM <i>PHF</i>	Main Street Northeastbound				Main Street Southeastbound				Ferry Street Northwestbound				Salem Street Southwestbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	8	13	4	0	0	3	6	0	1	8	1	0	2	10	0
	0.69				0.56				0.50				0.75			

Client: Mike White
 Project #: 553_C68_HSH
 BTM #: Location 2
 Location: Malden, MA
 Street 1: Main Street
 Street 2: Salem Street & Ferry Street
 Count Date: 1/23/2020
 Day of Week: Thursday
 Weather: Mostly Sunny, 40°F

PEDESTRIANS & BICYCLES

Start Time	Main Street Northeastbound				Main Street Southeastbound				Ferry Street Northwestbound				Salem Street Southwestbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	8	0	0	1	13	0	0	0	4	0	0	0	10
7:15 AM	0	0	0	12	0	0	0	19	0	0	0	31	0	0	0	21
7:30 AM	1	0	0	6	0	0	0	39	0	0	0	69	0	1	0	46
7:45 AM	0	0	0	11	0	0	0	36	0	0	0	75	0	0	0	44
8:00 AM	0	0	0	4	0	1	2	14	0	0	0	16	0	0	0	7
8:15 AM	0	0	0	3	0	0	0	28	0	0	0	8	0	1	0	7
8:30 AM	0	0	0	6	0	0	0	37	0	0	0	2	0	0	0	10
8:45 AM	0	0	0	38	0	0	0	36	0	0	0	12	0	1	0	9

Start Time	Main Street Northeastbound				Main Street Southeastbound				Ferry Street Northwestbound				Salem Street Southwestbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	4	0	0	1	21	0	0	0	18	0	0	0	8
4:15 PM	0	0	0	5	0	0	0	13	0	0	0	9	0	0	0	12
4:30 PM	0	0	0	8	0	0	0	16	0	0	0	15	0	0	0	5
4:45 PM	1	0	0	11	0	0	1	20	0	0	0	9	0	0	0	3
5:00 PM	1	0	0	4	0	0	0	11	0	0	0	9	0	1	0	1
5:15 PM	1	0	0	3	0	0	0	26	0	0	0	16	0	0	0	3
5:30 PM	0	0	0	2	0	0	0	24	0	0	0	24	0	0	0	1
5:45 PM	1	0	0	11	0	0	0	25	0	0	0	15	0	0	0	4

AM PEAK HOUR ¹ 7:15 AM to 8:15 AM	Main Street Northeastbound				Main Street Southeastbound				Ferry Street Northwestbound				Salem Street Southwestbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	1	0	0	33	0	1	2	108	0	0	0	191	0	1	0	118

PM PEAK HOUR ¹ 4:45 PM to 5:45 PM	Main Street Northeastbound				Main Street Southeastbound				Ferry Street Northwestbound				Salem Street Southwestbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	3	0	0	20	0	0	1	81	0	0	0	58	0	1	0	8

¹ NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.

Client: Mike White
 Project #: 553_C68_HSH
 BTD #: Location 3
 Location: Malden, MA
 Street 1: Main Street
 Street 2: Pleasant Street & Driveway
 Count Date: 1/23/2020
 Day of Week: Thursday
 Weather: Mostly Sunny, 40°F

BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701
 Office: 978-746-1259
 DataRequest@BostonTrafficData.com
 www.BostonTrafficData.com

PASSENGER CARS & HEAVY VEHICLES COMBINED

Start Time	Main Street Northbound				Main Street Southbound				Pleasant Street Eastbound				Driveway Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	7	51	0	0	0	79	12	0	0	0	0	0	0	0	0
7:15 AM	0	9	76	0	3	0	74	26	0	0	0	0	0	0	0	0
7:30 AM	0	12	98	2	1	0	104	25	0	0	0	0	0	0	0	0
7:45 AM	0	21	108	2	3	2	102	32	0	0	0	0	0	0	0	0
8:00 AM	0	26	60	0	0	0	104	38	0	0	0	0	0	0	0	0
8:15 AM	0	29	59	4	0	1	95	46	0	0	0	0	0	0	0	0
8:30 AM	0	25	52	1	3	1	88	26	0	0	0	0	0	0	0	0
8:45 AM	0	14	65	2	1	1	92	22	0	0	0	0	0	0	0	0

Start Time	Main Street Northbound				Main Street Southbound				Pleasant Street Eastbound				Driveway Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	31	121	0	1	0	80	34	0	0	0	0	0	0	0	0
4:15 PM	0	29	113	0	2	1	82	23	0	0	0	0	0	0	0	0
4:30 PM	0	22	119	0	3	0	79	26	0	0	0	0	0	0	0	0
4:45 PM	1	24	130	0	2	0	70	36	0	0	0	0	0	0	0	0
5:00 PM	0	29	132	1	5	0	82	29	0	0	0	0	0	0	0	1
5:15 PM	0	30	139	0	1	0	72	21	0	0	0	0	0	1	1	1
5:30 PM	0	31	126	0	1	0	77	24	0	0	0	0	0	0	0	0
5:45 PM	0	26	124	0	1	0	73	26	0	0	0	0	0	1	0	0

AM PEAK HOUR 7:30 AM to 8:30 AM	Main Street Northbound				Main Street Southbound				Pleasant Street Eastbound				Driveway Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	88	325	8	4	3	405	141	0	0	0	0	0	0	0	0
PHF	0.80				0.97				0.00				0.00			
HV %	0.0%	2.3%	10.5%	0.0%	0.0%	0.0%	4.0%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

PM PEAK HOUR 4:45 PM to 5:45 PM	Main Street Northbound				Main Street Southbound				Pleasant Street Eastbound				Driveway Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	1	114	527	1	9	0	301	110	0	0	0	0	0	1	1	2
PHF	0.95				0.91				0.00				0.33			
HV %	0.0%	1.8%	4.7%	0.0%	0.0%	0.0%	4.7%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Client: Mike White
 Project #: 553_C68_HSH
 BTD #: Location 3
 Location: Malden, MA
 Street 1: Main Street
 Street 2: Pleasant Street & Driveway
 Count Date: 1/23/2020
 Day of Week: Thursday
 Weather: Mostly Sunny, 40°F

BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701
 Office: 978-746-1259
 DataRequest@BostonTrafficData.com
 www.BostonTrafficData.com

HEAVY VEHICLES

Start Time	Main Street Northbound				Main Street Southbound				Pleasant Street Eastbound				Driveway Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	8	0	0	0	5	1	0	0	0	0	0	0	0	0
7:15 AM	0	1	9	0	0	0	4	0	0	0	0	0	0	0	0	0
7:30 AM	0	2	7	0	0	0	2	1	0	0	0	0	0	0	0	0
7:45 AM	0	0	10	0	0	0	5	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	9	0	0	0	3	1	0	0	0	0	0	0	0	0
8:15 AM	0	0	8	0	0	0	6	0	0	0	0	0	0	0	0	0
8:30 AM	0	1	6	0	0	0	6	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	11	0	0	0	7	1	0	0	0	0	0	0	0	0

Start Time	Main Street Northbound				Main Street Southbound				Pleasant Street Eastbound				Driveway Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	1	8	0	0	0	3	1	0	0	0	0	0	0	0	0
4:15 PM	0	0	3	0	0	0	9	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	7	0	0	0	2	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	8	0	0	0	3	0	0	0	0	0	0	0	0	0
5:00 PM	0	2	5	0	0	0	2	1	0	0	0	0	0	0	0	0
5:15 PM	0	0	6	0	0	0	6	1	0	0	0	0	0	0	0	0
5:30 PM	0	0	6	0	0	0	3	0	0	0	0	0	0	0	0	0
5:45 PM	0	2	5	0	0	0	3	0	0	0	0	0	0	0	0	0

AM PEAK HOUR 8:00 AM to 9:00 AM <i>PHF</i>	Main Street Northbound				Main Street Southbound				Pleasant Street Eastbound				Driveway Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	1	34	0	0	0	22	2	0	0	0	0	0	0	0	0
	0.80				0.75				0.00				0.00			

PM PEAK HOUR 4:00 PM to 5:00 PM <i>PHF</i>	Main Street Northbound				Main Street Southbound				Pleasant Street Eastbound				Driveway Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	1	26	0	0	0	17	1	0	0	0	0	0	0	0	0
	0.75				0.50				0.00				0.00			

Client: Mike White
 Project #: 553_C68_HSH
 BTM #: Location 3
 Location: Malden, MA
 Street 1: Main Street
 Street 2: Pleasant Street & Driveway
 Count Date: 1/23/2020
 Day of Week: Thursday
 Weather: Mostly Sunny, 40°F

BOSTON TRAFFIC DATA

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PEDESTRIANS & BICYCLES

Start Time	Main Street Northbound				Main Street Southbound				Pleasant Street Eastbound				Driveway Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	3	0	0	1	3	0	0	0	3	0	0	0	1
7:15 AM	0	0	0	4	0	0	0	12	0	0	0	5	0	0	0	17
7:30 AM	0	0	0	5	0	1	0	26	0	0	0	10	0	0	0	20
7:45 AM	0	0	0	4	0	0	0	28	0	0	0	11	0	0	0	24
8:00 AM	0	0	0	5	0	2	0	10	0	0	0	8	0	0	0	13
8:15 AM	0	0	0	5	0	0	1	13	0	0	0	7	0	0	0	4
8:30 AM	0	0	0	2	0	0	0	7	0	0	0	10	0	0	0	16
8:45 AM	0	0	0	7	0	0	1	10	0	0	0	12	0	0	0	20

Start Time	Main Street Northbound				Main Street Southbound				Pleasant Street Eastbound				Driveway Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	17	0	0	1	20	0	0	0	6	0	0	0	16
4:15 PM	0	1	0	9	0	0	0	11	0	0	0	12	0	0	0	19
4:30 PM	0	0	0	6	0	0	0	13	0	0	0	15	0	0	0	16
4:45 PM	0	0	0	8	0	0	1	12	0	0	0	14	0	0	0	11
5:00 PM	0	1	0	9	0	1	0	20	0	0	0	10	0	0	0	6
5:15 PM	0	1	0	7	0	0	0	13	0	0	0	8	0	0	0	5
5:30 PM	0	0	0	3	0	0	0	15	0	0	0	14	0	0	0	4
5:45 PM	1	1	0	16	0	0	0	16	0	0	0	10	0	0	0	4

AM PEAK HOUR ¹ 7:30 AM to 8:30 AM	Main Street Northbound				Main Street Southbound				Pleasant Street Eastbound				Driveway Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	19	0	3	1	77	0	0	0	36	0	0	0	61

PM PEAK HOUR ¹ 4:45 PM to 5:45 PM	Main Street Northbound				Main Street Southbound				Pleasant Street Eastbound				Driveway Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	2	0	27	0	1	1	60	0	0	0	46	0	0	0	26

¹ NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.

Client: Mike White
 Project #: 553_C68_HSH
 BTD #: Location 4
 Location: Malden, MA
 Street 1: Main Street
 Street 2: Exchange Street & Irving Street
 Count Date: 1/23/2020
 Day of Week: Thursday
 Weather: Mostly Sunny, 40°F

BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701
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 www.BostonTrafficData.com

PASSENGER CARS & HEAVY VEHICLES COMBINED

Start Time	Main Street Northbound				Main Street Southbound				Exchange Street Eastbound				Irving Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	53	0	0	0	79	0	0	5	0	6	0	0	0	0
7:15 AM	0	0	79	0	0	1	73	0	0	6	1	9	0	0	0	0
7:30 AM	0	0	100	3	0	0	104	0	0	12	1	10	0	0	0	0
7:45 AM	0	0	119	14	0	6	96	0	0	12	0	14	0	0	0	0
8:00 AM	0	0	80	4	0	4	100	0	0	6	1	8	0	0	0	0
8:15 AM	0	0	85	1	0	1	94	0	0	7	2	13	0	0	0	0
8:30 AM	1	0	69	2	0	4	84	0	0	9	0	17	0	0	0	0
8:45 AM	0	0	74	5	0	2	90	0	0	7	0	16	0	0	0	0

Start Time	Main Street Northbound				Main Street Southbound				Exchange Street Eastbound				Irving Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	118	4	0	2	78	0	0	34	1	23	0	0	0	0
4:15 PM	0	0	116	3	0	0	82	0	0	26	1	28	0	0	0	0
4:30 PM	0	0	129	4	0	2	77	0	0	12	1	27	0	0	0	0
4:45 PM	0	0	125	4	0	2	69	0	0	30	2	19	0	0	0	0
5:00 PM	0	0	143	6	0	2	80	0	0	19	0	28	0	0	0	0
5:15 PM	0	0	133	4	0	2	71	0	0	36	3	25	0	0	0	0
5:30 PM	0	0	126	5	0	0	77	0	0	31	1	34	0	0	0	0
5:45 PM	0	0	115	3	0	1	73	0	0	35	0	26	0	0	0	0

AM PEAK HOUR 7:30 AM to 8:30 AM	Main Street Northbound				Main Street Southbound				Exchange Street Eastbound				Irving Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	384	22	0	11	394	0	0	37	4	45	0	0	0	0
PHF	0.76				0.97				0.83				0.00			
HV %	0.0%	0.0%	9.4%	0.0%	0.0%	0.0%	4.1%	0.0%	0.0%	2.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

PM PEAK HOUR 5:00 PM to 6:00 PM	Main Street Northbound				Main Street Southbound				Exchange Street Eastbound				Irving Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	517	18	0	5	301	0	0	121	4	113	0	0	0	0
PHF	0.90				0.93				0.90				0.00			
HV %	0.0%	0.0%	5.0%	0.0%	0.0%	0.0%	4.3%	0.0%	0.0%	0.0%	25.0%	1.8%	0.0%	0.0%	0.0%	0.0%

Client: Mike White
 Project #: 553_C68_HSH
 BTD #: Location 4
 Location: Malden, MA
 Street 1: Main Street
 Street 2: Exchange Street & Irving Street
 Count Date: 1/23/2020
 Day of Week: Thursday
 Weather: Mostly Sunny, 40°F

BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701
 Office: 978-746-1259
 DataRequest@BostonTrafficData.com
 www.BostonTrafficData.com

HEAVY VEHICLES

Start Time	Main Street Northbound				Main Street Southbound				Exchange Street Eastbound				Irving Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	8	0	0	0	5	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	10	0	0	0	4	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	9	0	0	0	2	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	11	0	0	0	5	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	9	0	0	0	4	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	7	0	0	0	5	0	0	1	0	0	0	0	0	0
8:30 AM	0	0	6	0	0	0	5	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	12	0	0	0	7	0	0	0	0	1	0	0	0	0

Start Time	Main Street Northbound				Main Street Southbound				Exchange Street Eastbound				Irving Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	8	1	0	0	3	0	0	2	0	0	0	0	0	0
4:15 PM	0	0	3	0	0	0	9	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	7	0	0	0	1	0	0	0	0	2	0	0	0	0
4:45 PM	0	0	8	0	0	0	2	0	0	0	0	1	0	0	0	0
5:00 PM	0	0	6	0	0	0	2	0	0	0	0	1	0	0	0	0
5:15 PM	0	0	6	0	0	0	6	0	0	0	1	0	0	0	0	0
5:30 PM	0	0	6	0	0	0	3	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	8	0	0	0	2	0	0	0	0	1	0	0	0	0

AM PEAK HOUR 8:00 AM to 9:00 AM <i>PHF</i>	Main Street Northbound				Main Street Southbound				Exchange Street Eastbound				Irving Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	34	0	0	0	21	0	0	1	0	1	0	0	0	0
	0.71				0.75				0.50				0.00			

PM PEAK HOUR 4:00 PM to 5:00 PM <i>PHF</i>	Main Street Northbound				Main Street Southbound				Exchange Street Eastbound				Irving Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	26	1	0	0	15	0	0	2	0	3	0	0	0	0
	0.75				0.42				0.63				0.00			

Client: Mike White
 Project #: 553_C68_HSH
 BTM #: Location 4
 Location: Malden, MA
 Street 1: Main Street
 Street 2: Exchange Street & Irving Street
 Count Date: 1/23/2020
 Day of Week: Thursday
 Weather: Mostly Sunny, 40°F



PEDESTRIANS & BICYCLES

Start Time	Main Street Northbound				Main Street Southbound				Exchange Street Eastbound				Irving Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	3	0	0	0	3	0	0	0	5	0	0	0	1
7:15 AM	0	0	0	8	0	0	0	4	0	0	0	6	0	0	0	8
7:30 AM	0	0	0	8	0	0	0	9	0	0	0	14	0	0	0	13
7:45 AM	0	0	0	9	0	1	0	5	0	0	0	12	0	0	0	5
8:00 AM	0	0	0	17	0	1	0	7	0	0	0	10	0	0	0	4
8:15 AM	0	0	0	17	0	0	0	5	0	0	0	6	0	0	0	2
8:30 AM	0	0	0	10	0	0	0	11	0	0	0	13	0	0	0	11
8:45 AM	0	0	0	11	0	0	0	12	0	0	0	16	0	0	0	6

Start Time	Main Street Northbound				Main Street Southbound				Exchange Street Eastbound				Irving Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	5	0	0	0	13	0	0	0	8	0	0	0	15
4:15 PM	0	1	0	3	0	0	0	9	0	0	0	15	0	0	0	10
4:30 PM	0	0	0	7	0	0	0	18	0	0	0	18	0	0	0	7
4:45 PM	0	1	0	8	0	0	0	6	0	0	0	16	0	0	0	7
5:00 PM	0	1	0	12	0	1	0	6	0	0	0	12	0	0	0	9
5:15 PM	0	1	0	8	0	0	0	4	0	0	0	11	0	0	0	9
5:30 PM	0	0	0	12	0	0	0	12	0	0	0	17	0	0	0	5
5:45 PM	0	1	0	13	0	0	0	9	0	0	0	12	0	0	0	6

AM PEAK HOUR ¹ 7:30 AM to 8:30 AM	Main Street Northbound				Main Street Southbound				Exchange Street Eastbound				Irving Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	51	0	2	0	26	0	0	0	42	0	0	0	24

PM PEAK HOUR ¹ 5:00 PM to 6:00 PM	Main Street Northbound				Main Street Southbound				Exchange Street Eastbound				Irving Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	3	0	45	0	1	0	31	0	0	0	52	0	0	0	29

¹ NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.

Client: Mike White
 Project #: 553_C68_HSH
 BTD #: Location 5
 Location: Malden, MA
 Street 1: Main Street
 Street 2: Centre Street
 Count Date: 1/23/2020
 Day of Week: Thursday
 Weather: Mostly Sunny, 40°F

BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701
 Office: 978-746-1259
 DataRequest@BostonTrafficData.com
 www.BostonTrafficData.com

PASSENGER CARS & HEAVY VEHICLES COMBINED

Start Time	Main Street Northbound				Main Street Southbound				Centre Street Eastbound				Centre Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	20	29	25	0	4	69	12	0	18	83	11	0	54	146	6
7:15 AM	0	21	53	33	0	2	53	27	0	23	89	12	0	81	127	3
7:30 AM	0	18	67	45	0	10	79	25	0	27	102	15	0	69	145	9
7:45 AM	0	39	99	27	0	12	80	18	0	16	89	9	0	72	147	18
8:00 AM	0	26	47	26	0	4	83	21	0	18	69	11	0	88	152	19
8:15 AM	0	17	48	14	0	8	77	22	0	25	65	10	0	92	116	13
8:30 AM	0	11	37	18	0	8	69	25	0	28	76	11	1	70	129	7
8:45 AM	0	16	41	19	0	12	66	28	0	32	70	9	0	65	86	6

Start Time	Main Street Northbound				Main Street Southbound				Centre Street Eastbound				Centre Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	13	70	60	0	14	70	17	0	41	138	9	0	52	95	11
4:15 PM	0	12	65	60	0	11	71	28	0	42	129	19	0	36	77	12
4:30 PM	0	17	79	83	0	11	78	15	0	43	154	13	0	41	90	11
4:45 PM	0	13	70	68	0	9	59	20	0	42	167	16	0	42	59	17
5:00 PM	0	18	89	71	0	6	75	27	0	50	148	12	0	45	78	10
5:15 PM	0	17	85	57	0	12	63	21	0	45	158	12	0	50	85	7
5:30 PM	0	18	78	50	0	19	74	18	0	36	157	19	0	47	69	17
5:45 PM	0	15	71	58	0	20	64	15	0	38	146	12	0	32	64	9

AM PEAK HOUR 7:15 AM to 8:15 AM	Main Street Northbound				Main Street Southbound				Centre Street Eastbound				Centre Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	104	266	131	0	28	295	91	0	84	349	47	0	310	571	49
<i>PHF</i>	0.76				0.91				0.83				0.90			
<i>HV %</i>	0.0%	1.9%	5.6%	5.3%	0.0%	3.6%	1.7%	9.9%	0.0%	26.2%	7.4%	14.9%	0.0%	2.6%	1.6%	4.1%

PM PEAK HOUR 4:30 PM to 5:30 PM	Main Street Northbound				Main Street Southbound				Centre Street Eastbound				Centre Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	65	323	279	0	38	275	83	0	180	627	53	0	178	312	45
<i>PHF</i>	0.93				0.92				0.96				0.94			
<i>HV %</i>	0.0%	4.6%	3.4%	2.9%	0.0%	0.0%	2.5%	10.8%	0.0%	8.3%	0.6%	13.2%	0.0%	1.7%	1.9%	0.0%

Client: Mike White
 Project #: 553_C68_HSH
 BTD #: Location 5
 Location: Malden, MA
 Street 1: Main Street
 Street 2: Centre Street
 Count Date: 1/23/2020
 Day of Week: Thursday
 Weather: Mostly Sunny, 40°F

BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701
 Office: 978-746-1259
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HEAVY VEHICLES

Start Time	Main Street Northbound				Main Street Southbound				Centre Street Eastbound				Centre Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	2	3	0	0	4	0	0	5	8	1	0	0	3	0
7:15 AM	0	0	6	1	0	0	1	3	0	4	3	1	0	1	4	0
7:30 AM	0	1	3	3	0	1	0	1	0	5	10	3	0	5	2	1
7:45 AM	0	0	3	1	0	0	1	4	0	7	5	1	0	2	0	1
8:00 AM	0	1	3	2	0	0	3	1	0	6	8	2	0	0	3	0
8:15 AM	0	0	3	2	0	0	4	1	0	4	2	0	0	1	2	0
8:30 AM	0	1	3	1	0	1	3	0	0	3	3	5	0	1	5	0
8:45 AM	0	1	6	2	0	1	4	3	0	6	5	1	0	3	2	0

Start Time	Main Street Northbound				Main Street Southbound				Centre Street Eastbound				Centre Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	1	4	0	0	0	1	2	0	4	1	0	0	2	2	1
4:15 PM	0	1	1	0	0	0	2	7	0	2	2	1	0	0	0	0
4:30 PM	0	1	2	3	0	0	2	1	0	5	1	3	0	2	3	0
4:45 PM	0	0	2	4	0	0	1	2	0	5	1	1	0	0	0	0
5:00 PM	0	1	4	1	0	0	2	2	0	2	2	3	0	0	1	0
5:15 PM	0	1	3	0	0	0	2	4	0	3	0	0	0	1	2	0
5:30 PM	0	0	3	2	0	0	1	2	0	3	1	1	0	0	1	0
5:45 PM	0	1	3	0	0	0	1	1	0	5	0	2	0	0	0	0

AM PEAK HOUR 7:15 AM to 8:15 AM <i>PHF</i>	Main Street Northbound				Main Street Southbound				Centre Street Eastbound				Centre Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	2	15	7	0	1	5	9	0	22	26	7	0	8	9	2
	0.86				0.75				0.76				0.59			

PM PEAK HOUR 4:00 PM to 5:00 PM <i>PHF</i>	Main Street Northbound				Main Street Southbound				Centre Street Eastbound				Centre Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	3	9	7	0	0	6	12	0	16	5	5	0	4	5	1
	0.79				0.50				0.72				0.50			

Client: Mike White
 Project #: 553_C68_HSH
 BTM #: Location 5
 Location: Malden, MA
 Street 1: Main Street
 Street 2: Centre Street
 Count Date: 1/23/2020
 Day of Week: Thursday
 Weather: Mostly Sunny, 40°F

BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701
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PEDESTRIANS & BICYCLES

Start Time	Main Street Northbound				Main Street Southbound				Centre Street Eastbound				Centre Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	6	0	0	0	4	0	0	0	5	0	0	0	1
7:15 AM	0	0	0	2	0	0	0	2	0	0	0	4	0	0	0	2
7:30 AM	0	0	0	5	0	1	0	5	0	0	0	10	0	1	0	13
7:45 AM	0	0	0	3	0	0	0	3	0	0	0	6	0	0	0	11
8:00 AM	0	0	0	3	0	2	0	2	0	0	0	7	0	0	0	4
8:15 AM	0	0	0	4	0	0	0	3	0	1	0	6	0	2	0	5
8:30 AM	0	0	0	3	0	0	0	1	0	0	0	7	0	0	0	7
8:45 AM	0	0	0	4	0	0	0	2	0	0	0	14	0	0	0	5

Start Time	Main Street Northbound				Main Street Southbound				Centre Street Eastbound				Centre Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	11	0	0	0	3	0	0	0	7	0	0	0	6
4:15 PM	0	0	0	12	0	0	0	1	1	0	0	17	0	0	0	4
4:30 PM	0	0	0	10	0	0	0	5	0	0	0	18	0	0	0	8
4:45 PM	0	1	0	12	0	0	0	2	0	0	0	19	0	0	0	4
5:00 PM	0	0	0	7	0	1	0	1	0	0	0	7	0	0	0	6
5:15 PM	0	1	0	8	0	0	0	3	0	1	0	10	0	0	0	1
5:30 PM	0	0	0	11	0	0	0	3	0	1	0	12	0	0	0	2
5:45 PM	0	0	0	5	0	0	0	3	0	0	0	20	0	0	1	4

AM PEAK HOUR ¹ 7:15 AM to 8:15 AM	Main Street Northbound				Main Street Southbound				Centre Street Eastbound				Centre Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	13	0	3	0	12	0	0	0	27	0	1	0	30

PM PEAK HOUR ¹ 4:30 PM to 5:30 PM	Main Street Northbound				Main Street Southbound				Centre Street Eastbound				Centre Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	2	0	37	0	1	0	11	0	1	0	54	0	0	0	19

¹ NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.

Client: Mike White
 Project #: 553_C68_HSH
 BTD #: Location 6
 Location: Malden, MA
 Street 1: Pleasant Street
 Street 2: Middlesex Street & Dartmouth Street
 Count Date: 1/23/2020
 Day of Week: Thursday
 Weather: Mostly Sunny, 40°F

BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701
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PASSENGER CARS & HEAVY VEHICLES COMBINED

Start Time	Middlesex Street Northbound				Dartmouth Street Southbound				Pleasant Street Eastbound				Pleasant Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	3	2	0	0	0	0	0	0	0	0	0	0	0	16	3
7:15 AM	0	8	5	0	0	0	0	0	0	0	0	0	0	0	26	10
7:30 AM	0	4	9	0	0	0	0	0	0	0	0	0	0	0	29	10
7:45 AM	0	8	9	0	0	0	0	0	0	0	0	0	0	0	32	19
8:00 AM	0	5	6	0	0	0	0	0	0	0	0	0	0	0	39	24
8:15 AM	0	7	10	0	0	0	0	0	0	0	0	0	0	0	55	17
8:30 AM	0	2	7	0	0	0	0	0	0	0	0	0	0	0	36	14
8:45 AM	0	12	7	0	0	0	0	0	0	0	0	0	0	0	22	13

Start Time	Middlesex Street Northbound				Dartmouth Street Southbound				Pleasant Street Eastbound				Pleasant Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	11	20	0	0	0	0	0	0	0	0	0	0	0	43	18
4:15 PM	0	11	9	0	0	0	0	0	0	0	0	0	0	0	41	13
4:30 PM	0	15	13	0	0	0	0	0	0	0	0	0	0	0	33	15
4:45 PM	0	15	14	0	0	0	0	0	0	0	0	0	0	0	30	30
5:00 PM	0	9	13	0	0	0	0	0	0	0	0	0	0	0	38	21
5:15 PM	0	17	12	0	0	0	0	0	0	0	0	0	0	0	36	18
5:30 PM	0	13	5	0	0	0	0	0	0	0	0	0	0	0	38	16
5:45 PM	0	20	13	0	0	0	0	0	0	0	0	0	0	0	34	19

AM PEAK HOUR 7:45 AM to 8:45 AM	Middlesex Street Northbound				Dartmouth Street Southbound				Pleasant Street Eastbound				Pleasant Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	22	32	0	0	0	0	0	0	0	0	0	0	0	162	74
PHF	0.79				0.00				0.00				0.82			
HV %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.7%

PM PEAK HOUR 4:00 PM to 5:00 PM	Middlesex Street Northbound				Dartmouth Street Southbound				Pleasant Street Eastbound				Pleasant Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	52	56	0	0	0	0	0	0	0	0	0	0	0	147	76
PHF	0.87				0.00				0.00				0.91			
HV %	0.0%	0.0%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.0%

Client: Mike White
 Project #: 553_C68_HSH
 BTD #: Location 6
 Location: Malden, MA
 Street 1: Pleasant Street
 Street 2: Middlesex Street & Dartmouth Street
 Count Date: 1/23/2020
 Day of Week: Thursday
 Weather: Mostly Sunny, 40°F

BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701
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 www.BostonTrafficData.com

HEAVY VEHICLES

Start Time	Middlesex Street Northbound				Dartmouth Street Southbound				Pleasant Street Eastbound				Pleasant Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	2
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Start Time	Middlesex Street Northbound				Dartmouth Street Southbound				Pleasant Street Eastbound				Pleasant Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1

AM PEAK HOUR 7:00 AM to 8:00 AM <i>PHF</i>	Middlesex Street Northbound				Dartmouth Street Southbound				Pleasant Street Eastbound				Pleasant Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3	2
	0.50				0.00				0.00				0.42			

PM PEAK HOUR 5:00 PM to 6:00 PM <i>PHF</i>	Middlesex Street Northbound				Dartmouth Street Southbound				Pleasant Street Eastbound				Pleasant Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	1
	0.00				0.00				0.00				0.75			

Client: Mike White
 Project #: 553_C68_HSH
 BTM #: Location 6
 Location: Malden, MA
 Street 1: Pleasant Street
 Street 2: Middlesex Street & Dartmouth Street
 Count Date: 1/23/2020
 Day of Week: Thursday
 Weather: Mostly Sunny, 40°F

BOSTON TRAFFIC DATA

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PEDESTRIANS & BICYCLES

Start Time	Middlesex Street Northbound				Dartmouth Street Southbound				Pleasant Street Eastbound				Pleasant Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	5	0	0	0	8	0	0	0	6	0	1	0	1
7:15 AM	0	0	0	3	0	0	0	9	0	0	0	8	0	0	0	4
7:30 AM	0	0	0	4	0	0	0	26	0	0	0	20	0	0	2	7
7:45 AM	0	0	0	19	0	0	0	25	0	0	0	19	0	0	0	9
8:00 AM	0	0	0	13	0	0	0	14	0	0	0	17	0	0	1	9
8:15 AM	0	0	0	9	0	0	0	16	0	0	0	21	0	1	0	2
8:30 AM	0	0	0	12	0	0	0	17	0	0	0	23	0	0	1	3
8:45 AM	0	0	0	19	0	0	0	20	0	0	0	20	0	0	1	8

Start Time	Middlesex Street Northbound				Dartmouth Street Southbound				Pleasant Street Eastbound				Pleasant Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	30	0	0	0	32	0	0	0	27	0	1	0	13
4:15 PM	0	0	0	27	0	0	0	17	0	0	0	20	0	0	0	8
4:30 PM	0	0	0	18	0	0	0	21	0	0	0	28	0	0	0	11
4:45 PM	0	0	0	20	0	0	0	28	0	0	0	34	0	1	0	6
5:00 PM	0	0	0	32	0	0	0	23	0	0	0	21	0	0	0	6
5:15 PM	0	0	0	23	0	0	0	24	0	0	0	19	0	0	0	5
5:30 PM	0	0	0	24	0	0	0	15	0	0	0	22	0	0	0	5
5:45 PM	0	0	0	31	0	0	0	20	0	0	0	25	0	0	1	13

AM PEAK HOUR ¹ 7:45 AM to 8:45 AM	Middlesex Street Northbound				Dartmouth Street Southbound				Pleasant Street Eastbound				Pleasant Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	53	0	0	0	72	0	0	0	80	0	1	2	23

PM PEAK HOUR ¹ 4:00 PM to 5:00 PM	Middlesex Street Northbound				Dartmouth Street Southbound				Pleasant Street Eastbound				Pleasant Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	95	0	0	0	98	0	0	0	109	0	2	0	38

¹ NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.

Client: Mike White
 Project #: 578_C74_HSH
 BTD #: Location 1
 Location: Malden, MA
 Street 1: Florence Street
 Street 2: Washington Street
 Count Date: 3/5/2020
 Day of Week: Thursday
 Weather: Sunny, 45°F



PASSENGER CARS & HEAVY VEHICLES COMBINED

Start Time	Washington Street Northbound				Washington Street Southbound				Florence Street Eastbound				Florence Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	3	1	1	0	10	4	27	0	1	14	0	0	0	84	4
7:15 AM	0	7	6	6	0	13	4	28	1	3	18	1	0	2	80	4
7:30 AM	0	11	7	0	0	11	7	48	1	3	27	0	0	1	82	5
7:45 AM	0	12	6	7	0	12	18	40	1	12	21	0	0	2	87	5
8:00 AM	0	15	11	11	0	15	4	41	0	5	20	2	0	2	98	10
8:15 AM	0	10	8	5	0	14	5	38	0	11	28	0	0	0	75	4
8:30 AM	0	5	2	3	0	8	7	33	0	12	29	2	0	2	61	5
8:45 AM	0	6	2	4	0	7	4	31	1	4	28	4	0	0	58	5

Start Time	Washington Street Northbound				Washington Street Southbound				Florence Street Eastbound				Florence Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	18	2	17	0	6	10	11	0	22	48	0	0	1	43	6
4:15 PM	0	14	7	8	0	8	1	16	0	21	49	1	0	0	41	2
4:30 PM	0	13	7	6	0	9	3	12	1	22	40	1	0	1	57	6
4:45 PM	0	9	8	13	0	13	3	14	1	20	48	1	0	0	42	8
5:00 PM	0	7	11	9	0	14	1	11	1	16	54	0	0	1	43	5
5:15 PM	0	9	10	7	0	9	2	17	1	15	47	0	0	0	55	7
5:30 PM	0	9	14	10	0	15	2	14	1	11	49	2	0	0	48	7
5:45 PM	0	8	11	6	0	8	3	15	0	18	51	2	0	0	44	8

AM PEAK HOUR 7:30 AM to 8:30 AM	Washington Street Northbound				Washington Street Southbound				Florence Street Eastbound				Florence Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	48	32	23	0	52	34	167	2	31	96	2	0	5	342	24
<i>PHF</i>	0.70				0.90				0.84				0.84			
<i>HV %</i>	0.0%	2.1%	0.0%	4.3%	0.0%	7.7%	0.0%	1.2%	0.0%	9.7%	8.3%	0.0%	0.0%	0.0%	3.8%	0.0%

PM PEAK HOUR 4:45 PM to 5:45 PM	Washington Street Northbound				Washington Street Southbound				Florence Street Eastbound				Florence Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	34	43	39	0	51	8	56	4	62	198	3	0	1	188	27
<i>PHF</i>	0.88				0.93				0.94				0.87			
<i>HV %</i>	0.0%	0.0%	2.3%	2.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.5%	33.3%	0.0%	0.0%	4.8%	0.0%

Client: Mike White
 Project #: 578_C74_HSH
 BTD #: Location 1
 Location: Malden, MA
 Street 1: Florence Street
 Street 2: Washington Street
 Count Date: 3/5/2020
 Day of Week: Thursday
 Weather: Sunny, 45°F

BOSTON TRAFFIC DATA

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HEAVY VEHICLES

Start Time	Washington Street Northbound				Washington Street Southbound				Florence Street Eastbound				Florence Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1
7:30 AM	0	0	0	0	0	2	0	2	0	0	3	0	0	0	2	0
7:45 AM	0	0	0	0	0	0	0	0	0	1	3	0	0	0	3	0
8:00 AM	0	1	0	1	0	1	0	0	0	1	1	0	0	0	5	0
8:15 AM	0	0	0	0	0	1	0	0	0	1	1	0	0	0	3	0
8:30 AM	0	0	0	0	0	0	0	0	0	1	2	0	0	0	2	0
8:45 AM	0	1	0	0	0	1	0	0	0	0	1	1	0	0	3	0

Start Time	Washington Street Northbound				Washington Street Southbound				Florence Street Eastbound				Florence Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	1	0	0	0	0	2	0	0	0	3	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0
4:45 PM	0	0	0	1	0	0	0	0	0	0	2	0	0	0	3	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0
5:15 PM	0	0	1	0	0	0	0	0	0	0	2	0	0	0	4	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0
5:45 PM	0	1	0	0	0	0	0	0	0	0	1	0	0	0	4	0

AM PEAK HOUR 7:30 AM to 8:30 AM <i>PHF</i>	Washington Street Northbound				Washington Street Southbound				Florence Street Eastbound				Florence Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	1	0	1	0	4	0	2	0	3	8	0	0	0	13	0
	0.25				0.38				0.69				0.65			

PM PEAK HOUR 4:30 PM to 5:30 PM <i>PHF</i>	Washington Street Northbound				Washington Street Southbound				Florence Street Eastbound				Florence Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	1	1	0	0	0	0	0	0	8	0	0	0	10	0
	0.50				0.00				1.00				0.63			

Client: Mike White
 Project #: 578_C74_HSH
 BTD #: Location 1
 Location: Malden, MA
 Street 1: Florence Street
 Street 2: Washington Street
 Count Date: 3/5/2020
 Day of Week: Thursday
 Weather: Sunny, 45°F



PEDESTRIANS & BICYCLES

Start Time	Washington Street Northbound				Washington Street Southbound				Florence Street Eastbound				Florence Street Westbound				
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	
7:00 AM	0	0	0	3	1	1	0	13	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	6	0	0	0	10	0	0	0	1	0	0	0	0	0
7:30 AM	0	0	0	5	0	0	0	6	0	0	0	0	0	0	0	1	
7:45 AM	0	0	0	9	0	0	0	11	0	0	0	2	0	0	0	2	
8:00 AM	0	0	0	12	0	0	2	12	0	0	0	1	0	0	0	0	
8:15 AM	0	0	0	14	0	1	0	19	0	0	0	2	0	0	0	1	
8:30 AM	0	0	0	8	0	1	0	12	0	0	0	0	0	0	0	1	
8:45 AM	0	0	0	16	0	0	1	7	0	0	0	2	0	0	0	2	

Start Time	Washington Street Northbound				Washington Street Southbound				Florence Street Eastbound				Florence Street Westbound				
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	
4:00 PM	0	0	0	3	0	0	0	16	0	0	0	0	0	0	0	2	
4:15 PM	0	0	0	7	0	0	0	8	0	0	0	3	0	0	0	5	
4:30 PM	0	0	0	7	0	0	0	11	0	0	0	4	0	0	0	1	
4:45 PM	0	0	1	5	0	0	0	19	0	0	0	4	0	0	0	3	
5:00 PM	0	0	0	7	0	0	0	10	0	0	0	1	0	0	0	4	
5:15 PM	0	1	0	5	0	0	0	11	0	0	0	2	0	0	0	2	
5:30 PM	0	0	0	7	0	0	0	8	0	0	0	8	0	0	0	4	
5:45 PM	0	0	0	8	0	0	0	13	0	1	0	2	0	0	0	2	

AM PEAK HOUR ¹ 7:30 AM to 8:30 AM	Washington Street Northbound				Washington Street Southbound				Florence Street Eastbound				Florence Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	40	0	1	2	48	0	0	0	5	0	0	0	4

PM PEAK HOUR ¹ 4:45 PM to 5:45 PM	Washington Street Northbound				Washington Street Southbound				Florence Street Eastbound				Florence Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	1	1	24	0	0	0	48	0	0	0	15	0	0	0	13

¹ NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.

Client: Mike White
 Project #: 578_C74_HSH
 BTD #: Location 2
 Location: Malden, MA
 Street 1: Florence Street
 Street 2: Ramsdell Road
 Count Date: 3/5/2020
 Day of Week: Thursday
 Weather: Sunny, 45°F



PASSENGER CARS & HEAVY VEHICLES COMBINED

Start Time	Northbound				Ramsdell Road Southbound				Florence Street Eastbound				Florence Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	5	0	3	0	2	24	0	0	0	83	0
7:15 AM	0	0	0	0	0	13	0	2	0	3	31	0	1	0	84	6
7:30 AM	0	0	0	0	0	21	0	4	0	3	42	0	0	0	80	9
7:45 AM	0	0	0	0	0	19	0	7	0	3	39	0	0	0	92	7
8:00 AM	0	0	0	0	0	13	0	3	0	5	36	0	0	0	107	17
8:15 AM	0	0	0	0	0	11	0	7	0	7	38	0	0	0	71	15
8:30 AM	0	0	0	0	0	15	0	14	1	6	34	0	0	0	54	16
8:45 AM	0	0	0	0	0	19	0	10	0	8	28	0	0	0	52	15

Start Time	Northbound				Ramsdell Road Southbound				Florence Street Eastbound				Florence Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	23	0	8	0	5	60	0	0	0	40	14
4:15 PM	0	0	0	0	0	18	0	11	0	9	58	0	0	0	33	13
4:30 PM	0	0	0	0	0	15	0	12	0	1	53	0	1	0	52	12
4:45 PM	0	0	0	0	0	20	0	11	0	9	61	0	0	0	39	8
5:00 PM	0	0	0	0	0	29	0	10	0	6	70	0	0	0	37	14
5:15 PM	0	0	0	0	0	27	0	11	0	6	57	0	1	0	51	15
5:30 PM	0	0	0	0	0	19	0	7	0	7	66	0	0	0	48	10
5:45 PM	0	0	0	0	0	24	0	9	0	4	60	0	0	0	45	11

AM PEAK HOUR 7:30 AM to 8:30 AM	Northbound				Ramsdell Road Southbound				Florence Street Eastbound				Florence Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	64	0	21	0	18	155	0	0	0	350	48
PHF	0.00				0.82				0.96				0.80			
HV %	0.0%	0.0%	0.0%	0.0%	0.0%	4.7%	0.0%	9.5%	0.0%	0.0%	8.4%	0.0%	0.0%	0.0%	3.7%	2.1%

PM PEAK HOUR 5:00 PM to 6:00 PM	Northbound				Ramsdell Road Southbound				Florence Street Eastbound				Florence Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	99	0	37	0	23	253	0	1	0	181	50
PHF	0.00				0.87				0.91				0.87			
HV %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.3%	2.0%	0.0%	0.0%	0.0%	5.5%	0.0%

Client: Mike White
 Project #: 578_C74_HSH
 BTD #: Location 2
 Location: Malden, MA
 Street 1: Florence Street
 Street 2: Ramsdell Road
 Count Date: 3/5/2020
 Day of Week: Thursday
 Weather: Sunny, 45°F

BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701
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HEAVY VEHICLES

Start Time	Northbound				Ramsdell Road Southbound				Florence Street Eastbound				Florence Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	0	3	0
7:30 AM	0	0	0	0	0	2	0	0	0	0	4	0	0	0	2	1
7:45 AM	0	0	0	0	0	0	0	1	0	0	4	0	0	0	4	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	5	0
8:15 AM	0	0	0	0	0	1	0	1	0	0	3	0	0	0	2	0
8:30 AM	0	0	0	0	0	1	0	1	0	0	2	0	0	0	2	1
8:45 AM	0	0	0	0	0	3	0	1	0	1	1	0	0	0	2	0

Start Time	Northbound				Ramsdell Road Southbound				Florence Street Eastbound				Florence Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0
4:45 PM	0	0	0	0	0	1	0	0	0	1	1	0	0	0	3	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0
5:15 PM	0	0	0	0	0	0	0	0	0	1	1	0	0	0	4	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0

AM PEAK HOUR 7:30 AM to 8:30 AM <i>PHF</i>	Northbound				Ramsdell Road Southbound				Florence Street Eastbound				Florence Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	0	3	0	2	0	0	13	0	0	0	13
0.00				0.63				0.81				0.70				

PM PEAK HOUR 4:00 PM to 5:00 PM <i>PHF</i>	Northbound				Ramsdell Road Southbound				Florence Street Eastbound				Florence Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	1	0	0	0	0	1	6	0	0	0	10
0.00				0.25				0.88				0.60				

Client: Mike White
 Project #: 578_C74_HSH
 BTD #: Location 2
 Location: Malden, MA
 Street 1: Florence Street
 Street 2: Ramsdell Road
 Count Date: 3/5/2020
 Day of Week: Thursday
 Weather: Sunny, 45°F



PEDESTRIANS & BICYCLES

Start Time	Northbound				Ramsdell Road Southbound				Florence Street Eastbound				Florence Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	7	0	1	0	0	0	0	0	2
7:30 AM	0	0	0	0	0	0	0	7	0	1	0	1	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	4
8:15 AM	0	0	0	0	0	0	0	11	0	0	0	0	0	1	0	1
8:30 AM	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	7	0	0	0	1	0	0	0	2

Start Time	Northbound				Ramsdell Road Southbound				Florence Street Eastbound				Florence Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	0	1	0	0	3	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	1	0	1	0	4	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	3
4:45 PM	0	0	0	0	0	0	1	11	0	0	0	2	0	0	0	3
5:00 PM	0	0	0	0	0	0	0	13	0	0	0	2	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	3
5:30 PM	0	0	0	0	1	0	0	5	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	12	0	0	0	0	0	2	0	7

AM PEAK HOUR ¹ 7:30 AM to 8:30 AM	Northbound				Ramsdell Road Southbound				Florence Street Eastbound				Florence Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	33	0	1	0	1	0	1	0	5

PM PEAK HOUR ¹ 5:00 PM to 6:00 PM	Northbound				Ramsdell Road Southbound				Florence Street Eastbound				Florence Street Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	1	0	0	37	0	0	0	2	0	2	0	11

¹ NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.

Client: Mike White
 Project #: 578_C74_HSH
 BTD #: Location 3
 Location: Malden, MA
 Street 1: Dartmouth Street
 Street 2: Ramsdell Road
 Count Date: 3/5/2020
 Day of Week: Thursday
 Weather: Sunny, 45°F



PASSENGER CARS & HEAVY VEHICLES COMBINED

Start Time	Dartmouth Street Northbound				Dartmouth Street Southbound				Parking Lot Driveway Eastbound				Ramsdell Road Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	1	7	1	0	4	5	3	0	1	2	0	0	0	0	1
7:15 AM	0	3	7	3	0	12	9	7	0	1	2	0	0	1	2	5
7:30 AM	0	2	12	7	0	20	6	7	0	1	0	0	0	3	1	6
7:45 AM	0	2	17	9	0	18	11	7	0	2	0	1	0	0	3	6
8:00 AM	0	0	16	2	0	12	22	12	0	1	1	0	0	4	6	12
8:15 AM	0	1	4	3	0	11	16	16	0	3	5	0	0	2	8	10
8:30 AM	0	4	12	5	0	17	7	13	0	5	4	0	0	3	11	7
8:45 AM	0	3	8	6	0	16	5	10	0	2	7	1	0	1	11	10

Start Time	Dartmouth Street Northbound				Dartmouth Street Southbound				Parking Lot Driveway Eastbound				Ramsdell Road Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	25	16	0	12	7	2	0	6	1	1	0	1	3	13
4:15 PM	0	3	24	7	0	15	5	4	0	10	6	0	0	2	4	12
4:30 PM	0	3	28	10	0	6	4	5	0	14	8	1	0	1	6	7
4:45 PM	0	1	22	10	0	15	6	3	0	6	7	0	0	1	7	9
5:00 PM	0	2	19	17	1	13	10	10	0	9	6	0	0	1	4	16
5:15 PM	0	3	24	7	2	18	9	12	0	8	10	1	0	1	1	18
5:30 PM	0	3	17	8	1	11	11	7	0	8	7	0	0	1	5	12
5:45 PM	0	3	17	10	0	11	4	10	0	8	12	0	0	1	3	12

AM PEAK HOUR 8:00 AM to 9:00 AM	Dartmouth Street Northbound				Dartmouth Street Southbound				Parking Lot Driveway Eastbound				Ramsdell Road Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	8	40	16	0	56	50	51	0	11	17	1	0	10	36	39
PHF	0.76				0.85				0.73				0.97			
HV %	0.0%	0.0%	2.5%	18.8%	0.0%	3.6%	0.0%	0.0%	0.0%	0.0%	11.8%	0.0%	0.0%	10.0%	5.6%	0.0%

PM PEAK HOUR 5:00 PM to 6:00 PM	Dartmouth Street Northbound				Dartmouth Street Southbound				Parking Lot Driveway Eastbound				Ramsdell Road Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	11	77	42	4	53	34	39	0	33	35	1	0	4	13	58
PHF	0.86				0.79				0.86				0.89			
HV %	0.0%	9.1%	2.6%	0.0%	0.0%	0.0%	0.0%	10.3%	0.0%	9.1%	0.0%	0.0%	0.0%	0.0%	7.7%	1.7%

Client: Mike White
 Project #: 578_C74_HSH
 BTD #: Location 3
 Location: Malden, MA
 Street 1: Dartmouth Street
 Street 2: Ramsdell Road
 Count Date: 3/5/2020
 Day of Week: Thursday
 Weather: Sunny, 45°F

BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701
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 DataRequest@BostonTrafficData.com
 www.BostonTrafficData.com

HEAVY VEHICLES

Start Time	Dartmouth Street Northbound				Dartmouth Street Southbound				Parking Lot Driveway Eastbound				Ramsdell Road Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0
7:15 AM	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0
7:30 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0
7:45 AM	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:15 AM	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0
8:30 AM	0	0	1	1	0	1	0	0	0	0	0	0	0	0	1	0
8:45 AM	0	0	0	1	0	1	0	0	0	0	1	0	0	0	1	0

Start Time	Dartmouth Street Northbound				Dartmouth Street Southbound				Parking Lot Driveway Eastbound				Ramsdell Road Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	2	0	3	0	0	0	0	0	0
5:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1	0
5:45 PM	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0

AM PEAK HOUR 7:00 AM to 8:00 AM <i>PHF</i>	Dartmouth Street Northbound				Dartmouth Street Southbound				Parking Lot Driveway Eastbound				Ramsdell Road Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	3	3	0	1	0	1	0	2	1	0	0	1	0	0
	0.75				0.25				0.38				0.25			

PM PEAK HOUR 4:45 PM to 5:45 PM <i>PHF</i>	Dartmouth Street Northbound				Dartmouth Street Southbound				Parking Lot Driveway Eastbound				Ramsdell Road Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	2	0	0	1	0	3	0	4	0	0	0	0	1	2
	0.50				0.50				0.33				0.75			

Client: Mike White
 Project #: 578_C74_HSH
 BTD #: Location 3
 Location: Malden, MA
 Street 1: Dartmouth Street
 Street 2: Ramsdell Road
 Count Date: 3/5/2020
 Day of Week: Thursday
 Weather: Sunny, 45°F



PEDESTRIANS & BICYCLES

Start Time	Dartmouth Street Northbound				Dartmouth Street Southbound				Parking Lot Driveway Eastbound				Ramsdell Road Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
7:30 AM	0	0	0	1	0	0	0	0	0	0	0	4	0	0	0	1
7:45 AM	0	0	0	1	0	0	0	0	0	0	0	3	0	0	0	2
8:00 AM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	3
8:15 AM	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0
8:30 AM	0	0	0	5	0	0	0	0	0	0	0	4	0	0	0	4
8:45 AM	0	0	0	11	0	0	0	0	0	0	0	4	0	0	0	4

Start Time	Dartmouth Street Northbound				Dartmouth Street Southbound				Parking Lot Driveway Eastbound				Ramsdell Road Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	0	1	0	0	0	0	0	0	4	0	0	0	5
4:15 PM	0	0	0	0	0	0	0	2	0	0	0	3	0	0	0	14
4:30 PM	0	0	0	5	0	0	0	0	0	0	0	18	0	0	0	8
4:45 PM	0	0	0	3	1	0	0	0	0	0	0	6	0	0	0	3
5:00 PM	0	0	0	0	0	0	0	2	0	0	0	4	0	0	0	0
5:15 PM	0	0	0	1	0	0	0	2	0	0	0	1	0	0	0	3
5:30 PM	0	0	0	1	1	0	0	0	0	0	0	2	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	8

AM PEAK HOUR ¹ 8:00 AM to 9:00 AM	Dartmouth Street Northbound				Dartmouth Street Southbound				Parking Lot Driveway Eastbound				Ramsdell Road Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	17	0	0	0	2	0	0	0	11	0	0	0	11

PM PEAK HOUR ¹ 5:00 PM to 6:00 PM	Dartmouth Street Northbound				Dartmouth Street Southbound				Parking Lot Driveway Eastbound				Ramsdell Road Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	2	1	0	0	4	0	0	0	11	0	0	0	13

¹ NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.

Client: Mike White
 Project #: 578_C74_HSH
 BTD #: Location 4
 Location: Malden, MA
 Street 1: Dartmouth Street
 Street 2: Mountain Avenue
 Count Date: 3/5/2020
 Day of Week: Thursday
 Weather: Sunny, 45°F



PASSENGER CARS & HEAVY VEHICLES COMBINED

Start Time	Dartmouth Street Northbound				Dartmouth Street Southbound				Mountain Avenue Eastbound				Mountain Avenue Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	9	0	3	0	0	0	0	0	0	28	10	0	4	57	0
7:15 AM	0	6	0	4	0	0	0	0	0	0	37	15	0	16	74	0
7:30 AM	0	12	0	5	0	0	0	0	0	0	61	26	0	13	108	0
7:45 AM	0	17	0	7	0	0	0	0	0	0	67	25	0	12	88	0
8:00 AM	0	13	0	16	0	0	0	0	0	0	50	26	0	19	89	0
8:15 AM	0	9	0	8	0	0	0	0	0	0	47	27	0	21	83	0
8:30 AM	0	12	0	16	0	0	0	0	0	0	36	18	0	17	50	0
8:45 AM	0	10	0	11	0	0	0	0	0	0	31	16	0	13	57	0

Start Time	Dartmouth Street Northbound				Dartmouth Street Southbound				Mountain Avenue Eastbound				Mountain Avenue Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	22	0	26	0	0	0	0	0	0	37	9	0	11	34	0
4:15 PM	0	16	0	27	0	0	0	0	0	0	53	13	0	12	54	0
4:30 PM	0	21	0	27	0	0	0	0	0	0	62	11	0	12	42	0
4:45 PM	0	10	0	29	0	0	0	0	0	0	74	16	0	8	31	0
5:00 PM	0	25	0	19	0	0	0	0	0	0	58	23	0	13	43	0
5:15 PM	0	23	0	33	0	0	0	0	0	0	57	22	0	16	42	0
5:30 PM	0	20	0	19	0	0	0	0	0	0	79	19	0	12	55	0
5:45 PM	0	22	0	16	0	0	0	0	0	0	71	12	0	14	44	0

AM PEAK HOUR 7:30 AM to 8:30 AM	Dartmouth Street Northbound				Dartmouth Street Southbound				Mountain Avenue Eastbound				Mountain Avenue Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	51	0	36	0	0	0	0	0	0	225	104	0	65	368	0
PHF	0.75				0.00				0.89				0.89			
HV %	0.0%	0.0%	0.0%	2.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.7%	0.0%	0.0%	0.0%	0.5%	0.0%

PM PEAK HOUR 5:00 PM to 6:00 PM	Dartmouth Street Northbound				Dartmouth Street Southbound				Mountain Avenue Eastbound				Mountain Avenue Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	90	0	87	0	0	0	0	0	0	265	76	0	55	184	0
PHF	0.79				0.00				0.87				0.89			
HV %	0.0%	2.2%	0.0%	4.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	2.6%	0.0%	5.5%	0.0%	0.0%

Client: Mike White
 Project #: 578_C74_HSH
 BTD #: Location 4
 Location: Malden, MA
 Street 1: Dartmouth Street
 Street 2: Mountain Avenue
 Count Date: 3/5/2020
 Day of Week: Thursday
 Weather: Sunny, 45°F

BOSTON TRAFFIC DATA

PO BOX 1723, Framingham, MA 01701
 Office: 978-746-1259
 DataRequest@BostonTrafficData.com
 www.BostonTrafficData.com

HEAVY VEHICLES

Start Time	Dartmouth Street Northbound				Dartmouth Street Southbound				Mountain Avenue Eastbound				Mountain Avenue Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0
7:15 AM	0	0	0	1	0	0	0	0	0	0	2	0	0	0	2	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0
7:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0
8:30 AM	0	0	0	1	0	0	0	0	0	0	2	0	0	1	1	0
8:45 AM	0	0	0	1	0	0	0	0	0	0	2	0	0	0	2	0

Start Time	Dartmouth Street Northbound				Dartmouth Street Southbound				Mountain Avenue Eastbound				Mountain Avenue Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	1	0	0	0	0	0	0	1	0	0	2	1	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
4:30 PM	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	0
4:45 PM	0	0	0	2	0	0	0	0	0	0	1	0	0	0	1	0
5:00 PM	0	2	0	2	0	0	0	0	0	0	1	0	0	2	0	0
5:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
5:45 PM	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0

AM PEAK HOUR 8:00 AM to 9:00 AM PHF	Dartmouth Street Northbound				Dartmouth Street Southbound				Mountain Avenue Eastbound				Mountain Avenue Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	2	0	0	0	0	0	0	7	0	0	1	4	0
	0.50				0.00				0.58				0.63			

PM PEAK HOUR 4:30 PM to 5:30 PM PHF	Dartmouth Street Northbound				Dartmouth Street Southbound				Mountain Avenue Eastbound				Mountain Avenue Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	2	0	6	0	0	0	0	0	0	3	0	0	3	2	0
	0.50				0.00				0.75				0.63			

Client: Mike White
 Project #: 578_C74_HSH
 BTM #: Location 4
 Location: Malden, MA
 Street 1: Dartmouth Street
 Street 2: Mountain Avenue
 Count Date: 3/5/2020
 Day of Week: Thursday
 Weather: Sunny, 45°F



PEDESTRIANS & BICYCLES

Start Time	Dartmouth Street Northbound				Dartmouth Street Southbound				Mountain Avenue Eastbound				Mountain Avenue Westbound				
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	
7:00 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	5
7:15 AM	0	0	0	9	0	0	0	0	0	1	0	0	0	0	0	0	4
7:30 AM	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	5
7:45 AM	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	7
8:00 AM	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	3
8:15 AM	0	0	0	17	0	0	0	0	0	0	0	0	0	0	0	0	6
8:30 AM	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	8

Start Time	Dartmouth Street Northbound				Dartmouth Street Southbound				Mountain Avenue Eastbound				Mountain Avenue Westbound				
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	
4:00 PM	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	8
4:15 PM	0	0	0	5	0	0	0	0	0	2	0	0	0	0	0	0	10
4:30 PM	0	0	0	10	0	0	0	0	0	0	1	1	0	0	0	0	4
4:45 PM	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	7
5:00 PM	0	0	0	5	0	0	0	0	0	0	1	0	0	0	0	0	5
5:15 PM	0	0	0	15	0	0	0	0	0	1	0	0	0	0	0	0	8
5:30 PM	0	0	0	23	0	0	0	0	0	0	0	1	0	0	0	0	0
5:45 PM	0	0	0	19	0	0	0	0	0	0	0	0	0	1	0	0	3

AM PEAK HOUR ¹ 7:30 AM to 8:30 AM	Dartmouth Street Northbound				Dartmouth Street Southbound				Mountain Avenue Eastbound				Mountain Avenue Westbound				
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	
	0	0	0	60	0	0	0	0	0	0	0	0	0	0	0	0	21

PM PEAK HOUR ¹ 5:00 PM to 6:00 PM	Dartmouth Street Northbound				Dartmouth Street Southbound				Mountain Avenue Eastbound				Mountain Avenue Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	62	0	0	0	0	0	1	1	1	0	1	0	16

¹ NOTE: Peak hour summaries here correspond to peak hours identified for passenger cars and heavy vehicles combined.



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Appendix B

Crash Data

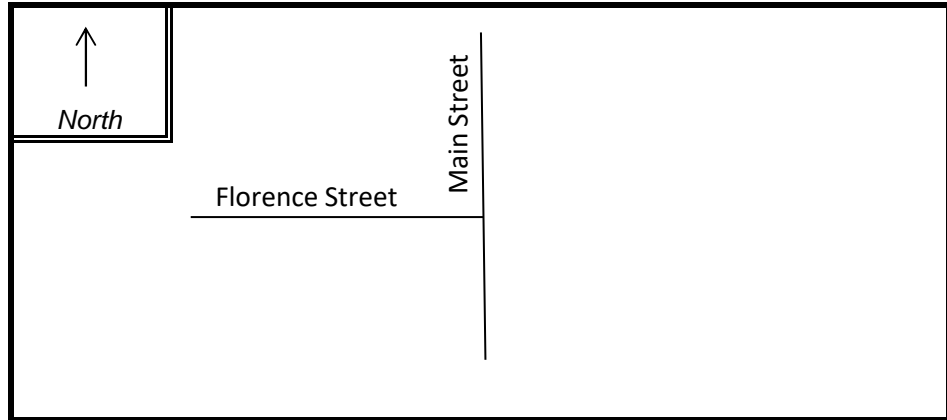
INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Malden COUNT DATE : Jan-20
 DISTRICT : 4 UNSIGNALIZED : SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Main Street
 MINOR STREET(S) : Florence Street

**INTERSECTION
 DIAGRAM**
 (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	→	←	↑	↓		
PEAK HOURLY VOLUMES (PM) :	327		465	368		

" K " FACTOR :	0.090	INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :	12,889
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TOTAL # OF CRASHES :	7	# OF YEARS :	3	AVERAGE # OF CRASHES PER YEAR (A) :	2.33
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CRASH RATE CALCULATION :

0.50

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

Does not exceed District 4 average crash rate of 0.73 crashes per entering vehicles at
 Comments : signalized intersections.

Project Title & Date: 11 Dartmouth Street, Malden. 02/17/2020

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Malden COUNT DATE : Jan-20

DISTRICT : 4 UNSIGNALIZED : SIGNALIZED :

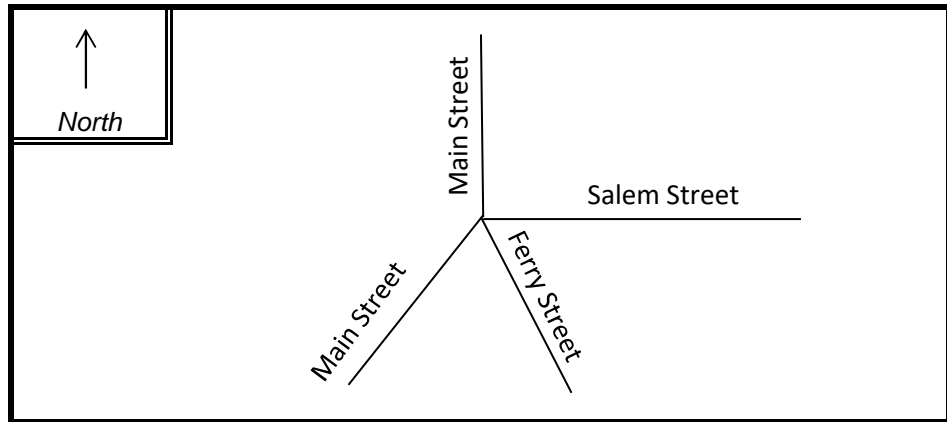
~ INTERSECTION DATA ~

MAJOR STREET : Main Street

MINOR STREET(S) : Salem Street

Ferry Street

**INTERSECTION
DIAGRAM
(Label Approaches)**



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :						
PEAK HOURLY VOLUMES (PM) :	538	461	380	496		1,875

" K " FACTOR :	0.090	INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :	20,833
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TOTAL # OF CRASHES :	20	# OF YEARS :	3	AVERAGE # OF CRASHES PER YEAR (A) :	6.67
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CRASH RATE CALCULATION :

0.88

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

Exceeds District 4 average crash rate of 0.73 crashes per entering vehicles at signalized

Comments : intersections.

Project Title & Date: 11 Dartmouth Street, Malden. 02/17/2020

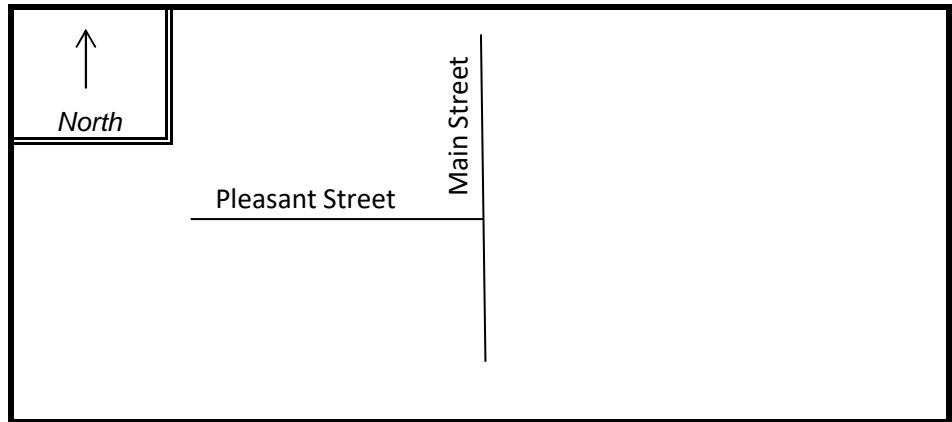
INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Malden COUNT DATE : Jan-20
 DISTRICT : 4 UNSIGNALIZED : SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Main Street
 MINOR STREET(S) : Pleasant Street

**INTERSECTION
 DIAGRAM**
 (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	→	←	↑	↓		
PEAK HOURLY VOLUMES (PM) :			643	420		1,063

" K " FACTOR : INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :

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

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

Does not exceed District 4 average crash rate of 0.73 crashes per entering vehicles at
 Comments : signalized intersections.

Project Title & Date: 11 Dartmouth Street, Malden. 02/17/2020

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Malden COUNT DATE : Jan-20

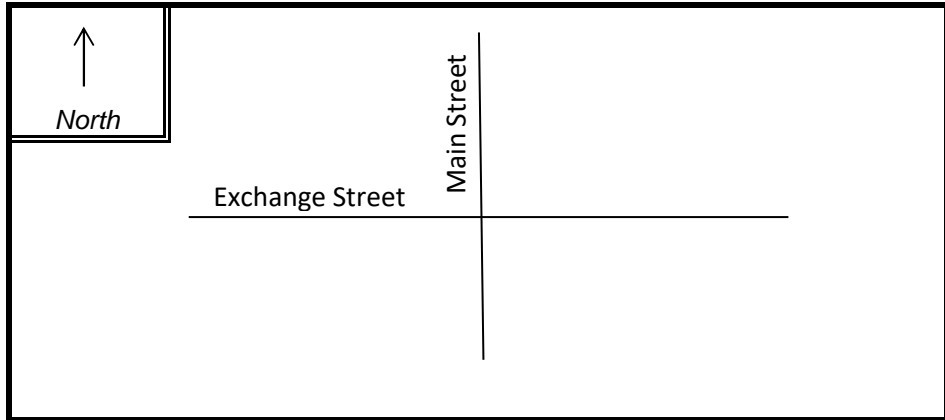
DISTRICT : 4 UNSIGNALIZED : SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Main Street

MINOR STREET(S) : Exchange Street

**INTERSECTION
 DIAGRAM
 (Label Approaches)**



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	→	←	↑	↓		
PEAK HOURLY VOLUMES (PM) :	238		535	306		1,079

" K " FACTOR :

0.090

INTERSECTION ADT (V) = TOTAL DAILY
 APPROACH VOLUME :

11,989

TOTAL # OF CRASHES :

9

OF
 YEARS :

3

AVERAGE # OF
 CRASHES PER YEAR (A) :

3.00

CRASH RATE CALCULATION :

0.69

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

Does not exceed District 4 average crash rate of 0.73 crashes per entering vehicles at
 Comments : signalized intersections.

Project Title & Date: 11 Dartmouth Street, Malden. 02/17/2020

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Malden COUNT DATE : Jan-20

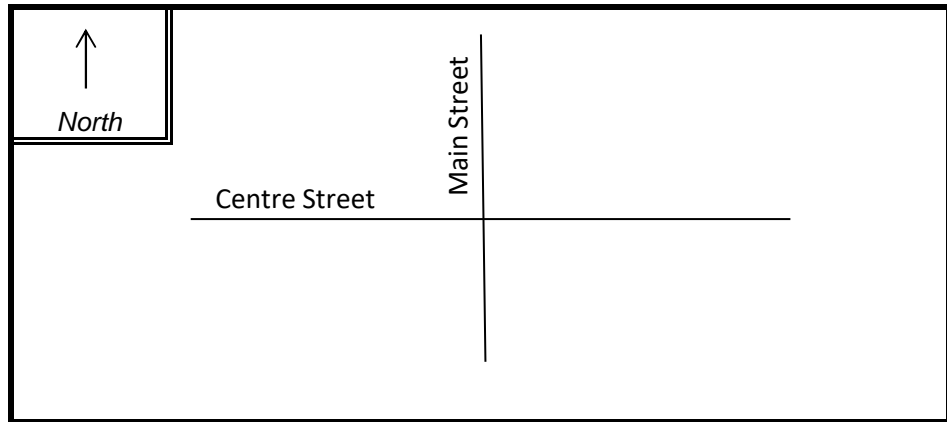
DISTRICT : 4 UNSIGNALIZED : SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Centre Street

MINOR STREET(S) : Main Street

**INTERSECTION
 DIAGRAM**
 (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	→	←	↑	↓		
PEAK HOURLY VOLUMES (PM) :	860	535	667	396		2,458

" K " FACTOR : INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :

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

CRASH RATE CALCULATION :

1.57

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

Exceeds District 4 average crash rate of 0.73 crashes per entering vehicles at signalized

Comments : intersections.

Project Title & Date: 11 Dartmouth Street, Malden. 02/17/2020

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Malden COUNT DATE : Jan-20

DISTRICT : 4 UNSIGNALIZED : SIGNALIZED :

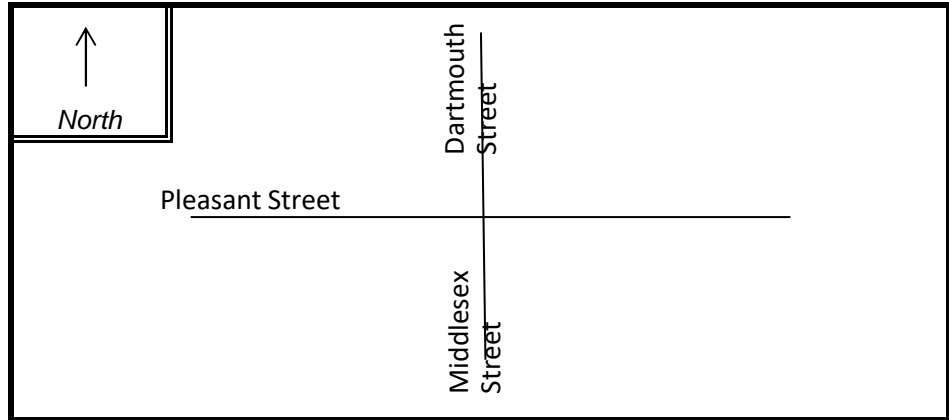
~ INTERSECTION DATA ~

MAJOR STREET : Plesant Street

MINOR STREET(S) : Middlesex Street

Dartmouth Street

**INTERSECTION
DIAGRAM**
(Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	→	←	↑	↓		
PEAK HOURLY VOLUMES (PM) :		223	108			331

" K " FACTOR : INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :

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

CRASH RATE CALCULATION :

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

Comments : Exceeds the District 4 average crash rate of 0.57 crashes per entering vehicles at unsignalized intersections.

Project Title & Date: 11 Dartmouth Street, Malden. 02/17/2020

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Malden COUNT DATE : Jan-20

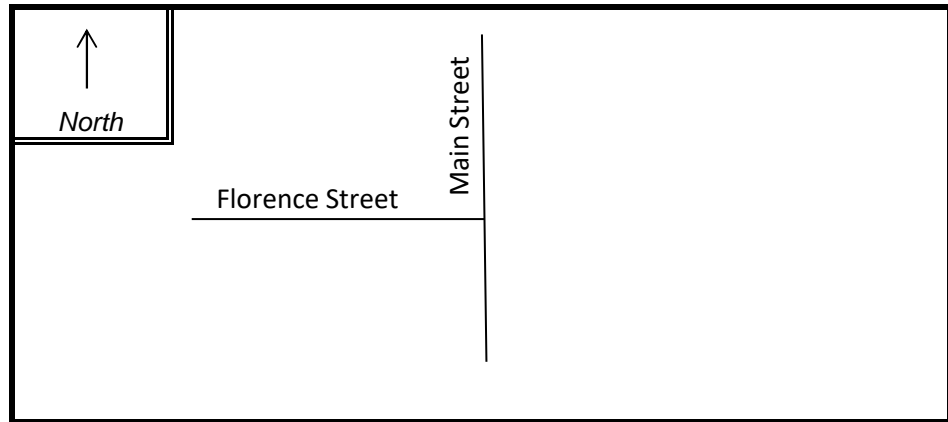
DISTRICT : 4 UNSIGNALIZED : SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Main Street

MINOR STREET(S) : Florence Street

**INTERSECTION
 DIAGRAM**
 (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	→	←	↑	↓		
PEAK HOURLY VOLUMES (PM) :	327		465	368		1,160

" K " FACTOR : INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :

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

CRASH RATE CALCULATION :

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

Does not exceed District 4 average crash rate of 0.73 crashes per entering vehicles at
 Comments : signalized intersections.

Project Title & Date: 11 Dartmouth Street, Malden. 02/17/2020

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Malden COUNT DATE : Jan-20

DISTRICT : 4 UNSIGNALIZED : SIGNALIZED :

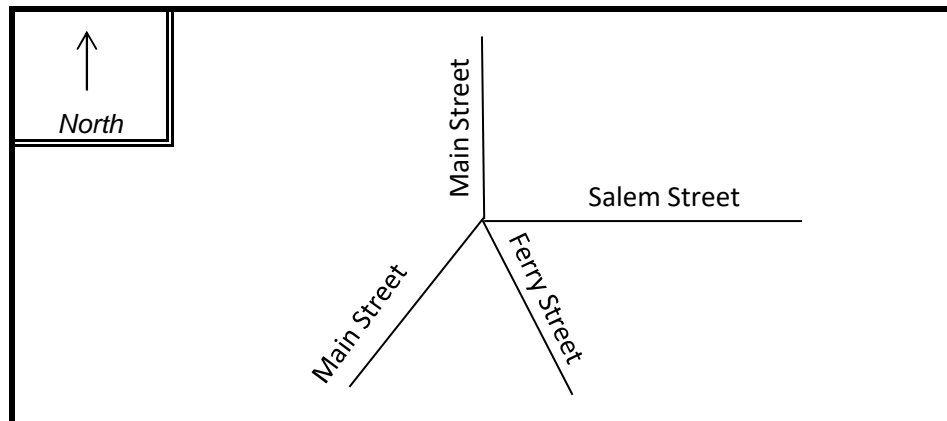
~ INTERSECTION DATA ~

MAJOR STREET : Main Street

MINOR STREET(S) : Salem Street

Ferry Street

**INTERSECTION
 DIAGRAM**
 (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	↗	←	↖	↓		
PEAK HOURLY VOLUMES (PM) :	538	461	380	496		1,875

" K " FACTOR : INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :

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

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

Exceeds District 4 average crash rate of 0.73 crashes per entering vehicles at signalized intersections.

Project Title & Date: 11 Dartmouth Street, Malden. 02/17/2020

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Malden COUNT DATE : Jan-20

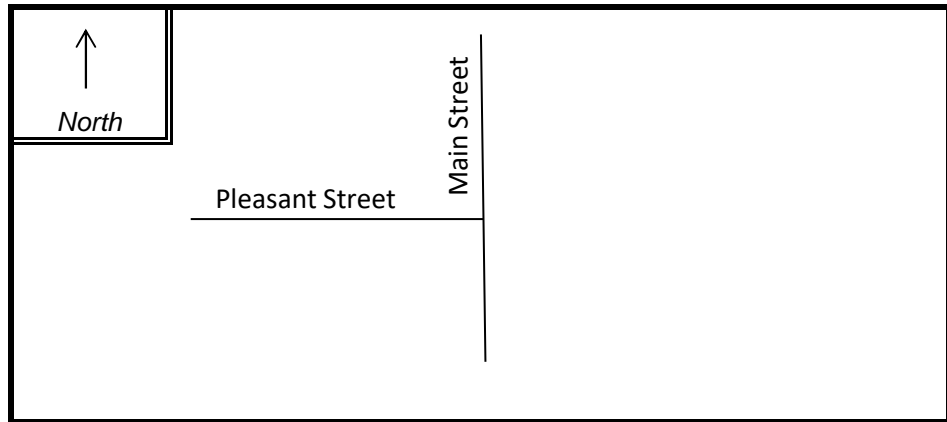
DISTRICT : 4 UNSIGNALIZED : SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Main Street

MINOR STREET(S) : Pleasant Street

**INTERSECTION
 DIAGRAM
 (Label Approaches)**



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	→	←	↑	↓		
PEAK HOURLY VOLUMES (PM) :			643	420		1,063

" K " FACTOR : INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :

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

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

Comments : Exceeds District 4 average crash rate of 0.73 crashes per entering vehicles at signalized intersections.

Project Title & Date: 11 Dartmouth Street, Malden. 02/17/2020

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Malden COUNT DATE : Jan-20

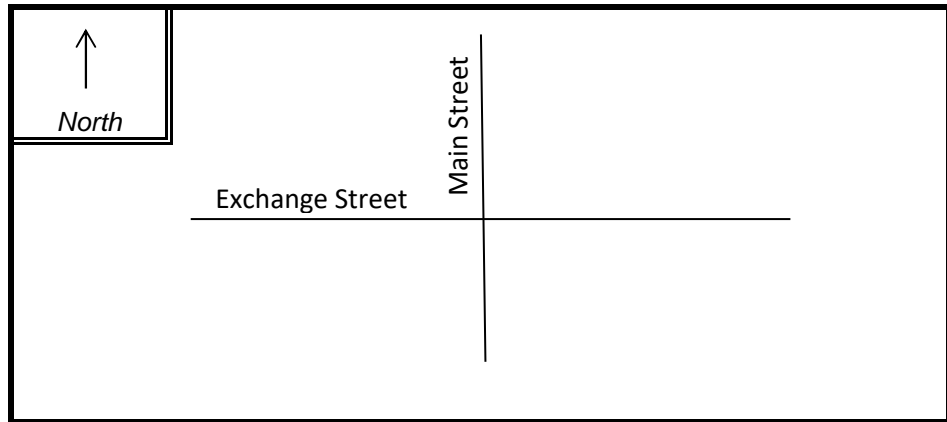
DISTRICT : 4 UNSIGNALIZED : SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Main Street

MINOR STREET(S) : Exchange Street

INTERSECTION
DIAGRAM
(Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	→	←	↑	↓		
PEAK HOURLY VOLUMES (PM) :	238		535	306		1,079

" K " FACTOR :

0.090

INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :

11,989

TOTAL # OF CRASHES :

6

OF YEARS :

3

AVERAGE # OF CRASHES PER YEAR (A) :

2.00

CRASH RATE CALCULATION :

0.46

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

Does not exceed District 4 average crash rate of 0.73 crashes per entering vehicles at

Comments : signalized intersections.

Project Title & Date : 11 Dartmouth Street, Malden. 02/17/2020

INTERSECTION CRASH RATE WORKSHEET

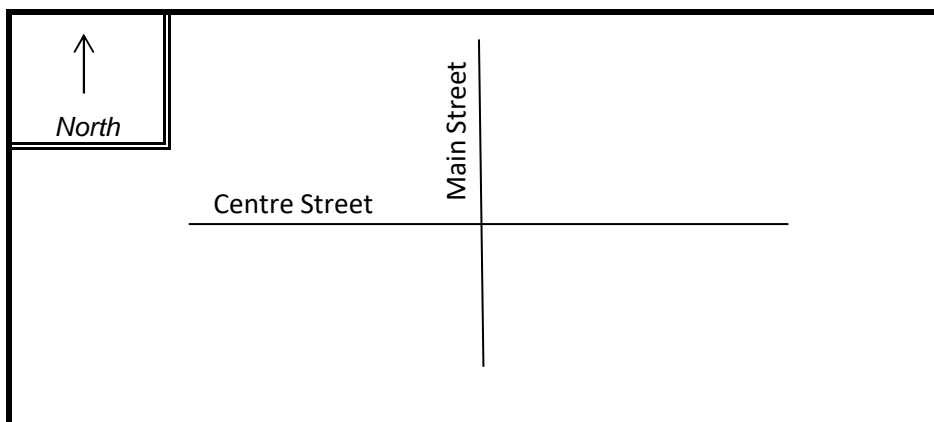
CITY/TOWN : Malden COUNT DATE : Jan-20
 DISTRICT : 4 UNSIGNALIZED : SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Centre Street

MINOR STREET(S) : Main Street

**INTERSECTION
DIAGRAM
(Label Approaches)**



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	→	←	↑	↓		
PEAK HOURLY VOLUMES (PM):	860	535	667	396		2,458

"K" FACTOR :

0.090	INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :	27,311
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TOTAL # OF CRASHES :

39	# OF YEARS :	3	AVERAGE # OF CRASHES PER YEAR (A) :	13.00
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CRASH RATE CALCULATION :

1.30

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

Exceeds District 4 average crash rate of 0.73 crashes per entering vehicles at signaled intersections.

Project Title & Date: 11 Dartmouth Street, Malden. 02/17/2020

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Malden COUNT DATE : Jan-20

DISTRICT : 4 UNSIGNALIZED : SIGNALIZED :

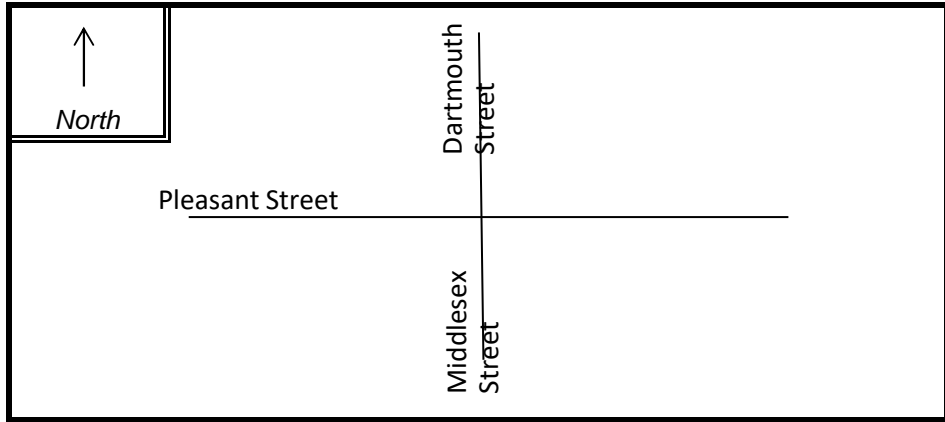
~ INTERSECTION DATA ~

MAJOR STREET : Plesant Street

MINOR STREET(S) : Middlesex Street

Dartmouth Street

**INTERSECTION
 DIAGRAM
 (Label Approaches)**



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	→	←	↑	↓		
PEAK HOURLY VOLUMES (PM) :		223	108			331

" K " FACTOR :	0.090	INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :	3,678
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TOTAL # OF CRASHES :	1	# OF YEARS :	3	AVERAGE # OF CRASHES PER YEAR (A) :	0.33
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CRASH RATE CALCULATION :

0.25

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

Does not exceed the District 4 average crash rate of 0.57 crashes per entering vehicles at
 Comments : unsignalized intersections.

Project Title & Date: 11 Dartmouth Street, Malden. 02/17/2020



HOWARD STEIN HUDSON

Engineers + Planners

Appendix C

Trip Generation

19251 - 11 Dartmouth St
Trip Generation Assessment

HOWARD STEIN HUDSON
17-Mar-2020

XXX Means Columns U, X, and AA do not sum to Column R; hard code adjustments are needed
XX HARD CODED TO BALANCE (Manually change formatting)

Land Use	Size	Category	Directional Split	Average Trip Rate	Unadjusted Vehicle Trips	Assumed National Vehicle Occupancy Rate ¹	Unadjusted Person-Trips	Internal Capture		Transit Share ³	Transit Person-Trips	Walk/Bike/Other Share ³	Walk/Bike/Other Trips	Auto Share ³	Auto Person-Trips	% Taxi/ TNC ⁴	Assumed Local Auto			Assumed Local Auto Occupancy Rate ⁵	Taxi/TNC Auto Trips	Primary Non-Taxi Auto Trips	Primary Auto Trips	
								Person-Trips	Primary Person-Trips								Taxi/TNC Person-Trips	Occupancy Rate for Taxis ⁶	Private Auto Person-Trips					
Daily Peak Hour																								
Office Building ¹¹	17.124	Total		9.740	166	1.18	196	0	196	21%	42	13%	26	66%	128	3%	4	1.18	124	124	1.18	8	106	114
	KSF	In	50%	4.870	83	1.18	98	XX	98	21%	21	13%	13	66%	64	3%	2	1.18	62	62	1.18	4	53	57
		Out	50%	4.870	83	1.18	98	XX	98	21%	21	13%	13	66%	64	3%	2	1.18	62	62	1.18	4	53	57
Total		Total			166		196	0	196		42		26		128						1.18	8	106	114
		In			83		98	0	98		21		13		64						1.18	4	53	57
		Out			83		98	0	98		21		13		64						1.18	4	53	57
AM Peak Hour																								
Office Building ¹¹	17.124	Total		1.16	20	1.18	24	0	24	21%	5	13%	4	66%	15	3%	0	1.18	15	15	1.18	0	13	13
	KSF	In	86%	0.998	17	1.18	20	XX	20	21%	4	13%	3	66%	13	3%	0	1.18	13	13	1.18	0	11	11
		Out	14%	0.162	3	1.18	4	XX	4	21%	1	13%	1	66%	2	3%	0	1.18	2	2	1.18	0	2	2
Total		Total			20		24	0	24		5		4		15						1.18	0	13	13
		In			17		20	0	20		4		3		13						1.18	0	11	11
		Out			3		4	0	4		1		1		2						1.18	0	2	2
PM Peak Hour																								
Office Building ¹¹	17.124	Total		1.15	20	1.18	24	0	24	21%	5	13%	4	66%	15	3%	0	1.18	15	15	1.18	0	13	13
	KSF	In	16%	0.184	3	1.18	4	XX	4	21%	1	13%	1	66%	2	3%	0	1.18	2	2	1.18	0	2	2
		Out	84%	0.966	17	1.18	20	XX	20	21%	4	13%	3	66%	13	3%	0	1.18	13	13	1.18	0	11	11
Total		Total			20		24	0	24		5		4		15						1.18	0	13	13
		In			3		4	0	4		1		1		2						1.18	0	2	2
		Out			17		20	0	20		4		3		13						1.18	0	11	11

- 2017 National vehicle occupancy rates - 1.18:home to work; 1.82: family/personal business; 1.82: shopping; 2.1 social/recreational
- Based on ITE Trip Generation Handbook, 3rd Edition method
- Mode shares based on peak-hour BTM Data for Area 1
- Vehicle Trips = 70% Private Auto and 30% Taxi. Taxi trip rate based on CTPS Taxi activity rates for Hotel lane use, as adopted by Central Artery/Tunnel Project
- Local vehicle occupancy rates based on 2009 National vehicle occupancy rates
- For taxi cabs, 1.2 passengers per cab. (2.2 minus 1 driver equals 1.2)
- ITE Trip Generation Manual, 10th Edition, LUC 220 (Multifamily Housing Low-Rise (1-2 floors)), average rate
- ITE Trip Generation Manual, 10th Edition, LUC 221 (Multifamily Housing Mid-Rise (3-10 floors)), average rate
- ITE Trip Generation Manual, 10th Edition, LUC 222 (Multifamily Housing High-Rise (11+ Floors)), average rate
- ITE Trip Generation Manual, 10th Edition, LUC 310 (Hotel), average rate
- ITE Trip Generation Manual, 10th Edition, LUC 710 (General Office Building), average rate
- ITE Trip Generation Manual, 10th Edition, LUC 760 (Research & Development Center), average rate
- ITE Trip Generation Manual, 10th Edition, LUC 820 (Shopping Center), average rate
- ITE Trip Generation Manual, 10th Edition, LUC 850 (Supermarket), average rate
- ITE Trip Generation Manual, 10th Edition, LUC 931 (Quality Restaurant), average rate
- ITE Trip Generation Manual, 10th Edition, LUC 932 (High-Turnover (Sit-Down) Restaurant), average rate

19251 - 11 Dartmouth St
Trip Generation Assessment

HOWARD STEIN HUDSON
17-Mar-2020

XXX Means Columns U, X, and AA do not sum to Column R; hard code adjustments are needed
xx HARD CODED TO BALANCE (Manually change formatting)

Land Use	Size	Category	Directional Split	Average Trip Rate	Unadjusted Vehicle Trips	Assumed National Vehicle Occupancy Rate ¹	Unadjusted Person-Trips	Internal Capture Person-Trips ²	Primary Person-Trips	Transit Share ³	Transit Person-Trips	Walk/Bike/Other Share ³	Walk/Bike/Other Trips	Auto Share ³	Auto Person-Trips	% Taxi/ TNC ⁴	Taxi/TNC Person-Trips	Assumed Local Auto Occupancy Rate for Taxis ⁵	Private Auto Person-Trips	Pass-By Percentage	Pass-By Person Trips	Primary Auto-Person Trips	Assumed Local Auto Occupancy Rate ⁵	Taxi/TNC Auto Trips	Pass-By Auto-Trips	Primary Non-Taxi Auto Trips	Primary AutoTrips
Daily Peak Hour																											
Office Building ¹¹	153.711	Total		9.740	1,498	1.18	1,768	0	1,768	21%	372	13%	230	66%	1,166	3%	34	1.18	1,132		0	1132	1.18	56	0	960	1,016
		KSF In	50%	4.870	749	1.18	884		884	21%	186	13%	115	66%	583	3%	17	1.18	566	0%	0	566	1.18	28	0	480	508
		KSF Out	50%	4.870	749	1.18	884		884	21%	186	13%	115	66%	583	3%	17	1.18	566	0%	0	566	1.18	28	0	480	508
Shopping Center ¹³	2.85	Total		37.750	108	1.82	196	0	196	10%	20	20%	40	70%	136		0	1.82	136		0	136	1.82	0	0	74	74
		KSF In	50%	18.875	54	1.82	98		98	10%	10	20%	20	70%	68	0%	0	1.82	68	0%	0	68	1.82	0	0	37	37
		KSF Out	50%	18.875	54	1.82	98		98	10%	10	20%	20	70%	68	0%	0	1.82	68	0%	0	68	1.82	0	0	37	37
Total		Total			1,606		1,964	0	1,964		392		270		1,302									56	0		1,090
		In			803		982	0	982		196		135		651									28	0		545
		Out			803		982	0	982		196		135		651									28	0		545
AM Peak Hour																											
Office Building ¹¹	153.711	Total		1.16	178	1.18	211	0	211	21%	44	13%	28	66%	139	3%	5	1.18	134		0	134	1.18	8	0	113	121
		KSF In	86%	0.998	153	1.18	181		181	21%	38	13%	24	66%	119	3%	4	1.18	115	0%	0	115	1.18	4	0	97	101
		KSF Out	14%	0.162	25	1.18	30		30	21%	6	13%	4	66%	20	3%	1	1.18	19	0%	0	19	1.18	4	0	16	20
Shopping Center ¹³	2.85	Total		0.94	3	1.82	6	0	6	10%	0	20%	1	70%	5		0	1.82	5		0	5	1.82	0	0	3	3
		KSF In	62%	0.583	2	1.82	4		4	10%	0	20%	1	70%	3	0%	0	1.82	3	0%	0	3	1.82	0	0	2	2
		KSF Out	38%	0.357	1	1.82	2		2	10%	0	20%	0	70%	2	0%	0	1.82	2	0%	0	2	1.82	0	0	1	1
Total		Total			181		217	0	217		44		29		144									8	0		124
		In			155		185	0	185		38		25		122									4	0		103
		Out			26		32	0	32		6		4		22									4	0		21
PM Peak Hour																											
Office Building ¹¹	153.711	Total		1.15	176	1.18	208	0	208	21%	44	13%	27	66%	137	3%	4	1.18	133		0	133	1.18	8	0	113	121
		KSF In	16%	0.184	28	1.18	33		33	21%	7	13%	4	66%	22	3%	1	1.18	21	0%	0	21	1.18	4	0	18	22
		KSF Out	84%	0.966	148	1.18	175		175	21%	37	13%	23	66%	115	3%	3	1.18	112	0%	0	112	1.18	4	0	95	99
Shopping Center ¹³	2.85	Total		3.81	11	1.82	20	0	20	10%	2	20%	4	70%	14		0	1.82	14		0	14	1.82	0	0	7	7
		KSF In	48%	1.829	5	1.82	9		9	10%	1	20%	2	70%	6	0%	0	1.82	6	0%	0	6	1.82	0	0	3	3
		KSF Out	52%	1.981	6	1.82	11		11	10%	1	20%	2	70%	8	0%	0	1.82	8	0%	0	8	1.82	0	0	4	4
Total		Total			187		228	0	228		46		31		151									8	0		128
		In			33		42	0	42		8		6		28									4	0		25
		Out			154		186	0	186		38		25		123									4	0		103

- 2017 National vehicle occupancy rates - 1.18:home to work; 1.82: family/personal business; 1.82: shopping; 2.1 social/recreational
- Based on ITE Trip Generation Handbook, 3rd Edition method
- Mode shares based on peak-hour BTD Data for Area 1
- Vehicle Trips = 70% Private Auto and 30% Taxi. Taxi trip rate based on CTPS Taxi activity rates for Hotel lane use, as adopted by Central Artery/Tunnel Project
- Local vehicle occupancy rates based on 2009 National vehicle occupancy rates
- For taxi cabs, 1.2 passengers per cab. (2.2 minus 1 driver equals 1.2)
- ITE Trip Generation Manual, 10th Edition, LUC 220 (Multifamily Housing Low-Rise (1-2 floors)), average rate
- ITE Trip Generation Manual, 10th Edition, LUC 221 (Multifamily Housing Mid-Rise (3-10 floors)), average rate
- ITE Trip Generation Manual, 10th Edition, LUC 222 (Multifamily Housing High-Rise (11+ Floors)), average rate
- ITE Trip Generation Manual, 10th Edition, LUC 310 (Hotel), average rate
- ITE Trip Generation Manual, 10th Edition, LUC 710 (General Office Building), average rate
- ITE Trip Generation Manual, 10th Edition, LUC 760 (Research & Development Center), average rate
- ITE Trip Generation Manual, 10th Edition, LUC 820 (Shopping Center), average rate
- ITE Trip Generation Manual, 10th Edition, LUC 850 (Supermarket), average rate
- ITE Trip Generation Manual, 10th Edition, LUC 931 (Quality Restaurant), average rate
- ITE Trip Generation Manual, 10th Edition, LUC 932 (High-Turnover (Sit-Down) Restaurant), average rate



HOWARD STEIN HUDSON

Engineers + Planners

Appendix D

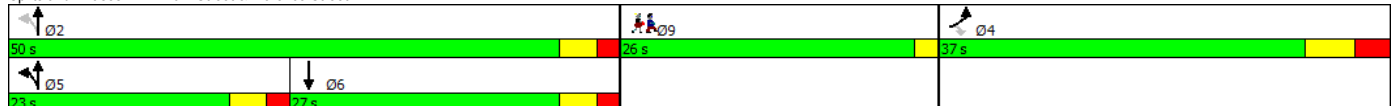
Intersection LOS/Synchro Report

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø9
Lane Configurations								
Traffic Volume (vph)	63	176	238	254	305	153		
Future Volume (vph)	63	176	238	254	305	153		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	12	10	13	13	11		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Ped Bike Factor	0.96	0.96		1.00	0.99			
Frt		0.850			0.955			
Fit Protected	0.950			0.976				
Satd. Flow (prot)	1687	1568	0	1825	1782	0		
Fit Permitted	0.950			0.199				
Satd. Flow (perm)	1617	1508	0	371	1782	0		
Right Turn on Red		Yes				Yes		
Satd. Flow (RTOR)		202			20			
Link Speed (mph)	30			30	30			
Link Distance (ft)	284			528	324			
Travel Time (s)	6.5			12.0	7.4			
Confl. Peds. (#/hr)	22	10	17			17		
Confl. Bikes (#/hr)						6		
Peak Hour Factor	0.87	0.87	0.89	0.89	0.94	0.94		
Heavy Vehicles (%)	7%	3%	5%	5%	5%	1%		
Adj. Flow (vph)	72	202	267	285	324	163		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	72	202	0	552	487	0		
Turn Type	Prot	Perm	custom	NA	NA			
Protected Phases	4		5	2.5	6		2	9
Permitted Phases		4	2					
Detector Phase	4	4	5	2.5	6			
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0		4.0		16.0	4.0
Minimum Split (s)	15.0	15.0	13.0		9.0		21.0	26.0
Total Split (s)	37.0	37.0	23.0		27.0		50.0	26.0
Total Split (%)	32.7%	32.7%	20.4%		23.9%		44%	23%
Maximum Green (s)	30.0	30.0	18.0		22.0		45.0	24.0
Yellow Time (s)	4.0	4.0	3.0		3.0		3.0	2.0
All-Red Time (s)	3.0	3.0	2.0		2.0		2.0	0.0
Lost Time Adjust (s)	0.0	0.0			0.0			
Total Lost Time (s)	7.0	7.0			5.0			
Lead/Lag			Lead		Lag			
Lead-Lag Optimize?			Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0
Recall Mode	None	None	None		Max		Max	None
Walk Time (s)								6.0
Flash Dont Walk (s)								18.0
Pedestrian Calls (#/hr)								15
Act Effct Green (s)	9.5	9.5		46.0	22.5			
Actuated g/C Ratio	0.13	0.13		0.64	0.31			
v/c Ratio	0.32	0.54		0.90	0.85			
Control Delay	34.8	11.3		36.4	40.4			
Queue Delay	0.0	0.0		0.0	0.0			
Total Delay	34.8	11.3		36.4	40.4			
LOS	C	B		D	D			
Approach Delay	17.5			36.4	40.4			
Approach LOS	B			D	D			
Queue Length 50th (ft)	27	0		126	165			
Queue Length 95th (ft)	80	56		#548	#540			
Internal Link Dist (ft)	204			448	244			
Turn Bay Length (ft)								
Base Capacity (vph)	722	760		611	573			
Starvation Cap Reductn	0	0		0	0			
Spillback Cap Reductn	0	0		0	0			
Storage Cap Reductn	0	0		0	0			
Reduced v/c Ratio	0.10	0.27		0.90	0.85			

Intersection Summary

Area Type: Other
 Cycle Length: 113
 Actuated Cycle Length: 71.7
 Natural Cycle: 110
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 33.9 Intersection LOS: C
 Intersection Capacity Utilization 73.3% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Main Street & Florence Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	235	25	88	293	198	55	241	132	111	185	245
Future Volume (vph)	123	235	25	88	293	198	55	241	132	111	185	245
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	15	12	10	10	12	12	10	10	12	16	16
Storage Length (ft)	0		0	0		200	0		0	0		50
Storage Lanes	1		0	1		1	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.92	0.98		0.80	0.92			1.00	0.79		0.96	
Frt		0.985			0.940				0.850			0.850
Flt Protected	0.950			0.950				0.991			0.982	
Satd. Flow (prot)	1438	1856	0	1668	1483	0	0	1737	1492	0	2058	1812
Flt Permitted	0.950			0.562				0.713			0.515	
Satd. Flow (perm)	1316	1856	0	786	1483	0	0	1246	1172	0	1039	1812
Right Turn on Red			No			No			Yes			No
Satd. Flow (RTOR)									159			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		278			466			512			528	
Travel Time (s)		6.3			10.6			11.6			12.0	
Confl. Peds. (#/hr)	108		191	191		108	33		118	118		33
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	0.79	0.79	0.79	0.89	0.89	0.89	0.83	0.83	0.83	0.84	0.84	0.84
Heavy Vehicles (%)	13%	8%	17%	1%	5%	1%	2%	1%	1%	4%	2%	1%
Adj. Flow (vph)	156	297	32	99	329	222	66	290	159	132	220	292
Shared Lane Traffic (%)												
Lane Group Flow (vph)	156	329	0	99	551	0	0	356	159	0	352	292
Turn Type	Prot	NA		Perm	NA		Perm	NA	Perm	Perm	NA	pt+ov
Protected Phases	5	2			6			8			4	4 5
Permitted Phases				6			8		8	4		
Detector Phase	5	2		6	6		8	8	8	4	4	5
Switch Phase												
Minimum Initial (s)	9.0	44.0		31.0	31.0		18.0	18.0	18.0	18.0	18.0	
Minimum Split (s)	14.0	49.0		36.0	36.0		36.0	36.0	36.0	36.0	36.0	
Total Split (s)	15.0	60.0		45.0	45.0		41.0	41.0	41.0	41.0	41.0	
Total Split (%)	14.9%	59.4%		44.6%	44.6%		40.6%	40.6%	40.6%	40.6%	40.6%	
Maximum Green (s)	10.0	55.0		40.0	40.0		35.0	35.0	35.0	35.0	35.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		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)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Max		Max	Max		None	None	None	None	None	
Walk Time (s)				15.0	15.0		15.0	15.0	15.0	15.0	15.0	
Flash Dont Walk (s)				15.0	15.0		15.0	15.0	15.0	15.0	15.0	
Pedestrian Calls (#/hr)				55	55		18	18	18	18	18	
Act Effct Green (s)	10.0	55.0		40.0	40.0		35.0	35.0	35.0	35.0	35.0	50.0
Actuated g/C Ratio	0.10	0.54		0.40	0.40		0.35	0.35	0.35	0.35	0.35	0.50
v/c Ratio	1.10	0.33		0.32	0.94		0.83	0.31	0.83	0.31	0.98	0.33
Control Delay	148.5	13.9		24.7	55.6		48.1	5.6	48.1	5.6	76.7	16.6
Queue Delay	0.0	5.3		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	148.5	19.2		24.7	55.6		48.1	5.6	48.1	5.6	76.7	16.6
LOS	F	B		C	E		D	A	D	A	E	B
Approach Delay		60.8			50.9		35.0		35.0		49.5	
Approach LOS		E			D		C		C		D	
Queue Length 50th (ft)	~114	111		43	335		208	0	208		222	109
Queue Length 95th (ft)	#201	142		86	#542		#314	34	#314		#364	153
Internal Link Dist (ft)		198			386		432		432		448	
Turn Bay Length (ft)												50
Base Capacity (vph)	142	1010		311	587		431	510	431	510	360	897
Starvation Cap Reductn	0	607		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	1.10	0.82		0.32	0.94		0.83	0.31	0.83	0.31	0.98	0.33

Intersection Summary

Area Type: Other
 Cycle Length: 101
 Actuated Cycle Length: 101
 Natural Cycle: 90
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.10
 Intersection Signal Delay: 49.0 Intersection LOS: D
 Intersection Capacity Utilization 127.6% ICU Level of Service H
 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: Ferry Street & Main Street & Salem Street





Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR	Ø9
Lane Configurations				↕↕		↕↕		
Traffic Volume (vph)	0	0	112	362	4	447	179	
Future Volume (vph)	0	0	112	362	4	447	179	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95	0.95	
Ped Bike Factor				1.00		0.99		
Frt						0.957		
Flt Protected				0.988				
Satd. Flow (prot)	0	0	0	3276	0	3308	0	
Flt Permitted				0.684		0.953		
Satd. Flow (perm)	0	0	0	2263	0	3153	0	
Right Turn on Red		Yes					Yes	
Satd. Flow (RTOR)						184		
Link Speed (mph)	30			30		30		
Link Distance (ft)	363			237		278		
Travel Time (s)	8.3			5.4		6.3		
Confl. Peds. (#/hr)			36				36	
Confl. Bikes (#/hr)							3	
Peak Hour Factor	0.25	0.25	0.80	0.80	0.97	0.97	0.97	
Heavy Vehicles (%)	0%	0%	2%	11%	0%	4%	1%	
Adj. Flow (vph)	0	0	140	453	4	461	185	
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	0	0	593	0	650	0	
Turn Type			Perm	NA	Perm	NA		
Protected Phases				2		6		9
Permitted Phases				2		6		
Detector Phase				2	2	6	6	
Switch Phase								
Minimum Initial (s)			10.0	10.0	10.0	10.0		4.0
Minimum Split (s)			20.0	20.0	20.0	20.0		19.0
Total Split (s)			84.0	84.0	84.0	84.0		19.0
Total Split (%)			81.6%	81.6%	81.6%	81.6%		18%
Maximum Green (s)			80.0	80.0	80.0	80.0		17.0
Yellow Time (s)			3.0	3.0	3.0	3.0		2.0
All-Red Time (s)			1.0	1.0	1.0	1.0		0.0
Lost Time Adjust (s)				0.0		0.0		
Total Lost Time (s)				4.0		4.0		
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)			3.0	3.0	3.0	3.0		3.0
Recall Mode			Max	Max	Max	Max		None
Walk Time (s)								11.0
Flash Dont Walk (s)								6.0
Pedestrian Calls (#/hr)								0
Act Effct Green (s)				99.0		99.0		
Actuated g/C Ratio				1.00		1.00		
v/c Ratio				0.26		0.21		
Control Delay				0.3		0.1		
Queue Delay				0.0		0.0		
Total Delay				0.3		0.1		
LOS				A		A		
Approach Delay				0.3		0.1		
Approach LOS				A		A		
Queue Length 50th (ft)				0		0		
Queue Length 95th (ft)				0		0		
Internal Link Dist (ft)	283			157		198		
Turn Bay Length (ft)								
Base Capacity (vph)				2263		3153		
Starvation Cap Reductn				0		0		
Spillback Cap Reductn				0		0		
Storage Cap Reductn				0		0		
Reduced v/c Ratio				0.26		0.21		

Intersection Summary

Area Type: Other
 Cycle Length: 103
 Actuated Cycle Length: 99
 Natural Cycle: 40
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.26
 Intersection Signal Delay: 0.2
 Intersection LOS: A
 Intersection Capacity Utilization 39.0%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 3: Main Street & Pleasant Street

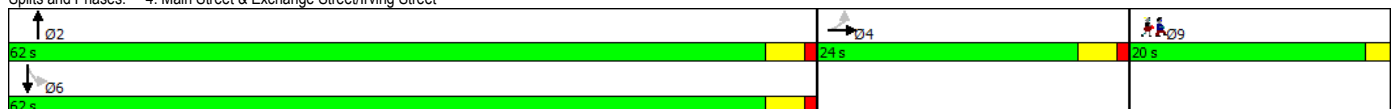


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Lane Configurations													
Traffic Volume (vph)	45	4	54	0	0	0	0	437	24	12	436	0	
Future Volume (vph)	45	4	54	0	0	0	0	437	24	12	436	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12	12	12	12	12	11	12	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	
Ped Bike Factor	0.96	0.92						1.00			1.00		
Frt		0.861						0.992					
Fit Protected	0.950										0.999		
Satd. Flow (prot)	1752	1697	0	0	0	0	0	3293	0	0	3355	0	
Fit Permitted	0.950										0.940		
Satd. Flow (perm)	1680	1697	0	0	0	0	0	3293	0	0	3157	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		65						8					
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		234			280			219			237		
Travel Time (s)		5.3			6.4			5.0			5.4		
Confl. Peds. (#/hr)	26		51						24	24			
Peak Hour Factor	0.83	0.83	0.83	0.25	0.25	0.25	0.76	0.76	0.76	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	0%	9%	0%	0%	4%	0%	0%
Adj. Flow (vph)	54	5	65	0	0	0	0	575	32	12	449	0	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	54	70	0	0	0	0	0	607	0	0	461	0	
Turn Type	Perm	NA						NA		Perm	NA		
Protected Phases		4						2			6		9
Permitted Phases	4									6			
Detector Phase	4	4								6	6		
Switch Phase													
Minimum Initial (s)	8.0	8.0						10.0		10.0	10.0		4.0
Minimum Split (s)	12.0	12.0						14.0		14.0	14.0		20.0
Total Split (s)	24.0	24.0						62.0		62.0	62.0		20.0
Total Split (%)	22.6%	22.6%						58.5%		58.5%	58.5%		19%
Maximum Green (s)	20.0	20.0						58.0		58.0	58.0		18.0
Yellow Time (s)	3.0	3.0						3.0		3.0	3.0		2.0
All-Red Time (s)	1.0	1.0						1.0		1.0	1.0		0.0
Lost Time Adjust (s)	0.0	0.0						0.0		0.0	0.0		
Total Lost Time (s)	4.0	4.0						4.0		4.0	4.0		
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0		3.0
Recall Mode	None	None						Max		Max	Max		None
Walk Time (s)													4.0
Flash Dont Walk (s)													14.0
Pedestrian Calls (#/hr)													0
Act Effct Green (s)	8.6	8.6						61.7			61.7		
Actuated g/C Ratio	0.11	0.11						0.82			0.82		
v/c Ratio	0.28	0.28						0.22			0.18		
Control Delay	34.2	12.8						2.3			2.2		
Queue Delay	0.0	0.0						0.6			0.4		
Total Delay	34.2	12.8						2.9			2.6		
LOS	C	B						A			A		
Approach Delay		22.2						2.9			2.6		
Approach LOS		C						A			A		
Queue Length 50th (ft)	23	2						26			20		
Queue Length 95th (ft)	51	31						37			35		
Internal Link Dist (ft)		154			200			139			157		
Turn Bay Length (ft)													
Base Capacity (vph)	447	499						2705			2592		
Starvation Cap Reductn	0	0						1648			1562		
Spillback Cap Reductn	0	0						0			0		
Storage Cap Reductn	0	0						0			0		
Reduced v/c Ratio	0.12	0.14						0.57			0.45		

Intersection Summary

Area Type: Other
 Cycle Length: 106
 Actuated Cycle Length: 75.2
 Natural Cycle: 50
 Control Type: Semi Act-Uncoordinated
 Maximum v/c Ratio: 0.28
 Intersection Signal Delay: 4.8
 Intersection LOS: A
 Intersection Capacity Utilization 34.7%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 4: Main Street & Exchange Street/Irving Street

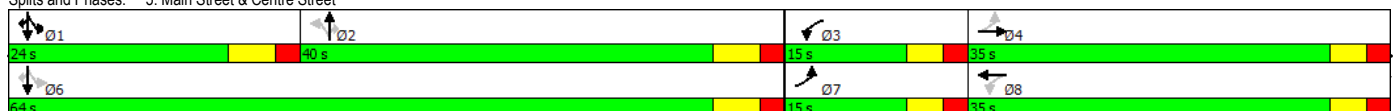


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø6
Lane Configurations													
Traffic Volume (vph)	92	390	53	341	661	57	115	306	144	34	328	99	
Future Volume (vph)	92	390	53	341	661	57	115	306	144	34	328	99	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	10	12	12	11	12	12	12	12	12	12	12	12	
Storage Length (ft)	215		0	300		0	0		0	0		75	
Storage Lanes	1		0	1		0	1		1	1		1	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor	1.00	0.99		0.99	1.00		0.98		0.96	0.99		0.96	
Frt		0.982			0.988				0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1337	3263	0	1694	3483	0	1770	1792	1538	1736	1863	1468	
Flt Permitted	0.141			0.281			0.546			0.323			
Satd. Flow (perm)	198	3263	0	495	3483	0	1000	1792	1473	583	1863	1408	
Right Turn on Red			Yes			Yes			No			Yes	
Satd. Flow (RTOR)		13			8							78	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		255			718			281			219		
Travel Time (s)		5.8			16.3			6.4			5.0		
Confl. Peds. (#/hr)	12		13	13		12	27		30	30		27	
Confl. Bikes (#/hr)						1						3	
Peak Hour Factor	0.83	0.83	0.83	0.90	0.90	0.90	0.76	0.76	0.76	0.91	0.91	0.91	
Heavy Vehicles (%)	26%	7%	15%	3%	2%	4%	2%	6%	5%	4%	2%	10%	
Adj. Flow (vph)	111	470	64	379	734	63	151	403	189	37	360	109	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	111	534	0	379	797	0	151	403	189	37	360	109	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	custom	NA	custom	
Protected Phases	7	4		3	8			2		1	16	1	6
Permitted Phases	4			8			2		2	6		6	
Detector Phase	7	4		3	8		2	2	2	1	6	1	
Switch Phase													
Minimum Initial (s)	4.0	10.0		4.0	10.0		8.0	8.0	8.0	4.0		4.0	8.0
Minimum Split (s)	9.0	27.0		9.0	27.0		39.0	39.0	39.0	10.0		10.0	39.0
Total Split (s)	15.0	35.0		15.0	35.0		40.0	40.0	40.0	24.0		24.0	64.0
Total Split (%)	13.2%	30.7%		13.2%	30.7%		35.1%	35.1%	35.1%	21.1%		21.1%	56%
Maximum Green (s)	10.0	30.0		10.0	30.0		34.0	34.0	34.0	18.0		18.0	58.0
Yellow Time (s)	3.0	3.0		3.0	3.0		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	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		6.0	6.0	6.0	6.0		6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lag	Lead		Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None		None	None		Max	Max	Max	None		None	Max
Walk Time (s)		5.0			5.0		5.0	5.0	5.0				5.0
Flash Dont Walk (s)		17.0			17.0		28.0	28.0	28.0				28.0
Pedestrian Calls (#/hr)		54			19		37	37	37				11
Act Effct Green (s)	37.9	28.4		38.8	28.8		44.7	44.7	44.7	58.0	58.0	58.0	
Actuated g/C Ratio	0.34	0.25		0.35	0.26		0.40	0.40	0.40	0.52	0.52	0.52	
v/c Ratio	0.68	0.64		1.37	0.89		0.38	0.57	0.32	0.10	0.37	0.14	
Control Delay	45.3	40.4		214.8	52.8		28.7	31.0	26.3	14.8	18.1	5.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	39.3	1.3	
Total Delay	45.3	40.4		214.8	52.8		28.7	31.0	26.3	14.8	57.4	7.1	
LOS	D	D		F	D		C	C	C	B	E	A	
Approach Delay		41.3			105.0			29.3			43.4		
Approach LOS		D			F			C			D		
Queue Length 50th (ft)	53	177		~262	291		78	227	94	13	155	11	
Queue Length 95th (ft)	#94	213		#459	#392		116	274	132	31	226	40	
Internal Link Dist (ft)		175			638			201			139		
Turn Bay Length (ft)	215			300								75	
Base Capacity (vph)	169	881		277	935		398	713	586	485	961	774	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	617	510	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0	
Reduced v/c Ratio	0.66	0.61		1.37	0.85		0.38	0.57	0.32	0.08	1.05	0.41	

Intersection Summary

Area Type: Other
 Cycle Length: 114
 Actuated Cycle Length: 112.4
 Natural Cycle: 85
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.37
 Intersection Signal Delay: 63.2
 Intersection LOS: E
 Intersection Capacity Utilization 82.7%
 ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Main Street & Centre Street

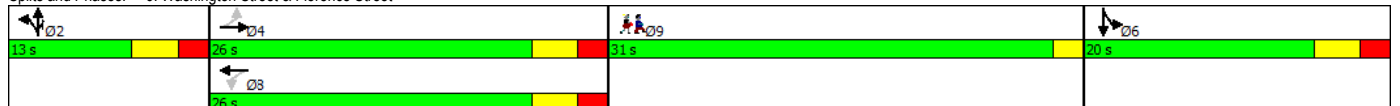


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Lane Configurations		↔↔		↔	↔↔			↔	↔		↔↔		
Traffic Volume (vph)	33	101	2	5	361	25	58	36	24	55	36	177	
Future Volume (vph)	33	101	2	5	361	25	58	36	24	55	36	177	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0		0	100		0	0		100	0		0	
Storage Lanes	0		0	1		0	0		1	0		0	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	0.95	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.998			0.990				0.850		0.911		
Fit Protected		0.988		0.950			0.970				0.990		
Satd. Flow (prot)	0	3284	0	1805	3445	0	0	1820	1553	0	1675	0	
Fit Permitted		0.792		0.650			0.970				0.990		
Satd. Flow (perm)	0	2633	0	1235	3445	0	0	1820	1553	0	1675	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		1			7				109		94		
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		360			731			301			355		
Travel Time (s)		8.2			16.6			6.8			8.1		
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.70	0.70	0.70	0.90	0.90	0.90	
Heavy Vehicles (%)	10%	8%	0%	0%	4%	0%	2%	0%	4%	8%	0%	1%	
Adj. Flow (vph)	39	120	2	6	430	30	83	51	34	61	40	197	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	161	0	6	460	0	0	134	34	0	298	0	
Turn Type	Perm	NA		Perm	NA		Split	NA	custom	Split	NA		
Protected Phases		4			8		2	2	2	6	6		9
Permitted Phases	4			8					2				
Detector Phase	4	4		8	8		2	2	2	6	6		
Switch Phase													
Minimum Initial (s)	10.0	10.0		10.0	10.0		8.0	8.0	8.0	8.0	8.0		4.0
Minimum Split (s)	15.0	15.0		15.0	15.0		13.0	13.0	13.0	13.0	13.0		31.0
Total Split (s)	26.0	26.0		26.0	26.0		13.0	13.0	13.0	20.0	20.0		31.0
Total Split (%)	28.9%	28.9%		28.9%	28.9%		14.4%	14.4%	14.4%	22.2%	22.2%		34%
Maximum Green (s)	21.0	21.0		21.0	21.0		8.0	8.0	8.0	15.0	15.0		29.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0		2.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)		5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0		
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	Max	Max		Max	Max		None	None	None	None	None		None
Walk Time (s)													7.0
Flash Dont Walk (s)													22.0
Pedestrian Calls (#/hr)													97
Act Effct Green (s)		22.0		22.0	22.0		8.4	8.4		13.8			
Actuated g/C Ratio		0.27		0.27	0.27		0.10	0.10		0.17			
v/c Ratio		0.23		0.02	0.50		0.73	0.13		0.83			
Control Delay		28.6		27.0	30.5		64.9	1.1		45.5			
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0			
Total Delay		28.6		27.0	30.5		64.9	1.1		45.5			
LOS		C		C	C		E	A		D			
Approach Delay		28.6			30.4		52.0			45.5			
Approach LOS		C			C		D			D			
Queue Length 50th (ft)		38		3	120		76	0		114			
Queue Length 95th (ft)		62		12	156		#116	0		#253			
Internal Link Dist (ft)		280			651		221			275			
Turn Bay Length (ft)				100				100					
Base Capacity (vph)		701		328	921		184	255		394			
Starvation Cap Reductn		0		0	0		0	0		0			
Spillback Cap Reductn		0		0	0		0	0		0			
Storage Cap Reductn		0		0	0		0	0		0			
Reduced v/c Ratio		0.23		0.02	0.50		0.73	0.13		0.76			

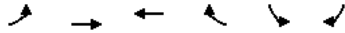
Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 82.6
 Natural Cycle: 75
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 37.6
 Intersection LOS: D
 Intersection Capacity Utilization 54.1%
 ICU Level of Service A
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.










Splits and Phases: 6: Washington Street & Florence Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	185	117	24	91	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	185	117	24	91	0	0	0	0
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.25	0.25	0.25	0.82	0.82	0.82	0.79	0.79	0.79	0.25	0.25	0.25
Hourly flow rate (vph)	0	0	0	0	226	143	30	115	0	0	0	0
Pedestrians	80									72		
Lane Width (ft)	0.0									0.0		
Walking Speed (ft/s)	4.0									4.0		
Percent Blockage	0									0		
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)				363								
pX, platoon unblocked												
vC, conflicting volume	441			0			378	441	0	427	370	450
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	441			0			378	441	0	427	370	450
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			95	78	100	100	100	100
cM capacity (veh/h)	1130			1636			584	513	1091	448	563	614
Direction, Lane #	WB 1	NB 1										
Volume Total	369	145										
Volume Left	0	30										
Volume Right	143	0										
cSH	1700	527										
Volume to Capacity	0.22	0.28										
Queue Length 95th (ft)	0	28										
Control Delay (s)	0.0	14.4										
Lane LOS		B										
Approach Delay (s)	0.0	14.4										
Approach LOS		B										
Intersection Summary												
Average Delay				4.1								
Intersection Capacity Utilization				31.6%			ICU Level of Service			A		
Analysis Period (min)				15								



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔↑	↔↑		↔↓	↔↓
Traffic Volume (veh/h)	19	164	370	51	77	22
Future Volume (Veh/h)	19	164	370	51	77	22
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.80	0.80	0.82	0.82
Hourly flow rate (vph)	20	171	463	64	94	27
Pedestrians		1	5		33	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		0	0		3	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		731	284			
pX, platoon unblocked						
vC, conflicting volume	560				658	298
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	560				658	298
tC, single (s)	4.1				6.9	7.1
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.4
p0 queue free %	98				75	96
cM capacity (veh/h)	993				370	656
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	77	114	309	218	94	27
Volume Left	20	0	0	0	94	0
Volume Right	0	0	0	64	0	27
cSH	993	1700	1700	1700	370	656
Volume to Capacity	0.02	0.07	0.18	0.13	0.25	0.04
Queue Length 95th (ft)	2	0	0	0	25	3
Control Delay (s)	2.4	0.0	0.0	0.0	18.0	10.7
Lane LOS	A				C	B
Approach Delay (s)	1.0		0.0		16.4	
Approach LOS					C	
Intersection Summary						
Average Delay			2.6			
Intersection Capacity Utilization			30.6%		ICU Level of Service A	
Analysis Period (min)			15			

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	41	44	27	59	53
Future Volume (Veh/h)	10	41	44	27	59	53
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.97	0.97	0.76	0.76	0.85	0.85
Hourly flow rate (vph)	10	42	58	36	69	62
Pedestrians	11		17			2
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	1		1			0
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	304	89			105	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	304	89			105	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	98	96			95	
cM capacity (veh/h)	625	964			1460	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	52	94	131			
Volume Left	10	0	69			
Volume Right	42	36	0			
cSH	873	1700	1460			
Volume to Capacity	0.06	0.06	0.05			
Queue Length 95th (ft)	5	0	4			
Control Delay (s)	9.4	0.0	4.2			
Lane LOS	A		A			
Approach Delay (s)	9.4	0.0	4.2			
Approach LOS	A					
Intersection Summary						
Average Delay			3.7			
Intersection Capacity Utilization		23.4%		ICU Level of Service	A	
Analysis Period (min)			15			

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↗	↘	
Traffic Volume (veh/h)	238	110	68	388	54	40
Future Volume (Veh/h)	238	110	68	388	54	40
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.75	0.75
Hourly flow rate (vph)	267	124	76	436	72	53
Pedestrians				21	60	
Lane Width (ft)				12.0	12.0	
Walking Speed (ft/s)				4.0	4.0	
Percent Blockage				2	5	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			451		977	410
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			451		977	410
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		71	91
cM capacity (veh/h)			1064		247	597
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	391	512	125			
Volume Left	0	76	72			
Volume Right	124	0	53			
cSH	1700	1064	329			
Volume to Capacity	0.23	0.07	0.38			
Queue Length 95th (ft)	0	6	43			
Control Delay (s)	0.0	2.0	22.5			
Lane LOS		A	C			
Approach Delay (s)	0.0	2.0	22.5			
Approach LOS			C			
Intersection Summary						
Average Delay			3.7			
Intersection Capacity Utilization			64.7%	ICU Level of Service	C	
Analysis Period (min)			15			

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↖	↖			
Traffic Volume (veh/h)	0	21	105	103	0	0
Future Volume (Veh/h)	0	21	105	103	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	23	114	112	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	170	170			226	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	170	170			226	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	97			100	
cM capacity (veh/h)	820	874			1342	
Direction, Lane #	WB 1	NB 1				
Volume Total	23	226				
Volume Left	0	0				
Volume Right	23	112				
cSH	874	1700				
Volume to Capacity	0.03	0.13				
Queue Length 95th (ft)	2	0				
Control Delay (s)	9.2	0.0				
Lane LOS	A					
Approach Delay (s)	9.2	0.0				
Approach LOS	A					
Intersection Summary						
Average Delay		0.9				
Intersection Capacity Utilization		21.8%	ICU Level of Service	A		
Analysis Period (min)		15				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	123	235	25	88	293	198	55	241	132	111	185	245
Future Volume (vph)	123	235	25	88	293	198	55	241	132	111	185	245
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	15	12	10	10	12	12	10	10	12	16	16
Storage Length (ft)	0		0	0		200	0		0	0		50
Storage Lanes	1		0	1		1	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.92	0.98		0.80	0.92			1.00	0.79		0.96	
Frt		0.985			0.940				0.850			0.850
Flt Protected	0.950			0.950				0.991			0.982	
Satd. Flow (prot)	1438	1856	0	1668	1483	0	0	1737	1492	0	2058	1812
Flt Permitted	0.950			0.562				0.713			0.515	
Satd. Flow (perm)	1316	1856	0	786	1483	0	0	1246	1172	0	1039	1812
Right Turn on Red			No			No			Yes			No
Satd. Flow (RTOR)									159			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		278			466			512			528	
Travel Time (s)		6.3			10.6			11.6			12.0	
Confl. Peds. (#/hr)	108		191	191		108	33		118	118		33
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	0.79	0.79	0.79	0.89	0.89	0.89	0.83	0.83	0.83	0.84	0.84	0.84
Heavy Vehicles (%)	13%	8%	17%	1%	5%	1%	2%	1%	1%	4%	2%	1%
Adj. Flow (vph)	156	297	32	99	329	222	66	290	159	132	220	292
Shared Lane Traffic (%)												
Lane Group Flow (vph)	156	329	0	99	551	0	0	356	159	0	352	292
Turn Type	Prot	NA		Perm	NA		Perm	NA	Perm	Perm	NA	pt+ov
Protected Phases	5	2			6			8			4	4 5
Permitted Phases							8		8	4		
Detector Phase	5	2		6	6		8	8	8	4	4	5
Switch Phase												
Minimum Initial (s)	9.0	44.0		31.0	31.0		18.0	18.0	18.0	18.0	18.0	
Minimum Split (s)	14.0	49.0		36.0	36.0		36.0	36.0	36.0	36.0	36.0	
Total Split (s)	14.0	60.0		46.0	46.0		41.0	41.0	41.0	41.0	41.0	
Total Split (%)	13.9%	59.4%		45.5%	45.5%		40.6%	40.6%	40.6%	40.6%	40.6%	
Maximum Green (s)	9.0	55.0		41.0	41.0		35.0	35.0	35.0	35.0	35.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		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)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Max		Max	Max		None	None	None	None	None	
Walk Time (s)				15.0	15.0		15.0	15.0	15.0	15.0	15.0	
Flash Dont Walk (s)				15.0	15.0		15.0	15.0	15.0	15.0	15.0	
Pedestrian Calls (#/hr)				55	55		18	18	18	18	18	
Act Effct Green (s)	9.0	55.0		41.0	41.0		35.0	35.0			35.0	49.0
Actuated g/C Ratio	0.09	0.54		0.41	0.41		0.35	0.35			0.35	0.49
v/c Ratio	1.22	0.33		0.31	0.92		0.83	0.31			0.98	0.33
Control Delay	190.6	13.9		23.8	50.7		48.1	5.6			76.7	17.3
Queue Delay	0.0	5.3		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	190.6	19.2		23.8	50.7		48.1	5.6			76.7	17.3
LOS	F	B		C	D		D	A			E	B
Approach Delay		74.3			46.6		35.0				49.8	
Approach LOS		E			D		C				D	
Queue Length 50th (ft)	~124	111		43	329		208	0			222	111
Queue Length 95th (ft)	#210	142		84	#532		#314	34			#364	157
Internal Link Dist (ft)		198			386		432				448	
Turn Bay Length (ft)												50
Base Capacity (vph)	128	1010		319	602		431	510			360	879
Starvation Cap Reductn	0	607		0	0		0	0			0	0
Spillback Cap Reductn	0	0		0	0		0	0			0	0
Storage Cap Reductn	0	0		0	0		0	0			0	0
Reduced v/c Ratio	1.22	0.82		0.31	0.92		0.83	0.31			0.98	0.33

Intersection Summary

Area Type: Other
 Cycle Length: 101
 Actuated Cycle Length: 101
 Natural Cycle: 90
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.22
 Intersection Signal Delay: 50.8 Intersection LOS: D
 Intersection Capacity Utilization 127.6% ICU Level of Service H
 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: Ferry Street & Main Street & Salem Street

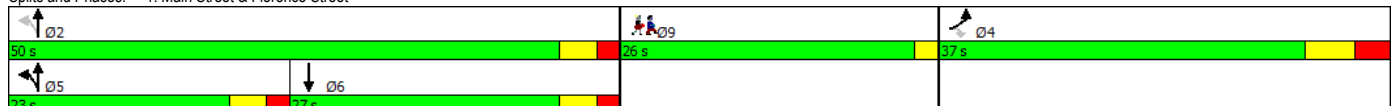


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø9
Lane Configurations								
Traffic Volume (vph)	61	160	230	244	284	147		
Future Volume (vph)	61	160	230	244	284	147		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	12	10	13	13	11		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Ped Bike Factor	0.96	0.96		1.00	0.97			
Frt		0.850			0.954			
Fit Protected	0.950			0.976				
Satd. Flow (prot)	1687	1568	0	1825	1762	0		
Fit Permitted	0.950			0.238				
Satd. Flow (perm)	1617	1508	0	443	1762	0		
Right Turn on Red		Yes				Yes		
Satd. Flow (RTOR)		184			20			
Link Speed (mph)	30			30	30			
Link Distance (ft)	284			528	324			
Travel Time (s)	6.5			12.0	7.4			
Confl. Peds. (#/hr)	22	10	17			17		
Confl. Bikes (#/hr)						6		
Peak Hour Factor	0.87	0.87	0.89	0.89	0.94	0.94		
Heavy Vehicles (%)	7%	3%	5%	5%	5%	1%		
Adj. Flow (vph)	70	184	258	274	302	156		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	70	184	0	532	458	0		
Turn Type	Prot	Perm	custom	NA	NA			
Protected Phases	4		5	2.5	6		2	9
Permitted Phases		4	2					
Detector Phase	4	4	5	2.5	6			
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0		4.0		16.0	4.0
Minimum Split (s)	15.0	15.0	13.0		9.0		21.0	26.0
Total Split (s)	37.0	37.0	23.0		27.0		50.0	26.0
Total Split (%)	32.7%	32.7%	20.4%		23.9%		44%	23%
Maximum Green (s)	30.0	30.0	18.0		22.0		45.0	24.0
Yellow Time (s)	4.0	4.0	3.0		3.0		3.0	2.0
All-Red Time (s)	3.0	3.0	2.0		2.0		2.0	0.0
Lost Time Adjust (s)	0.0	0.0			0.0			
Total Lost Time (s)	7.0	7.0			5.0			
Lead/Lag			Lead		Lag			
Lead-Lag Optimize?			Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0
Recall Mode	None	None	None		Max		Max	None
Walk Time (s)								6.0
Flash Dont Walk (s)								18.0
Pedestrian Calls (#/hr)								15
Act Effct Green (s)	9.4	9.4		46.0	22.5			
Actuated g/C Ratio	0.13	0.13		0.64	0.31			
v/c Ratio	0.32	0.52		0.83	0.81			
Control Delay	34.7	11.3		26.4	37.1			
Queue Delay	0.0	0.0		0.0	0.0			
Total Delay	34.7	11.3		26.4	37.1			
LOS	C	B		C	D			
Approach Delay	17.8			26.4	37.1			
Approach LOS	B			C	D			
Queue Length 50th (ft)	26	0		97	151			
Queue Length 95th (ft)	78	54		#491	#500			
Internal Link Dist (ft)	204			448	244			
Turn Bay Length (ft)								
Base Capacity (vph)	722	751		639	567			
Starvation Cap Reductn	0	0		0	0			
Spillback Cap Reductn	0	0		0	0			
Storage Cap Reductn	0	0		0	0			
Reduced v/c Ratio	0.10	0.25		0.83	0.81			

Intersection Summary

Area Type: Other
 Cycle Length: 113
 Actuated Cycle Length: 71.6
 Natural Cycle: 110
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 28.6
 Intersection Capacity Utilization 70.9%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Main Street & Florence Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔		↔	↔	↔	↔	↔	↔
Traffic Volume (vph)	119	227	24	85	269	191	53	232	124	104	175	223
Future Volume (vph)	119	227	24	85	269	191	53	232	124	104	175	223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	15	12	10	10	12	12	10	10	12	16	16
Storage Length (ft)	0		0	0		200	0		0	0		50
Storage Lanes	1		0	1		1	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.91	0.98		0.79	0.92			1.00	0.79		0.93	
Frts		0.986			0.938				0.850			0.850
Flt Protected	0.950			0.950				0.991			0.982	
Satd. Flow (prot)	1438	1859	0	1668	1477	0	0	1737	1492	0	2058	1812
Flt Permitted	0.950			0.568				0.738			0.525	
Satd. Flow (perm)	1310	1859	0	791	1477	0	0	1289	1172	0	1020	1812
Right Turn on Red			No			No			Yes			No
Satd. Flow (RTOR)									149			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		278			466			512			528	
Travel Time (s)		6.3			10.6			11.6			12.0	
Confl. Peds. (#/hr)	108		191	191		108	33		118	223		33
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	0.79	0.79	0.79	0.89	0.89	0.89	0.83	0.83	0.83	0.84	0.84	0.84
Heavy Vehicles (%)	13%	8%	17%	1%	5%	1%	2%	1%	1%	4%	2%	1%
Adj. Flow (vph)	151	287	30	96	302	215	64	280	149	124	208	265
Shared Lane Traffic (%)												
Lane Group Flow (vph)	151	317	0	96	517	0	0	344	149	0	332	265
Turn Type	Prot	NA		Perm	NA		Perm	NA	Perm	Perm	NA	pt+ov
Protected Phases	5	2			6			8			4	4 5
Permitted Phases				6			8		8	4		
Detector Phase	5	2		6	6		8	8	8	4	4	5
Switch Phase												
Minimum Initial (s)	9.0	44.0		31.0	31.0		18.0	18.0	18.0	18.0		18.0
Minimum Split (s)	14.0	49.0		36.0	36.0		36.0	36.0	36.0	36.0		36.0
Total Split (s)	15.0	60.0		45.0	45.0		41.0	41.0	41.0	41.0		41.0
Total Split (%)	14.9%	59.4%		44.6%	44.6%		40.6%	40.6%	40.6%	40.6%		40.6%
Maximum Green (s)	10.0	55.0		40.0	40.0		35.0	35.0	35.0	35.0		35.0
Yellow Time (s)	3.0	3.0		3.0	3.0		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)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		6.0	6.0	6.0	6.0		6.0
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0		3.0
Recall Mode	None	Max		Max	Max		None	None	None	None		None
Walk Time (s)				15.0	15.0		15.0	15.0	15.0	15.0		15.0
Flash Dont Walk (s)				15.0	15.0		15.0	15.0	15.0	15.0		15.0
Pedestrian Calls (#/hr)				55	55		18	18	18	18		18
Act Effct Green (s)	10.0	55.0		40.0	40.0		33.6	33.6	33.6	33.6		48.6
Actuated g/C Ratio	0.10	0.55		0.40	0.40		0.34	0.34	0.34	0.34		0.49
v/c Ratio	1.05	0.31		0.30	0.87		0.79	0.30	0.79	0.30		0.97
Control Delay	134.2	13.4		24.2	45.4		44.8	5.7	44.8	5.7		75.0
Queue Delay	0.0	3.9		0.0	0.0		0.0	0.0	0.0	0.0		0.0
Total Delay	134.2	17.3		24.2	45.4		44.8	5.7	44.8	5.7		75.0
LOS	F	B		C	D		D	A	D	A		E
Approach Delay		55.0			42.1		33.0		33.0		49.0	
Approach LOS		E			D		C		C		D	
Queue Length 50th (ft)	~108	106		42	304		196	0	196	0	205	97
Queue Length 95th (ft)	#194	137		83	#494		275	33	275	33	#340	139
Internal Link Dist (ft)		198			386			432			448	
Turn Bay Length (ft)												50
Base Capacity (vph)	144	1027		317	593		452	508	452	508		358
Starvation Cap Reductn	0	614		0	0		0	0	0	0		0
Spillback Cap Reductn	0	0		0	0		0	0	0	0		0
Storage Cap Reductn	0	0		0	0		0	0	0	0		0
Reduced v/c Ratio	1.05	0.77		0.30	0.87		0.76	0.29	0.76	0.29		0.93

Intersection Summary

Area Type: Other
 Cycle Length: 101
 Actuated Cycle Length: 99.6
 Natural Cycle: 90
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.05
 Intersection Signal Delay: 44.7 Intersection LOS: D
 Intersection Capacity Utilization 127.3% ICU Level of Service H
 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: Ferry Street & Main Street & Salem Street





Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR	Ø9
Lane Configurations				↕↕		↕↕		
Traffic Volume (vph)	0	0	93	345	4	429	149	
Future Volume (vph)	0	0	93	345	4	429	149	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95	0.95	
Ped Bike Factor				1.00		0.99		
Frt						0.961		
Flt Protected				0.990				
Satd. Flow (prot)	0	0	0	3276	0	3323	0	
Flt Permitted				0.722		0.953		
Satd. Flow (perm)	0	0	0	2384	0	3167	0	
Right Turn on Red		Yes					Yes	
Satd. Flow (RTOR)						149		
Link Speed (mph)	30			30		30		
Link Distance (ft)	363			237		278		
Travel Time (s)	8.3			5.4		6.3		
Confl. Peds. (#/hr)			36				36	
Confl. Bikes (#/hr)							3	
Peak Hour Factor	0.25	0.25	0.80	0.80	0.97	0.97	0.97	
Heavy Vehicles (%)	0%	0%	2%	11%	0%	4%	1%	
Adj. Flow (vph)	0	0	116	431	4	442	154	
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	0	0	547	0	600	0	
Turn Type			Perm	NA	Perm	NA		
Protected Phases				2		6		9
Permitted Phases				2		6		
Detector Phase				2		2		
Switch Phase								
Minimum Initial (s)			10.0	10.0	10.0	10.0		4.0
Minimum Split (s)			20.0	20.0	20.0	20.0		19.0
Total Split (s)			84.0	84.0	84.0	84.0		19.0
Total Split (%)			81.6%	81.6%	81.6%	81.6%		18%
Maximum Green (s)			80.0	80.0	80.0	80.0		17.0
Yellow Time (s)			3.0	3.0	3.0	3.0		2.0
All-Red Time (s)			1.0	1.0	1.0	1.0		0.0
Lost Time Adjust (s)				0.0		0.0		
Total Lost Time (s)				4.0		4.0		
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)			3.0	3.0	3.0	3.0		3.0
Recall Mode			Max	Max	Max	Max		None
Walk Time (s)								11.0
Flash Dont Walk (s)								6.0
Pedestrian Calls (#/hr)								0
Act Effct Green (s)				99.0		99.0		
Actuated g/C Ratio				1.00		1.00		
v/c Ratio				0.23		0.19		
Control Delay				0.2		0.1		
Queue Delay				0.0		0.0		
Total Delay				0.2		0.1		
LOS				A		A		
Approach Delay				0.2		0.1		
Approach LOS				A		A		
Queue Length 50th (ft)				0		0		
Queue Length 95th (ft)				0		0		
Internal Link Dist (ft)	283			157		198		
Turn Bay Length (ft)								
Base Capacity (vph)				2384		3167		
Starvation Cap Reductn				0		0		
Spillback Cap Reductn				0		0		
Storage Cap Reductn				0		0		
Reduced v/c Ratio				0.23		0.19		

Intersection Summary

Area Type: Other
 Cycle Length: 103
 Actuated Cycle Length: 99
 Natural Cycle: 40
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.23
 Intersection Signal Delay: 0.2
 Intersection LOS: A
 Intersection Capacity Utilization 36.4%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 3: Main Street & Pleasant Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Lane Configurations													
Traffic Volume (vph)	39	4	48	0	0	0	0	407	23	12	418	0	
Future Volume (vph)	39	4	48	0	0	0	0	407	23	12	418	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12	12	12	12	12	11	12	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	
Ped Bike Factor	0.96	0.92						1.00			1.00		
Frt		0.862						0.992					
Fit Protected	0.950										0.999		
Satd. Flow (prot)	1752	1700	0	0	0	0	0	3293	0	0	3356	0	
Fit Permitted	0.950										0.941		
Satd. Flow (perm)	1680	1700	0	0	0	0	0	3293	0	0	3160	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		58						8					
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		234			280			219			237		
Travel Time (s)		5.3			6.4			5.0			5.4		
Confl. Peds. (#/hr)	26		51						24	24			
Peak Hour Factor	0.83	0.83	0.83	0.25	0.25	0.25	0.76	0.76	0.76	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	0%	9%	0%	0%	4%	0%	0%
Adj. Flow (vph)	47	5	58	0	0	0	0	536	30	12	431	0	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	47	63	0	0	0	0	0	566	0	0	443	0	
Turn Type	Perm	NA						NA		Perm	NA		
Protected Phases		4						2			6		9
Permitted Phases	4									6			
Detector Phase	4	4							2	6	6		
Switch Phase													
Minimum Initial (s)	8.0	8.0						10.0		10.0	10.0		4.0
Minimum Split (s)	12.0	12.0						14.0		14.0	14.0		20.0
Total Split (s)	24.0	24.0						62.0		62.0	62.0		20.0
Total Split (%)	22.6%	22.6%						58.5%		58.5%	58.5%		19%
Maximum Green (s)	20.0	20.0						58.0		58.0	58.0		18.0
Yellow Time (s)	3.0	3.0						3.0		3.0	3.0		2.0
All-Red Time (s)	1.0	1.0						1.0		1.0	1.0		0.0
Lost Time Adjust (s)	0.0	0.0						0.0		0.0	0.0		
Total Lost Time (s)	4.0	4.0						4.0		4.0	4.0		
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0		3.0
Recall Mode	None	None						Max		Max	Max		None
Walk Time (s)													4.0
Flash Dont Walk (s)													14.0
Pedestrian Calls (#/hr)													0
Act Effct Green (s)	8.4	8.4						61.7			61.7		
Actuated g/C Ratio	0.11	0.11						0.82			0.82		
v/c Ratio	0.25	0.26						0.21			0.17		
Control Delay	33.7	13.2						2.2			2.1		
Queue Delay	0.0	0.0						0.6			0.4		
Total Delay	33.7	13.2						2.7			2.5		
LOS	C	B						A			A		
Approach Delay		22.0						2.7			2.5		
Approach LOS		C						A			A		
Queue Length 50th (ft)	20	2						24			18		
Queue Length 95th (ft)	46	30						33			32		
Internal Link Dist (ft)		154			200			139			157		
Turn Bay Length (ft)													
Base Capacity (vph)	448	495						2711			2600		
Starvation Cap Reductn	0	0						1679			1577		
Spillback Cap Reductn	0	0						0			0		
Storage Cap Reductn	0	0						0			0		
Reduced v/c Ratio	0.10	0.13						0.55			0.43		

Intersection Summary

Area Type: Other
 Cycle Length: 106
 Actuated Cycle Length: 75
 Natural Cycle: 50
 Control Type: Semi Act-Uncoordinated
 Maximum v/c Ratio: 0.26
 Intersection Signal Delay: 4.5
 Intersection LOS: A
 Intersection Capacity Utilization 33.8%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 4: Main Street & Exchange Street/Irving Street



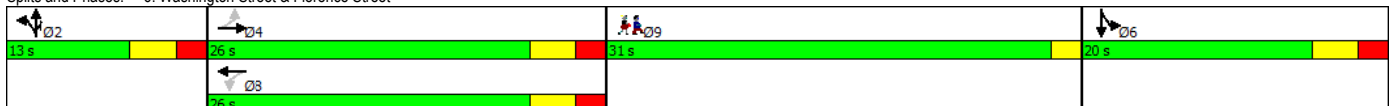


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Lane Configurations		↔↔		↔	↔↔			↔	↔		↔↔		
Traffic Volume (vph)	32	98	2	5	349	24	49	33	23	53	35	170	
Future Volume (vph)	32	98	2	5	349	24	49	33	23	53	35	170	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0		0	100		0	0		100	0		0	
Storage Lanes	0		0	1		0	0		1	0		0	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	0.95	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor													0.99
Frt		0.988			0.990				0.850				0.911
Flt Protected		0.988		0.950				0.971					0.990
Satd. Flow (prot)	0	3284	0	1805	3445	0	0	1823	1553	0	1660	0	
Flt Permitted		0.801		0.652				0.971					0.990
Satd. Flow (perm)	0	2663	0	1239	3445	0	0	1823	1553	0	1660	0	
Right Turn on Red			Yes			Yes			Yes				Yes
Satd. Flow (RTOR)		1			7				109				93
Link Speed (mph)		30			30				30				30
Link Distance (ft)		360			731				301				355
Travel Time (s)		8.2			16.6				6.8				8.1
Confl. Bikes (#/hr)													1
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.70	0.70	0.70	0.90	0.90	0.90	
Heavy Vehicles (%)	10%	8%	0%	0%	4%	0%	2%	0%	4%	8%	0%	1%	
Adj. Flow (vph)	38	117	2	6	415	29	70	47	33	59	39	189	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	157	0	6	444	0	0	117	33	0	287	0	
Turn Type	Perm	NA		Perm	NA		Split	NA	custom	Split	NA		
Protected Phases		4			8		2	2	2	6	6		9
Permitted Phases	4			8					2				
Detector Phase	4	4		8	8		2	2	2	6	6		
Switch Phase													
Minimum Initial (s)	10.0	10.0		10.0	10.0		8.0	8.0	8.0	8.0	8.0		4.0
Minimum Split (s)	15.0	15.0		15.0	15.0		13.0	13.0	13.0	13.0	13.0		31.0
Total Split (s)	26.0	26.0		26.0	26.0		13.0	13.0	13.0	20.0	20.0		31.0
Total Split (%)	28.9%	28.9%		28.9%	28.9%		14.4%	14.4%	14.4%	22.2%	22.2%		34%
Maximum Green (s)	21.0	21.0		21.0	21.0		8.0	8.0	8.0	15.0	15.0		29.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0		2.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0
Lost Time Adjust (s)		0.0		0.0	0.0			0.0	0.0		0.0		
Total Lost Time (s)		5.0		5.0	5.0			5.0	5.0		5.0		
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	Max	Max		Max	Max		None	None	None	None	None		None
Walk Time (s)													
Flash Dont Walk (s)													7.0
Pedestrian Calls (#/hr)													97
Act Effct Green (s)		23.4		23.4	23.4			8.9	8.9				13.9
Actuated g/C Ratio		0.29		0.29	0.29			0.11	0.11				0.17
v/c Ratio		0.20		0.02	0.44			0.57	0.12				0.78
Control Delay		28.8		27.0	29.5			53.1	0.9				41.0
Queue Delay		0.0		0.0	0.0			0.0	0.0				0.0
Total Delay		28.8		27.0	29.5			53.1	0.9				41.0
LOS		C		C	C			D	A				D
Approach Delay		28.8			29.4			41.6					41.0
Approach LOS		C			C			D					D
Queue Length 50th (ft)		37		3	115			66	0				108
Queue Length 95th (ft)		60		12	151			93	0				#240
Internal Link Dist (ft)		280			651			221					275
Turn Bay Length (ft)									100				
Base Capacity (vph)		782		364	1016			204	270				421
Starvation Cap Reductn		0		0	0			0	0				0
Spillback Cap Reductn		0		0	0			0	0				0
Storage Cap Reductn		0		0	0			0	0				0
Reduced v/c Ratio		0.20		0.02	0.44			0.57	0.12				0.68

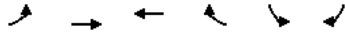
Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 79.7
 Natural Cycle: 75
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 34.2
 Intersection LOS: C
 Intersection Capacity Utilization 53.1%
 ICU Level of Service A
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.










Splits and Phases: 6: Washington Street & Florence Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	172	78	23	34	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	172	78	23	34	0	0	0	0
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.25	0.25	0.25	0.82	0.82	0.82	0.79	0.79	0.79	0.25	0.25	0.25
Hourly flow rate (vph)	0	0	0	0	210	95	29	43	0	0	0	0
Pedestrians	80									72		
Lane Width (ft)	0.0									0.0		
Walking Speed (ft/s)	4.0									4.0		
Percent Blockage	0									0		
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)				363								
pX, platoon unblocked												
vC, conflicting volume	377			0			338	377	0	351	330	410
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	377			0			338	377	0	351	330	410
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			95	92	100	100	100	100
cM capacity (veh/h)	1193			1636			620	558	1091	572	593	646
Direction, Lane #	WB 1	NB 1										
Volume Total	305	72										
Volume Left	0	29										
Volume Right	95	0										
cSH	1700	581										
Volume to Capacity	0.18	0.12										
Queue Length 95th (ft)	0	11										
Control Delay (s)	0.0	12.1										
Lane LOS		B										
Approach Delay (s)	0.0	12.1										
Approach LOS		B										
Intersection Summary												
Average Delay				2.3								
Intersection Capacity Utilization				25.4%			ICU Level of Service			A		
Analysis Period (min)				15								



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔↑	↔↑		↔	↔
Traffic Volume (veh/h)	18	158	357	49	65	21
Future Volume (Veh/h)	18	158	357	49	65	21
Sign Control		Free	Free		Stop	
Grade		0%	0%			
Peak Hour Factor	0.96	0.96	0.80	0.80	0.82	0.82
Hourly flow rate (vph)	19	165	446	61	79	26
Pedestrians		1	5			33
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		0	0			3
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		731	284			
pX, platoon unblocked					635	288
vC, conflicting volume	540					
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	540				635	288
tC, single (s)	4.1				6.9	7.1
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.4
p0 queue free %	98				79	96
cM capacity (veh/h)	1010				384	666
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	74	110	297	210	79	26
Volume Left	19	0	0	0	79	0
Volume Right	0	0	0	61	0	26
cSH	1010	1700	1700	1700	384	666
Volume to Capacity	0.02	0.06	0.17	0.12	0.21	0.04
Queue Length 95th (ft)	1	0	0	0	19	3
Control Delay (s)	2.3	0.0	0.0	0.0	16.8	10.6
Lane LOS	A				C	B
Approach Delay (s)	0.9		0.0		15.3	
Approach LOS					C	
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization			29.0%		ICU Level of Service	A
Analysis Period (min)			15			

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	40	41	16	57	51
Future Volume (Veh/h)	10	40	41	16	57	51
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.97	0.97	0.76	0.76	0.85	0.85
Hourly flow rate (vph)	10	41	54	21	67	60
Pedestrians	11		17			2
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	1		1			0
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	286	78			86	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	286	78			86	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	98	96			95	
cM capacity (veh/h)	641	978			1484	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	51	75	127			
Volume Left	10	0	67			
Volume Right	41	21	0			
cSH	887	1700	1484			
Volume to Capacity	0.06	0.04	0.05			
Queue Length 95th (ft)	5	0	4			
Control Delay (s)	9.3	0.0	4.1			
Lane LOS	A		A			
Approach Delay (s)	9.3	0.0	4.1			
Approach LOS	A					
Intersection Summary						
Average Delay			4.0			
Intersection Capacity Utilization			23.1%		ICU Level of Service	A
Analysis Period (min)			15			

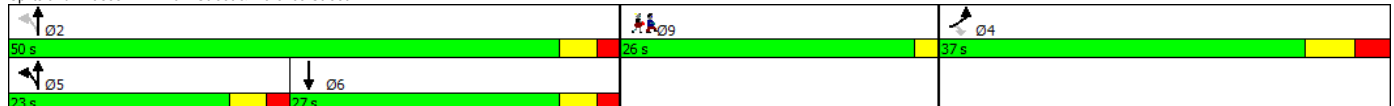
	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↗	↘	
Traffic Volume (veh/h)	230	106	66	375	52	37
Future Volume (Veh/h)	230	106	66	375	52	37
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.75	0.75
Hourly flow rate (vph)	258	119	74	421	69	49
Pedestrians				21	60	
Lane Width (ft)				12.0	12.0	
Walking Speed (ft/s)				4.0	4.0	
Percent Blockage				2	5	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			437		946	398
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			437		946	398
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		73	92
cM capacity (veh/h)			1077		259	606
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	377	495	118			
Volume Left	0	74	69			
Volume Right	119	0	49			
cSH	1700	1077	340			
Volume to Capacity	0.22	0.07	0.35			
Queue Length 95th (ft)	0	6	38			
Control Delay (s)	0.0	2.0	21.1			
Lane LOS		A	C			
Approach Delay (s)	0.0	2.0	21.1			
Approach LOS			C			
Intersection Summary						
Average Delay			3.5			
Intersection Capacity Utilization			63.0%	ICU Level of Service	B	
Analysis Period (min)			15			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø9
Lane Configurations								
Traffic Volume (vph)	63	166	238	254	295	153		
Future Volume (vph)	63	166	238	254	295	153		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	12	10	13	13	11		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Ped Bike Factor	0.96	0.96		1.00	0.98			
Frt		0.850			0.954			
Fit Protected	0.950			0.976				
Satd. Flow (prot)	1687	1568	0	1825	1780	0		
Fit Permitted	0.950			0.212				
Satd. Flow (perm)	1617	1508	0	396	1780	0		
Right Turn on Red		Yes				Yes		
Satd. Flow (RTOR)		191			21			
Link Speed (mph)	30			30	30			
Link Distance (ft)	284			528	324			
Travel Time (s)	6.5			12.0	7.4			
Confl. Peds. (#/hr)	22	10	17			17		
Confl. Bikes (#/hr)						6		
Peak Hour Factor	0.87	0.87	0.89	0.89	0.94	0.94		
Heavy Vehicles (%)	7%	3%	5%	5%	5%	1%		
Adj. Flow (vph)	72	191	267	285	314	163		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	72	191	0	552	477	0		
Turn Type	Prot	Perm	custom	NA	NA			
Protected Phases	4		5	2.5	6		2	9
Permitted Phases		4	2					
Detector Phase	4	4	5	2.5	6			
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0		4.0		16.0	4.0
Minimum Split (s)	15.0	15.0	13.0		9.0		21.0	26.0
Total Split (s)	37.0	37.0	23.0		27.0		50.0	26.0
Total Split (%)	32.7%	32.7%	20.4%		23.9%		44%	23%
Maximum Green (s)	30.0	30.0	18.0		22.0		45.0	24.0
Yellow Time (s)	4.0	4.0	3.0		3.0		3.0	2.0
All-Red Time (s)	3.0	3.0	2.0		2.0		2.0	0.0
Lost Time Adjust (s)	0.0	0.0			0.0			
Total Lost Time (s)	7.0	7.0			5.0			
Lead/Lag			Lead		Lag			
Lead-Lag Optimize?			Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0
Recall Mode	None	None	None		Max		Max	None
Walk Time (s)								6.0
Flash Dont Walk (s)								18.0
Pedestrian Calls (#/hr)								15
Act Effct Green (s)	9.5	9.5		46.0	22.5			
Actuated g/C Ratio	0.13	0.13		0.64	0.31			
v/c Ratio	0.32	0.52		0.89	0.83			
Control Delay	34.8	11.3		33.8	38.8			
Queue Delay	0.0	0.0		0.0	0.0			
Total Delay	34.8	11.3		33.8	38.8			
LOS	C	B		C	D			
Approach Delay	17.7			33.8	38.8			
Approach LOS	B			C	D			
Queue Length 50th (ft)	27	0		120	159			
Queue Length 95th (ft)	80	55		#538	#524			
Internal Link Dist (ft)	204			448	244			
Turn Bay Length (ft)								
Base Capacity (vph)	722	754		621	573			
Starvation Cap Reductn	0	0		0	0			
Spillback Cap Reductn	0	0		0	0			
Storage Cap Reductn	0	0		0	0			
Reduced v/c Ratio	0.10	0.25		0.89	0.83			

Intersection Summary

Area Type: Other
 Cycle Length: 113
 Actuated Cycle Length: 71.7
 Natural Cycle: 110
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 32.4
 Intersection LOS: C
 Intersection Capacity Utilization 72.8%
 ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Main Street & Florence Street



	↖	→	↘	↙	←	↖	↙	↑	↘	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖		↖	↖			↖	↖		↖	↖
Traffic Volume (vph)	123	235	25	88	280	198	55	241	132	108	181	232
Future Volume (vph)	123	235	25	88	280	198	55	241	132	108	181	232
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	15	12	10	10	12	12	10	10	12	16	16
Storage Length (ft)	0		0	0		200	0		0	0		50
Storage Lanes	1		0	1		1	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.91	0.98		0.80	0.92			1.00	0.79		0.96	
Frt		0.985			0.938				0.850			0.850
Flt Protected	0.950			0.950				0.991			0.982	
Satd. Flow (prot)	1438	1856	0	1668	1477	0	0	1737	1492	0	2058	1812
Flt Permitted	0.950			0.950				0.719			0.511	
Satd. Flow (perm)	1314	1856	0	786	1477	0	0	1256	1172	0	1031	1812
Right Turn on Red			No			No			Yes			No
Satd. Flow (RTOR)									159			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		278			466			512			528	
Travel Time (s)		6.3			10.6			11.6			12.0	
Confl. Peds. (#/hr)	108		191	191		108	33		118	118		33
Confl. Bikes (#/hr)						1						1
Peak Hour Factor	0.79	0.79	0.79	0.89	0.89	0.89	0.83	0.83	0.83	0.84	0.84	0.84
Heavy Vehicles (%)	13%	8%	17%	1%	5%	1%	2%	1%	1%	4%	2%	1%
Adj. Flow (vph)	156	297	32	99	315	222	66	290	159	129	215	276
Shared Lane Traffic (%)												
Lane Group Flow (vph)	156	329	0	99	537	0	0	356	159	0	344	276
Turn Type	Prot	NA		Perm	NA		Perm	NA	Perm	Perm	NA	pt+ov
Protected Phases	5	2			6			8			4	4 5
Permitted Phases				6			8		8	4		
Detector Phase	5	2		6	6		8	8	8	4	4	5
Switch Phase												
Minimum Initial (s)	9.0	44.0		31.0	31.0		18.0	18.0	18.0	18.0	18.0	
Minimum Split (s)	14.0	49.0		36.0	36.0		36.0	36.0	36.0	36.0	36.0	
Total Split (s)	15.0	60.0		45.0	45.0		41.0	41.0	41.0	41.0	41.0	
Total Split (%)	14.9%	59.4%		44.6%	44.6%		40.6%	40.6%	40.6%	40.6%	40.6%	
Maximum Green (s)	10.0	55.0		40.0	40.0		35.0	35.0	35.0	35.0	35.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		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)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Max		Max	Max		None	None	None	None	None	
Walk Time (s)				15.0	15.0		15.0	15.0	15.0	15.0	15.0	
Flash Dont Walk (s)				15.0	15.0		15.0	15.0	15.0	15.0	15.0	
Pedestrian Calls (#/hr)				55	55		18	18	18	18	18	
Act Effct Green (s)	10.0	55.0		40.0	40.0		34.3	34.3	34.3	34.3	34.3	49.3
Actuated g/C Ratio	0.10	0.55		0.40	0.40		0.34	0.34	0.34	0.34	0.34	0.49
v/c Ratio	1.09	0.32		0.32	0.91		0.83	0.31	0.83	0.31	0.98	0.31
Control Delay	145.9	13.7		24.6	51.0		48.5	5.7	48.5	5.7	77.0	16.5
Queue Delay	0.0	4.7		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	145.9	18.4		24.6	51.0		48.5	5.7	48.5	5.7	77.0	16.5
LOS	F	B		C	D		D	A	D	A	E	B
Approach Delay		59.4			46.9			35.3			50.1	
Approach LOS		E			D			D			D	
Queue Length 50th (ft)	~114	111		43	322			207	0		215	102
Queue Length 95th (ft)	#201	142		86	#524			#312	34		#355	145
Internal Link Dist (ft)		198			386			432			448	
Turn Bay Length (ft)												50
Base Capacity (vph)	143	1018		313	588			438	513		360	890
Starvation Cap Reductn	0	607		0	0			0	0		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	1.09	0.80		0.32	0.91			0.81	0.31		0.96	0.31

Intersection Summary

Area Type: Other
 Cycle Length: 101
 Actuated Cycle Length: 100.3
 Natural Cycle: 90
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.09
 Intersection Signal Delay: 47.8 Intersection LOS: D
 Intersection Capacity Utilization 127.5% ICU Level of Service H
 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: Ferry Street & Main Street & Salem Street





Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR	Ø9
Lane Configurations				↕↕		↕↕		
Traffic Volume (vph)	0	0	99	362	4	444	156	
Future Volume (vph)	0	0	99	362	4	444	156	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95	0.95	
Ped Bike Factor				1.00		0.99		
Frt						0.961		
Flt Protected				0.989				
Satd. Flow (prot)	0	0	0	3274	0	3323	0	
Flt Permitted				0.710		0.953		
Satd. Flow (perm)	0	0	0	2345	0	3167	0	
Right Turn on Red		Yes					Yes	
Satd. Flow (RTOR)						151		
Link Speed (mph)	30			30		30		
Link Distance (ft)	363			237		278		
Travel Time (s)	8.3			5.4		6.3		
Confl. Peds. (#/hr)			36				36	
Confl. Bikes (#/hr)							3	
Peak Hour Factor	0.25	0.25	0.80	0.80	0.97	0.97	0.97	
Heavy Vehicles (%)	0%	0%	2%	11%	0%	4%	1%	
Adj. Flow (vph)	0	0	124	453	4	458	161	
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	0	0	577	0	623	0	
Turn Type			Perm	NA	Perm	NA		
Protected Phases				2		6		9
Permitted Phases				2		6		
Detector Phase				2		2		
Switch Phase								
Minimum Initial (s)			10.0	10.0	10.0	10.0		4.0
Minimum Split (s)			20.0	20.0	20.0	20.0		19.0
Total Split (s)			84.0	84.0	84.0	84.0		19.0
Total Split (%)			81.6%	81.6%	81.6%	81.6%		18%
Maximum Green (s)			80.0	80.0	80.0	80.0		17.0
Yellow Time (s)			3.0	3.0	3.0	3.0		2.0
All-Red Time (s)			1.0	1.0	1.0	1.0		0.0
Lost Time Adjust (s)				0.0		0.0		
Total Lost Time (s)				4.0		4.0		
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)			3.0	3.0	3.0	3.0		3.0
Recall Mode			Max	Max	Max	Max		None
Walk Time (s)								11.0
Flash Dont Walk (s)								6.0
Pedestrian Calls (#/hr)								0
Act Effct Green (s)				99.0		99.0		
Actuated g/C Ratio				1.00		1.00		
v/c Ratio				0.25		0.20		
Control Delay				0.3		0.1		
Queue Delay				0.0		0.0		
Total Delay				0.3		0.1		
LOS				A		A		
Approach Delay				0.3		0.1		
Approach LOS				A		A		
Queue Length 50th (ft)				0		0		
Queue Length 95th (ft)				0		0		
Internal Link Dist (ft)	283			157		198		
Turn Bay Length (ft)								
Base Capacity (vph)				2345		3167		
Starvation Cap Reductn				0		0		
Spillback Cap Reductn				0		0		
Storage Cap Reductn				0		0		
Reduced v/c Ratio				0.25		0.20		

Intersection Summary

Area Type: Other
 Cycle Length: 103
 Actuated Cycle Length: 99
 Natural Cycle: 40
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.25
 Intersection Signal Delay: 0.2
 Intersection LOS: A
 Intersection Capacity Utilization 37.7%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 3: Main Street & Pleasant Street

Ø2 84 s	Ø6 84 s	Ø9 19 s
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Lane Configurations													
Traffic Volume (vph)	45	4	54	0	0	0	0	424	24	12	433	0	
Future Volume (vph)	45	4	54	0	0	0	0	424	24	12	433	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	12	12	12	12	12	12	11	12	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	
Ped Bike Factor	0.96	0.92						1.00			1.00		
Frt		0.861						0.992					
Fit Protected	0.950										0.999		
Satd. Flow (prot)	1752	1697	0	0	0	0	0	3293	0	0	3355	0	
Fit Permitted	0.950										0.941		
Satd. Flow (perm)	1680	1697	0	0	0	0	0	3293	0	0	3160	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		65						9					
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		234			280			219			237		
Travel Time (s)		5.3			6.4			5.0			5.4		
Confl. Peds. (#/hr)	26		51						24	24			
Peak Hour Factor	0.83	0.83	0.83	0.25	0.25	0.25	0.76	0.76	0.76	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	0%	9%	0%	0%	4%	0%	0%
Adj. Flow (vph)	54	5	65	0	0	0	0	558	32	12	446	0	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	54	70	0	0	0	0	0	590	0	0	458	0	
Turn Type	Perm	NA						NA		Perm	NA		
Protected Phases		4						2			6		9
Permitted Phases	4									6			
Detector Phase	4	4								6	6		
Switch Phase													
Minimum Initial (s)	8.0	8.0						10.0		10.0	10.0		4.0
Minimum Split (s)	12.0	12.0						14.0		14.0	14.0		20.0
Total Split (s)	24.0	24.0						62.0		62.0	62.0		20.0
Total Split (%)	22.6%	22.6%						58.5%		58.5%	58.5%		19%
Maximum Green (s)	20.0	20.0						58.0		58.0	58.0		18.0
Yellow Time (s)	3.0	3.0						3.0		3.0	3.0		2.0
All-Red Time (s)	1.0	1.0						1.0		1.0	1.0		0.0
Lost Time Adjust (s)	0.0	0.0						0.0		0.0	0.0		
Total Lost Time (s)	4.0	4.0						4.0		4.0	4.0		
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0		3.0
Recall Mode	None	None						Max		Max	Max		None
Walk Time (s)													4.0
Flash Dont Walk (s)													14.0
Pedestrian Calls (#/hr)													0
Act Effct Green (s)	8.6	8.6						61.7			61.7		
Actuated g/C Ratio	0.11	0.11						0.82			0.82		
v/c Ratio	0.28	0.28						0.22			0.18		
Control Delay	34.2	12.8						2.2			2.2		
Queue Delay	0.0	0.0						0.6			0.4		
Total Delay	34.2	12.8						2.9			2.5		
LOS	C	B						A			A		
Approach Delay		22.2						2.9			2.5		
Approach LOS		C						A			A		
Queue Length 50th (ft)	23	2						25			19		
Queue Length 95th (ft)	51	31						35			35		
Internal Link Dist (ft)		154			200			139			157		
Turn Bay Length (ft)													
Base Capacity (vph)	447	499						2705			2594		
Starvation Cap Reductn	0	0						1659			1565		
Spillback Cap Reductn	0	0						0			0		
Storage Cap Reductn	0	0						0			0		
Reduced v/c Ratio	0.12	0.14						0.56			0.45		

Intersection Summary

Area Type: Other
 Cycle Length: 106
 Actuated Cycle Length: 75.2
 Natural Cycle: 50
 Control Type: Semi Act-Uncoordinated
 Maximum v/c Ratio: 0.28
 Intersection Signal Delay: 4.8
 Intersection LOS: A
 Intersection Capacity Utilization 34.6%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 4: Main Street & Exchange Street/Irving Street



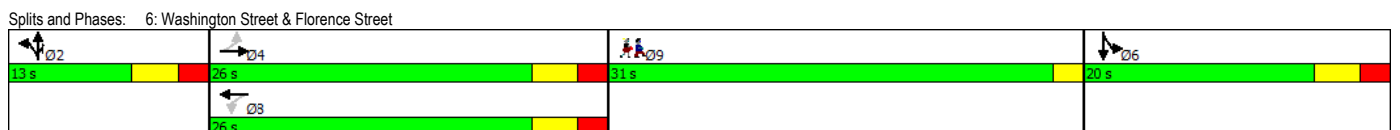
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø6
Lane Configurations													
Traffic Volume (vph)	92	390	53	341	638	57	115	293	144	34	325	99	
Future Volume (vph)	92	390	53	341	638	57	115	293	144	34	325	99	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	10	12	12	11	12	12	12	12	12	12	12	12	
Storage Length (ft)	215		0	300		0	0		0	0		125	
Storage Lanes	1		0	1		0	1		1	1		1	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor	1.00	0.99		0.99	1.00		0.98		0.96	0.99		0.96	
Frt		0.982			0.988				0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1337	3263	0	1694	3482	0	1770	1792	1538	1736	1863	1468	
Flt Permitted	0.143			0.278			0.548			0.344			
Satd. Flow (perm)	201	3263	0	490	3482	0	1003	1792	1473	621	1863	1408	
Right Turn on Red			Yes			Yes			No			Yes	
Satd. Flow (RTOR)		13			8								109
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		255			718			281			219		
Travel Time (s)		5.8			16.3			6.4			5.0		
Confl. Peds. (#/hr)	12		13	13		12	27		30	30		27	
Confl. Bikes (#/hr)						1							3
Peak Hour Factor	0.83	0.83	0.83	0.90	0.90	0.90	0.76	0.76	0.76	0.91	0.91	0.91	
Heavy Vehicles (%)	26%	7%	15%	3%	2%	4%	2%	6%	5%	4%	2%	10%	
Adj. Flow (vph)	111	470	64	379	709	63	151	386	189	37	357	109	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	111	534	0	379	772	0	151	386	189	37	357	109	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	custom	NA	custom	
Protected Phases	7	4		3	8			2		1	16	1	6
Permitted Phases	4			8			2		2	6		6	
Detector Phase	7	4		3	8		2	2	2	1	6	1	
Switch Phase													
Minimum Initial (s)	4.0	10.0		4.0	10.0		8.0	8.0	8.0	4.0		4.0	8.0
Minimum Split (s)	9.0	27.0		9.0	27.0		39.0	39.0	39.0	10.0		10.0	39.0
Total Split (s)	15.0	35.0		15.0	35.0		40.0	40.0	40.0	24.0		24.0	64.0
Total Split (%)	13.2%	30.7%		13.2%	30.7%		35.1%	35.1%	35.1%	21.1%		21.1%	56%
Maximum Green (s)	10.0	30.0		10.0	30.0		34.0	34.0	34.0	18.0		18.0	58.0
Yellow Time (s)	3.0	3.0		3.0	3.0		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	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		6.0	6.0	6.0	6.0		6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lag	Lead		Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None		None	None		Max	Max	Max	None		None	Max
Walk Time (s)		5.0			5.0		5.0	5.0	5.0				5.0
Flash Dont Walk (s)		17.0			17.0		28.0	28.0	28.0				28.0
Pedestrian Calls (#/hr)		54			19		37	37	37				11
Act Effct Green (s)	37.6	28.0		38.4	28.4		45.2	45.2	45.2	58.1	58.1	58.1	
Actuated g/C Ratio	0.34	0.25		0.34	0.25		0.40	0.40	0.40	0.52	0.52	0.52	
v/c Ratio	0.68	0.65		1.38	0.87		0.37	0.53	0.32	0.10	0.37	0.14	
Control Delay	45.1	40.7		218.6	51.2		28.0	29.6	25.7	14.7	17.9	3.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	34.7	1.1	
Total Delay	45.1	40.7		218.6	51.2		28.0	29.6	25.7	14.7	52.6	4.3	
LOS	D	D		F	D		C	C	C	B	D	A	
Approach Delay		41.4			106.3			28.2			39.3		
Approach LOS		D			F			C			D		
Queue Length 50th (ft)	53	177		~264	279		78	214	94	13	153	0	
Queue Length 95th (ft)	#90	213		#461	#358		113	256	129	31	224	28	
Internal Link Dist (ft)		175			638			201			139		
Turn Bay Length (ft)	215			300								125	
Base Capacity (vph)	169	884		275	939		404	723	594	501	965	791	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	619	510	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0	
Reduced v/c Ratio	0.66	0.60		1.38	0.82		0.37	0.53	0.32	0.07	1.03	0.39	

Intersection Summary
Area Type: Other
Cycle Length: 114
Actuated Cycle Length: 112.1
Natural Cycle: 85
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.38
Intersection Signal Delay: 62.6 Intersection LOS: E
Intersection Capacity Utilization 82.7% ICU Level of Service E
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

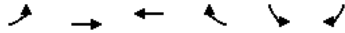


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Lane Configurations		↔↔		↔	↔↔			↔	↔		↔↔		
Traffic Volume (vph)	33	101	2	5	361	25	51	36	24	55	36	177	
Future Volume (vph)	33	101	2	5	361	25	51	36	24	55	36	177	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	0	0	100	0	0	0	0	100	0	0	0	
Storage Lanes	0	0	0	1	0	0	0	0	1	0	0	0	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	0.95	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.998			0.990				0.850		0.911		
Fit Protected		0.988		0.950				0.971			0.990		
Satd. Flow (prot)	0	3284	0	1805	3445	0	0	1823	1553	0	1675	0	
Fit Permitted		0.792		0.650				0.971			0.990		
Satd. Flow (perm)	0	2633	0	1235	3445	0	0	1823	1553	0	1675	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		1			7				109		94		
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		360			731			301			355		
Travel Time (s)		8.2			16.6			6.8			8.1		
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.70	0.70	0.70	0.90	0.90	0.90	
Heavy Vehicles (%)	10%	8%	0%	0%	4%	0%	2%	0%	4%	8%	0%	1%	
Adj. Flow (vph)	39	120	2	6	430	30	73	51	34	61	40	197	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	161	0	6	460	0	0	124	34	0	298	0	
Turn Type	Perm	NA		Perm	NA		Split	NA	custom	Split	NA		
Protected Phases		4			8		2	2	2	6	6		9
Permitted Phases	4			8					2				
Detector Phase	4	4		8	8		2	2	2	6	6		
Switch Phase													
Minimum Initial (s)	10.0	10.0		10.0	10.0		8.0	8.0	8.0	8.0	8.0		4.0
Minimum Split (s)	15.0	15.0		15.0	15.0		13.0	13.0	13.0	13.0	13.0		31.0
Total Split (s)	26.0	26.0		26.0	26.0		13.0	13.0	13.0	20.0	20.0		31.0
Total Split (%)	28.9%	28.9%		28.9%	28.9%		14.4%	14.4%	14.4%	22.2%	22.2%		34%
Maximum Green (s)	21.0	21.0		21.0	21.0		8.0	8.0	8.0	15.0	15.0		29.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0		2.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)		5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0		
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	Max	Max		Max	Max		None	None	None	None	None		None
Walk Time (s)													7.0
Flash Dont Walk (s)													22.0
Pedestrian Calls (#/hr)													97
Act Effct Green (s)		22.0		22.0	22.0		8.4	8.4		13.8			
Actuated g/C Ratio		0.27		0.27	0.27		0.10	0.10		0.17			
v/c Ratio		0.23		0.02	0.50		0.67	0.13		0.83			
Control Delay		28.6		27.0	30.5		59.8	1.1		45.5			
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0			
Total Delay		28.6		27.0	30.5		59.8	1.1		45.5			
LOS		C		C	C		E	A		D			
Approach Delay		28.6			30.4		47.1			45.5			
Approach LOS		C			C		D			D			
Queue Length 50th (ft)		38		3	120		70	0		114			
Queue Length 95th (ft)		62		12	156		#104	0		#253			
Internal Link Dist (ft)		280			651		221			275			
Turn Bay Length (ft)				100				100					
Base Capacity (vph)		701		328	921		185	255		394			
Starvation Cap Reductn		0		0	0		0	0		0			
Spillback Cap Reductn		0		0	0		0	0		0			
Storage Cap Reductn		0		0	0		0	0		0			
Reduced v/c Ratio		0.23		0.02	0.50		0.67	0.13		0.76			










Intersection Summary
 Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 82.6
 Natural Cycle: 75
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 36.7 Intersection LOS: D
 Intersection Capacity Utilization 54.1% ICU Level of Service A
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	185	81	24	35	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	185	81	24	35	0	0	0	0
Sign Control	Free				Free				Stop			
Grade	0%				0%				0%			
Peak Hour Factor	0.25	0.25	0.25	0.82	0.82	0.82	0.79	0.79	0.79	0.25	0.25	0.25
Hourly flow rate (vph)	0	0	0	0	226	99	30	44	0	0	0	0
Pedestrians	80				72							
Lane Width (ft)	0.0				0.0							
Walking Speed (ft/s)	4.0				4.0							
Percent Blockage	0				0							
Right turn flare (veh)												
Median type	None				None							
Median storage (veh)												
Upstream signal (ft)	363											
pX, platoon unblocked												
vC, conflicting volume	397			0			356	397	0	370	348	428
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	397			0			356	397	0	370	348	428
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			95	92	100	100	100	100
cM capacity (veh/h)	1173			1636			603	544	1091	554	579	631
Direction, Lane #	WB 1			NB 1								
Volume Total	325			74								
Volume Left	0			30								
Volume Right	99			0								
cSH	1700			566								
Volume to Capacity	0.19			0.13								
Queue Length 95th (ft)	0			11								
Control Delay (s)	0.0			12.3								
Lane LOS	B											
Approach Delay (s)	0.0			12.3								
Approach LOS	B											
Intersection Summary												
Average Delay					2.3							
Intersection Capacity Utilization					26.2%				ICU Level of Service			
Analysis Period (min)					15				A			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔↑	↔↑		↔↑	↔↑
Traffic Volume (veh/h)	19	164	370	51	67	22
Future Volume (Veh/h)	19	164	370	51	67	22
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.80	0.80	0.82	0.82
Hourly flow rate (vph)	20	171	463	64	82	27
Pedestrians		1	5		33	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		0	0		3	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		731	284			
pX, platoon unblocked						
vC, conflicting volume	560				658	298
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	560				658	298
tC, single (s)	4.1				6.9	7.1
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.4
p0 queue free %	98				78	96
cM capacity (veh/h)	993				370	656
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	77	114	309	218	82	27
Volume Left	20	0	0	0	82	0
Volume Right	0	0	0	64	0	27
cSH	993	1700	1700	1700	370	656
Volume to Capacity	0.02	0.07	0.18	0.13	0.22	0.04
Queue Length 95th (ft)	2	0	0	0	21	3
Control Delay (s)	2.4	0.0	0.0	0.0	17.5	10.7
Lane LOS	A				C	B
Approach Delay (s)	1.0		0.0		15.8	
Approach LOS					C	
Intersection Summary						
Average Delay	2.3					
Intersection Capacity Utilization	30.1%		ICU Level of Service		A	
Analysis Period (min)	15					

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	41	42	17	59	53
Future Volume (Veh/h)	10	41	42	17	59	53
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.97	0.97	0.76	0.76	0.85	0.85
Hourly flow rate (vph)	10	42	55	22	69	62
Pedestrians	11		17			2
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	1		1			0
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	294	79			88	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	294	79			88	
tC, single (s)	6.5	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.6	3.3			2.2	
p0 queue free %	98	96			95	
cM capacity (veh/h)	634	976			1481	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	52	77	131			
Volume Left	10	0	69			
Volume Right	42	22	0			
cSH	884	1700	1481			
Volume to Capacity	0.06	0.05	0.05			
Queue Length 95th (ft)	5	0	4			
Control Delay (s)	9.3	0.0	4.1			
Lane LOS	A		A			
Approach Delay (s)	9.3	0.0	4.1			
Approach LOS	A					
Intersection Summary						
Average Delay			4.0			
Intersection Capacity Utilization		23.4%		ICU Level of Service	A	
Analysis Period (min)			15			

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↗	↘	
Traffic Volume (veh/h)	238	110	68	388	54	38
Future Volume (Veh/h)	238	110	68	388	54	38
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.75	0.75
Hourly flow rate (vph)	267	124	76	436	72	51
Pedestrians				21	60	
Lane Width (ft)				12.0	12.0	
Walking Speed (ft/s)				4.0	4.0	
Percent Blockage				2	5	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			451		977	410
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			451		977	410
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		71	91
cM capacity (veh/h)			1064		247	597
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	391	512	123			
Volume Left	0	76	72			
Volume Right	124	0	51			
cSH	1700	1064	327			
Volume to Capacity	0.23	0.07	0.38			
Queue Length 95th (ft)	0	6	42			
Control Delay (s)	0.0	2.0	22.5			
Lane LOS		A	C			
Approach Delay (s)	0.0	2.0	22.5			
Approach LOS			C			
Intersection Summary						
Average Delay			3.7			
Intersection Capacity Utilization			64.6%	ICU Level of Service	C	
Analysis Period (min)			15			

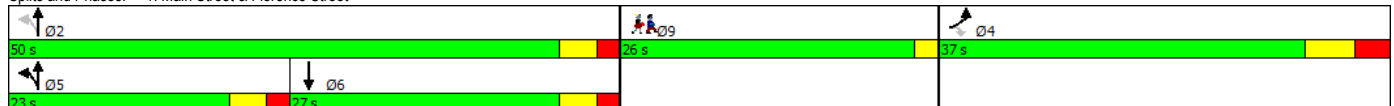


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø9
Lane Configurations								
Traffic Volume (vph)	124	284	210	305	330	81		
Future Volume (vph)	124	284	210	305	330	81		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	12	10	13	13	11		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Ped Bike Factor	0.95	0.96		1.00	0.99			
Fit		0.850			0.973			
Fit Protected	0.950			0.980				
Satd. Flow (prot)	1787	1599	0	1886	1860	0		
Fit Permitted	0.950			0.133				
Satd. Flow (perm)	1700	1529	0	255	1860	0		
Right Turn on Red		Yes				Yes		
Satd. Flow (RTOR)		334			10			
Link Speed (mph)	30			30	30			
Link Distance (ft)	284			528	324			
Travel Time (s)	6.5			12.0	7.4			
Confl. Peds. (#/hr)	26	13	34			34		
Peak Hour Factor	0.85	0.85	0.92	0.92	0.78	0.78		
Heavy Vehicles (%)	1%	1%	5%	0%	1%	3%		
Adj. Flow (vph)	146	334	228	332	423	104		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	146	334	0	560	527	0		
Turn Type	Prot	Perm	custom	NA	NA			
Protected Phases	4		5	2 5	6		2	9
Permitted Phases		4	2					
Detector Phase	4	4	5	2 5	6			
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0		4.0		16.0	4.0
Minimum Split (s)	15.0	15.0	13.0		9.0		21.0	26.0
Total Split (s)	37.0	37.0	23.0		27.0		50.0	26.0
Total Split (%)	32.7%	32.7%	20.4%		23.9%		44%	23%
Maximum Green (s)	30.0	30.0	18.0		22.0		45.0	24.0
Yellow Time (s)	4.0	4.0	3.0		3.0		3.0	2.0
All-Red Time (s)	3.0	3.0	2.0		2.0		2.0	0.0
Lost Time Adjust (s)	0.0	0.0			0.0			
Total Lost Time (s)	7.0	7.0			5.0			
Lead/Lag			Lead		Lag			
Lead-Lag Optimize?			Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0
Recall Mode	None	None	None		Max		Max	None
Walk Time (s)								6.0
Flash Dont Walk (s)								18.0
Pedestrian Calls (#/hr)								15
Act Effct Green (s)	12.3	12.3		46.3	22.6			
Actuated g/C Ratio	0.16	0.16		0.62	0.30			
v/c Ratio	0.50	0.63		1.00	0.92			
Control Delay	36.1	9.8		60.7	51.8			
Queue Delay	0.0	0.0		0.0	0.0			
Total Delay	36.1	9.8		60.7	51.8			
LOS	D	A		E	D			
Approach Delay	17.8			60.7	51.8			
Approach LOS	B			E	D			
Queue Length 50th (ft)	56	0		174	198			
Queue Length 95th (ft)	137	58		#661	#521			
Internal Link Dist (ft)	204			448	244			
Turn Bay Length (ft)								
Base Capacity (vph)	738	827		562	570			
Starvation Cap Reductn	0	0		0	0			
Spillback Cap Reductn	0	0		0	0			
Storage Cap Reductn	0	0		0	0			
Reduced v/c Ratio	0.20	0.40		1.00	0.92			

Intersection Summary

Area Type: Other
 Cycle Length: 113
 Actuated Cycle Length: 74.7
 Natural Cycle: 130
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 44.6
 Intersection LOS: D
 Intersection Capacity Utilization 71.6%
 ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Main Street & Florence Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	386	24	62	234	115	38	262	125	107	277	215
Future Volume (vph)	175	386	24	62	234	115	38	262	125	107	277	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	15	12	10	10	12	12	10	10	12	16	16
Storage Length (ft)	0		0	0		200	0		0	0		50
Storage Lanes	1		0	1		1	0		1	0		1
Taper Length (ft)	25			25		25			25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.92	1.00		0.95	0.95			1.00	0.97		1.00	
Frt		0.991			0.951				0.850			0.850
Flt Protected	0.950			0.950				0.994			0.986	
Satd. Flow (prot)	1547	1968	0	1620	1549	0	0	1711	1492	0	2108	1777
Flt Permitted	0.950			0.512				0.740			0.586	
Satd. Flow (perm)	1423	1968	0	826	1549	0	0	1273	1443	0	1250	1777
Right Turn on Red			No			No			Yes			No
Satd. Flow (RTOR)									137			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		278			466			512			528	
Travel Time (s)		6.3			10.6			11.6			12.0	
Confl. Peds. (#/hr)	81		58	58		81	20		8	8		20
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.95	0.95	0.95	0.91	0.91	0.91	0.91	0.91	0.91	0.94	0.94	0.94
Heavy Vehicles (%)	5%	4%	18%	4%	5%	0%	3%	3%	1%	0%	1%	3%
Adj. Flow (vph)	184	406	25	68	257	126	42	288	137	114	295	229
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	431	0	68	383	0	0	330	137	0	409	229
Turn Type	Prot	NA		Perm	NA			Perm	NA	Perm	NA	pt+ov
Protected Phases	5	2			6			8			4	4 5
Permitted Phases				6			8		8	4		
Detector Phase	5	2		6	6		8	8	8	4	4	5
Switch Phase												
Minimum Initial (s)	9.0	44.0		31.0	31.0		18.0	18.0	18.0	18.0	18.0	
Minimum Split (s)	14.0	49.0		36.0	36.0		36.0	36.0	36.0	36.0	36.0	
Total Split (s)	15.0	60.0		45.0	45.0		41.0	41.0	41.0	41.0	41.0	
Total Split (%)	14.9%	59.4%		44.6%	44.6%		40.6%	40.6%	40.6%	40.6%	40.6%	
Maximum Green (s)	10.0	55.0		40.0	40.0		35.0	35.0	35.0	35.0	35.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		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)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Max		Max	Max		None	None	None	None	None	
Walk Time (s)				15.0	15.0		15.0	15.0	15.0	15.0	15.0	
Flash Dont Walk (s)				15.0	15.0		15.0	15.0	15.0	15.0	15.0	
Pedestrian Calls (#/hr)				55	55		18	18	18	18	18	
Act Effct Green (s)	10.0	55.0		40.0	40.0		33.8	33.8	33.8	33.8	33.8	48.8
Actuated g/C Ratio	0.10	0.55		0.40	0.40		0.34	0.34	0.34	0.34	0.34	0.49
v/c Ratio	1.19	0.40		0.21	0.62		0.77	0.24	0.77	0.24	0.97	0.26
Control Delay	173.0	14.5		22.2	29.5		42.8	5.2	42.8	5.2	70.2	15.9
Queue Delay	0.0	10.9		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	173.0	25.4		22.2	29.5		42.8	5.2	42.8	5.2	70.2	15.9
LOS	F	C		C	C		D	A	D	A	E	B
Approach Delay		69.6			28.4			31.8			50.7	
Approach LOS		E			C			C			D	
Queue Length 50th (ft)	~145	153		28	195		186	0	186	0	253	82
Queue Length 95th (ft)	#281	224		61	297		#319	40	#319	40	#445	131
Internal Link Dist (ft)		198			386			432			448	
Turn Bay Length (ft)												50
Base Capacity (vph)	155	1084		331	620		446	595	446	595	438	868
Starvation Cap Reductn	0	620		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	1.19	0.93		0.21	0.62		0.74	0.23	0.74	0.23	0.93	0.26

Intersection Summary

Area Type: Other

Cycle Length: 101

Actuated Cycle Length: 99.8

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 47.3

Intersection LOS: D

Intersection Capacity Utilization 121.5%

ICU Level of Service H

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: Ferry Street & Main Street & Salem Street





Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR	Ø9
Lane Configurations				↕↕		↕↕		
Traffic Volume (vph)	0	0	140	587	10	346	134	
Future Volume (vph)	0	0	140	587	10	346	134	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95	0.95	
Ped Bike Factor				1.00		0.99		
Frt						0.959		
Flt Protected				0.990		0.999		
Satd. Flow (prot)	0	0	0	3423	0	3278	0	
Flt Permitted				0.735		0.940		
Satd. Flow (perm)	0	0	0	2534	0	3084	0	
Right Turn on Red		Yes					Yes	
Satd. Flow (RTOR)						147		
Link Speed (mph)	30			30		30		
Link Distance (ft)	363			237		278		
Travel Time (s)	8.3			5.4		6.3		
Confl. Peds. (#/hr)			46				46	
Confl. Bikes (#/hr)							1	
Peak Hour Factor	0.25	0.25	0.95	0.95	0.91	0.91	0.91	
Heavy Vehicles (%)	0%	0%	2%	5%	0%	5%	2%	
Adj. Flow (vph)	0	0	147	618	11	380	147	
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	0	0	765	0	538	0	
Turn Type			Perm	NA	Perm	NA		
Protected Phases				2		6		9
Permitted Phases				2		6		
Detector Phase				2		2		
Switch Phase								
Minimum Initial (s)			10.0	10.0	10.0	10.0		4.0
Minimum Split (s)			20.0	20.0	20.0	20.0		19.0
Total Split (s)			84.0	84.0	84.0	84.0		19.0
Total Split (%)			81.6%	81.6%	81.6%	81.6%		18%
Maximum Green (s)			80.0	80.0	80.0	80.0		17.0
Yellow Time (s)			3.0	3.0	3.0	3.0		2.0
All-Red Time (s)			1.0	1.0	1.0	1.0		0.0
Lost Time Adjust (s)				0.0		0.0		
Total Lost Time (s)				4.0		4.0		
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)			3.0	3.0	3.0	3.0		3.0
Recall Mode			Max	Max	Max	Max		None
Walk Time (s)								11.0
Flash Dont Walk (s)								6.0
Pedestrian Calls (#/hr)								0
Act Effct Green (s)				99.0		99.0		
Actuated g/C Ratio				1.00		1.00		
v/c Ratio				0.30		0.17		
Control Delay				0.3		0.1		
Queue Delay				0.0		0.0		
Total Delay				0.3		0.1		
LOS				A		A		
Approach Delay				0.3		0.1		
Approach LOS				A		A		
Queue Length 50th (ft)				0		0		
Queue Length 95th (ft)				0		0		
Internal Link Dist (ft)	283			157		198		
Turn Bay Length (ft)								
Base Capacity (vph)				2534		3084		
Starvation Cap Reductn				0		0		
Spillback Cap Reductn				0		0		
Storage Cap Reductn				0		0		
Reduced v/c Ratio				0.30		0.17		

Intersection Summary

Area Type: Other
 Cycle Length: 103
 Actuated Cycle Length: 99
 Natural Cycle: 40
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.30
 Intersection Signal Delay: 0.2
 Intersection LOS: A
 Intersection Capacity Utilization 42.1%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 3: Main Street & Pleasant Street

↕ Ø2	↕ Ø9
84 s	19 s
↕ Ø6	
84 s	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Lane Configurations	↔		↔		↔		↔		↔		↔		
Traffic Volume (vph)	141	4	131	0	0	0	0	582	20	5	346	0	
Future Volume (vph)	141	4	131	0	0	0	0	582	20	5	346	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	16	12	12	12	12	12	12	12	12	11	12	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	
Ped Bike Factor	0.95	0.92						1.00			1.00		
Frt		0.854						0.995					
Fit Protected	0.950										0.999		
Satd. Flow (prot)	1805	1649	0	0	0	0	0	3421	0	0	3354	0	
Fit Permitted	0.950										0.949		
Satd. Flow (perm)	1716	1649	0	0	0	0	0	3421	0	0	3186	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		146						5					
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		234			280			219			237		
Travel Time (s)		5.3			6.4			5.0			5.4		
Confl. Peds. (#/hr)	31		45						29	29			
Confl. Bikes (#/hr)								3					
Peak Hour Factor	0.90	0.90	0.90	0.25	0.25	0.25	0.90	0.90	0.90	0.93	0.93	0.93	
Heavy Vehicles (%)	0%	25%	2%	0%	0%	0%	0%	5%	0%	0%	4%	0%	
Adj. Flow (vph)	157	4	146	0	0	0	0	647	22	5	372	0	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	157	150	0	0	0	0	0	669	0	0	377	0	
Turn Type	Perm	NA						NA		Perm	NA		
Protected Phases		4						2			6		9
Permitted Phases	4									6			
Detector Phase	4	4						2		6	6		
Switch Phase													
Minimum Initial (s)	8.0	8.0						10.0		10.0	10.0		4.0
Minimum Split (s)	12.0	12.0						14.0		14.0	14.0		20.0
Total Split (s)	24.0	24.0						62.0		62.0	62.0		20.0
Total Split (%)	22.6%	22.6%						58.5%		58.5%	58.5%		19%
Maximum Green (s)	20.0	20.0						58.0		58.0	58.0		18.0
Yellow Time (s)	3.0	3.0						3.0		3.0	3.0		2.0
All-Red Time (s)	1.0	1.0						1.0		1.0	1.0		0.0
Lost Time Adjust (s)	0.0	0.0						0.0		0.0	0.0		
Total Lost Time (s)	4.0	4.0						4.0		4.0	4.0		
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0		3.0
Recall Mode	None	None						Max		Max	Max		None
Walk Time (s)													4.0
Flash Dont Walk (s)													14.0
Pedestrian Calls (#/hr)													0
Act Effct Green (s)	12.6	12.6						58.1		58.1	58.1		
Actuated g/C Ratio	0.16	0.16						0.74		0.74	0.74		
v/c Ratio	0.58	0.39						0.26		0.16	0.16		
Control Delay	39.1	8.9						4.0		3.6	3.6		
Queue Delay	0.0	0.0						1.3		0.5	0.5		
Total Delay	39.1	8.9						5.3		4.1	4.1		
LOS	D	A						A		A	A		
Approach Delay		24.3						5.3		4.1	4.1		
Approach LOS		C						A		A	A		
Queue Length 50th (ft)	72	2						43		22	22		
Queue Length 95th (ft)	129	48						83		46	46		
Internal Link Dist (ft)		154			200			139		157	157		
Turn Bay Length (ft)													
Base Capacity (vph)	437	528						2527		2353	2353		
Starvation Cap Reductn	0	0						1589		1527	1527		
Spillback Cap Reductn	0	0						0		0	0		
Storage Cap Reductn	0	0						0		0	0		
Reduced v/c Ratio	0.36	0.28						0.71		0.46	0.46		

Intersection Summary
 Area Type: Other
 Cycle Length: 106
 Actuated Cycle Length: 78.7
 Natural Cycle: 50
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.58
 Intersection Signal Delay: 9.3 Intersection LOS: A
 Intersection Capacity Utilization 35.4% ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 4: Main Street & Exchange Street/Irving Street

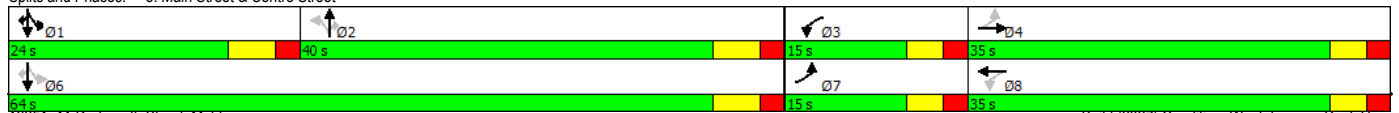


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø6
Lane Configurations													
Traffic Volume (vph)	198	697	60	196	362	60	73	359	307	47	317	94	
Future Volume (vph)	198	697	60	196	362	60	73	359	307	47	317	94	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	10	12	12	11	12	12	12	12	12	12	12	12	
Storage Length (ft)	215		0	300		0	0		0	0		125	
Storage Lanes	1		0	1		0	1		1	1		1	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor	0.99	0.99		0.98	1.00		0.97		0.97	0.99		0.93	
Frt		0.988			0.979				0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1560	3466	0	1711	3490	0	1719	1845	1568	1805	1845	1455	
Flt Permitted	0.361						0.554			0.339			
Satd. Flow (perm)	588	3466	0	244	3490	0	968	1845	1517	639	1845	1357	
Right Turn on Red			Yes			Yes			No			Yes	
Satd. Flow (RTOR)		8			16								102
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		255			718			281			219		
Travel Time (s)		5.8			16.3			6.4			5.0		
Confl. Peds. (#/hr)	11		37	37		11	54		19	19		54	
Confl. Bikes (#/hr)		1							2				1
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.92	
Heavy Vehicles (%)	8%	1%	13%	2%	1%	0%	5%	3%	3%	0%	3%	11%	
Adj. Flow (vph)	206	726	63	209	385	64	78	386	330	51	345	102	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	206	789	0	209	449	0	78	386	330	51	345	102	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	custom	NA	custom	
Protected Phases	7	4		3	8			2		1	16	1	6
Permitted Phases	4			8			2		2	6		6	
Detector Phase	7	4		3	8		2	2	2	1	6	1	
Switch Phase													
Minimum Initial (s)	4.0	10.0		4.0	10.0		8.0	8.0	8.0	4.0		4.0	8.0
Minimum Split (s)	9.0	27.0		9.0	27.0		39.0	39.0	39.0	10.0		10.0	39.0
Total Split (s)	15.0	35.0		15.0	35.0		40.0	40.0	40.0	24.0		24.0	64.0
Total Split (%)	13.2%	30.7%		13.2%	30.7%		35.1%	35.1%	35.1%	21.1%		21.1%	56%
Maximum Green (s)	10.0	30.0		10.0	30.0		34.0	34.0	34.0	18.0		18.0	58.0
Yellow Time (s)	3.0	3.0		3.0	3.0		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	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		6.0	6.0	6.0	6.0		6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lag	Lead		Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None		None	None		Max	Max	Max	None		None	Max
Walk Time (s)		5.0			5.0		5.0	5.0	5.0				5.0
Flash Dont Walk (s)		17.0			17.0		28.0	28.0	28.0				28.0
Pedestrian Calls (#/hr)		54			19		37	37	37				11
Act Effct Green (s)	38.9	28.9		38.9	28.9		44.9	44.9	44.9	58.0		58.0	58.0
Actuated g/C Ratio	0.34	0.26		0.34	0.26		0.40	0.40	0.40	0.51		0.51	0.51
v/c Ratio	0.72	0.88		0.98	0.50		0.20	0.53	0.55	0.13		0.36	0.14
Control Delay	41.2	52.7		85.5	36.5		25.0	29.7	31.0	15.0		18.1	3.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		38.4	1.1
Total Delay	41.2	52.7		85.5	36.5		25.0	29.7	31.0	15.0		56.5	4.4
LOS	D	D		F	D		C	C	C	B		E	A
Approach Delay		50.3			52.1			29.8				41.6	
Approach LOS		D			D			C				D	
Queue Length 50th (ft)	104	288		104	141		37	214	185	18		147	0
Queue Length 95th (ft)	#178	#387		#260	193		76	318	286	39		216	27
Internal Link Dist (ft)		175			638			201				139	
Turn Bay Length (ft)	215			300									125
Base Capacity (vph)	288	927		214	939		385	733	603	514		947	762
Starvation Cap Reductn	0	0		0	0		0	0	0	0		616	492
Spillback Cap Reductn	0	0		0	0		0	0	0	0		0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0		0	0
Reduced v/c Ratio	0.72	0.85		0.98	0.48		0.20	0.53	0.55	0.10		1.04	0.38

Intersection Summary

Area Type: Other
 Cycle Length: 114
 Actuated Cycle Length: 112.9
 Natural Cycle: 85
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 43.7 Intersection LOS: D
 Intersection Capacity Utilization 81.5% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Main Street & Centre Street

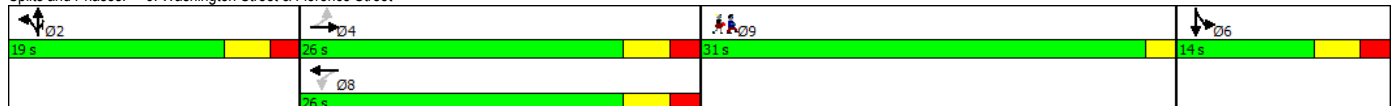


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Lane Configurations		↕↕		↕	↕↕			↕	↕		↕		
Traffic Volume (vph)	65	209	3	1	203	29	69	49	41	54	8	64	
Future Volume (vph)	65	209	3	1	203	29	69	49	41	54	8	64	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0		0	100		0	0		100	0		0	
Storage Lanes	0		0	1		0	0		1	0		0	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	0.95	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.998			0.981				0.850		0.932		
Fit Protected		0.988		0.950				0.972			0.979		
Satd. Flow (prot)	0	3444	0	1805	3393	0	0	1831	1568	0	1734	0	
Fit Permitted		0.816		0.572				0.972			0.979		
Satd. Flow (perm)	0	2844	0	1087	3393	0	0	1831	1568	0	1734	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		1			16				109		46		
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		360			731			301			355		
Travel Time (s)		8.2			16.6			6.8			8.1		
Peak Hour Factor	0.94	0.94	0.94	0.87	0.87	0.87	0.88	0.88	0.88	0.93	0.93	0.93	
Heavy Vehicles (%)	0%	4%	33%	0%	5%	0%	0%	2%	3%	0%	0%	0%	
Adj. Flow (vph)	69	222	3	1	233	33	78	56	47	58	9	69	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	294	0	1	266	0	0	134	47	0	136	0	
Turn Type	Perm	NA		Perm	NA		Split	NA	custom	Split	NA		
Protected Phases		4			8		2	2	2	6	6		9
Permitted Phases	4			8					2				
Detector Phase	4	4		8	8		2	2	2	6	6		
Switch Phase													
Minimum Initial (s)	10.0	10.0		10.0	10.0		8.0	8.0	8.0	8.0	8.0		4.0
Minimum Split (s)	15.0	15.0		15.0	15.0		13.0	13.0	13.0	13.0	13.0		31.0
Total Split (s)	26.0	26.0		26.0	26.0		19.0	19.0	19.0	14.0	14.0		31.0
Total Split (%)	28.9%	28.9%		28.9%	28.9%		21.1%	21.1%	21.1%	15.6%	15.6%		34%
Maximum Green (s)	21.0	21.0		21.0	21.0		14.0	14.0	14.0	9.0	9.0		29.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0		2.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)		5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0		
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	Max	Max		Max	Max		None	None	None	None	None		None
Walk Time (s)													7.0
Flash Dont Walk (s)													22.0
Pedestrian Calls (#/hr)													100
Act Effct Green (s)		30.1		30.1	30.1		12.3	12.3			9.9		
Actuated g/C Ratio		0.39		0.39	0.39		0.16	0.16			0.13		
v/c Ratio		0.26		0.00	0.20		0.46	0.14			0.52		
Control Delay		28.0		26.0	25.6		41.1	0.9			35.5		
Queue Delay		0.0		0.0	0.0		0.0	0.0			0.0		
Total Delay		28.0		26.0	25.6		41.1	0.9			35.5		
LOS		C		C	C		D	A			D		
Approach Delay		28.0			25.7		30.6				35.5		
Approach LOS		C			C		C				D		
Queue Length 50th (ft)		72		0	60		70	0			48		
Queue Length 95th (ft)		114		4	93		124	0			#122		
Internal Link Dist (ft)		280			651		221				275		
Turn Bay Length (ft)				100				100					
Base Capacity (vph)		1112		424	1336		386	417			275		
Starvation Cap Reductn		0		0	0		0	0			0		
Spillback Cap Reductn		0		0	0		0	0			0		
Storage Cap Reductn		0		0	0		0	0			0		
Reduced v/c Ratio		0.26		0.00	0.20		0.35	0.11			0.49		

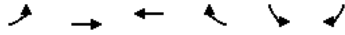
Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 77.1
 Natural Cycle: 75
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.52
 Intersection Signal Delay: 29.0 Intersection LOS: C
 Intersection Capacity Utilization 43.2% ICU Level of Service A
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 6: Washington Street & Florence Street











Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	0	0	0	0	184	93	57	75	0	0	0	0	
Future Volume (Veh/h)	0	0	0	0	184	93	57	75	0	0	0	0	
Sign Control	Free				Free				Stop				
Grade	0%				0%				0%				
Peak Hour Factor	0.25	0.25	0.25	0.91	0.91	0.91	0.87	0.87	0.87	0.25	0.25	0.25	
Hourly flow rate (vph)	0	0	0	0	202	102	66	86	0	0	0	0	
Pedestrians	109												
Lane Width (ft)	0.0												
Walking Speed (ft/s)	4.0												
Percent Blockage	0												
Right turn flare (veh)													
Median type	None				None								
Median storage (veh)													
Upstream signal (ft)	363												
pX, platoon unblocked													
vC, conflicting volume	402			0				362	402	0	394	351	460
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	402			0				362	402	0	394	351	460
tC, single (s)	4.1			4.1				7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)													
tF (s)	2.2			2.2				3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100				89	84	100	100	100	100
cM capacity (veh/h)	1168			1636				598	537	1091	499	577	605
Direction, Lane #	WB 1	NB 1											
Volume Total	304	152											
Volume Left	0	66											
Volume Right	102	0											
cSH	1700	562											
Volume to Capacity	0.18	0.27											
Queue Length 95th (ft)	0	27											
Control Delay (s)	0.0	13.8											
Lane LOS		B											
Approach Delay (s)	0.0	13.8											
Approach LOS		B											
Intersection Summary													
Average Delay			4.6										
Intersection Capacity Utilization			31.1%		ICU Level of Service				A				
Analysis Period (min)	15												



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↕		↕	↕
Traffic Volume (veh/h)	24	267	192	53	154	39
Future Volume (Veh/h)	24	267	192	53	154	39
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	26	293	221	61	177	45
Pedestrians		2	11		37	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		0	1		3	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		731	284			
pX, platoon unblocked					498	180
vC, conflicting volume	319					
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	319				498	180
tC, single (s)	4.2				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				63	94
cM capacity (veh/h)	1186				476	811
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	124	195	147	135	177	45
Volume Left	26	0	0	0	177	0
Volume Right	0	0	0	61	0	45
cSH	1186	1700	1700	1700	476	811
Volume to Capacity	0.02	0.11	0.09	0.08	0.37	0.06
Queue Length 95th (ft)	2	0	0	0	43	4
Control Delay (s)	1.9	0.0	0.0	0.0	17.0	9.7
Lane LOS	A				C	A
Approach Delay (s)	0.7		0.0		15.5	
Approach LOS					C	
Intersection Summary						
Average Delay			4.5			
Intersection Capacity Utilization			38.6%		ICU Level of Service A	
Analysis Period (min)			15			

	↙	↖	↑	↗	↘	↓
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙		↖			↓
Traffic Volume (veh/h)	4	61	92	94	56	36
Future Volume (Veh/h)	4	61	92	94	56	36
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.89	0.89	0.86	0.86	0.79	0.79
Hourly flow rate (vph)	4	69	107	109	71	46
Pedestrians	13		2			4
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	1		0			0
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	364	178			229	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	364	178			229	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	92			95	
cM capacity (veh/h)	597	852			1336	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	73	216	117			
Volume Left	4	0	71			
Volume Right	69	109	0			
cSH	833	1700	1336			
Volume to Capacity	0.09	0.13	0.05			
Queue Length 95th (ft)	7	0	4			
Control Delay (s)	9.7	0.0	4.9			
Lane LOS	A		A			
Approach Delay (s)	9.7	0.0	4.9			
Approach LOS	A					
Intersection Summary						
Average Delay			3.2			
Intersection Capacity Utilization		32.5%		ICU Level of Service	A	
Analysis Period (min)			15			

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↗	↘	
Traffic Volume (veh/h)	280	81	58	195	95	102
Future Volume (Veh/h)	280	81	58	195	95	102
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.89	0.89	0.79	0.79
Hourly flow rate (vph)	322	93	65	219	120	129
Pedestrians	1			16	62	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	0			1	5	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			477		780	446
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			477		780	446
tC, single (s)			4.2		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.3
p0 queue free %			94		63	77
cM capacity (veh/h)			1010		322	567
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	415	284	249			
Volume Left	0	65	120			
Volume Right	93	0	129			
cSH	1700	1010	415			
Volume to Capacity	0.24	0.06	0.60			
Queue Length 95th (ft)	0	5	95			
Control Delay (s)	0.0	2.5	25.9			
Lane LOS		A	D			
Approach Delay (s)	0.0	2.5	25.9			
Approach LOS			D			
Intersection Summary						
Average Delay			7.5			
Intersection Capacity Utilization		56.9%		ICU Level of Service	B	
Analysis Period (min)			15			

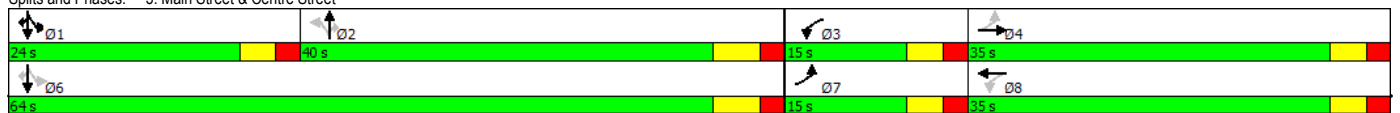
						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	103	143	25	0	0
Future Volume (Veh/h)	0	103	143	25	0	0
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	112	155	27	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	168	168			182	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	168	168			182	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	87			100	
cM capacity (veh/h)	822	876			1393	
Direction, Lane #						
	WB 1	NB 1				
Volume Total	112	182				
Volume Left	0	0				
Volume Right	112	27				
cSH	876	1700				
Volume to Capacity	0.13	0.11				
Queue Length 95th (ft)	11	0				
Control Delay (s)	9.7	0.0				
Lane LOS	A					
Approach Delay (s)	9.7	0.0				
Approach LOS	A					
Intersection Summary						
Average Delay		3.7				
Intersection Capacity Utilization		22.1%		ICU Level of Service		A
Analysis Period (min)		15				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø6
Lane Configurations													
Traffic Volume (vph)	198	697	60	196	362	60	73	359	307	47	317	94	
Future Volume (vph)	198	697	60	196	362	60	73	359	307	47	317	94	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	10	12	12	11	12	12	12	12	12	12	12	12	
Storage Length (ft)	215		0	300		0	0		0	0		125	
Storage Lanes	1		0	1		0	1		1	1		1	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor	0.99	0.99		0.98	1.00		0.97		0.97	0.99		0.93	
Frt		0.988			0.979				0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1560	3466	0	1711	3490	0	1719	1845	1568	1805	1845	1455	
Flt Permitted	0.361						0.554			0.353			
Satd. Flow (perm)	588	3466	0	244	3490	0	968	1845	1517	665	1845	1357	
Right Turn on Red			Yes			Yes			No			Yes	
Satd. Flow (RTOR)		8			16								102
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		255			718			281			219		
Travel Time (s)		5.8			16.3			6.4			5.0		
Confl. Peds. (#/hr)	11		37	37		11	54		19	19		54	
Confl. Bikes (#/hr)		1							2				1
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.92	
Heavy Vehicles (%)	8%	1%	13%	2%	1%	0%	5%	3%	3%	0%	3%	11%	
Adj. Flow (vph)	206	726	63	209	385	64	78	386	330	51	345	102	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	206	789	0	209	449	0	78	386	330	51	345	102	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	custom	NA	custom	
Protected Phases	7	4		3	8			2		1	16	1	6
Permitted Phases	4			8			2		2	6		6	
Detector Phase	7	4		3	8		2	2	2	1	6	1	
Switch Phase													
Minimum Initial (s)	4.0	10.0		4.0	10.0		8.0	8.0	8.0	4.0		4.0	8.0
Minimum Split (s)	9.0	27.0		9.0	27.0		39.0	39.0	39.0	10.0		10.0	39.0
Total Split (s)	15.0	35.0		15.0	35.0		40.0	40.0	40.0	24.0		24.0	64.0
Total Split (%)	13.2%	30.7%		13.2%	30.7%		35.1%	35.1%	35.1%	21.1%		21.1%	56%
Maximum Green (s)	10.0	30.0		10.0	30.0		34.0	34.0	34.0	19.0		19.0	58.0
Yellow Time (s)	3.0	3.0		3.0	3.0		4.0	4.0	4.0	3.0		3.0	4.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0		2.0	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		6.0	6.0	6.0	5.0		5.0	5.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lag	Lead		Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None		None	None		Max	Max	Max	None		None	Max
Walk Time (s)		5.0			5.0		5.0	5.0	5.0				5.0
Flash Dont Walk (s)		17.0			17.0		28.0	28.0	28.0				28.0
Pedestrian Calls (#/hr)		54			19		37	37	37				11
Act Effct Green (s)	38.9	28.9		38.9	28.9		46.0	46.0	46.0	59.0		59.0	59.0
Actuated g/C Ratio	0.34	0.26		0.34	0.26		0.41	0.41	0.41	0.52		0.52	0.52
v/c Ratio	0.72	0.88		0.98	0.50		0.20	0.51	0.53	0.12		0.36	0.13
Control Delay	41.2	52.7		85.5	36.5		24.2	28.7	29.9	14.4		17.4	3.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		33.6	1.1
Total Delay	41.2	52.7		85.5	36.5		24.2	28.7	29.9	14.4		51.0	4.3
LOS	D	D		F	D		C	C	C	B		D	A
Approach Delay		50.3			52.1			28.8				37.7	
Approach LOS		D			D			C				D	
Queue Length 50th (ft)	104	288		104	141		37	210	182	18		144	0
Queue Length 95th (ft)	#178	#387		#260	193		75	312	281	38		212	27
Internal Link Dist (ft)		175			638			201				139	
Turn Bay Length (ft)	215			300								125	
Base Capacity (vph)	288	927		214	939		394	751	617	539		964	774
Starvation Cap Reductn	0	0		0	0		0	0	0	0		628	503
Spillback Cap Reductn	0	0		0	0		0	0	0	0		0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0		0	0
Reduced v/c Ratio	0.72	0.85		0.98	0.48		0.20	0.51	0.53	0.09		1.03	0.38

Intersection Summary

Area Type: Other
 Cycle Length: 114
 Actuated Cycle Length: 112.9
 Natural Cycle: 85
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 42.8 Intersection LOS: D
 Intersection Capacity Utilization 80.6% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Main Street & Centre Street



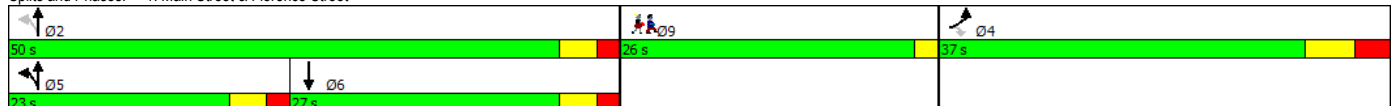


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø9
Lane Configurations								
Traffic Volume (vph)	120	227	200	293	314	76		
Future Volume (vph)	120	227	200	293	314	76		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	12	10	13	13	11		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Ped Bike Factor	0.95	0.96		0.99	0.98			
Fit		0.850			0.974			
Fit Protected	0.950			0.980				
Satd. Flow (prot)	1787	1599	0	1886	1847	0		
Fit Permitted	0.950			0.174				
Satd. Flow (perm)	1700	1529	0	333	1847	0		
Right Turn on Red		Yes				Yes		
Satd. Flow (RTOR)		267			10			
Link Speed (mph)	30			30	30			
Link Distance (ft)	284			528	324			
Travel Time (s)	6.5			12.0	7.4			
Confl. Peds. (#/hr)	26	13	34			34		
Peak Hour Factor	0.85	0.85	0.92	0.92	0.78	0.78		
Heavy Vehicles (%)	1%	1%	5%	0%	1%	3%		
Adj. Flow (vph)	141	267	217	318	403	97		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	141	267	0	535	500	0		
Turn Type	Prot	Perm	custom	NA	NA			
Protected Phases	4		5	2 5	6		2	9
Permitted Phases		4	2					
Detector Phase	4	4	5	2 5	6			
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0		4.0		16.0	4.0
Minimum Split (s)	15.0	15.0	13.0		9.0		21.0	26.0
Total Split (s)	37.0	37.0	23.0		27.0		50.0	26.0
Total Split (%)	32.7%	32.7%	20.4%		23.9%		44%	23%
Maximum Green (s)	30.0	30.0	18.0		22.0		45.0	24.0
Yellow Time (s)	4.0	4.0	3.0		3.0		3.0	2.0
All-Red Time (s)	3.0	3.0	2.0		2.0		2.0	0.0
Lost Time Adjust (s)	0.0	0.0			0.0			
Total Lost Time (s)	7.0	7.0			5.0			
Lead/Lag			Lead		Lag			
Lead-Lag Optimize?			Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0
Recall Mode	None	None	None		Max		Max	None
Walk Time (s)								6.0
Flash Dont Walk (s)								18.0
Pedestrian Calls (#/hr)								15
Act Effct Green (s)	12.1	12.1		46.3	22.6			
Actuated g/C Ratio	0.16	0.16		0.62	0.30			
v/c Ratio	0.49	0.57		0.90	0.88			
Control Delay	35.9	9.6		38.9	45.7			
Queue Delay	0.0	0.0		0.0	0.0			
Total Delay	35.9	9.6		38.9	45.7			
LOS	D	A		D	D			
Approach Delay	18.7			38.9	45.7			
Approach LOS	B			D	D			
Queue Length 50th (ft)	54	0		138	184			
Queue Length 95th (ft)	133	55		#590	#485			
Internal Link Dist (ft)	204			448	244			
Turn Bay Length (ft)								
Base Capacity (vph)	740	789		593	567			
Starvation Cap Reductn	0	0		0	0			
Spillback Cap Reductn	0	0		0	0			
Storage Cap Reductn	0	0		0	0			
Reduced v/c Ratio	0.19	0.34		0.90	0.88			

Intersection Summary

Area Type: Other
 Cycle Length: 113
 Actuated Cycle Length: 74.5
 Natural Cycle: 110
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 35.6
 Intersection LOS: D
 Intersection Capacity Utilization 69.0%
 ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Main Street & Florence Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	169	373	23	60	215	108	35	247	121	91	245	190
Future Volume (vph)	169	373	23	60	215	108	35	247	121	91	245	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	15	12	10	10	12	12	10	10	12	16	16
Storage Length (ft)	0		0	0		200	0		0	0		50
Storage Lanes	1		0	1		1	0		1	0		1
Taper Length (ft)	25			25		25			25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.92	1.00		0.95	0.95			1.00	0.97		1.00	
Frt		0.991			0.950				0.850			0.850
Flt Protected	0.950			0.950				0.994			0.987	
Satd. Flow (prot)	1547	1968	0	1620	1546	0	0	1711	1492	0	2110	1777
Flt Permitted	0.950			0.518				0.770			0.583	
Satd. Flow (perm)	1418	1968	0	835	1546	0	0	1324	1443	0	1244	1777
Right Turn on Red			No			No			Yes			No
Satd. Flow (RTOR)									133			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		278			466			512			528	
Travel Time (s)		6.3			10.6			11.6			12.0	
Confl. Peds. (#/hr)	81		58	58		81	20		8	8		20
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.95	0.95	0.95	0.91	0.91	0.91	0.91	0.91	0.91	0.94	0.94	0.94
Heavy Vehicles (%)	5%	4%	18%	4%	5%	0%	3%	3%	1%	0%	1%	3%
Adj. Flow (vph)	178	393	24	66	236	119	38	271	133	97	261	202
Shared Lane Traffic (%)												
Lane Group Flow (vph)	178	417	0	66	355	0	0	309	133	0	358	202
Turn Type	Prot	NA		Perm	NA		Perm	NA	Perm	Perm	NA	pt+ov
Protected Phases	5	2			6			8			4	4 5
Permitted Phases				6			8		8	4		
Detector Phase	5	2		6	6		8	8	8	4	4	5
Switch Phase												
Minimum Initial (s)	9.0	44.0		31.0	31.0		18.0	18.0	18.0	18.0	18.0	
Minimum Split (s)	14.0	49.0		36.0	36.0		36.0	36.0	36.0	36.0	36.0	
Total Split (s)	15.0	60.0		45.0	45.0		41.0	41.0	41.0	41.0	41.0	
Total Split (%)	14.9%	59.4%		44.6%	44.6%		40.6%	40.6%	40.6%	40.6%	40.6%	
Maximum Green (s)	10.0	55.0		40.0	40.0		35.0	35.0	35.0	35.0	35.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		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)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Max		Max	Max		None	None	None	None	None	
Walk Time (s)				15.0	15.0		15.0	15.0	15.0	15.0	15.0	
Flash Dont Walk (s)				15.0	15.0		15.0	15.0	15.0	15.0	15.0	
Pedestrian Calls (#/hr)				55	55		18	18	18	18	18	
Act Effct Green (s)	10.0	55.2		40.2	40.2		28.1	28.1	28.1	28.1	28.1	43.2
Actuated g/C Ratio	0.11	0.58		0.43	0.43		0.30	0.30	0.30	0.30	0.30	0.46
v/c Ratio	1.09	0.36		0.19	0.54		0.78	0.25	0.78	0.25	0.97	0.25
Control Delay	137.9	12.5		20.9	25.4		45.0	5.5	45.0	5.5	72.6	16.2
Queue Delay	0.0	4.8		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	137.9	17.3		20.9	25.4		45.0	5.5	45.0	5.5	72.6	16.2
LOS	F	B		C	C		D	A	D	A	E	B
Approach Delay		53.4			24.7			33.1			52.2	
Approach LOS		D			C			C			D	
Queue Length 50th (ft)	~123	127		25	158		168	0	168	0	210	71
Queue Length 95th (ft)	#272	216		59	271		269	39	269	39	#370	116
Internal Link Dist (ft)		198			386			432			448	
Turn Bay Length (ft)												50
Base Capacity (vph)	164	1151		355	658		493	620	493	620	463	812
Starvation Cap Reductn	0	651		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	1.09	0.83		0.19	0.54		0.63	0.21	0.63	0.21	0.77	0.25

Intersection Summary
Area Type: Other
Cycle Length: 101
Actuated Cycle Length: 94.4
Natural Cycle: 90
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 42.6 Intersection LOS: D
Intersection Capacity Utilization 119.5% ICU Level of Service H
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.





Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR	Ø9
Lane Configurations				↕↕		↕↕		
Traffic Volume (vph)	0	0	121	559	10	319	117	
Future Volume (vph)	0	0	121	559	10	319	117	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95	0.95	
Ped Bike Factor				1.00		0.99		
Frt						0.961		
Flt Protected				0.991		0.999		
Satd. Flow (prot)	0	0	0	3425	0	3286	0	
Flt Permitted				0.764		0.939		
Satd. Flow (perm)	0	0	0	2633	0	3089	0	
Right Turn on Red		Yes					Yes	
Satd. Flow (RTOR)						129		
Link Speed (mph)	30			30		30		
Link Distance (ft)	363			237		278		
Travel Time (s)	8.3			5.4		6.3		
Confl. Peds. (#/hr)			46				46	
Confl. Bikes (#/hr)							1	
Peak Hour Factor	0.25	0.25	0.95	0.95	0.91	0.91	0.91	
Heavy Vehicles (%)	0%	0%	2%	5%	0%	5%	2%	
Adj. Flow (vph)	0	0	127	588	11	351	129	
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	0	0	715	0	491	0	
Turn Type			Perm	NA	Perm	NA		
Protected Phases				2		6		9
Permitted Phases				2		6		
Detector Phase				2		2		
Switch Phase								
Minimum Initial (s)			10.0	10.0	10.0	10.0		4.0
Minimum Split (s)			20.0	20.0	20.0	20.0		19.0
Total Split (s)			84.0	84.0	84.0	84.0		19.0
Total Split (%)			81.6%	81.6%	81.6%	81.6%		18%
Maximum Green (s)			80.0	80.0	80.0	80.0		17.0
Yellow Time (s)			3.0	3.0	3.0	3.0		2.0
All-Red Time (s)			1.0	1.0	1.0	1.0		0.0
Lost Time Adjust (s)				0.0		0.0		
Total Lost Time (s)				4.0		4.0		
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)			3.0	3.0	3.0	3.0		3.0
Recall Mode			Max	Max	Max	Max		None
Walk Time (s)								11.0
Flash Dont Walk (s)								6.0
Pedestrian Calls (#/hr)								0
Act Effct Green (s)				99.0		99.0		
Actuated g/C Ratio				1.00		1.00		
v/c Ratio				0.27		0.16		
Control Delay				0.3		0.1		
Queue Delay				0.0		0.0		
Total Delay				0.3		0.1		
LOS				A		A		
Approach Delay				0.3		0.1		
Approach LOS				A		A		
Queue Length 50th (ft)				0		0		
Queue Length 95th (ft)				0		0		
Internal Link Dist (ft)	283			157		198		
Turn Bay Length (ft)								
Base Capacity (vph)				2633		3089		
Starvation Cap Reductn				0		0		
Spillback Cap Reductn				0		0		
Storage Cap Reductn				0		0		
Reduced v/c Ratio				0.27		0.16		

Intersection Summary

Area Type: Other
 Cycle Length: 103
 Actuated Cycle Length: 99
 Natural Cycle: 40
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.27
 Intersection Signal Delay: 0.2
 Intersection LOS: A
 Intersection Capacity Utilization 39.5%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 3: Main Street & Pleasant Street

↕ Ø2	↕ Ø9
84 s	19 s
↕ Ø6	
84 s	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Lane Configurations													
Traffic Volume (vph)	128	4	120	0	0	0	0	548	19	5	319	0	
Future Volume (vph)	128	4	120	0	0	0	0	548	19	5	319	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	16	12	12	12	12	12	12	12	12	11	12	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	
Ped Bike Factor	0.95	0.92						1.00			1.00		
Frt		0.854						0.995					
Fit Protected	0.950										0.999		
Satd. Flow (prot)	1805	1648	0	0	0	0	0	3421	0	0	3354	0	
Fit Permitted	0.950										0.949		
Satd. Flow (perm)	1716	1648	0	0	0	0	0	3421	0	0	3186	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		133						5					
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		234			280			219			237		
Travel Time (s)		5.3			6.4			5.0			5.4		
Confl. Peds. (#/hr)	31		45						29	29			
Confl. Bikes (#/hr)								3					
Peak Hour Factor	0.90	0.90	0.90	0.25	0.25	0.25	0.90	0.90	0.90	0.93	0.93	0.93	
Heavy Vehicles (%)	0%	25%	2%	0%	0%	0%	0%	5%	0%	0%	4%	0%	
Adj. Flow (vph)	142	4	133	0	0	0	0	609	21	5	343	0	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	142	137	0	0	0	0	0	630	0	0	348	0	
Turn Type	Perm	NA						NA		Perm	NA		
Protected Phases		4						2			6		9
Permitted Phases	4									6			
Detector Phase	4	4						2		6	6		
Switch Phase													
Minimum Initial (s)	8.0	8.0						10.0		10.0	10.0		4.0
Minimum Split (s)	12.0	12.0						14.0		14.0	14.0		20.0
Total Split (s)	24.0	24.0						62.0		62.0	62.0		20.0
Total Split (%)	22.6%	22.6%						58.5%		58.5%	58.5%		19%
Maximum Green (s)	20.0	20.0						58.0		58.0	58.0		18.0
Yellow Time (s)	3.0	3.0						3.0		3.0	3.0		2.0
All-Red Time (s)	1.0	1.0						1.0		1.0	1.0		0.0
Lost Time Adjust (s)	0.0	0.0						0.0		0.0	0.0		
Total Lost Time (s)	4.0	4.0						4.0		4.0	4.0		
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0		3.0
Recall Mode	None	None						Max		Max	Max		None
Walk Time (s)													4.0
Flash Dont Walk (s)													14.0
Pedestrian Calls (#/hr)													0
Act Effct Green (s)	11.7	11.7						58.1		58.1	58.1		
Actuated g/C Ratio	0.15	0.15						0.75		0.75	0.75		
v/c Ratio	0.55	0.38						0.25		0.15	0.15		
Control Delay	38.8	9.4						3.6		3.3	3.3		
Queue Delay	0.0	0.0						1.2		0.5	0.5		
Total Delay	38.8	9.4						4.8		3.7	3.7		
LOS	D	A						A		A	A		
Approach Delay		24.4						4.8		3.7	3.7		
Approach LOS		C						A		A	A		
Queue Length 50th (ft)	65	2						37		19	19		
Queue Length 95th (ft)	119	47						70		38	38		
Internal Link Dist (ft)		154			200			139		157	157		
Turn Bay Length (ft)													
Base Capacity (vph)	441	522						2554		2377	2377		
Starvation Cap Reductn	0	0						1636		1565	1565		
Spillback Cap Reductn	0	0						0		0	0		
Storage Cap Reductn	0	0						0		0	0		
Reduced v/c Ratio	0.32	0.26						0.69		0.43	0.43		

Intersection Summary

Area Type: Other
 Cycle Length: 106
 Actuated Cycle Length: 77.8
 Natural Cycle: 50
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.55
 Intersection Signal Delay: 8.8
 Intersection Capacity Utilization 33.7%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 4: Main Street & Exchange Street/Irving Street

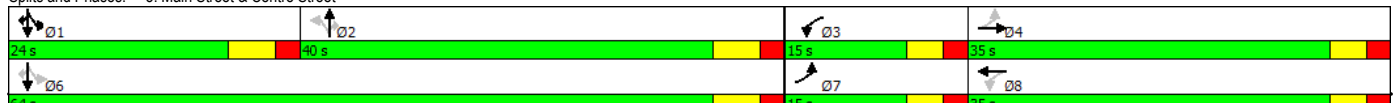


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø6
Lane Configurations													
Traffic Volume (vph)	191	665	56	189	331	48	69	342	296	40	292	88	
Future Volume (vph)	191	665	56	189	331	48	69	342	296	40	292	88	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	10	12	12	11	12	12	12	12	12	12	12	12	
Storage Length (ft)	215		0	300		0	0		0	0		75	
Storage Lanes	1		0	1		0	1		1	1		1	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor	0.99	0.99		0.98	1.00		0.96		0.97	0.99		0.93	
Frt		0.988			0.981				0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1560	3468	0	1711	3498	0	1719	1845	1568	1805	1845	1455	
Flt Permitted	0.401			0.142			0.568			0.359			
Satd. Flow (perm)	653	3468	0	251	3498	0	991	1845	1517	677	1845	1357	
Right Turn on Red			Yes			Yes			No			Yes	
Satd. Flow (RTOR)		7			14								78
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		385			718			281			219		
Travel Time (s)		8.8			16.3			6.4			5.0		
Confl. Peds. (#/hr)	11		37	37		11	54		19	19		54	
Confl. Bikes (#/hr)		1							2				1
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.92	
Heavy Vehicles (%)	8%	1%	13%	2%	1%	0%	5%	3%	3%	0%	3%	11%	
Adj. Flow (vph)	199	693	58	201	352	51	74	368	318	43	317	96	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	199	751	0	201	403	0	74	368	318	43	317	96	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	custom	NA	custom	
Protected Phases	7	4		3	8			2		1	16	1	6
Permitted Phases	4			8			2		2	6		6	
Detector Phase	7	4		3	8		2	2	2	1	6	1	
Switch Phase													
Minimum Initial (s)	4.0	10.0		4.0	10.0		8.0	8.0	8.0	4.0		4.0	8.0
Minimum Split (s)	9.0	27.0		9.0	27.0		39.0	39.0	39.0	10.0		10.0	39.0
Total Split (s)	15.0	35.0		15.0	35.0		40.0	40.0	40.0	24.0		24.0	64.0
Total Split (%)	13.2%	30.7%		13.2%	30.7%		35.1%	35.1%	35.1%	21.1%		21.1%	56%
Maximum Green (s)	10.0	30.0		10.0	30.0		34.0	34.0	34.0	18.0		18.0	58.0
Yellow Time (s)	3.0	3.0		3.0	3.0		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	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		6.0	6.0	6.0	6.0		6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lag	Lead		Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None		None	None		Max	Max	Max	None		None	Max
Walk Time (s)		5.0			5.0		5.0	5.0	5.0				5.0
Flash Dont Walk (s)		17.0			17.0		28.0	28.0	28.0				28.0
Pedestrian Calls (#/hr)		54			19		37	37	37				11
Act Effct Green (s)	38.2	28.2		38.2	28.2		45.0	45.0	45.0	58.1	58.1	58.1	
Actuated g/C Ratio	0.34	0.25		0.34	0.25		0.40	0.40	0.40	0.52	0.52	0.52	
v/c Ratio	0.66	0.86		0.93	0.45		0.19	0.50	0.52	0.10	0.33	0.13	
Control Delay	37.1	50.5		74.7	35.9		24.6	28.8	30.1	14.7	17.4	5.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	21.7	1.1	
Total Delay	37.1	50.5		74.7	35.9		24.6	28.8	30.1	14.7	39.2	6.1	
LOS	D	D		E	D		C	C	C	B	D	A	
Approach Delay		47.7			48.8			29.0			29.9		
Approach LOS		D			D			C			C		
Queue Length 50th (ft)	100	271		100	124		35	200	175	15	133	6	
Queue Length 95th (ft)	160	345		#242	173		73	303	277	34	197	33	
Internal Link Dist (ft)		305			638			201			139		
Turn Bay Length (ft)	215			300								75	
Base Capacity (vph)	303	932		215	945		397	739	608	530	953	755	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	628	495	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0	
Reduced v/c Ratio	0.66	0.81		0.93	0.43		0.19	0.50	0.52	0.08	0.98	0.37	

Intersection Summary

Area Type: Other
 Cycle Length: 114
 Actuated Cycle Length: 112.3
 Natural Cycle: 85
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 39.9
 Intersection LOS: D
 Intersection Capacity Utilization 80.1%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Main Street & Centre Street



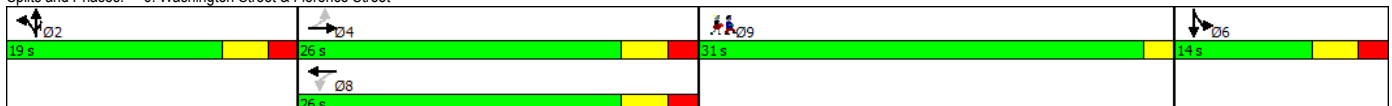


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Lane Configurations		↕↔		↕	↕↔			↕↔	↕↔		↕↔		
Traffic Volume (vph)	63	202	3	1	192	28	35	44	40	52	8	57	
Future Volume (vph)	63	202	3	1	192	28	35	44	40	52	8	57	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0		0	100			0	0	100	0		0	
Storage Lanes	0		0	1		0	0		1	0		0	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	0.95	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor									0.99				
Frt		0.998			0.981				0.850		0.935		
Flt Protected		0.988		0.950				0.978			0.978		
Satd. Flow (prot)	0	3444	0	1805	3393	0	0	1838	1568	0	1737	0	
Flt Permitted		0.821		0.577				0.978			0.978		
Satd. Flow (perm)	0	2862	0	1096	3393	0	0	1838	1547	0	1737	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		1			17				109		42		
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		360			731			301			355		
Travel Time (s)		8.2			16.6			6.8			8.1		
Confl. Bikes (#/hr)									1				
Peak Hour Factor	0.94	0.94	0.94	0.87	0.87	0.87	0.88	0.88	0.88	0.93	0.93	0.93	
Heavy Vehicles (%)	0%	4%	33%	0%	5%	0%	0%	2%	3%	0%	0%	0%	
Adj. Flow (vph)	67	215	3	1	221	32	40	50	45	56	9	61	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	285	0	1	253	0	0	90	45	0	126	0	
Turn Type	Perm	NA		Perm	NA		Split	NA	custom	Split	NA		
Protected Phases		4			8		2	2	2	6	6		9
Permitted Phases	4			8					2				
Detector Phase	4	4		8	8		2	2	2	6	6		
Switch Phase													
Minimum Initial (s)	10.0	10.0		10.0	10.0		8.0	8.0	8.0	8.0	8.0		4.0
Minimum Split (s)	15.0	15.0		15.0	15.0		13.0	13.0	13.0	13.0	13.0		31.0
Total Split (s)	26.0	26.0		26.0	26.0		19.0	19.0	19.0	14.0	14.0		31.0
Total Split (%)	28.9%	28.9%		28.9%	28.9%		21.1%	21.1%	21.1%	15.6%	15.6%		34%
Maximum Green (s)	21.0	21.0		21.0	21.0		14.0	14.0	14.0	9.0	9.0		29.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0		2.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0
Lost Time Adjust (s)		0.0		0.0	0.0			0.0	0.0		0.0		
Total Lost Time (s)		5.0		5.0	5.0			5.0	5.0		5.0		
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	Max	Max		Max	Max		None	None	None	None	None		None
Walk Time (s)													7.0
Flash Dont Walk (s)													22.0
Pedestrian Calls (#/hr)													100
Act Effct Green (s)		30.5		30.5	30.5		10.5	10.5		9.3			
Actuated g/C Ratio		0.40		0.40	0.40		0.14	0.14		0.12			
v/c Ratio		0.25		0.00	0.19		0.36	0.15		0.51			
Control Delay		27.0		26.0	24.6		39.5	1.0		34.9			
Queue Delay		0.0		0.0	0.0		0.0	0.0		0.0			
Total Delay		27.0		26.0	24.6		39.5	1.0		34.9			
LOS		C		C	C		D	A		C			
Approach Delay		27.0			24.6		26.7			34.9			
Approach LOS		C			C		C			C			
Queue Length 50th (ft)		67		0	54		46	0		43			
Queue Length 95th (ft)		110		4	88		89	0		#110			
Internal Link Dist (ft)		280			651		221			275			
Turn Bay Length (ft)				100			100						
Base Capacity (vph)		1131		433	1350		364	398		258			
Starvation Cap Reductn		0		0	0		0	0		0			
Spillback Cap Reductn		0		0	0		0	0		0			
Storage Cap Reductn		0		0	0		0	0		0			
Reduced v/c Ratio		0.25		0.00	0.19		0.25	0.11		0.49			

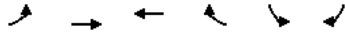
Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 77.2
 Natural Cycle: 75
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.51
 Intersection Signal Delay: 27.4
 Intersection LOS: C
 Intersection Capacity Utilization 42.6%
 ICU Level of Service A
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.










Splits and Phases: 6: Washington Street & Florence Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	0	0	0	0	156	81	55	59	0	0	0	0	
Future Volume (Veh/h)	0	0	0	0	156	81	55	59	0	0	0	0	
Sign Control	Free			Free			Stop			Stop			
Grade	0%			0%			0%			0%			
Peak Hour Factor	0.25	0.25	0.25	0.91	0.91	0.91	0.87	0.87	0.87	0.25	0.25	0.25	
Hourly flow rate (vph)	0	0	0	0	171	89	63	68	0	0	0	0	
Pedestrians	109												
Lane Width (ft)	0.0												
Walking Speed (ft/s)	4.0												
Percent Blockage	0												
Right turn flare (veh)													
Median type	None			None									
Median storage (veh)													
Upstream signal (ft)	363												
pX, platoon unblocked													
vC, conflicting volume	358			0				324	358	0	348	314	422
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	358			0				324	358	0	348	314	422
tC, single (s)	4.1			4.1				7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)													
tF (s)	2.2			2.2				3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100				90	88	100	100	100	100
cM capacity (veh/h)	1212			1636				632	568	1091	555	605	636
Direction, Lane #	WB 1	NB 1											
Volume Total	260	131											
Volume Left	0	63											
Volume Right	89	0											
cSH	1700	597											
Volume to Capacity	0.15	0.22											
Queue Length 95th (ft)	0	21											
Control Delay (s)	0.0	12.7											
Lane LOS		B											
Approach Delay (s)	0.0	12.7											
Approach LOS		B											
Intersection Summary													
Average Delay				4.3									
Intersection Capacity Utilization				28.0%			ICU Level of Service			A			
Analysis Period (min)	15												



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔↑	↔↑		↔↓	↔↓
Traffic Volume (veh/h)	23	258	185	51	101	38
Future Volume (Veh/h)	23	258	185	51	101	38
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	25	284	213	59	116	44
Pedestrians		2	11		37	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		0	1		3	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		731	284			
pX, platoon unblocked					482	175
vC, conflicting volume	309					
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	309				482	175
tC, single (s)	4.2				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				76	95
cM capacity (veh/h)	1196				487	817
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	120	189	142	130	116	44
Volume Left	25	0	0	0	116	0
Volume Right	0	0	0	59	0	44
cSH	1196	1700	1700	1700	487	817
Volume to Capacity	0.02	0.11	0.08	0.08	0.24	0.05
Queue Length 95th (ft)	2	0	0	0	23	4
Control Delay (s)	1.8	0.0	0.0	0.0	14.7	9.7
Lane LOS	A				B	A
Approach Delay (s)	0.7		0.0		13.3	
Approach LOS					B	
Intersection Summary						
Average Delay			3.2			
Intersection Capacity Utilization			35.5%		ICU Level of Service	A
Analysis Period (min)			15			

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	59	79	43	54	35
Future Volume (Veh/h)	4	59	79	43	54	35
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.89	0.89	0.86	0.86	0.79	0.79
Hourly flow rate (vph)	4	66	92	50	68	44
Pedestrians	13		2			4
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	1		0			0
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	312	134			155	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	312	134			155	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	93			95	
cM capacity (veh/h)	644	902			1422	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	70	142	112			
Volume Left	4	0	68			
Volume Right	66	50	0			
cSH	882	1700	1422			
Volume to Capacity	0.08	0.08	0.05			
Queue Length 95th (ft)	6	0	4			
Control Delay (s)	9.4	0.0	4.8			
Lane LOS	A		A			
Approach Delay (s)	9.4	0.0	4.8			
Approach LOS	A					
Intersection Summary						
Average Delay			3.7			
Intersection Capacity Utilization			29.6%		ICU Level of Service	A
Analysis Period (min)			15			

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↗	↘	
Traffic Volume (veh/h)	270	78	56	188	92	89
Future Volume (Veh/h)	270	78	56	188	92	89
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.89	0.89	0.79	0.79
Hourly flow rate (vph)	310	90	63	211	116	113
Pedestrians	1			16	62	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	0			1	5	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			462		755	433
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			462		755	433
tC, single (s)			4.2		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.3
p0 queue free %			94		65	80
cM capacity (veh/h)			1023		335	577
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	400	274	229			
Volume Left	0	63	116			
Volume Right	90	0	113			
cSH	1700	1023	422			
Volume to Capacity	0.24	0.06	0.54			
Queue Length 95th (ft)	0	5	79			
Control Delay (s)	0.0	2.5	23.2			
Lane LOS		A	C			
Approach Delay (s)	0.0	2.5	23.2			
Approach LOS			C			
Intersection Summary						
Average Delay			6.6			
Intersection Capacity Utilization		55.1%		ICU Level of Service	B	
Analysis Period (min)			15			

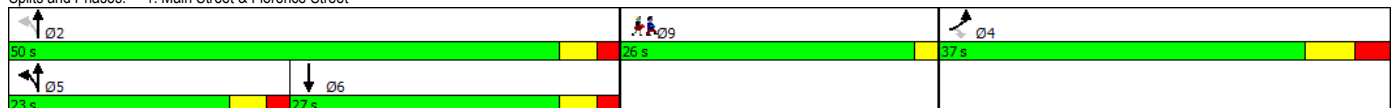


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø9
Lane Configurations								
Traffic Volume (vph)	124	235	210	305	327	81		
Future Volume (vph)	124	235	210	305	327	81		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	12	12	10	13	13	11		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Ped Bike Factor	0.95	0.96		1.00	0.99			
Fit		0.850			0.973			
Fit Protected	0.950			0.980				
Satd. Flow (prot)	1787	1599	0	1886	1860	0		
Fit Permitted	0.950			0.139				
Satd. Flow (perm)	1700	1529	0	267	1860	0		
Right Turn on Red		Yes				Yes		
Satd. Flow (RTOR)		276			10			
Link Speed (mph)	30			30	30			
Link Distance (ft)	284			528	324			
Travel Time (s)	6.5			12.0	7.4			
Confl. Peds. (#/hr)	26	13	34			34		
Peak Hour Factor	0.85	0.85	0.92	0.92	0.78	0.78		
Heavy Vehicles (%)	1%	1%	5%	0%	1%	3%		
Adj. Flow (vph)	146	276	228	332	419	104		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	146	276	0	560	523	0		
Turn Type	Prot	Perm	custom	NA	NA			
Protected Phases	4		5	2 5	6		2	9
Permitted Phases		4	2					
Detector Phase	4	4	5	2 5	6			
Switch Phase								
Minimum Initial (s)	8.0	8.0	8.0		4.0		16.0	4.0
Minimum Split (s)	15.0	15.0	13.0		9.0		21.0	26.0
Total Split (s)	37.0	37.0	23.0		27.0		50.0	26.0
Total Split (%)	32.7%	32.7%	20.4%		23.9%		44%	23%
Maximum Green (s)	30.0	30.0	18.0		22.0		45.0	24.0
Yellow Time (s)	4.0	4.0	3.0		3.0		3.0	2.0
All-Red Time (s)	3.0	3.0	2.0		2.0		2.0	0.0
Lost Time Adjust (s)	0.0	0.0			0.0			
Total Lost Time (s)	7.0	7.0			5.0			
Lead/Lag			Lead		Lag			
Lead-Lag Optimize?			Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0	3.0
Recall Mode	None	None	None		Max		Max	None
Walk Time (s)								6.0
Flash Dont Walk (s)								18.0
Pedestrian Calls (#/hr)								15
Act Effct Green (s)	12.3	12.3		46.3	22.6			
Actuated g/C Ratio	0.16	0.16		0.62	0.30			
v/c Ratio	0.50	0.57		0.99	0.92			
Control Delay	36.1	9.5		58.3	50.7			
Queue Delay	0.0	0.0		0.0	0.0			
Total Delay	36.1	9.5		58.3	50.7			
LOS	D	A		E	D			
Approach Delay	18.7			58.3	50.7			
Approach LOS	B			E	D			
Queue Length 50th (ft)	56	0		171	196			
Queue Length 95th (ft)	137	55		#656	#516			
Internal Link Dist (ft)	204			448	244			
Turn Bay Length (ft)								
Base Capacity (vph)	738	793		566	570			
Starvation Cap Reductn	0	0		0	0			
Spillback Cap Reductn	0	0		0	0			
Storage Cap Reductn	0	0		0	0			
Reduced v/c Ratio	0.20	0.35		0.99	0.92			

Intersection Summary

Area Type: Other
 Cycle Length: 113
 Actuated Cycle Length: 74.7
 Natural Cycle: 120
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay: 44.6
 Intersection LOS: D
 Intersection Capacity Utilization 71.4%
 ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Main Street & Florence Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	386	24	62	231	115	38	262	125	94	254	199
Future Volume (vph)	175	386	24	62	231	115	38	262	125	94	254	199
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	15	12	10	10	12	12	10	10	12	16	16
Storage Length (ft)	0		0	0		200	0		0	0		50
Storage Lanes	1		0	1		1	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	0.92	1.00		0.95	0.95			1.00	0.97		1.00	
Frt		0.991			0.950				0.850			0.850
Flt Protected	0.950			0.950				0.994			0.987	
Satd. Flow (prot)	1547	1968	0	1620	1547	0	0	1711	1492	0	2110	1777
Flt Permitted	0.950			0.512				0.758			0.568	
Satd. Flow (perm)	1423	1968	0	826	1547	0	0	1303	1443	0	1212	1777
Right Turn on Red			No			No			Yes			No
Satd. Flow (RTOR)									137			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		278			466			512			528	
Travel Time (s)		6.3			10.6			11.6			12.0	
Confl. Peds. (#/hr)	81		58	58		81	20		8	8		20
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.95	0.95	0.95	0.91	0.91	0.91	0.91	0.91	0.91	0.94	0.94	0.94
Heavy Vehicles (%)	5%	4%	18%	4%	5%	0%	3%	3%	1%	0%	1%	3%
Adj. Flow (vph)	184	406	25	68	254	126	42	288	137	100	270	212
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	431	0	68	380	0	0	330	137	0	370	212
Turn Type	Prot	NA		Perm	NA		Perm	NA	Perm	Perm	NA	pt+ov
Protected Phases	5	2			6			8			4	4 5
Permitted Phases				6			8		8	4		
Detector Phase	5	2		6	6		8	8	8	4	4	5
Switch Phase												
Minimum Initial (s)	9.0	44.0		31.0	31.0		18.0	18.0	18.0	18.0	18.0	
Minimum Split (s)	14.0	49.0		36.0	36.0		36.0	36.0	36.0	36.0	36.0	
Total Split (s)	15.0	60.0		45.0	45.0		41.0	41.0	41.0	41.0	41.0	
Total Split (%)	14.9%	59.4%		44.6%	44.6%		40.6%	40.6%	40.6%	40.6%	40.6%	
Maximum Green (s)	10.0	55.0		40.0	40.0		35.0	35.0	35.0	35.0	35.0	
Yellow Time (s)	3.0	3.0		3.0	3.0		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)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0		6.0	6.0	6.0	6.0	6.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Max		Max	Max		None	None	None	None	None	
Walk Time (s)				15.0	15.0		15.0	15.0	15.0	15.0	15.0	
Flash Dont Walk (s)				15.0	15.0		15.0	15.0	15.0	15.0	15.0	
Pedestrian Calls (#/hr)				55	55		18	18	18	18	18	
Act Effct Green (s)	10.0	55.2		40.1	40.1		30.3	30.3	30.3	30.3	30.3	45.3
Actuated g/C Ratio	0.10	0.57		0.42	0.42		0.31	0.31	0.31	0.31	0.31	0.47
v/c Ratio	1.14	0.38		0.20	0.59		0.81	0.25	0.81	0.25	0.97	0.25
Control Delay	157.2	13.4		21.7	27.6		46.6	5.4	46.6	5.4	73.5	16.0
Queue Delay	0.0	5.8		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	157.2	19.3		21.7	27.6		46.6	5.4	46.6	5.4	73.5	16.0
LOS	F	B		C	C		D	A	D	A	E	B
Approach Delay		60.6			26.7			34.5			52.6	
Approach LOS		E			C			C			D	
Queue Length 50th (ft)	~142	149		28	188		184	0	184	0	222	75
Queue Length 95th (ft)	#281	224		61	294		#299	40	#299	40	#395	122
Internal Link Dist (ft)		198			386			432			448	
Turn Bay Length (ft)												50
Base Capacity (vph)	161	1125		343	643		474	612	474	612	441	834
Starvation Cap Reductn	0	625		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	1.14	0.86		0.20	0.59		0.70	0.22	0.70	0.22	0.84	0.25

Intersection Summary

Area Type: Other
 Cycle Length: 101
 Actuated Cycle Length: 96.5
 Natural Cycle: 90
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.14
 Intersection Signal Delay: 45.4
 Intersection LOS: D
 Intersection Capacity Utilization 120.6%
 ICU Level of Service H
 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: Ferry Street & Main Street & Salem Street





Lane Group	EBL	EBR	NBL	NBT	SBU	SBT	SBR	Ø9
Lane Configurations				↕↕		↕↕		
Traffic Volume (vph)	0	0	137	587	10	333	128	
Future Volume (vph)	0	0	137	587	10	333	128	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95	0.95	
Ped Bike Factor				1.00		0.99		
Frt						0.959		
Flt Protected				0.991		0.999		
Satd. Flow (prot)	0	0	0	3426	0	3278	0	
Flt Permitted				0.744		0.939		
Satd. Flow (perm)	0	0	0	2565	0	3081	0	
Right Turn on Red		Yes					Yes	
Satd. Flow (RTOR)						141		
Link Speed (mph)	30			30		30		
Link Distance (ft)	363			237		278		
Travel Time (s)	8.3			5.4		6.3		
Confl. Peds. (#/hr)			46				46	
Confl. Bikes (#/hr)							1	
Peak Hour Factor	0.25	0.25	0.95	0.95	0.91	0.91	0.91	
Heavy Vehicles (%)	0%	0%	2%	5%	0%	5%	2%	
Adj. Flow (vph)	0	0	144	618	11	366	141	
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	0	0	762	0	518	0	
Turn Type			Perm	NA	Perm	NA		
Protected Phases				2		6		9
Permitted Phases				2		6		
Detector Phase				2	2	6	6	
Switch Phase								
Minimum Initial (s)			10.0	10.0	10.0	10.0		4.0
Minimum Split (s)			20.0	20.0	20.0	20.0		19.0
Total Split (s)			84.0	84.0	84.0	84.0		19.0
Total Split (%)			81.6%	81.6%	81.6%	81.6%		18%
Maximum Green (s)			80.0	80.0	80.0	80.0		17.0
Yellow Time (s)			3.0	3.0	3.0	3.0		2.0
All-Red Time (s)			1.0	1.0	1.0	1.0		0.0
Lost Time Adjust (s)				0.0		0.0		
Total Lost Time (s)				4.0		4.0		
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)			3.0	3.0	3.0	3.0		3.0
Recall Mode			Max	Max	Max	Max		None
Walk Time (s)								11.0
Flash Dont Walk (s)								6.0
Pedestrian Calls (#/hr)								0
Act Effct Green (s)				99.0		99.0		
Actuated g/C Ratio				1.00		1.00		
v/c Ratio				0.30		0.17		
Control Delay				0.3		0.1		
Queue Delay				0.0		0.0		
Total Delay				0.3		0.1		
LOS				A		A		
Approach Delay				0.3		0.1		
Approach LOS				A		A		
Queue Length 50th (ft)				0		0		
Queue Length 95th (ft)				0		0		
Internal Link Dist (ft)	283			157		198		
Turn Bay Length (ft)								
Base Capacity (vph)				2565		3081		
Starvation Cap Reductn				0		0		
Spillback Cap Reductn				0		0		
Storage Cap Reductn				0		0		
Reduced v/c Ratio				0.30		0.17		

Intersection Summary

Area Type: Other
 Cycle Length: 103
 Actuated Cycle Length: 99
 Natural Cycle: 40
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.30
 Intersection Signal Delay: 0.2
 Intersection LOS: A
 Intersection Capacity Utilization 41.5%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 3: Main Street & Pleasant Street

↕ Ø2	↕ Ø9
84 s	19 s
↕ Ø6	
84 s	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Lane Configurations													
Traffic Volume (vph)	141	4	131	0	0	0	0	579	20	5	333	0	
Future Volume (vph)	141	4	131	0	0	0	0	579	20	5	333	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	16	12	12	12	12	12	12	12	12	11	12	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	
Ped Bike Factor	0.95	0.92						1.00			1.00		
Frt		0.854						0.995					
Fit Protected	0.950										0.999		
Satd. Flow (prot)	1805	1649	0	0	0	0	0	3421	0	0	3354	0	
Fit Permitted	0.950										0.949		
Satd. Flow (perm)	1716	1649	0	0	0	0	0	3421	0	0	3186	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		146						5					
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		234			280			219			237		
Travel Time (s)		5.3			6.4			5.0			5.4		
Confl. Peds. (#/hr)	31		45						29	29			
Confl. Bikes (#/hr)								3					
Peak Hour Factor	0.90	0.90	0.90	0.25	0.25	0.25	0.90	0.90	0.90	0.93	0.93	0.93	
Heavy Vehicles (%)	0%	25%	2%	0%	0%	0%	0%	5%	0%	0%	4%	0%	
Adj. Flow (vph)	157	4	146	0	0	0	0	643	22	5	358	0	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	157	150	0	0	0	0	0	665	0	0	363	0	
Turn Type	Perm	NA						NA		Perm	NA		
Protected Phases		4						2			6		9
Permitted Phases	4									6			
Detector Phase	4	4						2		6	6		
Switch Phase													
Minimum Initial (s)	8.0	8.0						10.0		10.0	10.0		4.0
Minimum Split (s)	12.0	12.0						14.0		14.0	14.0		20.0
Total Split (s)	24.0	24.0						62.0		62.0	62.0		20.0
Total Split (%)	22.6%	22.6%						58.5%		58.5%	58.5%		19%
Maximum Green (s)	20.0	20.0						58.0		58.0	58.0		18.0
Yellow Time (s)	3.0	3.0						3.0		3.0	3.0		2.0
All-Red Time (s)	1.0	1.0						1.0		1.0	1.0		0.0
Lost Time Adjust (s)	0.0	0.0						0.0		0.0	0.0		
Total Lost Time (s)	4.0	4.0						4.0		4.0	4.0		
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0		3.0
Recall Mode	None	None						Max		Max	Max		None
Walk Time (s)													4.0
Flash Dont Walk (s)													14.0
Pedestrian Calls (#/hr)													0
Act Effct Green (s)	12.6	12.6						58.1		58.1	58.1		
Actuated g/C Ratio	0.16	0.16						0.74		0.74	0.74		
v/c Ratio	0.58	0.39						0.26		0.15	0.15		
Control Delay	39.1	8.9						4.0		3.6	3.6		
Queue Delay	0.0	0.0						1.3		0.5	0.5		
Total Delay	39.1	8.9						5.3		4.1	4.1		
LOS	D	A						A		A	A		
Approach Delay		24.3						5.3		4.1	4.1		
Approach LOS		C						A		A	A		
Queue Length 50th (ft)	72	2						42		21	21		
Queue Length 95th (ft)	129	48						82		45	45		
Internal Link Dist (ft)		154			200			139		157	157		
Turn Bay Length (ft)													
Base Capacity (vph)	437	528						2527		2353	2353		
Starvation Cap Reductn	0	0						1592		1535	1535		
Spillback Cap Reductn	0	0						0		0	0		
Storage Cap Reductn	0	0						0		0	0		
Reduced v/c Ratio	0.36	0.28						0.71		0.44	0.44		

Intersection Summary

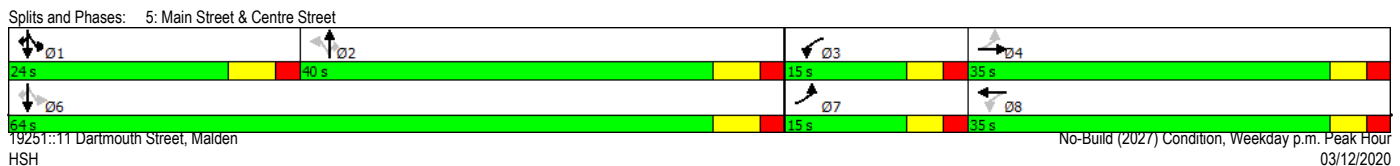
Area Type: Other
 Cycle Length: 106
 Actuated Cycle Length: 78.7
 Natural Cycle: 50
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.58
 Intersection Signal Delay: 9.3
 Intersection Capacity Utilization 35.3%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 4: Main Street & Exchange Street/Irving Street



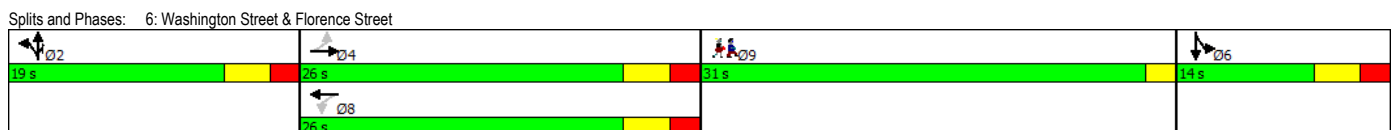
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø6
Lane Configurations	↖	↖↗	↖	↖	↖↗	↖	↖	↖	↖	↖	↖	↖	
Traffic Volume (vph)	198	697	60	196	356	60	73	356	307	47	304	94	
Future Volume (vph)	198	697	60	196	356	60	73	356	307	47	304	94	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	10	12	12	11	12	12	12	12	12	12	12	12	
Storage Length (ft)	215		0	300		0	0		0	0		125	
Storage Lanes	1		0	1		0	1		1	1		1	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor	0.99	0.99		0.98	1.00		0.96		0.97	0.99		0.93	
Frt		0.988			0.978				0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950			
Satd. Flow (prot)	1560	3466	0	1711	3486	0	1719	1845	1568	1805	1845	1455	
Flt Permitted	0.367						0.561			0.342			
Satd. Flow (perm)	598	3466	0	244	3486	0	979	1845	1517	645	1845	1357	
Right Turn on Red			Yes			Yes			No			Yes	
Satd. Flow (RTOR)		8			16								102
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		255			718			281			219		
Travel Time (s)		5.8			16.3			6.4			5.0		
Confl. Peds. (#/hr)	11		37	37		11	54		19	19		54	
Confl. Bikes (#/hr)			1						2			1	
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.92	
Heavy Vehicles (%)	8%	1%	13%	2%	1%	0%	5%	3%	3%	0%	3%	11%	
Adj. Flow (vph)	206	726	63	209	379	64	78	383	330	51	330	102	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	206	789	0	209	443	0	78	383	330	51	330	102	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	custom	NA	custom	
Protected Phases	7	4		3	8			2		1	16	1	6
Permitted Phases	4			8			2		2	6		6	
Detector Phase	7	4		3	8		2	2	2	1	6	1	
Switch Phase													
Minimum Initial (s)	4.0	10.0		4.0	10.0		8.0	8.0	8.0	4.0		4.0	8.0
Minimum Split (s)	9.0	27.0		9.0	27.0		39.0	39.0	39.0	10.0		10.0	39.0
Total Split (s)	15.0	35.0		15.0	35.0		40.0	40.0	40.0	24.0		24.0	64.0
Total Split (%)	13.2%	30.7%		13.2%	30.7%		35.1%	35.1%	35.1%	21.1%		21.1%	56%
Maximum Green (s)	10.0	30.0		10.0	30.0		34.0	34.0	34.0	18.0		18.0	58.0
Yellow Time (s)	3.0	3.0		3.0	3.0		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	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	5.0	5.0		5.0	5.0		6.0	6.0	6.0	6.0		6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lag	Lag	Lead		Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes		Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None		None	None		Max	Max	Max	None		None	Max
Walk Time (s)		5.0			5.0		5.0	5.0	5.0				5.0
Flash Dont Walk (s)		17.0			17.0		28.0	28.0	28.0				28.0
Pedestrian Calls (#/hr)		54			19		37	37	37				11
Act Effct Green (s)	38.9	28.9		38.9	28.9		44.9	44.9	44.9	58.0	58.0	58.0	
Actuated g/C Ratio	0.34	0.26		0.34	0.26		0.40	0.40	0.40	0.51	0.51	0.51	
v/c Ratio	0.71	0.88		0.98	0.49		0.20	0.52	0.55	0.13	0.35	0.14	
Control Delay	40.6	52.7		85.5	36.4		25.0	29.6	31.0	15.0	17.8	3.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	30.9	1.1	
Total Delay	40.6	52.7		85.5	36.4		25.0	29.6	31.0	15.0	48.7	4.4	
LOS	D	D		F	D		C	C	C	B	D	A	
Approach Delay		50.2			52.1			29.8			35.8		
Approach LOS		D			D			C			D		
Queue Length 50th (ft)	104	288		104	138		37	212	185	18	139	0	
Queue Length 95th (ft)	#176	#387		#260	190		76	316	286	39	206	27	
Internal Link Dist (ft)		175			638			201			139		
Turn Bay Length (ft)	215			300								125	
Base Capacity (vph)	291	927		214	938		389	733	603	516	947	762	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	622	492	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0	
Reduced v/c Ratio	0.71	0.85		0.98	0.47		0.20	0.52	0.55	0.10	1.02	0.38	

Intersection Summary
 Area Type: Other
 Cycle Length: 114
 Actuated Cycle Length: 112.9
 Natural Cycle: 85
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 42.7
 Intersection LOS: D
 Intersection Capacity Utilization 81.5%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

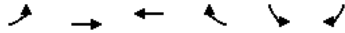


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø9
Lane Configurations		↔↔		↔	↔↔			↔	↔		↔		
Traffic Volume (vph)	65	209	3	1	203	29	36	49	41	54	8	64	
Future Volume (vph)	65	209	3	1	203	29	36	49	41	54	8	64	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	0	0	100	0	0	0	0	100	0	0	0	
Storage Lanes	0	0	0	1	0	0	0	0	1	0	0	0	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	0.95	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.998			0.981				0.850		0.932		
Fit Protected		0.988		0.950				0.979			0.979		
Satd. Flow (prot)	0	3444	0	1805	3393	0	0	1839	1568	0	1734	0	
Fit Permitted		0.817		0.572				0.979			0.979		
Satd. Flow (perm)	0	2848	0	1087	3393	0	0	1839	1568	0	1734	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		1			16				109		46		
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		360			731			301			355		
Travel Time (s)		8.2			16.6			6.8			8.1		
Peak Hour Factor	0.94	0.94	0.94	0.87	0.87	0.87	0.88	0.88	0.88	0.93	0.93	0.93	
Heavy Vehicles (%)	0%	4%	33%	0%	5%	0%	0%	2%	3%	0%	0%	0%	
Adj. Flow (vph)	69	222	3	1	233	33	41	56	47	58	9	69	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	294	0	1	266	0	0	97	47	0	136	0	
Turn Type	Perm	NA		Perm	NA		Split	NA	custom	Split	NA		
Protected Phases		4			8		2	2	2	6	6		9
Permitted Phases	4			8					2				
Detector Phase	4	4		8	8		2	2	2	6	6		
Switch Phase													
Minimum Initial (s)	10.0	10.0		10.0	10.0		8.0	8.0	8.0	8.0	8.0		4.0
Minimum Split (s)	15.0	15.0		15.0	15.0		13.0	13.0	13.0	13.0	13.0		31.0
Total Split (s)	26.0	26.0		26.0	26.0		19.0	19.0	19.0	14.0	14.0		31.0
Total Split (%)	28.9%	28.9%		28.9%	28.9%		21.1%	21.1%	21.1%	15.6%	15.6%		34%
Maximum Green (s)	21.0	21.0		21.0	21.0		14.0	14.0	14.0	9.0	9.0		29.0
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0		2.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0		0.0
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)		5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0		
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	4.0	4.0		4.0	4.0		3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	Max	Max		Max	Max		None	None	None	None	None		None
Walk Time (s)													7.0
Flash Dont Walk (s)													22.0
Pedestrian Calls (#/hr)													100
Act Effct Green (s)		30.5		30.5	30.5		10.7	10.7			9.3		
Actuated g/C Ratio		0.39		0.39	0.39		0.14	0.14			0.12		
v/c Ratio		0.26		0.00	0.20		0.38	0.15			0.55		
Control Delay		27.3		26.0	25.0		39.8	1.0			36.2		
Queue Delay		0.0		0.0	0.0		0.0	0.0			0.0		
Total Delay		27.3		26.0	25.0		39.8	1.0			36.2		
LOS		C		C	C		D	A			D		
Approach Delay		27.3			25.0		27.1				36.2		
Approach LOS		C			C		C				D		
Queue Length 50th (ft)		70		0	57		50	0			47		
Queue Length 95th (ft)		114		4	93		95	0			#122		
Internal Link Dist (ft)		280			651		221				275		
Turn Bay Length (ft)				100				100					
Base Capacity (vph)		1123		428	1347		363	397			260		
Starvation Cap Reductn		0		0	0		0	0			0		
Spillback Cap Reductn		0		0	0		0	0			0		
Storage Cap Reductn		0		0	0		0	0			0		
Reduced v/c Ratio		0.26		0.00	0.20		0.27	0.12			0.52		










Intersection Summary
 Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 77.5
 Natural Cycle: 75
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.55
 Intersection Signal Delay: 28.0 Intersection LOS: C
 Intersection Capacity Utilization 43.2% ICU Level of Service A
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	184	84	57	61	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	184	84	57	61	0	0	0	0
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.25	0.25	0.25	0.91	0.91	0.91	0.87	0.87	0.87	0.25	0.25	0.25
Hourly flow rate (vph)	0	0	0	0	202	92	66	70	0	0	0	0
Pedestrians	109						98					
Lane Width (ft)	0.0						0.0					
Walking Speed (ft/s)	4.0						4.0					
Percent Blockage	0						0					
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)	363											
pX, platoon unblocked												
vC, conflicting volume	392			0			357	392	0	381	346	455
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	392			0			357	392	0	381	346	455
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			89	87	100	100	100	100
cM capacity (veh/h)	1178			1636			602	544	1091	523	580	609
Direction, Lane #	WB 1			NB 1								
Volume Total	294			136								
Volume Left	0			66								
Volume Right	92			0								
cSH	1700			571								
Volume to Capacity	0.17			0.24								
Queue Length 95th (ft)	0			23								
Control Delay (s)	0.0			13.3								
Lane LOS					B							
Approach Delay (s)	0.0			13.3								
Approach LOS					B							
Intersection Summary												
Average Delay				4.2								
Intersection Capacity Utilization				29.7%			ICU Level of Service			A		
Analysis Period (min)	15											



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔↑	↔↑		↔↑	↔↑
Traffic Volume (veh/h)	24	267	192	53	105	39
Future Volume (Veh/h)	24	267	192	53	105	39
Sign Control		Free	Free		Stop	
Grade		0%	0%			
Peak Hour Factor	0.91	0.91	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	26	293	221	61	121	45
Pedestrians		2	11			37
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		0	1			3
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		731	284			
pX, platoon unblocked					498	180
vC, conflicting volume	319					
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	319				498	180
tC, single (s)	4.2				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				75	94
cM capacity (veh/h)	1186				476	811
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	124	195	147	135	121	45
Volume Left	26	0	0	0	121	0
Volume Right	0	0	0	61	0	45
cSH	1186	1700	1700	1700	476	811
Volume to Capacity	0.02	0.11	0.09	0.08	0.25	0.06
Queue Length 95th (ft)	2	0	0	0	25	4
Control Delay (s)	1.9	0.0	0.0	0.0	15.1	9.7
Lane LOS	A				C	A
Approach Delay (s)	0.7		0.0		13.7	
Approach LOS					B	
Intersection Summary						
Average Delay			3.3			
Intersection Capacity Utilization			36.1%		ICU Level of Service A	
Analysis Period (min)			15			

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	61	82	45	56	36
Future Volume (Veh/h)	4	61	82	45	56	36
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.89	0.89	0.86	0.86	0.79	0.79
Hourly flow rate (vph)	4	69	95	52	71	46
Pedestrians	13		2			4
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	1		0			0
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	324	138			160	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	324	138			160	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	92			95	
cM capacity (veh/h)	632	897			1416	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	73	147	117			
Volume Left	4	0	71			
Volume Right	69	52	0			
cSH	877	1700	1416			
Volume to Capacity	0.08	0.09	0.05			
Queue Length 95th (ft)	7	0	4			
Control Delay (s)	9.5	0.0	4.8			
Lane LOS	A		A			
Approach Delay (s)	9.5	0.0	4.8			
Approach LOS	A					
Intersection Summary						
Average Delay			3.7			
Intersection Capacity Utilization		30.1%		ICU Level of Service	A	
Analysis Period (min)			15			

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗			↗	↘	
Traffic Volume (veh/h)	280	81	58	195	95	92
Future Volume (Veh/h)	280	81	58	195	95	92
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.87	0.89	0.89	0.79	0.79
Hourly flow rate (vph)	322	93	65	219	120	116
Pedestrians	1			16	62	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	0			1	5	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			477		780	446
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			477		780	446
tC, single (s)			4.2		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.3		3.5	3.3
p0 queue free %			94		63	80
cM capacity (veh/h)			1010		322	567
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	415	284	236			
Volume Left	0	65	120			
Volume Right	93	0	116			
cSH	1700	1010	409			
Volume to Capacity	0.24	0.06	0.58			
Queue Length 95th (ft)	0	5	88			
Control Delay (s)	0.0	2.5	25.1			
Lane LOS		A	D			
Approach Delay (s)	0.0	2.5	25.1			
Approach LOS			D			
Intersection Summary						
Average Delay			7.1			
Intersection Capacity Utilization		56.5%		ICU Level of Service	B	
Analysis Period (min)			15			



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