TRAFFIC IMPACT AND ACCESS STUDY

100/200 FINANCIAL PARK EXPANSION
PROPOSED WAREHOUSE FACILITIES

Financial Park
Franklin, Massachusetts

Prepared for:
Berkeley Partners
Boston, MA

April 2023

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Traffic Impact and Access Study

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Prepared for:
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April 2023

MDM

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MDM has prepared this Traffic Impact and Access Study (TIAS) for a proposed 300,000 sf of warehouse space to be located along Financial Park in Franklin, Massachusetts. This report documents existing operational characteristics of intersections serving the development site, estimates future year operating characteristics of these intersections independent of the development, estimates development-related trip generation and identifies incremental impacts of site-related traffic.

This TIAS has been prepared in accordance with Executive Office of Energy and Environmental Affairs/Institute of Transportation Engineers (EEA/ITE) guidelines.

E.1 PROJECT DESCRIPTION

Existing Conditions

The project site includes approximately 50-acres of land located on Financial Park in Franklin, Massachusetts. The Site, located at 100/200 Financial Park, contains three buildings which include 65,000± gross square feet (gsf) of logistics warehouse space (Champagne Logistics), a 2,100± sf ancillary maintenance building, and 180,500± gsf of office space (Marsh & McLennan). Other buildings within the park include a 300,000± gsf warehouse space (Imperial Dade) and the Benjamin Franklin Classical Charter School. The existing charter school is operating near its allowed student capacity and currently has an enrollment of 867± students (K through Grade 8). The remaining areas of the Park include an unmaintained recreational baseball field, a helicopter pad, and undeveloped land. Financial Park provides access to the development sites and connects Washington Street located to the east with Grove Street located to the west. Access to/from Grove Street is currently gated and marked for employee use or school bus use only (keypad code required).

This project involves removal of 180,500± sf of general office space and construction of 300,000± sf of warehouse space at the Site. Approximately 65 loading dock spaces will be provided. Per initial discussion with Town staff, it appears that the proposed warehouse traffic will not be permitted to access the Site via the gated Grove Street driveway. The Grove Street driveway is currently restricted to school buses, emergency vehicles and limited tenant traffic having previous authorization to use this entrance.

E.2 STUDY AREA

This TIAS evaluates transportation characteristics of roadways and intersections that provide a primary means of access to the site, and that are likely to sustain a measurable level of traffic impact from the proposed development. Study area intersections include the following:

- Washington Street at King Street –Signalized
- Washington Street at Union Street and Arlington Street - Unsignalized
- Washington Street at Financial Park Drive– Unsignalized

E.3 TRIP GENERATION

In summary, the Financial Park Campus is currently generating approximately 499 vehicle trips (278 entering and 221 exiting) during the weekday morning peak hour, 345 vehicle trips (98 entering and 247 exiting) during the weekday afternoon peak hour, 171 vehicle trips (68 entering and 103 exiting) during the weekday evening peak hour, and 2,218 vehicle trips on a weekday. The critical time periods for traffic for the Campus are the weekday morning peak hour (7:30 – 8:30 am) and weekday afternoon peak hour (2:45 – 3:45 pm) which are consistent with the traffic volumes along Washington Street.

The analyses presented in this TIAS are based on industry-standard land use codes (LUC) and trip rates published by the Institute of Transportation Engineers (ITE). Compared to current conditions, the proposed warehouse development (LUC 150) is estimated to at 51 vehicle trips during the weekday morning peak hour, 69 vehicle trips during the weekday afternoon peak hour, and 514 daily trips.

The 300,000± sf of warehousing will operate with trip levels well below those capable of being generated by the existing 180,500± sf office building located at 100 Financial Park Drive, which it is replacing. Specifically, the projected trip generation for the proposed warehousing use is estimated to result in approximately 223 *fewer* trips (-202 entering and -21 exiting) during the weekday morning peak hour and 95 *fewer* trips (-9 entering and -86 exiting) during the weekday afternoon peak hour. On a daily basis the Project is estimated to generate approximately 1,442 *fewer* trips over a 24-hour period. MDM notes that the design of the traffic signal and roadway improvements at the King Street/ Washington Street intersection included the higher trip generation characteristics from the infill of the existing office building.

E.4 SUMMARY OF ANALYSIS AND FINDINGS

Capacity analyses were conducted for each study area intersection to quantify Baseline and future year traffic operations with and without the development for the weekday morning and weekday afternoon peak hours. These time periods represent the highest activity periods of the proposed project and the adjacent roadway system. Under Baseline conditions the study intersections generally operate below capacity at LOS D or better for all approaches during the weekday morning and weekday evening peak hours.

A field inventory of the operations at the King Street at Washington Street signalized location indicates that the vehicle detection system is malfunctioning which results in the intersection operating pre-timed under max recall mode. This results in an inefficient use of the traffic signal phasing and timing programming. Under future No-Build conditions, it is assumed that the Town of Franklin would diagnose and fix the detection issue as part of on-going/routine traffic signal maintenance to re-establish efficient traffic signal operations.

Under future No-Build conditions, the study intersections are expected to operate similar to existing conditions with a slight general increase in average delay due to traffic volumes created from general background traffic growth and nearby site-specific background projects planned or permitted in the area.

Under future Build conditions, capacity analyses indicate the following key findings:

- *Washington Street at King Street.* The Washington Street southbound approach to King Street will continue to operate below capacity at LOS D or better operations for left turn movements and LOS A for right turn movements. The Washington Street eastbound mainline travel will remain at LOS A with minimal delay, while King Street westbound approach will continue to operate at LOS C or better during peak hours.

- *Washington Street at Arlington Street/Union Street.* The unsignalized Washington Street at Arlington Street/Union Street intersection will continue to operate below capacity at LOS C or better operations during the weekday morning and the weekday afternoon peak hours.

- *Washington Street at Financial Park Drive.* The Financial Park Drive eastbound approach will continue to operate with moderate delays (LOS C or better) during the weekday morning and weekday afternoon peak hours. Mainline travel along Washington Street will continue unimpeded at LOS A with minimal delay.

In summary, the proposed development does not result in any material change in operations at intersections within the study area compared to No-Build conditions. Furthermore, improvements and TDM actions as outlined in the *Conclusions and Recommendations* section of this report will enhance safety and operations for both pedestrians and vehicles.

E.5 RECOMMENDATIONS

MDM recommends the following (a) access/egress improvements, (b) pedestrian and bicycle accommodations, (c) off-site improvements and (d) TDM elements aimed at enhancing traffic operations and/or travel safety including the following:

Access/Egress Improvements

- *Driveway Design & Circulation Patterns.* The final driveway alignments, widths and curb radii shall be designed to achieve (a) approximate perpendicular orientation with Financial Park Drive; and (b) curb radii as required to accommodate Town emergency vehicles (Ladder Truck) and delivery/loading design vehicles (WB-67) for the Site.

- *Signs and Pavement Markings.* A STOP sign (R1-1) and STOP line pavement marking should be installed on the Site Driveway approaches to Financial Park Drive. The sign and pavement markings shall conform to Manual on Uniform Traffic Control Devices (MUTCD) standards.

- *Sight Line Maintenance.* The sight lines for the Site Driveway(s) approaches to Financial Park Drive should be cleared as part of the construction of the Site. Any new plantings (shrubs, bushes) or physical landscape features to be located within the sight lines should also be maintained at a height of 2 feet or less above the adjacent roadway grade to ensure unobstructed lines of sight.

Pedestrian and Bicycle Accommodations

- *Pedestrian Accommodation.* The Site design should incorporate sidewalks that connect the proposed building entrances with the proposed parking areas.

- *Bicycle Amenities*. The Proponent should incorporate secure and weather-protected bicycle racks to encourage and facilitate this mode of transportation to/from the Site by employees.

Off-Site Improvements

If requested by the Town of Franklin, the Proponent will work with the Engineering Department to diagnose and repair, if necessary, the vehicle detection system at the King Street at Washington Street signalized location to re-establish fully actuated traffic signal operations.

Transportation Demand Management (TDM)

A preliminary list of potential TDM program elements may include the following, subject to refinement of the development program and further evaluation by the Proponent:

- *On-Site Transportation Coordinator*
- *Preferential Parking for Carpools, Vanpools*
- *Electric Vehicle Charging Stations*
- *Preferential Parking for Low-Emission Vehicles*
- *Workforce Transportation Program*
- *Off-Peak Shift Changes*
- *Automatic Employee Payroll Reduction*
- *Commuter Assistance Programs*
- *Guaranteed Ride Home*
- *Pedestrian Infrastructure*
- *Bicycle Racks*
- *Secure Covered Bike Parking*
- *On-Site Support Services/Amenities*

E.6 CONCLUSIONS

In summary, MDM finds that incremental traffic associated with the proposed development is not expected to materially impact operating conditions at the study intersections and ample roadway capacity will be available to support the project. There will be no degradation in the level of service at any of the study intersections due to the project. Implementation of access/egress improvements, proposed pedestrian improvements, and a TDM program as outlined under *Recommendations and Conclusions* will establish a framework of minimizing Site traffic impacts. Proposed access/egress along Financial Park Drive will be designed to ensure adequate maneuverability for the design vehicles and that adequate sight lines are provided in accordance with AASHTO criteria based on ambient travel speeds. If requested by the Town of Franklin, the Proponent will work with the Engineering Department to diagnose and repair, if necessary, the vehicle detection system at the King Street at Washington Street signalized location to re-establish fully actuated traffic signal operations.

1.0 INTRODUCTION

MDM has prepared this Traffic Impact and Access Study (TIAS) for a proposed 300,000 sf of warehouse space to be located along Financial Park in Franklin, Massachusetts. The location of the Site relative to adjacent roadways is shown in **Figure 1**. This report documents existing operational characteristics of intersections serving the development site, estimates future year operating characteristics of these intersections independent of the development, estimates development-related trip generation and identifies incremental impacts of site-related traffic.

This TIAS has been prepared in accordance with Executive Office of Energy and Environmental Affairs/Institute of Transportation Engineers (EEA/ITE) guidelines.

1.1 PROPOSED DEVELOPMENT

Existing Conditions

The project site includes approximately 50-acres of land located on Financial Park in Franklin, Massachusetts. The Site, located at 100/200 Financial Park, contains three buildings which include 65,000± gross square feet (gsf) of logistics warehouse space (Champagne Logistics), a 2,100± sf ancillary maintenance building, and 180,500± gsf of office space (Marsh & McLennan). Other buildings within the park include a 300,000± gsf warehouse space (Imperial Dade) and the Benjamin Franklin Classical Charter School. The existing charter school is operating near its allowed student capacity and currently has an enrollment of 867± students (K through Grade 8). The remaining areas of the Park include an unmaintained recreational baseball field, a helicopter pad, and undeveloped land. Financial Park provides access to the development sites and connects Washington Street located to the east with Grove Street located to the west. Access to/from Grove Street is currently gated and marked for employee use or school bus use only (keypad code required).

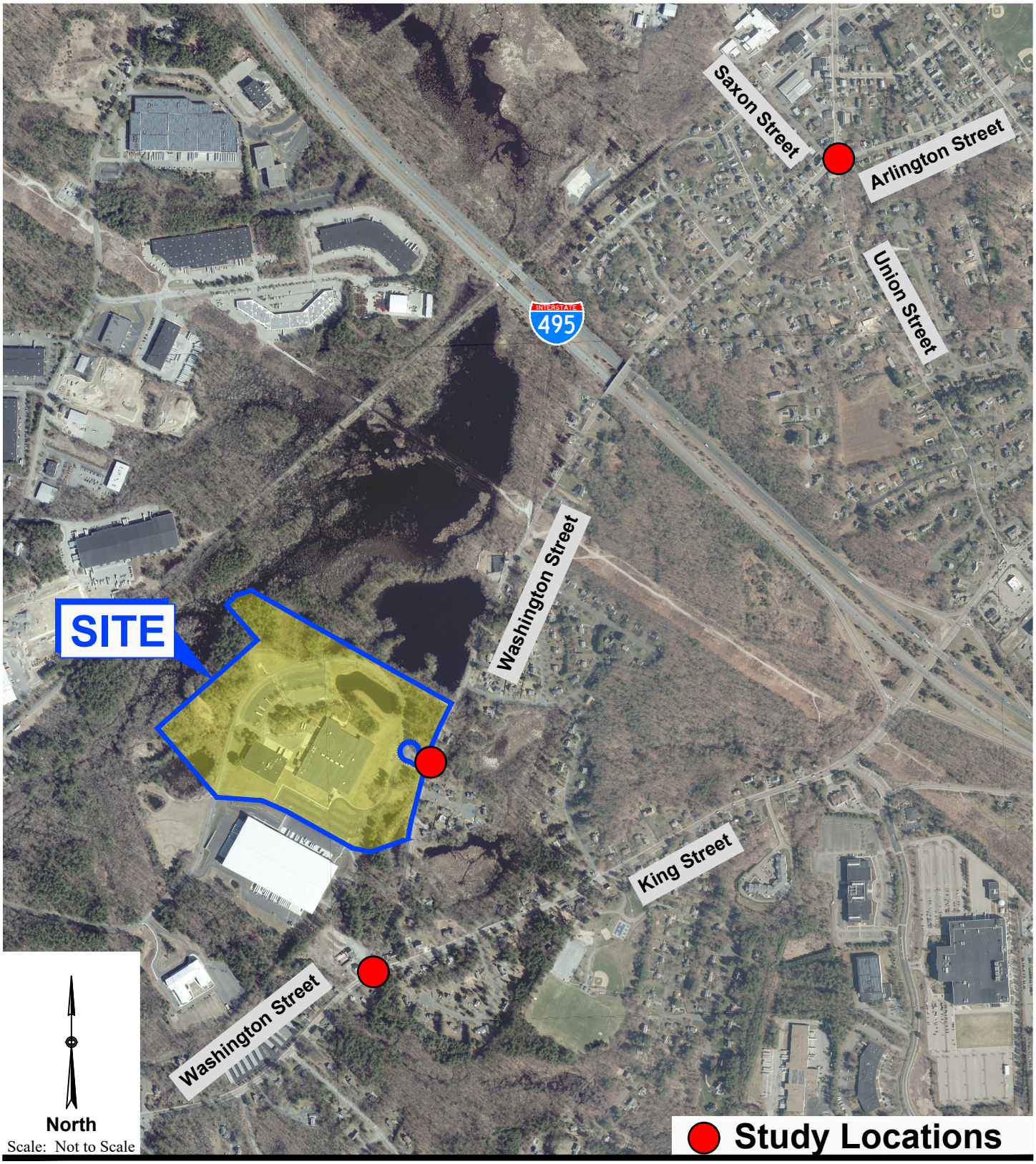


Figure 1

Site Location

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Date: April 2023
Dwg No. 1259 TIA.dwg

Proposed Warehouse Development

This project involves removal of 180,500± sf of general office space and construction of 300,000± sf of warehouse space at the Site. Approximately 65 loading dock spaces will be provided. Per initial discussion with Town staff, it appears that the proposed warehouse traffic will not be permitted to access the Site via the gated Grove Street driveway. The Grove Street driveway is currently restricted to school buses, emergency vehicles and limited tenant traffic having previous authorization to use this entrance. A preliminary Site layout plan for the warehouse space has been prepared by Highpoint Engineering and is shown in **Figure 2**.

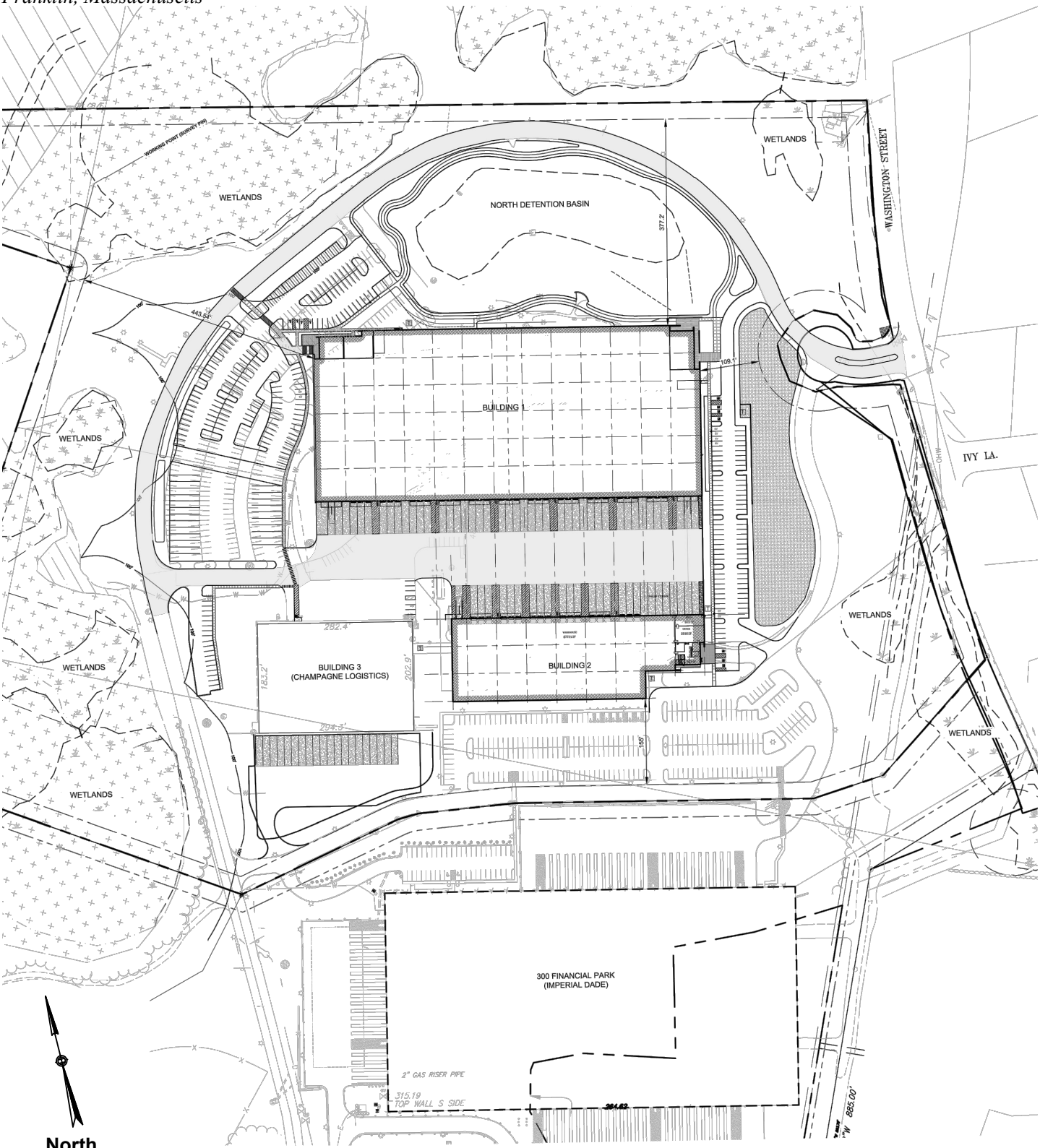
1.2 STUDY METHODOLOGY

This transportation impact and access evaluation is conducted in accordance with EEA/ITE guidelines and consists of several steps. The first step documents existing conditions in the transportation study area, including an inventory of roadway geometry and observed traffic volumes characteristics. Next, future year traffic conditions are forecast that account for other planned area developments, normal area growth, and development-related traffic increases. The third step quantifies operating characteristics of primary study intersections. Specific attention is given to the incremental impacts of the proposed development. Finally, improvements are described that address specific development-related operational needs, if required.

1.3 STUDY AREA

This TIAS evaluates transportation characteristics of roadways and intersections that provide a primary means of access to the site, and that are likely to sustain a measurable level of traffic impact from the proposed development. Study area intersections include the following:

- Washington Street at King Street –Signalized
- Washington Street at Union Street and Arlington Street - Unsignalized
- Washington Street at Financial Park Drive– Unsignalized



Scale: Not to Scale

Site Plan Source: Highpoint Engineering, Inc.

Figure 2

Preliminary Site Plan

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2.0 EXISTING CONDITIONS

In order to provide a basis for quantifying the transportation impacts of the development, the existing roadway system and the existing traffic operations of study area roadways were reviewed. This section describes the existing traffic characteristics and operations of roadways and intersections within the study area. Specifically, this section presents an overview of the traffic data collection program, baseline traffic volumes, safety data, and public transportation facilities serving the area.

2.1 STUDY AREA ROADWAY NETWORK

The study area roadways and intersections are described briefly in this section. A general description of the physical roadway and intersection features is provided. The study area and intersections are depicted in **Figure 1**.

2.1.1 Roadways

Washington Street

Washington Street is generally a north-south roadway classified by the Massachusetts Department of Transportation (MassDOT) as an Urban Minor Arterial roadway within the study area. Washington Street is under local (Town) jurisdiction. Washington Street provides a connection to Union Street in the north and becomes Pulaski Boulevard in the south connecting to Route 114. Within the study area, Washington Street is approximately 25 feet wide and generally provides one wide travel lane in each direction separated by a double yellow centerline. Sidewalks are provided along certain sections of Washington Street to the north and south of Financial Park, however, there are no sidewalks within one-quarter mile of Financial Park. In the site vicinity, the regulatory speed limit is 40 miles per hour (mph). Land uses along Washington Street in the immediate project area include a mix of commercial and residential.

2.1.2 Intersections

Washington Street at King Street

Washington Street meets King Street to form a three-legged, signalized intersection. The Washington Street eastbound approach provides an exclusive left turn lane and a through travel lane, the King Street westbound approach provides a single, general-purpose travel lane, and the Washington Street southbound approach provides an exclusive left turn lane and an exclusive right turn lane. Sidewalks are provided on all the approaches and crosswalk markings are provided on the westbound and southbound approaches. Land uses at the intersection include residential homes and a currently closed restaurant.

Washington Street at Union Street and Arlington Street

Washington Street meets Union Street and Arlington Street to form a four-way unsignalized intersection. The Washington Street and Arlington Street approaches from the east and west provide a single travel lane under "STOP" sign control. The Union Street southbound approach provides a left-turn lane and a shared through/right lane. The northbound approach provides a single travel lane under "STOP" sign control. At the intersection, sidewalks are provided along both sides of Washington Street, along the northern side of Arlington Street, along both sides of Union Street to the north of the intersection and along the western side of Union Street to the south of the intersection. Marked crosswalks are provided along the eastbound and southbound approaches. Land use at the intersection is a mix of commercial and residential, including Andro's Pizza.

Washington Street at Financial Park

Washington Street meets Financial Park to form a three-legged unsignalized intersection. Financial Park approaches from the west and provides a wide, unstriped roadway under "STOP" sign control that is treated by users as a two-lane approach. The Washington Street northbound and southbound approaches provide a single travel lane in each direction. Land use at the intersection includes residential homes, Financial Business Park and wooded areas.

2.2 BASELINE TRAFFIC VOLUMES

Traffic-volume data used in this study were obtained by mechanical and manual methods in January 2023. An automatic traffic recorder count (ATR) was conducted on Washington Street over a 24-hour weekday period. Manual turning movement counts (TMCs) were conducted at the study intersections during the weekday morning (7:00 AM to 9:30 AM) and weekday afternoon/evening (2:00 PM to 6:00 PM) peak periods. These hours represent the combination of busiest activity periods of the Financial Park Campus (school, warehouse, and office uses) and the adjacent streets. Traffic count data is provided in the **Appendix**.

2.2.1 Daily Traffic

Daily traffic volume along Washington Street in the site vicinity was collected in January 2023. The result of the count is summarized in **Table 1** and shown graphically in **Figure 3**. Detailed traffic counts data is included in the **Appendix**.

TABLE 1
BASELINE TRAFFIC VOLUME SUMMARY – WASHINGTON STREET

Time Period	Daily Volume (vpd)[1]	Percent Daily Traffic[2]	Peak Hour Volume (vph)[3]	Peak Flow Direction[4]	Peak Hour Directional Volume (vph)
Washington Street south of Financial Park					
Weekday Morning Peak Hour	4,390	12%	511	68% NB	346
Weekday Afternoon Peak Hour	4,390	10%	444	63% SB	279
Weekday Evening Peak Hour	4,390	9%	380	58% SB	221

[1]Two-way daily traffic expressed in vehicles per day without seasonal adjustment.
[2]The percent of daily traffic that occurs during the peak hour.
[3]Two-way peak-hour volume expressed in vehicles per hour.
[4]NB = Northbound, SB = Southbound

As summarized in **Table 1** and shown in **Figure 3**, the weekday daily traffic volume on Washington Street adjacent to the Site was approximately 4,390 vehicles per day (vpd) during a typical weekday. Peak hour traffic flow on Washington Street ranges from approximately 380 to 511 vehicles per hour (vph) adjacent to the Site which represents 9 to 12 percent of daily traffic flow. The critical time periods for traffic along Washington Street are the weekday morning peak hour (7:30 – 8:30 am) and weekday afternoon peak hour (2:45 – 3:45 pm).

2.2.2 Observed Trip Generation – Financial Park Campus

Trip generation for the uses within the Financial Park Campus has been determined based on ATR data collected in January 2023. The Campus is currently fully leased. **Table 2** presents the baseline trip generation characteristics of the Campus during the study periods, and this is graphically illustrated in **Figure 4**.

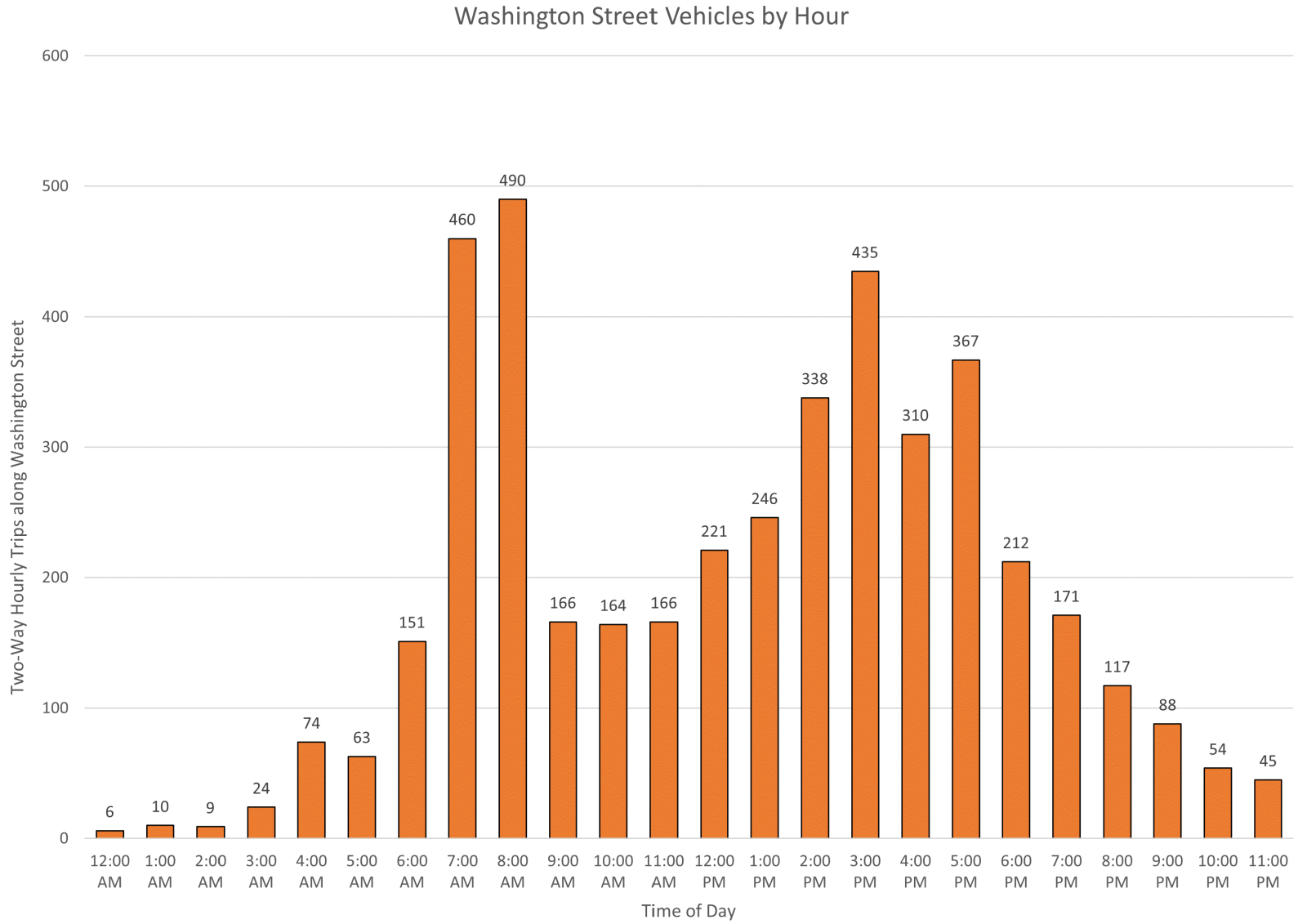

Figure 3

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Two-Way Weekday Hourly Traffic Conditions
Washington Street South of Financial Park
(January Data)

Date: April 2023
Dwg No. 1259 TIA.dwg

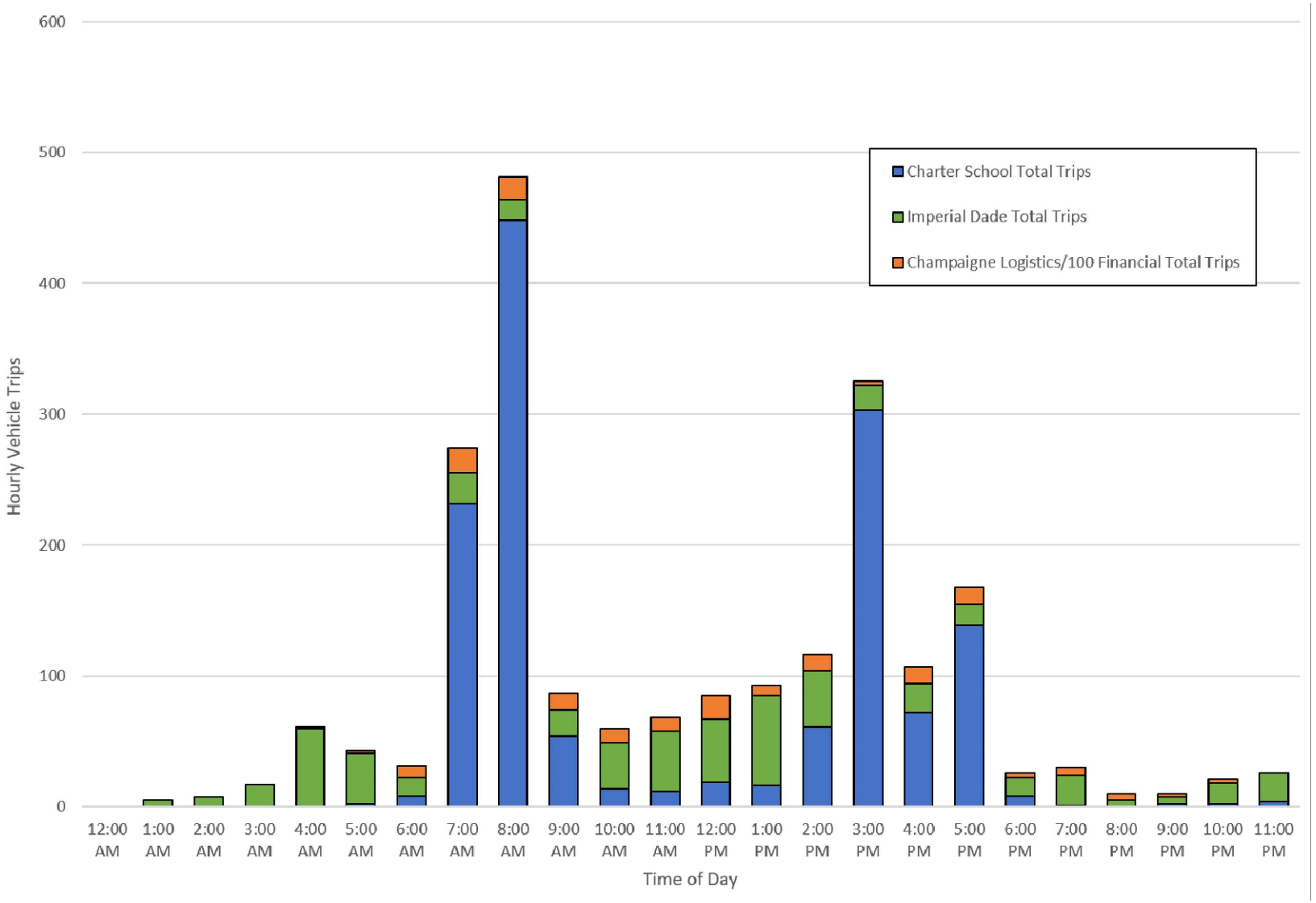

Figure 4

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Baseline Weekday Hourly Traffic Conditions
Financial Park Trips - Split by Use

Date: April 2023
Dwg No. 1259 TIA.dwg

TABLE 2
OBSERVED TRIP GENERATION – FRANKLIN PARK CAMPUS[1]

Period/Direction	Benjamin Franklin School[2]	Imperial Dade[3]	Champagne Logistics/ Marsh & McLennan[4]	Total
Weekday Morning Peak Hour:				
Entering	253	10	15	**278**
Exiting	212	6	3	**221**
Total	465	16	18	**499**
Weekday Afternoon Peak Hour:				
Entering	91	4	3	**98**
Exiting	231	15	1	**247**
Total	322	19	4	**345**
Weekday Evening Peak Hour:				
Entering	61	6	1	**68**
Exiting	78	10	15	**103**
Total	139	16	16	**171**
Daily Trips	1,442	586	190	**2,218**

[1]Based on automatic traffic recorder (ATR) counts conducted at the Campus on Thursday, January 26, 2023.
[2]Trips associated with the Benjamin Franklin Classical Charter Public School (500 Financial Park Drive).
[3]Trips associated with the Imperial Dade (300 Financial Park Drive).
[4]Trips associated with the Champagne Logistics (431 Washington Street) and Marsh & McLennan (100 Financial Park Drive).

As summarized in **Table 2** and shown in **Figure 4**,

- *Benjamin Franklin Classical Charter Public School (BFCCPS).* The BFCCPS school is located at 500 Financial Park Drive is currently operating near maximum enrollment (900 students). The charter school generates approximately 465 vehicle trips (253 entering and 212 exiting) during the weekday morning peak hour, 322 vehicle trips (91 entering and 231 exiting) during the weekday afternoon peak hour, and 139 vehicle trips (61 entering and 78 exiting) during the weekday evening peak hour. The school generates approximately 1,442 daily trips and is the primary trip generation user for the Campus.

- *Imperial Dade.* The 300,000± sf logistics warehouse space located at 300 Financial Park Drive is fully occupied and generates approximately 16 vehicle trips (10 entering and 6 exiting) during the weekday morning peak hour, 19 vehicle trips (4 entering and 15 exiting) during the weekday afternoon peak hour, and 16 vehicle trips (6 entering and 10 exiting) during the weekday evening peak hour. The data indicates approximately 5 truck trips during the peak hours and 170 daily truck trips which is 29% of the total daily trips (586 trips).

- *Champagne Logistics/ Marsh & McLennan.* The 65,000± sf logistics warehouse space located at 431 Washington Street is fully occupied by Champagne Logistics and 180,500± sf general office building located at 100 Financial Park Drive (fully leased by Marsh & McLennan) generates approximately 18 vehicle trips (15 entering and 3 exiting) during the weekday morning peak hour, 4 vehicle trips (3 entering and 1 exiting) during the weekday afternoon peak hour, and 16 vehicle trips (1 entering and 15 exiting) during the weekday evening peak hour. The data indicates approximately 5 truck trips during the peak hours and 48 daily truck trips which is 28% of the total daily trips (170 trips). A review of the data and discussion with the Proponent indicates that while the 180,500± sf building is fully leased it is currently operating well below its operating potential.

In summary, the Financial Park Campus is currently generating approximately 499 vehicle trips (278 entering and 221 exiting) during the weekday morning peak hour, 345 vehicle trips (98 entering and 247 exiting) during the weekday afternoon peak hour, 171 vehicle trips (68 entering and 103 exiting) during the weekday evening peak hour, and 2,218 vehicle trips on a weekday. The critical time periods for traffic for the Campus are the weekday morning peak hour (7:30 – 8:30 am) and weekday afternoon peak hour (2:45 – 3:45 pm) which are consistent with the traffic volumes along Washington Street shown previously.

2.2.3 Peak Hour Traffic

Review of MassDOT permanent count station data indicates that January is a below average traffic month, therefore, a ten percent (10%) adjustment of the data was made to the January traffic volume counts to represent average season conditions. Permanent count station data is provided in the **Appendix**. The resulting Baseline weekday morning and weekday afternoon peak-hour traffic volumes for study intersections are depicted in **Figure 5** and **Figure 6**, respectively.

2.3 SAFETY

In order to identify crash trends and safety characteristics for study area intersections, crash data were obtained from MassDOT for the Town of Franklin for the three-year period 2020 through 2022. Crash data for the study intersections is summarized in **Table 3** with detailed data provided in the **Attachments.**

Crash rates were calculated for the study area intersections as reported in **Table 3**. This rate quantifies the number of crashes per million entering vehicles. MassDOT has determined the official District 3 (which includes the Town of Franklin) crash rate to be 0.61 for unsignalized intersections and 0.89 for signalized intersections. This rate represents MassDOT's "average" crash experience for District 3 communities and serves as a basis for comparing reported crash rates for the study intersections. Where calculated crash rates notably exceed the district average, some form of safety countermeasures may be warranted.

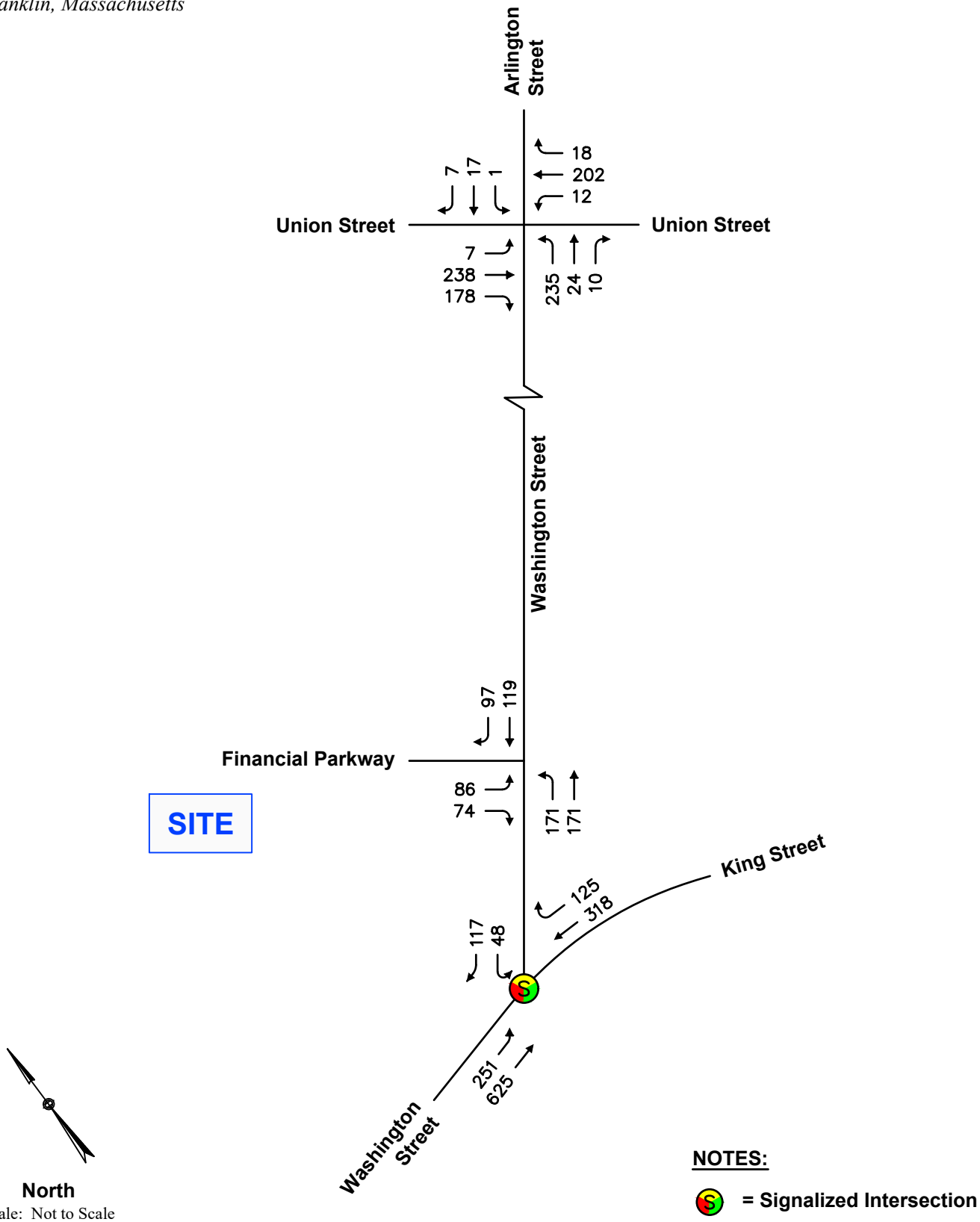

Figure 5

Baseline Condition
Weekday Morning Peak Hour
Traffic Volumes

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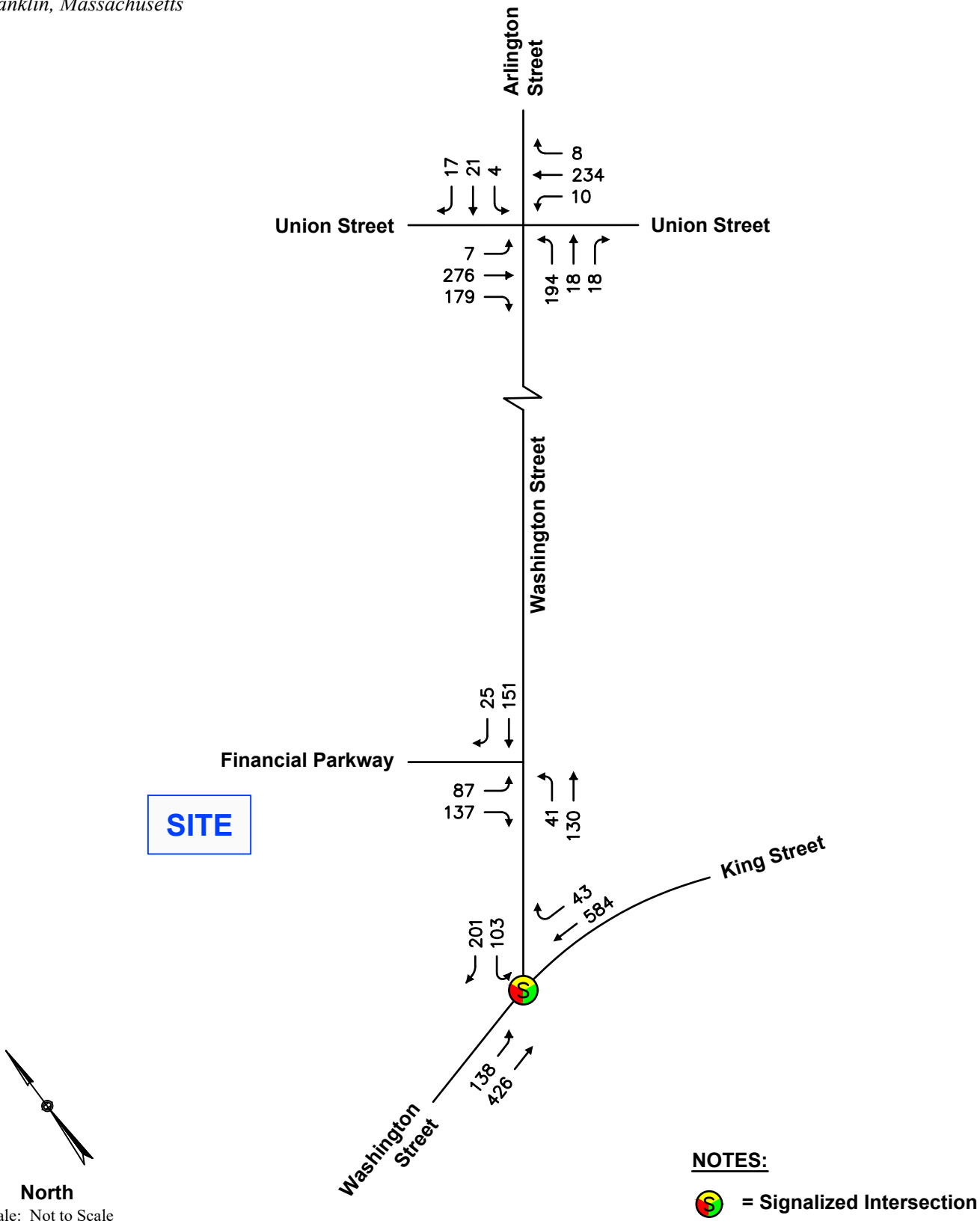

Figure 6

Baseline Condition
Weekday Afternoon Peak Hour
Traffic Volumes

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Date: April 2023
Dwg No. 1259 TIA.dwg

TABLE 3
INTERSECTION CRASH SUMMARY
2020 THROUGH 2022[1]

Data Category	Washington St at King Street	Washington St at Union Street/Arlington Street
Traffic Control	Signalized	Unsignalized
Crash Rate[2]	**0.07**	**0.25**
District 3 Avg[3]	0.89	0.61
Year:		
2020	0	1
2021	2	3
2022	0	1
Total	**2**	**5**
Type:		
Angle	0	2
Rear-End	1	1
Head-On	0	0
Sideswipe	0	2
Single Vehicle	1	0
Other/Unknown	0	0
Severity:		
P. Damage Only	2	5
Personal Injury	0	0
Other/Unknown	0	0
Conditions:		
Dry	2	4
Wet	0	1
Snow	0	0
Other/Unknown	0	0
Time:		
7:00 to 9:00 AM	0	3
4:00 to 6:00 PM	0	1
Rest of Day	2	1

[1] Source: MassDOT Crash Portal Database.
[2] Crashes per million entering vehicles.
[3] District 3 averages = 0.89 (signalized) and 0.61 (unsignalized).

As summarized in **Table 3**:

- *Washington Street at King Street.* There are a total of two (2) crashes reported at the intersection during the three-year study period resulting in a crash rate of 0.07. The crashes consisted of one rear-end type collision and one single vehicle crash. Both were property damage only type crashes under dry roadway conditions and occurred during non-peak period travel times. No fatalities were reported.

- *Washington Street at Union Street.* There were five (5) crashes reported at the intersection during the three-year study period resulting crash rate of 0.25. The majority of crashes were angle or sideswipe type collisions (80%) that occurred within the peak travel times between a southbound and eastbound vehicle. All crashes resulted in property damage only, and no fatalities were reported.

- *Washington Street at Financial Park.* There were no crashes reported at the intersection during the three-year study period.

In summary, the study intersections all experienced crash rates below the District 3 average and no immediate safety countermeasures are warranted based on the crash history at the study intersections.

2.4 PUBLIC TRANSPORTATION

The Town of Franklin is currently serviced by MBTA commuter rail and GATRA fixed route bus service, however, there are currently no public transportation routes in the immediate study area that could be used as an alternative mode of travel to/from the Site.

3.0 FUTURE CONDITIONS

Evaluation of the proposed development impacts requires the establishment of a future baseline analysis condition. This section estimates future roadway and traffic conditions with and without the proposed development. To be consistent with EEA/ITE guidelines, a seven-year planning horizon was selected.

To determine the incremental impact of new site-generated traffic volumes on the roadway network under future conditions, baseline traffic volumes in the study area were projected to a future year condition. Traffic volumes on the roadway network at that time, in the absence of the development (that is, the No-Build condition), would include existing traffic, new traffic due to general background traffic growth, and traffic related to specific developments by others that are currently under review at the local and/or state level. Consideration of these factors resulted in the development of No-Build traffic volumes. Anticipated site-generated traffic volumes were then superimposed upon these No-Build traffic-flow networks to develop future Build conditions.

The following sections provide an overview of planned area roadway improvements, future No-Build traffic volumes and projected Build traffic volumes.

3.1 PLANNED AREA ROADWAY IMPROVEMENTS

A field inventory of the operations at the King Street at Washington Street signalized location indicates that the vehicle detection system has malfunctioned resulting in the intersection operating pre-timed under max recall mode. This results in an inefficient use of the traffic signal phasing and timing programming. Under future No-Build conditions, it is assumed that the Town of Franklin would diagnose and fix the detection issue as part of on-going/routine traffic signal maintenance to re-establish efficient traffic signal operations.

3.2 BACKGROUND TRAFFIC GROWTH

Background traffic includes demand generated by other planned developments in the area as well as demand increases caused by external factors. External factors are general increases in traffic not attributable to a specific development and are determined using historical data.

3.2.1 Historical Area Growth

Nearby permanent count station data published by MassDOT indicates a 0.4 percent per year growth rate. For purposes of this evaluation, a positive 1.0 percent growth rate was used (7.2 percent increase over a 7-year horizon) which is consistent with other area traffic studies. This growth rate is higher than historic rates, and, as such, is also expected to account for any small fluctuation in hourly traffic that may occur from time to time in the study area and traffic associated with smaller developments or vacancies in the area. MassDOT permanent count station data and background growth calculations are provided in the **Appendix.**

3.2.2 Background Development-Related Growth

There are currently six (6) site-specific development projects in area that may increase traffic at the study intersections:

- ***100 Financial Park Drive (Site):*** The 180,500± sf office building within the Financial Park Campus is currently fully leased to Marsh & McLennan; however, discussion with the Proponent and field observation of trip generation activity indicate that the office building is currently operating well below its operating potential. While this building could be re-occupied as part of No-Build conditions, no infill credit was taken for the underutilization of this property.

- ***160 Grove Street:*** The project under development at 160 Grove Street will be a marijuana cultivation facility. The project consists of approximately 122,300 SF of warehouse/production space. Site trip tracings were obtained from the traffic report prepared for the project and are provided in the **Appendix**.

- ***200 Grove Street:*** The project under development at 200 Grove Street will be a proposed warehouse facility. The proposed project consists of approximately 150,000 SF of warehouse space. Site trip tracings were obtained from the traffic report prepared for the project are provided in the **Appendix**.

- ***585 King Street:*** The project under development at 585 King Street will be a proposed warehouse facility. The proposed project consists of approximately 293,600 SF of warehouse space. Site trip tracings were obtained from the traffic report prepared for the project are provided in the **Appendix**.

- ***700-712 Union Street:*** A proposed childcare facility is under development at the parcels of 700-712 Union Street. The proposed project consists of approximately 13,525 SF. Site trip tracings were obtained from the traffic report prepared for the project are provided in the **Appendix**.

- ***275 Washington Street:*** The project under development at 275 Washington Street, located to the north of Financial Park, will be a flexible office park. The proposed project consists of 3 buildings totaling approximately 45,000 SF of office park space. Site trips were estimated using ITE trip generation with tracings are provided in the **Appendix**.

3.3 NO-BUILD TRAFFIC VOLUMES

Future No-Build traffic volumes are developed by increasing the existing (2023) volumes by approximately 7.2 percent (1.0 percent compounded annually over 7 years), adding traffic associated with the above specific background projects. The resulting 2030 No-Build weekday morning and weekday afternoon peak hour traffic volumes are displayed in **Figure 7** and **Figure 8**, respectively**.**

3.4 SITE-GENERATED TRAFFIC

The trip generation estimates for the proposed development are provided for the weekday morning and weekday afternoon peak hours, which correspond to the critical weekday analysis periods for the proposed use and adjacent street traffic flow. New traffic generated by the project (proposed warehouse) was estimated using trip rates published in ITE's *Trip Generation*[1] for Land Use Code (LUC) 150 – Warehousing. **Table 4** presents the trip-generation summary estimate for the proposed development.

TABLE 4
TRIP-GENERATION SUMMARY

Period	Proposed Warehouse Site Trips		Total
	Trucks[1]	Passenger Cars	Site Trips[2]
Weekday Morning Peak Hour (7:30 – 8:30 AM):			
Enter	3	36	**39**
Exit	3	9	**12**
Total	6	45	**51**
Weekday Afternoon Peak Hour (2:45 – 3:45 PM):			
Enter	10	9	**19**
Exit	8	42	**50**
Total	18	51	**69**
Weekday Daily	180[1]	334	**514**

[1]ITE LUC 150 applied to the Truck-Specific trip rates at 300,000 sf (Source: ITE *Trip Generation Manual, 11th Edition*).
[2]ITE LUC 150 applied to 300,000 sf (Source: ITE *Trip Generation Manual, 11th Edition*).tri

[1] *Trip Generation,* Eleventh Edition; Institute of Transportation Engineers; Washington, DC; 2022.

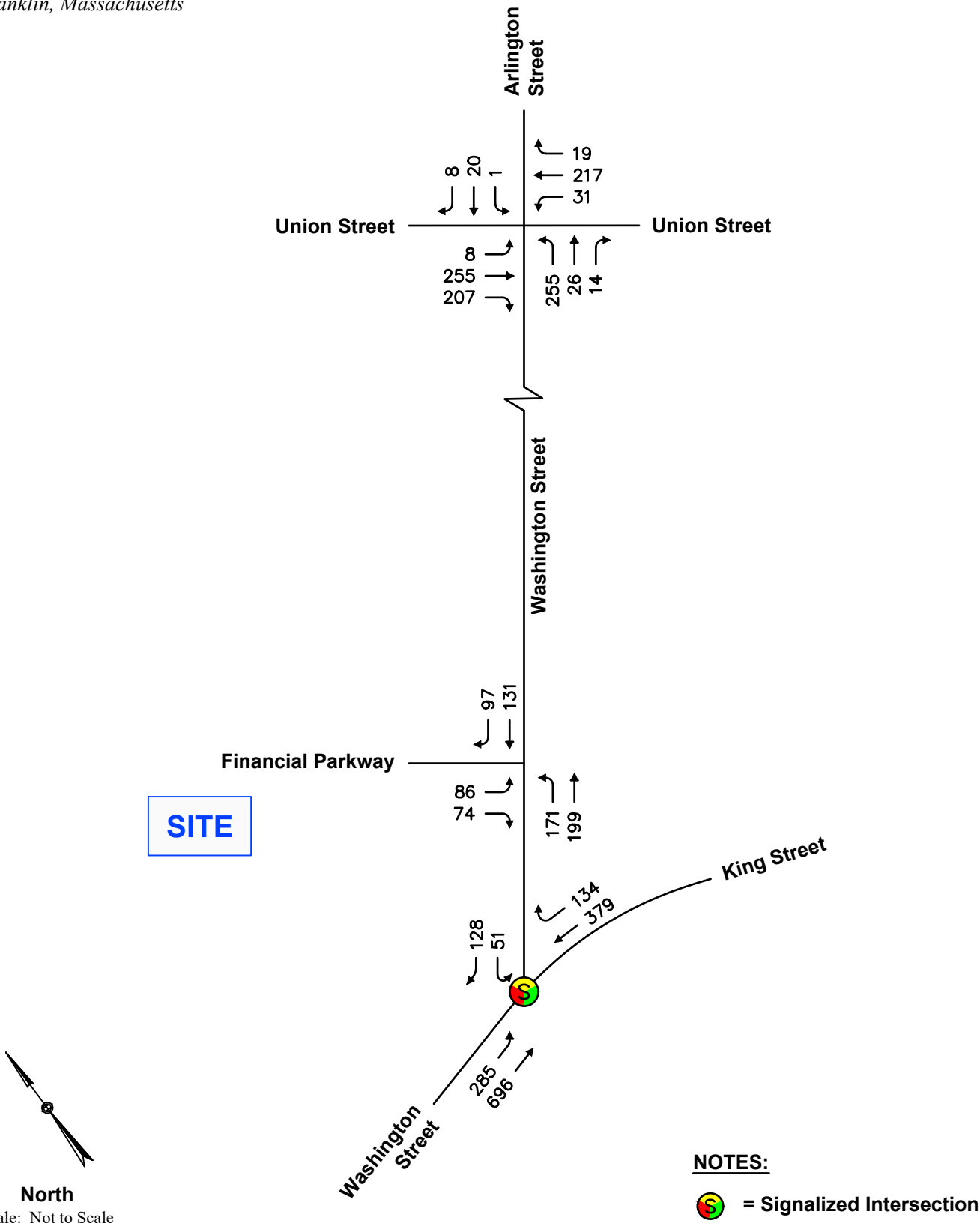

Figure 7

2030 No-Build Condition
Weekday Morning Peak Hour
Traffic Volumes

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Date: April 2023
Dwg No. 1259 TIA.dwg

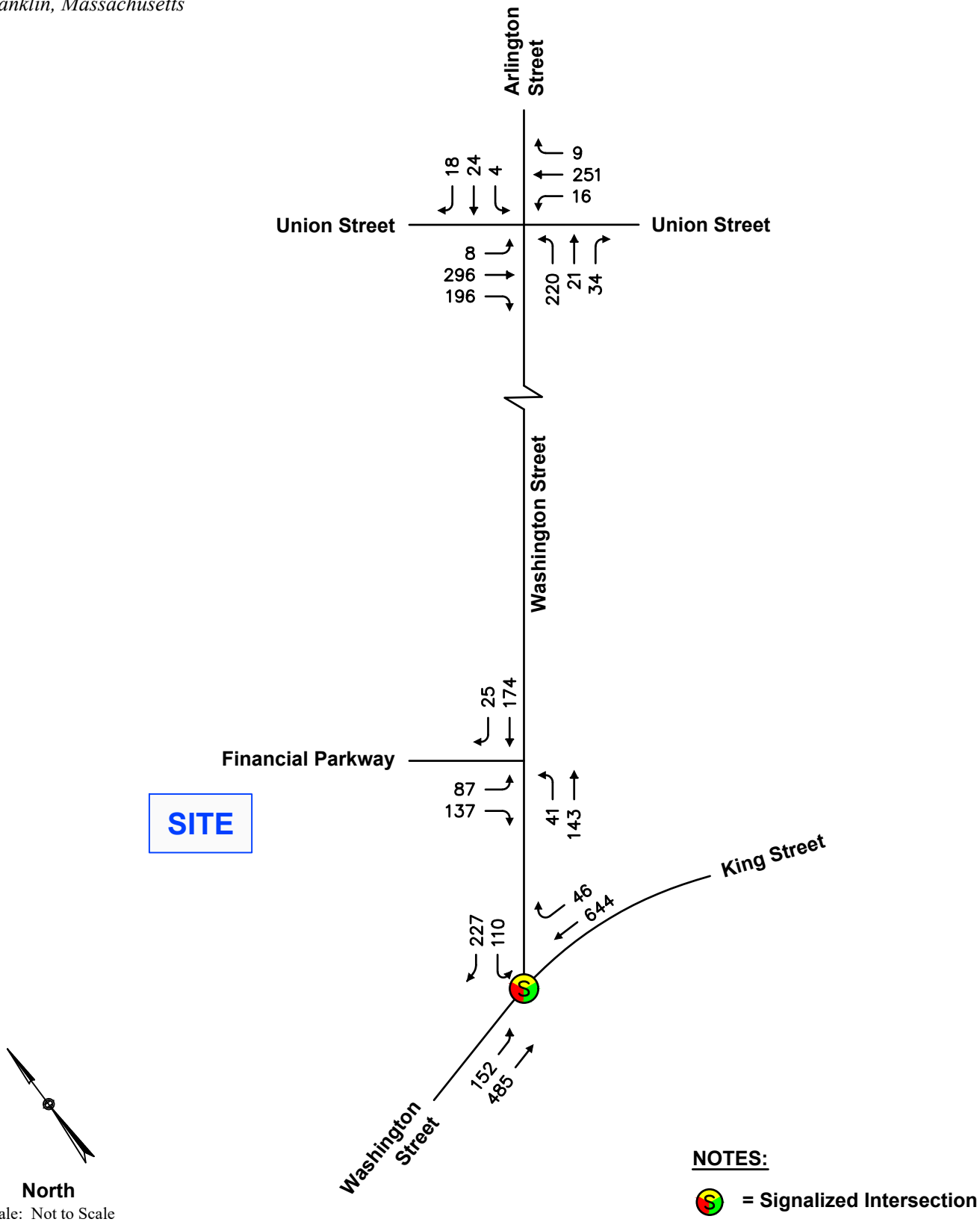

Figure 8

2030 No-Build Condition
Weekday Afternoon Peak Hour
Traffic Volumes

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Date: April 2023
Dwg No. 1259 TIA.dwg

As presented in **Table 4,**

- *Peak Hour Traffic.* Trip generation estimated for the weekday morning peak hour includes approximately 51 vehicle-trips (39 entering and 12 exiting), the weekday afternoon peak hour includes approximately 69 vehicle-trips (19 entering and 50 exiting), and the project will result in approximately 514 daily trips.

- *Truck Traffic.* ITE trip generation methodology for warehousing indicates approximately 6 truck trips (11% of trips) during the weekday morning peak hour, 18 truck trips (26% of trips) during the weekday afternoon peak hour, and 180 daily truck trips (35% of trips).

Trip Generation Comparison

Empirical Basis

Comparing the ITE-based Site trips shown in **Table 4** to the empirical trips generated by Imperial Dade (300,000± sf logistics warehouse) located at 300 Financial Park Drive, the trip generation is highly consistent during the shift period changes and on a daily basis, however; the Imperial Date currently operates with peak shift changes that occur at 4:00 am which is prior to the weekday morning commuter peak hour and at 1:00 pm which is prior to the weekday afternoon commuter peak hour. The empirical data also indicates that the truck percentages are highly consistent with the ITE based truck trips, therefore, the use of ITE trip generation rates for LUC 150 Warehousing is appropriate. For analysis purposes, the capacity analysis provided in the subsequent section of this report conservatively assume that the peak hour trips for the proposed warehouse uses will align with the peak hours of the Financial Park Campus and adjacent streets. The trip generation observations are provided in the **Appendix**.

ITE Basis

Trip generation estimates for the 300,000± sf warehouse use was also compared to the potential re-occupancy of the existing 180,500± sf office space based on relevant ITE trip rates (LUC 710 – General Office). **Table 5** presents the comparison based on ITE trip generation methodology. The trip generation worksheets are provided in the **Appendix**.

TABLE 5
TRIP-GENERATION COMPARISON

Period/Direction	By-Right Use Office (180.5 ksf)[1]	Proposed Use Warehousing (300 ksf)[2]	Δ
Weekday Morning Peak Hour			
Entering	241	39	**-202**
Exiting	33	12	**-21**
Total	274	51	**-223**
Weekday Afternoon Peak Hour			
Entering	28	19	**-9**
Exiting	136	50	**-86**
Total	164	69	**-95**
Weekday Daily	1,956	514	**-1,442**

[1] ITE LUC 710 – General Office trip rates applied to 180,500 square feet.
[2] ITE LUC 150 - Warehousing trip rats applied to 300,000 sf.

As summarized in **Table 5**, the Project as proposed is estimated to generate approximately 223 *fewer* trips (-202 entering and -21 exiting) during the weekday morning peak hour and 95 *fewer* trips (-9 entering and -86 exiting) during the weekday afternoon peak hour compared to the by-right re-use of the general office building. On a daily basis the Project is estimated to generate approximately 1,442 *fewer* trips over a 24-hour period.

3.5 TRIP DISTRIBUTION AND ASSIGNMENT

The distribution for projected traffic for the proposed warehouse development is based primarily on Journey to Work data and on existing travel patterns at the Financial Park Drive intersection with Washington Street and assumes the restricted use of Grove Street for new trip activity. The resulting trip distributions are presented in **Figure 9**. Trip distribution calculations are provided in the **Appendix.**

Development-related trips for the proposed warehouse are assigned to the roadway network using the trip-generation estimates shown in **Table 4** and the distribution patterns presented in **Figure 9**. Development-related trips at each intersection approach for the weekday morning and weekday afternoon peak hours are quantified in **Figure 10** and **Figure 11**, respectively.

3.6 BUILD CONDITION TRAFFIC VOLUMES

Future Build condition traffic volumes are derived by adding vehicle trips generated by the project to the 2030 No-Build conditions. **Figure 12** and **Figure 13** present the 2030 Build condition traffic-volume networks for the weekday morning and weekday afternoon peak hours, respectively. An hour-by-hour projection of traffic volumes for the Financial Park Campus is also provided in the **Appendix**.

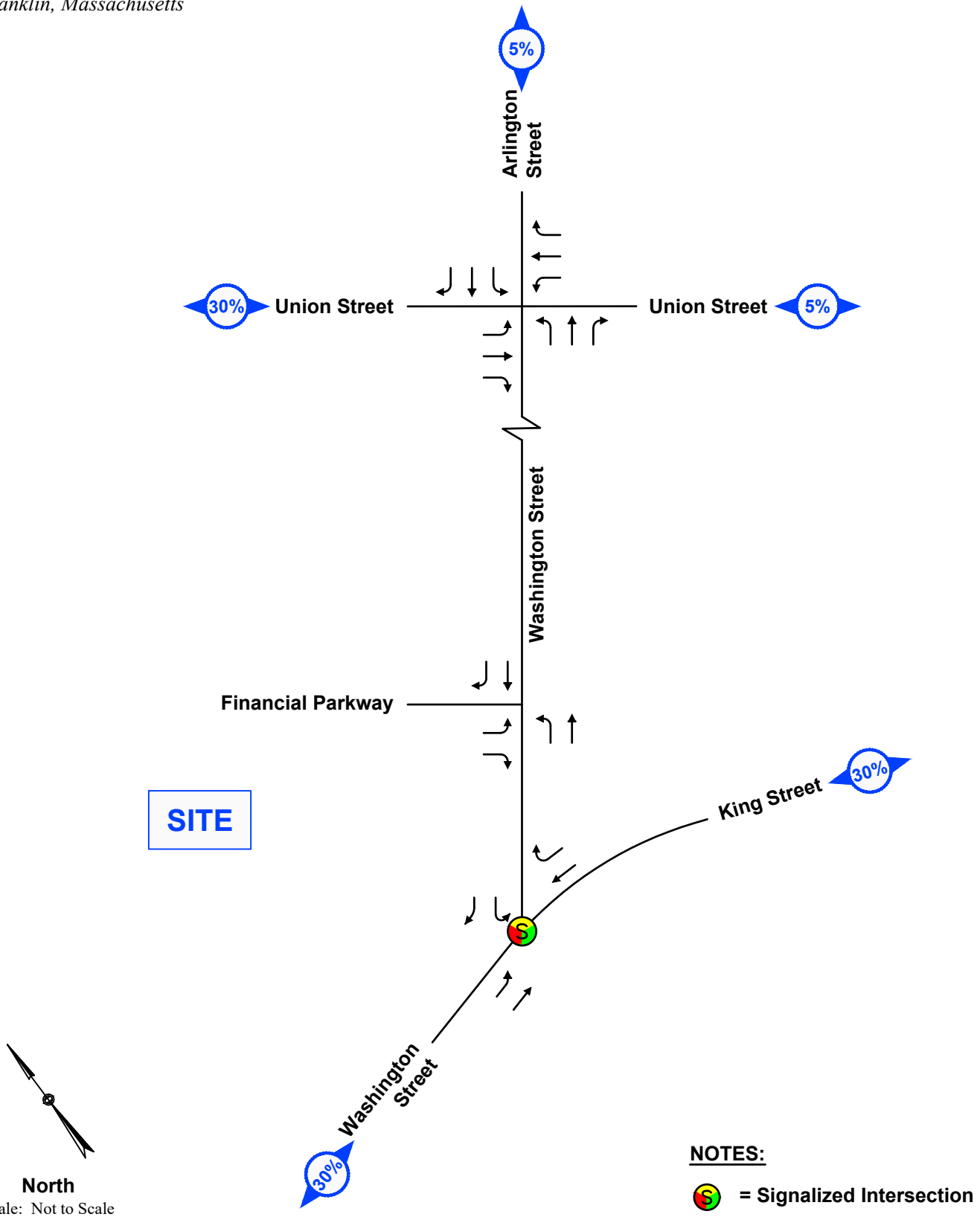

Figure 9

Trip Distribution

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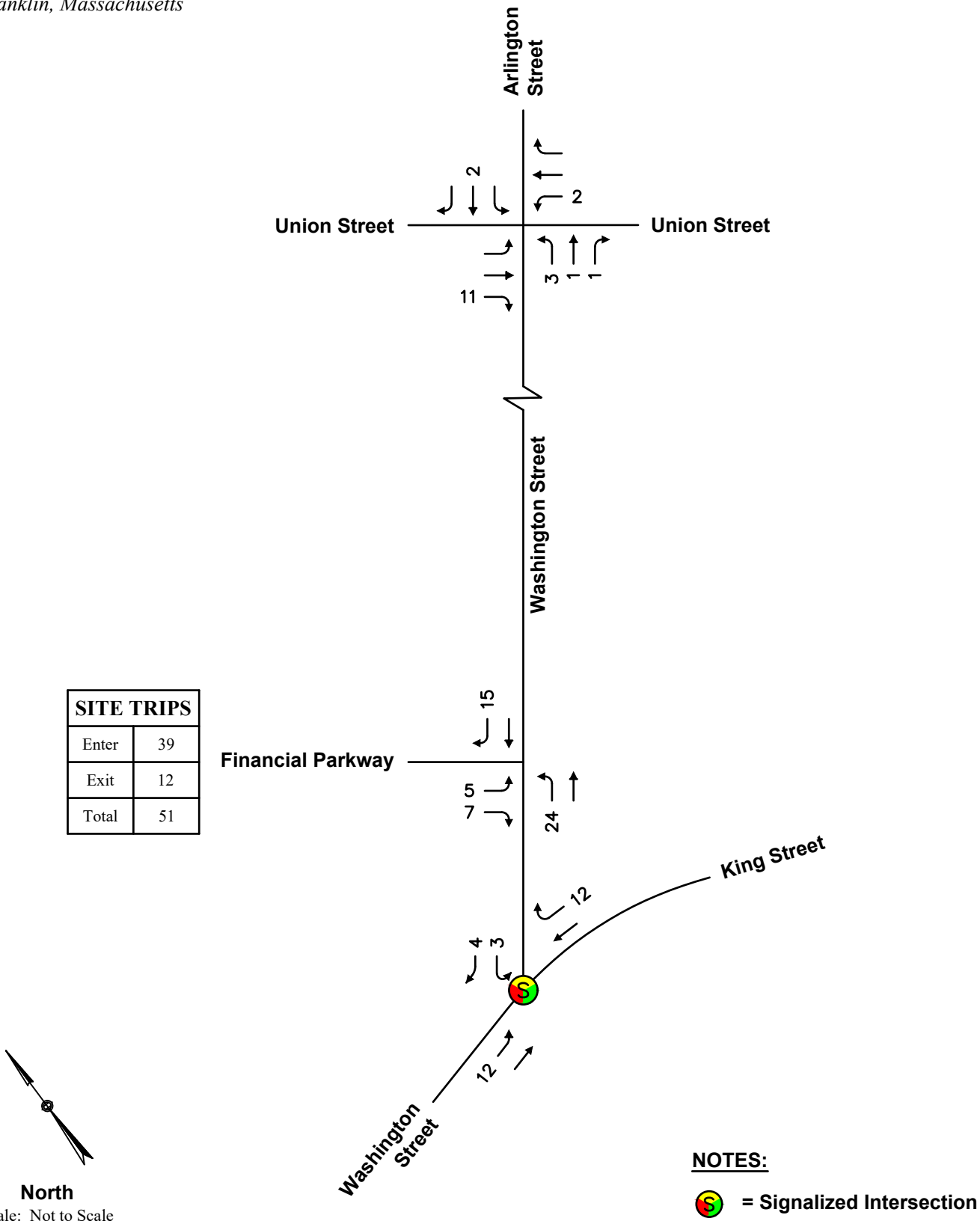

Figure 10

Site Generated Trips
Weekday Morning Peak Hour
Traffic Volumes

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Dwg No. 1259 TIA.dwg

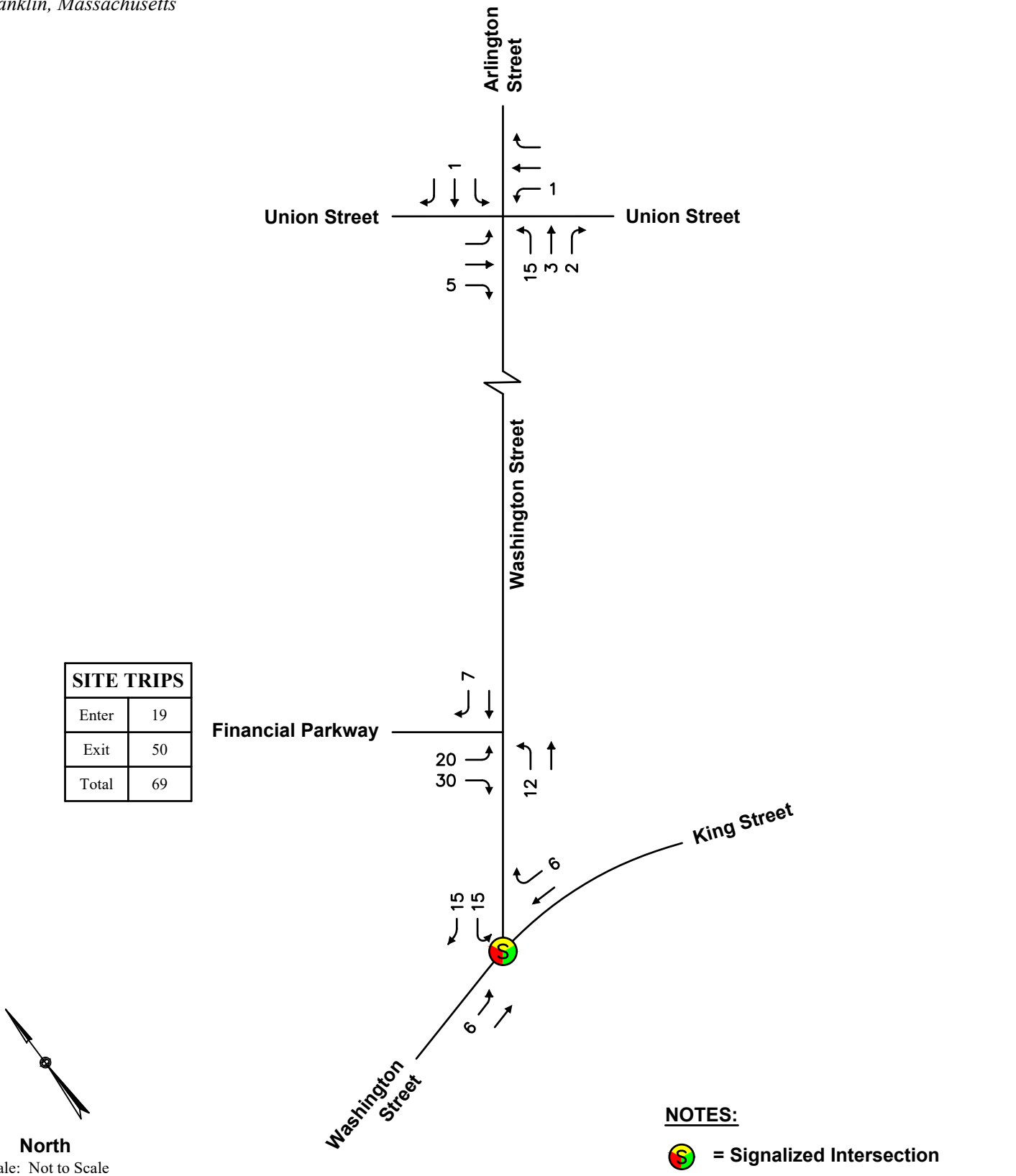

Figure 11

Site Generated Trips
Weekday Afternoon Peak Hour
Traffic Volumes

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Date: April 2023
Dwg No. 1259 TIA.dwg

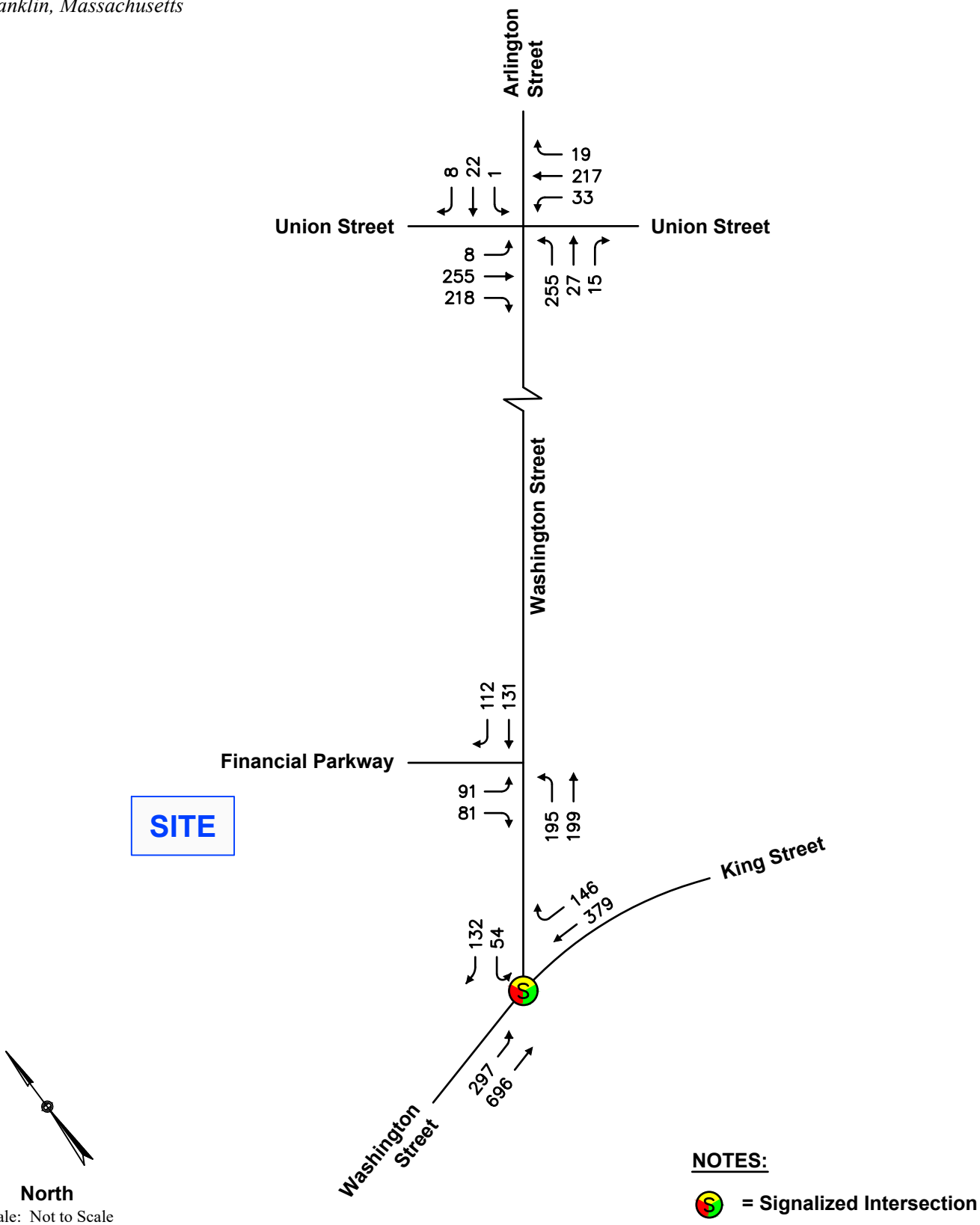

Figure 12

2030 Build Condition
Weekday Morning Peak Hour
Traffic Volumes

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Date: April 2023
Dwg No. 1259 TIA.dwg

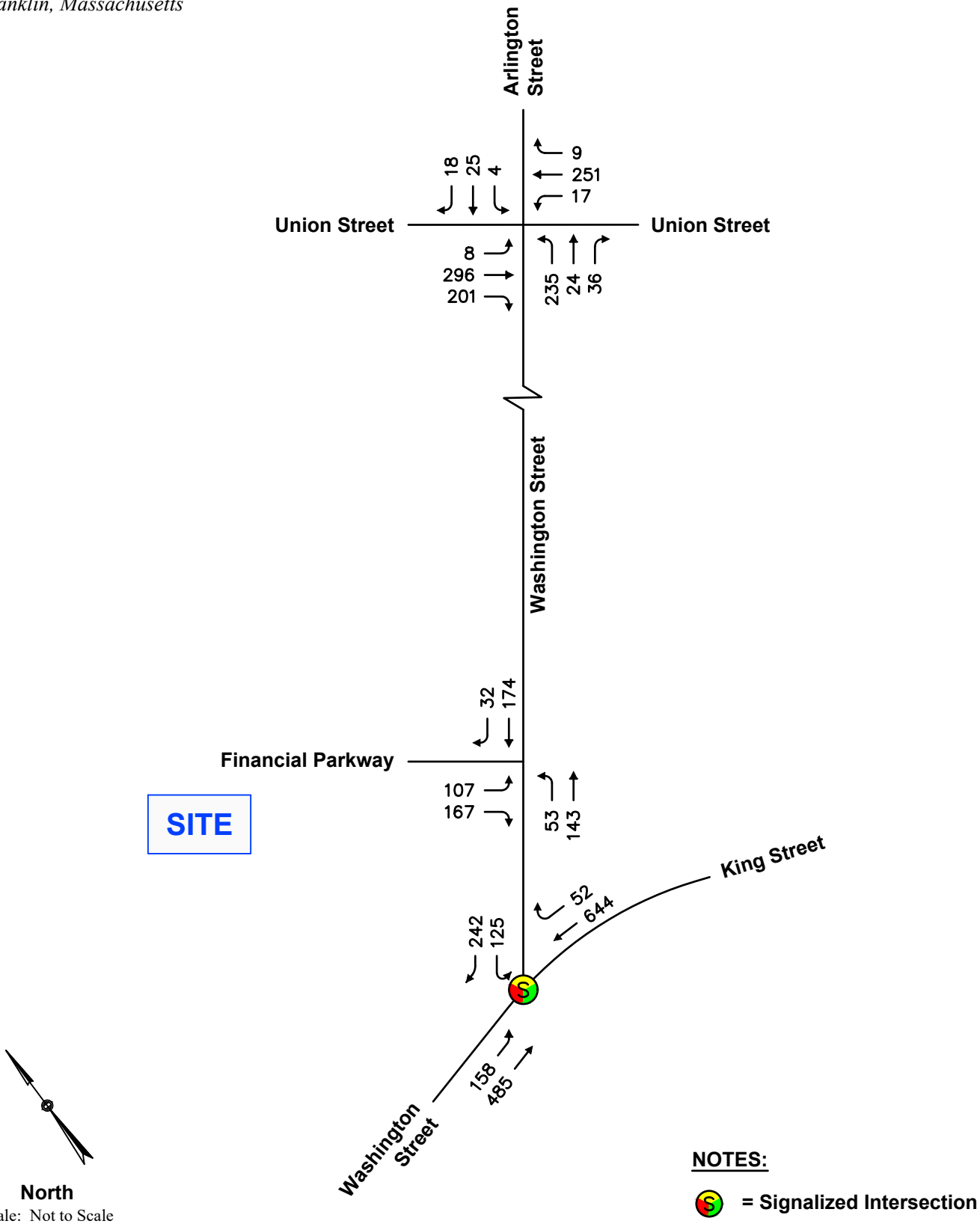

Figure 13

2030 Build Condition
Weekday Afternoon Peak Hour
Traffic Volumes

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Date: April 2023
Dwg No. 1259 TIA.dwg

4.0 TRAFFIC OPERATIONS ANALYSIS

Intersection capacity analyses are presented in this section for the Baseline, No-Build, and Build traffic-volume conditions. Capacity analyses, conducted in accordance with EEA/MassDOT guidelines, provide an index of how well the roadway facilities serve the traffic demands placed upon them.

4.1 CAPACITY ANALYSIS PROCEDURES

Capacity analysis of intersections is developed using the Synchro® computer software, which implements the methods of the Highway Capacity Manual (HCM) 6th Edition. The resulting analysis presents a level-of-service (LOS) designation for individual intersection movements and (for signalized intersections) for the entire intersection. The LOS is a letter designation that provides a qualitative measure of operating conditions based on several factors including roadway geometry, speeds, ambient traffic volumes, traffic controls, and driver characteristics. Since the LOS of a traffic facility is a function of the traffic flows placed upon it, such a facility may operate at a wide range of LOS, depending on the time of day, day of week, or period of year. A range of six levels of service are defined on the basis of average delay, ranging from LOS A (the least delay) to LOS F (delays greater than 50 seconds for unsignalized movements, and greater than 80 seconds for signalized movements). The specific control delays and associated LOS designations are presented in the **Appendix**.

4.2 INTERSECTION CAPACITY ANALYSIS RESULTS

LOS analyses were conducted for 2023 Baseline, 2030 No-Build, and 2030 full Build conditions for the study intersections. The results of the intersection capacity analyses are summarized below.

4.2.1 Level of Service Analysis

Level-of-Service (LOS) analyses were conducted for the Baseline, No-Build, and full Build conditions for the study intersections. The results of the intersection capacity analyses for the study intersections are summarized below in **Table 6** and **Table 7** for the weekday morning and weekday afternoon peak hours, respectively. Detailed analysis results are presented in the **Appendix**.

TABLE 6
INTERSECTION CAPACITY ANALYSIS RESULTS
WEEKDAY MORNING PEAK HOUR

		2023 Baseline			2030 No-Build			2030 Build		
Intersection	**Approach**	**v/c[1]**	**Delay[2]**	**LOS[3]**	**v/c**	**Delay**	**LOS**	**v/c**	**Delay**	**LOS**
Washington Street at	EB Washington St	0.49	7	A	0.52	7	A	0.52	7	A
King Street	WB King St	0.56	21	C	0.79	27	C	0.80	27	C
	SB Left	0.21	41	D	0.24	34	C	0.25	35	C
	SB Right	0.18	<5	A	0.19	<5	A	0.20	<5	A
	OVERALL	**0.56**	**12**	**B**	**0.79**	**13**	**B**	**0.80**	**14**	**B**
Washington Street at	EB Union St	0.01	<5	A	0.01	<5	A	0.01	<5	A
Union Street/	WB Union St	0.47	14	B	0.57	17	C	0.58	18	C
Arlington Street	NB Washington St	0.57	17	C	0.65	21	C	0.66	21	C
	SB Arlington St	0.06	10	B	0.07	11	B	0.08	11	B
Washington Street at	EB Left[5]	0.27	17	C	0.28	17	C	0.33	20	C
Financial Park	EB Right[5]	0.10	9	A	0.10	9	A	0.11	9	A
	NB Washington St	0.18	<5	A	0.18	<5	A	0.21	<5	A
	SB Washington St	0.00	<5	A	0.00	<5	A	0.00	<5	A

[1]Volume-to-capacity ratio
[2]Average control delay per vehicle (in seconds)
[3]Level of service
[4] n/a = not applicable
[5]Calibrated based on delay study conducted in January 2023.

TABLE 7
INTERSECTION CAPACITY ANALYSIS RESULTS
WEEKDAY AFTERNOON PEAK HOUR

		2023 Baseline			2030 No-Build			2030 Build		
Intersection	**Approach**	**v/c[1]**	**Delay[2]**	**LOS[3]**	**v/c**	**Delay**	**LOS**	**v/c**	**Delay**	**LOS**
Washington Street at	EB Washington St	0.34	6	A	0.42	7	A	0.44	7	A
King Street	WB King St	0.71	23	C	0.89	33	C	0.89	33	C
	SB Left	0.44	47	D	0.50	43	D	0.55	45	D
	SB Right	0.31	5	A	0.37	7	A	0.37	8	A
	OVERALL	**0.71**	**16**	**B**	**0.89**	**20**	**B**	**0.89**	**21**	**C**
Washington Street at	EB Union St	0.01	<5	A	0.01	<5	A	0.01	<5	A
Union Street/	WB Union St	0.46	14	B	0.53	16	C	0.54	17	C
Arlington Street	NB Washington St	0.44	14	B	0.54	17	C	0.58	18	C
	SB Arlington St	0.08	10	B	0.10	11	B	0.10	11	B
Washington Street	EB Left[5]	0.16	11	B	0.16	11	B	0.21	12	B
at Financial Park	EB Right[5]	0.18	9	A	0.18	10	A	0.22	10	A
	NB Washington St	0.04	<5	A	0.04	<5	A	0.05	<5	A
	SB Washington St	0.00	<5	A	0.00	<5	A	0.00	<5	A

[1]Volume-to-capacity ratio
[2]Average control delay per vehicle (in seconds)
[3]Level of service
[4] n/a = not applicable
[5]Calibrated based on delay study conducted in January 2023.

As shown in **Table 6** and **Table 7:**

- *Washington Street at King Street.* Under future Build conditions during the peak study periods, the Washington Street southbound approach to King Street will continue to operate below capacity at LOS D or better operations for left turn movements and LOS A for right turn movements. The Washington Street eastbound mainline travel will remain at LOS A with minimal delay, while King Street westbound approach will continue to operate at LOS C or better during peak hours.

- *Washington Street at Arlington Street/Union Street.* Under future building conditions, the unsignalized Washington Street at Arlington Street/Union Street intersection will continue to operate below capacity at LOS C or better operations during the weekday morning and the weekday afternoon peak hours.

- *Washington Street at Financial Park Drive.* Under future building conditions, the Financial Park Drive eastbound approach will continue to operate with moderate delays (LOS C or better) during the weekday morning and weekday afternoon peak hours. Mainline travel along Washington Street will continue unimpeded at LOS A with minimal delay.

In summary, incremental traffic increases at the study intersections due to the proposed development generally result in nominal changes in intersection operations compared to No-Build conditions. Therefore, no off-site roadway improvements are required to accommodate the redevelopment project based on traffic operations.

4.2.2 Vehicle Queue Analysis

Vehicle queue results are presented for the signalized intersection of King Street and Washington Street. These vehicle queues are compared to available storage lengths, which are defined as lengths of exclusive turn lanes or the distance to the nearest major intersection for through lanes. Vehicle queue results from the capacity analysis are summarized in **Table 8**. Detailed worksheets of the queuing analysis are provided in the **Appendix.**

TABLE 8
VEHICLE QUEUE ANALYSIS SUMMARY
WASHINGTON STREET AT KING STREET

Approach	Storage Length (feet)	2023 Baseline Average Queue Length[1]	2023 Baseline 95th Percentile Queue Length[1]	2030 No-Build Average Queue Length	2030 No-Build 95th Percentile Queue Length[1]	2030 Build Average Queue Length	2030 Build 95th Percentile Queue Length[1]
Weekday Morning Peak Hour							
Eastbound L	210±	46	72	35	92	37	109
Eastbound T	>1000	153	219	117	220	119	224
Westbound T/R	>1000	201	299	184	351	196	364
Southbound L	100±	31	67	<25	64	<25	68
Southbound R	>1000	<25	35	<25	33	<25	34
Weekday Afternoon Peak Hour							
Eastbound L	210±	24	41	<25	58	<25	68
Eastbound T	>1000	91	132	87	156	91	156
Westbound T/R	>1000	318	460	310	541	328	552
Southbound L	100±	68	124	54	132	64	146
Southbound R	>1000	<25	49	<25	79	<25	91

[1] Average and 95th percentile queue lengths are reported in feet per lane.

As presented in **Table 8**, average vehicle queues at the signalized study intersections will generally be contained within available storage lanes during peak hours. The analysis and field observations indicate that the exception is the Washington Street southbound left turn lane which occasionally experiences queues that block the southbound right turn lane resulting in temporary backups beyond those shown in **Table 8**. The project is not expected to significantly change queue lengths compared to No-Build conditions and will generally result in an increase of 1 vehicle or less on all approaches.

5.0 RECOMMENDATIONS AND CONCLUSIONS

In summary, adequate capacity is available at the study intersections to accommodate the traffic increases that may occur at the Site. Compared to current conditions, the proposed warehouse development is estimated to generate 51 vehicle trips during the weekday morning peak hour, 69 vehicle trips during the weekday afternoon peak hour, and 514 daily trips.

The 300,000± sf of warehousing will operate with trip levels well below those capable of being generated by the existing 180,500± sf office building located at 100 Financial Park Drive, which it is replacing. Specifically, the projected trip generation for the proposed warehousing use is estimated to result in approximately 223 *fewer* trips (-202 entering and -21 exiting) during the weekday morning peak hour and 95 *fewer* trips (-9 entering and -86 exiting) during the weekday afternoon peak hour. On a daily basis the Project is estimated to generate approximately 1,442 *fewer* trips over a 24-hour period. MDM notes that the design of the traffic signal and roadway improvements at the King Street/ Washington Street intersection included the higher trip generation characteristics from the infill of the existing office building. Therefore, no specific off-site mitigation is required to accommodate the proposed warehousing buildings.

5.1 RECOMMENDATIONS

MDM recommends the following (a) access/egress improvements, (b) pedestrian and bicycle accommodations, and (c) off-site improvements, and (d) TDM elements aimed at enhancing traffic operations and/or travel safety including the following:

Access/Egress Improvements

- *Driveway Design & Circulation Patterns.* The final driveway alignments, widths and curb radii shall be designed to achieve (a) approximate perpendicular orientation with Financial Park Drive; and (b) curb radii as required to accommodate Town emergency vehicles (Ladder Truck) and delivery/loading design vehicles (WB-67) for the Site.

- *Signs and Pavement Markings.* A STOP sign (R1-1) and STOP line pavement marking should be installed on the Site Driveway approaches to Financial Park Drive. The sign and pavement markings shall conform to Manual on Uniform Traffic Control Devices (MUTCD) standards.

- *Sight Line Maintenance.* The sight lines for the Site Driveway(s) approaches to Financial Park Drive should be cleared as part of the construction of the Site. Any new plantings (shrubs, bushes) or physical landscape features to be located within the sight lines should also be maintained at a height of 2 feet or less above the adjacent roadway grade to ensure unobstructed lines of sight.

Pedestrian and Bicycle Accommodations

- *Pedestrian Accommodation.* The Site design should incorporate sidewalks that connect the proposed building entrances with the proposed parking areas.

- *Bicycle Amenities*. The Proponent should incorporate secure and weather-protected bicycle racks to encourage and facilitate this mode of transportation to/from the Site by employees.

Off-Site Improvements

If requested by the Town of Franklin, the Proponent will work with the Engineering Department to diagnose and repair, if necessary, the vehicle detection system at the King Street at Washington Street signalized location to re-establish fully actuated traffic signal operations.

Transportation Demand Management (TDM)

A preliminary list of potential TDM program elements may include the following, subject to refinement of the development program and further evaluation by the Proponent:

- *On-Site Transportation Coordinator*
- *Preferential Parking for Carpools, Vanpools*
- *Electric Vehicle Charging Stations*
- *Preferential Parking for Low-Emission Vehicles*
- *Workforce Transportation Program*
- *Off-Peak Shift Changes*
- *Automatic Employee Payroll Reduction*
- *Commuter Assistance Programs*
- *Guaranteed Ride Home*
- *Pedestrian Infrastructure*
- *Bicycle Racks*
- *Secure Covered Bike Parking*
- *On-Site Support Services/Amenities*

6.2 CONCLUSIONS

In summary, MDM finds that incremental traffic associated with the proposed development is not expected to materially impact operating conditions at the study intersections and ample roadway capacity will be available to support the project. There will be no degradation in the level of service at any of the study intersections due to the project. Implementation of access/egress improvements, proposed pedestrian improvements, and a TDM program as outlined under *Recommendations and Conclusions* will establish a framework of minimizing Site traffic impacts. Proposed access/egress along Financial Park Drive will be designed to ensure adequate maneuverability for the design vehicles and that adequate sight lines are provided in accordance with AASHTO criteria based on ambient travel speeds. If requested by the Town of Franklin, the Proponent will work with the Engineering Department to diagnose and repair, if necessary, the vehicle detection system at the King Street at Washington Street signalized location to re-establish fully actuated traffic signal operations.

APPENDIX

- Traffic Volume Data
- Seasonal/Yearly Growth Data
- Crash Data
- Background Projects
- Trip Generation
- Trip Distribution
- Capacity Analysis
- Delay Study

- Traffic Volume Data

MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA, 01752

N/S: Grove Street
WB: Financial Park (Gate)
Franklin, MA

File Name : 1259_Grove_at_Gated_Driveway_01-26-2023
Site Code : 1259
Start Date : 1/26/2023
Page No : 1

Groups Printed- Lights - Buses - Unit Trucks - Articulated Trucks

	Grove Street From North				Financial Park (Gate) From East				Grove Street From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
07:00 AM	30	0	0	30	0	0	0	0	0	103	0	103	133
07:15 AM	28	2	0	30	0	0	0	0	1	130	0	131	161
07:30 AM	19	1	0	20	2	0	0	2	0	97	0	97	119
07:45 AM	32	0	0	32	0	0	0	0	0	137	0	137	169
Total	109	3	0	112	2	0	0	2	1	467	0	468	582
08:00 AM	31	1	0	32	1	0	0	1	2	110	0	112	145
08:15 AM	38	0	0	38	0	0	0	0	0	101	0	101	139
08:30 AM	53	1	0	54	0	0	0	0	1	82	0	83	137
08:45 AM	45	5	0	50	7	0	0	7	7	87	0	94	151
Total	167	7	0	174	8	0	0	8	10	380	0	390	572
09:00 AM	52	0	0	52	0	0	0	0	1	54	0	55	107
09:15 AM	36	0	0	36	0	0	0	0	0	49	0	49	85
Total	88	0	0	88	0	0	0	0	1	103	0	104	192
02:30 PM	80	0	0	80	0	0	0	0	0	34	0	34	114
02:45 PM	77	0	0	77	0	0	0	0	2	62	0	64	141
Total	157	0	0	157	0	0	0	0	2	96	0	98	255
03:00 PM	75	1	0	76	3	1	0	4	1	38	0	39	119
03:15 PM	75	8	0	83	4	2	0	6	2	54	0	56	145
03:30 PM	88	0	0	88	0	1	0	1	0	59	0	59	148
03:45 PM	91	0	0	91	0	0	0	0	0	52	0	52	143
Total	329	9	0	338	7	4	0	11	3	203	0	206	555
04:00 PM	130	0	0	130	0	0	0	0	0	50	0	50	180
04:15 PM	89	0	0	89	0	0	0	0	0	44	0	44	133
04:30 PM	132	0	0	132	0	0	0	0	0	39	0	39	171
04:45 PM	104	0	0	104	0	0	0	0	0	51	0	51	155
Total	455	0	0	455	0	0	0	0	0	184	0	184	639
05:00 PM	102	0	0	102	0	0	0	0	0	51	0	51	153
05:15 PM	89	0	0	89	0	0	0	0	0	78	0	78	167
05:30 PM	79	0	0	79	3	0	0	3	0	58	0	58	140
05:45 PM	68	0	0	68	0	0	0	0	0	42	0	42	110
Total	338	0	0	338	3	0	0	3	0	229	0	229	570
Grand Total	1643	19	0	1662	20	4	0	24	17	1662	0	1679	3365
Apprch %	98.9	1.1	0		83.3	16.7	0		1	99	0		
Total %	48.8	0.6	0	49.4	0.6	0.1	0	0.7	0.5	49.4	0	49.9	
Lights	1582	2	0	1584	3	0	0	3	1	1607	0	1608	3195
% Lights	96.3	10.5	0	95.3	15	0	0	12.5	5.9	96.7	0	95.8	94.9
Buses	5	17	0	22	17	4	0	21	16	8	0	24	67
% Buses	0.3	89.5	0	1.3	85	100	0	87.5	94.1	0.5	0	1.4	2
Single-Unit Trucks	42	0	0	42	0	0	0	0	0	29	0	29	71
% Single-Unit Trucks	2.6	0	0	2.5	0	0	0	0	0	1.7	0	1.7	2.1
Articulated Trucks	14	0	0	14	0	0	0	0	0	18	0	18	32
% Articulated Trucks	0.9	0	0	0.8	0	0	0	0	0	1.1	0	1.1	1

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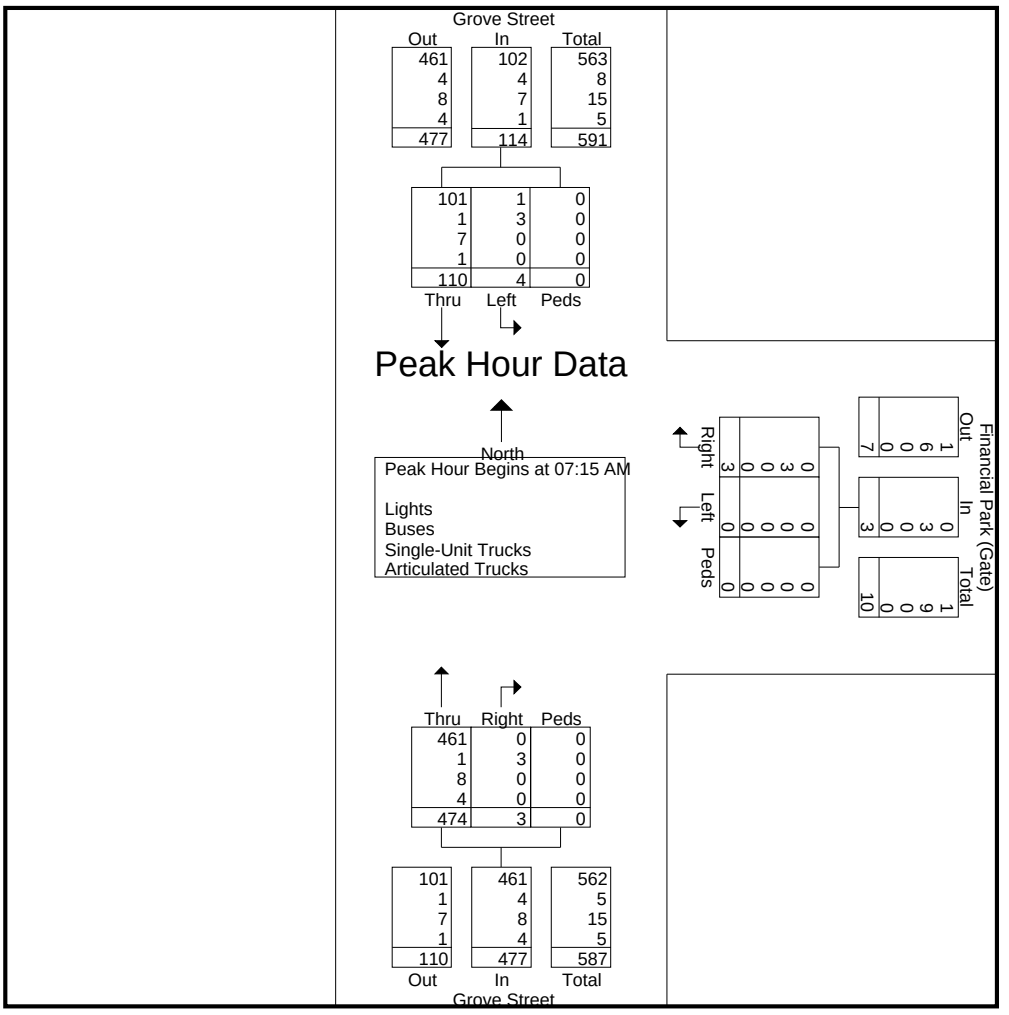
28 Lord Road, Suite 280
Marlborough, MA, 01752

N/S: Grove Street
WB: Financial Park (Gate)
Franklin, MA

File Name : 1259_Grove_at_Gated_Driveway_01-26-2023
Site Code : 1259
Start Date : 1/26/2023
Page No : 2

	Grove Street From North				Financial Park (Gate) From East				Grove Street From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:15 AM													
07:15 AM	28	**2**	0	30	0	0	0	0	1	130	0	131	161
07:30 AM	19	1	0	20	**2**	0	0	**2**	0	97	0	97	119
07:45 AM	**32**	0	0	**32**	0	0	0	0	0	**137**	0	**137**	**169**
08:00 AM	31	1	0	32	1	0	0	1	**2**	110	0	112	145
Total Volume	110	4	0	114	3	0	0	3	3	474	0	477	594
% App. Total	96.5	3.5	0		100	0	0		0.6	99.4	0		
PHF	.859	.500	.000	.891	.375	.000	.000	.375	.375	.865	.000	.870	.879
Lights	101	1	0	102	0	0	0	0	0	461	0	461	563
% Lights	91.8	25.0	0	89.5	0	0	0	0	0	97.3	0	96.6	94.8
Buses	1	3	0	4	3	0	0	3	3	1	0	4	11
% Buses	0.9	75.0	0	3.5	100	0	0	100	100	0.2	0	0.8	1.9
Single-Unit Trucks	7	0	0	7	0	0	0	0	0	8	0	8	15
% Single-Unit Trucks	6.4	0	0	6.1	0	0	0	0	0	1.7	0	1.7	2.5
Articulated Trucks	1	0	0	1	0	0	0	0	0	4	0	4	5
% Articulated Trucks	0.9	0	0	0.9	0	0	0	0	0	0.8	0	0.8	0.8



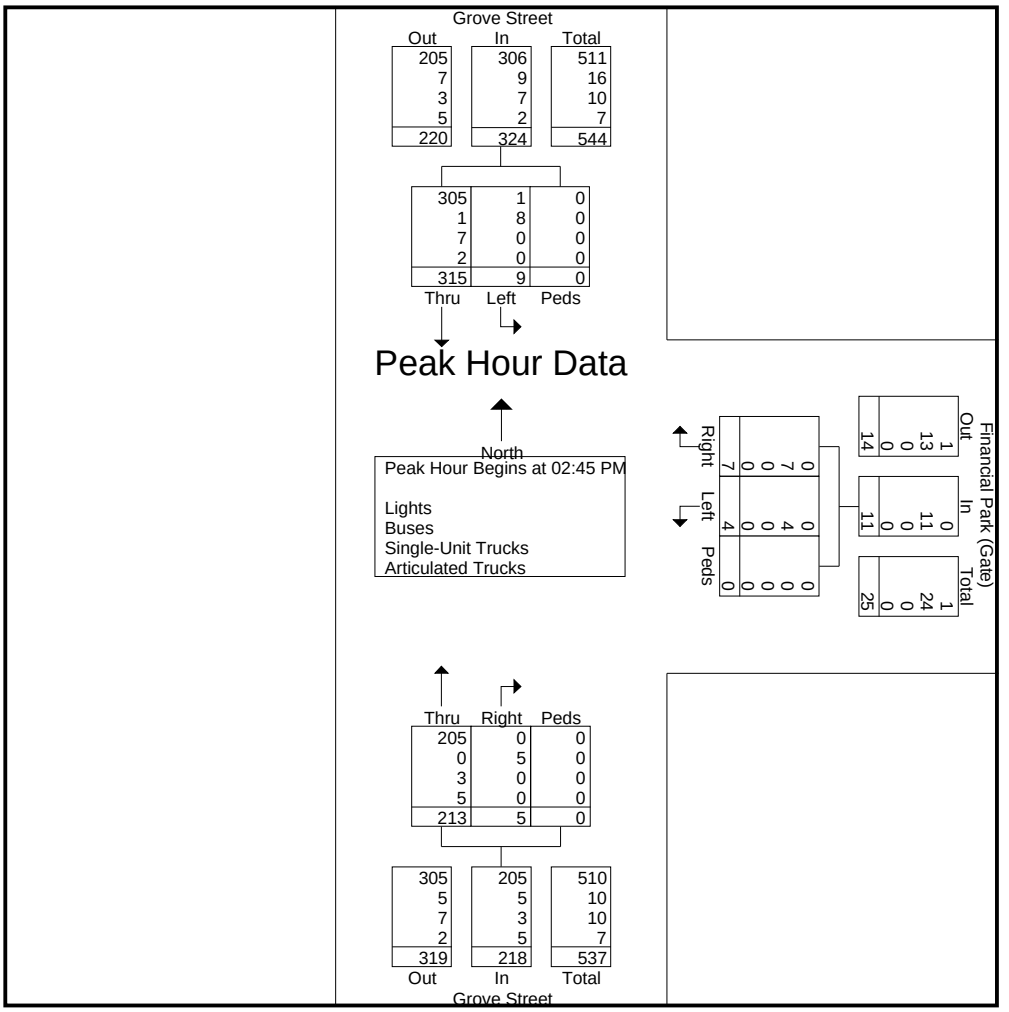
MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA, 01752

N/S: Grove Street
WB: Financial Park (Gate)
Franklin, MA

File Name : 1259_Grove_at_Gated_Driveway_01-26-2023
Site Code : 1259
Start Date : 1/26/2023
Page No : 3

	Grove Street From North				Financial Park (Gate) From East				Grove Street From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 03:30 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 02:45 PM													
02:45 PM	77	0	0	77	0	0	0	0	**2**	**62**	0	**64**	141
03:00 PM	75	1	0	76	3	1	0	4	1	38	0	39	119
03:15 PM	75	**8**	0	83	**4**	**2**	0	**6**	2	54	0	56	145
03:30 PM	**88**	0	0	**88**	0	1	0	1	0	59	0	59	**148**
Total Volume	315	9	0	324	7	4	0	11	5	213	0	218	553
% App. Total	97.2	2.8	0		63.6	36.4	0		2.3	97.7	0		
PHF	.895	.281	.000	.920	.438	.500	.000	.458	.625	.859	.000	.852	.934
Lights	305	1	0	306	0	0	0	0	0	205	0	205	511
% Lights	96.8	11.1	0	94.4	0	0	0	0	0	96.2	0	94.0	92.4
Buses	1	8	0	9	7	4	0	11	5	0	0	5	25
% Buses	0.3	88.9	0	2.8	100	100	0	100	100	0	0	2.3	4.5
Single-Unit Trucks	7	0	0	7	0	0	0	0	0	3	0	3	10
% Single-Unit Trucks	2.2	0	0	2.2	0	0	0	0	0	1.4	0	1.4	1.8
Articulated Trucks	2	0	0	2	0	0	0	0	0	5	0	5	7
% Articulated Trucks	0.6	0	0	0.6	0	0	0	0	0	2.3	0	2.3	1.3



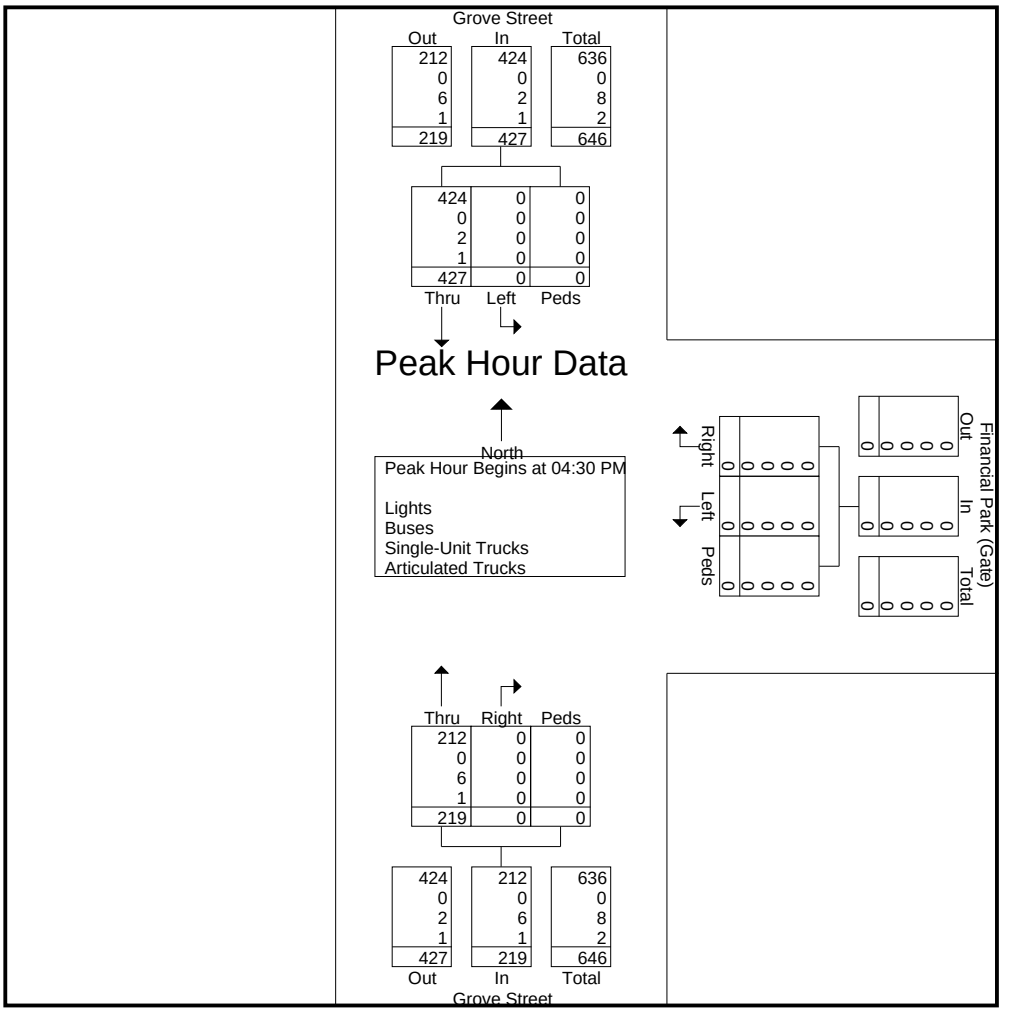
MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA, 01752

N/S: Grove Street
WB: Financial Park (Gate)
Franklin, MA

File Name : 1259_Grove_at_Gated_Driveway_01-26-2023
Site Code : 1259
Start Date : 1/26/2023

	Grove Street From North				Financial Park (Gate) From East				Grove Street From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:30 PM													
04:30 PM	**132**	0	0	**132**	0	0	0	0	0	39	0	39	**171**
04:45 PM	104	0	0	104	0	0	0	0	0	51	0	51	155
05:00 PM	102	0	0	102	0	0	0	0	0	51	0	51	153
05:15 PM	89	0	0	89	0	0	0	0	0	**78**	0	**78**	167
Total Volume	427	0	0	427	0	0	0	0	0	219	0	219	646
% App. Total	100	0	0		0	0	0		0	100	0		
PHF	.809	.000	.000	.809	.000	.000	.000	.000	.000	.702	.000	.702	.944
Lights	424	0	0	424	0	0	0	0	0	212	0	212	636
% Lights	99.3	0	0	99.3	0	0	0	0	0	96.8	0	96.8	98.5
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit Trucks	2	0	0	2	0	0	0	0	0	6	0	6	8
% Single-Unit Trucks	0.5	0	0	0.5	0	0	0	0	0	2.7	0	2.7	1.2
Articulated Trucks	1	0	0	1	0	0	0	0	0	1	0	1	2
% Articulated Trucks	0.2	0	0	0.2	0	0	0	0	0	0.5	0	0.5	0.3



MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA, 01752

N/S: Washington Street
EB: Financial Park
Franklin, MA

File Name : 1259_Washington_at_Financial_Park_01-26-2023
Site Code : 1259
Start Date : 1/26/2023

Groups Printed- Lights - Buses - Unit Trucks

	Washington Street From North				Washington Street From South				Financial Park From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
07:00 AM	4	26	0	30	43	9	0	52	0	0	0	0	82
07:15 AM	12	20	0	32	76	33	0	109	3	0	0	3	144
07:30 AM	24	21	0	45	36	35	0	71	30	29	0	59	175
07:45 AM	25	25	0	50	38	47	0	85	6	5	0	11	146
Total	65	92	0	157	193	124	0	317	39	34	0	73	547
08:00 AM	40	35	0	75	30	48	0	78	26	39	0	65	218
08:15 AM	8	27	0	35	51	41	0	92	12	13	0	25	152
08:30 AM	19	20	0	39	27	27	0	54	7	1	0	8	101
08:45 AM	31	14	0	45	22	46	0	68	52	38	0	90	203
Total	98	96	0	194	130	162	0	292	97	91	0	188	674
09:00 AM	3	12	0	15	10	2	0	12	16	16	0	32	59
09:15 AM	3	12	0	15	19	9	0	28	6	1	0	7	50
Total	6	24	0	30	29	11	0	40	22	17	0	39	109
02:30 PM	12	53	0	65	28	16	0	44	12	0	0	12	121
02:45 PM	8	22	0	30	35	21	0	56	9	3	0	12	98
Total	20	75	0	95	63	37	0	100	21	3	0	24	219
03:00 PM	10	40	0	50	27	13	0	40	39	25	0	64	154
03:15 PM	4	39	0	43	29	4	0	33	38	32	0	70	146
03:30 PM	3	36	0	39	27	3	0	30	51	27	0	78	147
03:45 PM	0	28	0	28	32	4	0	36	21	6	0	27	91
Total	17	143	0	160	115	24	0	139	149	90	0	239	538
04:00 PM	3	40	0	43	20	3	0	23	11	4	0	15	81
04:15 PM	7	40	0	47	20	4	0	24	12	5	0	17	88
04:30 PM	3	36	0	39	26	4	0	30	10	10	0	20	89
04:45 PM	7	36	0	43	35	8	0	43	11	1	0	12	98
Total	20	152	0	172	101	19	0	120	44	20	0	64	356
05:00 PM	4	38	0	42	31	12	0	43	12	5	0	17	102
05:15 PM	9	51	0	60	22	15	0	37	5	1	0	6	103
05:30 PM	7	38	0	45	23	11	0	34	27	23	0	50	129
05:45 PM	1	40	0	41	22	2	0	24	14	7	0	21	86
Total	21	167	0	188	98	40	0	138	58	36	0	94	420
Grand Total	247	749	0	996	729	417	0	1146	430	291	0	721	2863
Apprch %	24.8	75.2	0		63.6	36.4	0		59.6	40.4	0		
Total %	8.6	26.2	0	34.8	25.5	14.6	0	40	15	10.2	0	25.2	
Lights	244	737	0	981	718	402	0	1120	417	284	0	701	2802
% Lights	98.8	98.4	0	98.5	98.5	96.4	0	97.7	97	97.6	0	97.2	97.9
Buses	1	6	0	7	6	1	0	7	7	7	0	14	28
% Buses	0.4	0.8	0	0.7	0.8	0.2	0	0.6	1.6	2.4	0	1.9	1
Single-Unit Trucks	2	6	0	8	5	14	0	19	6	0	0	6	33
% Single-Unit Trucks	0.8	0.8	0	0.8	0.7	3.4	0	1.7	1.4	0	0	0.8	1.2

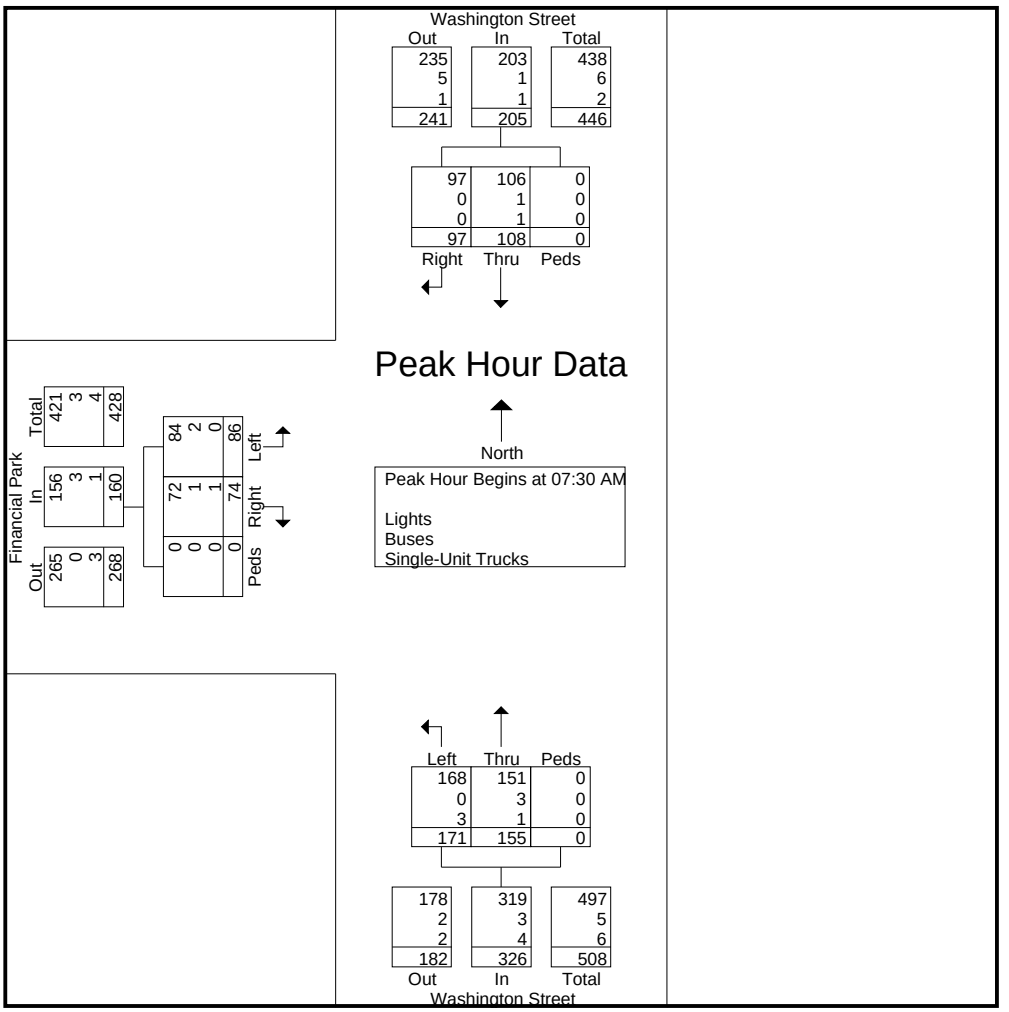
MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA, 01752

N/S: Washington Street
EB: Financial Park
Franklin, MA

File Name : 1259_Washington_at_Financial_Park_01-26-2023
Site Code : 1259
Start Date : 1/26/2023
Page No : 2

	Washington Street From North				Washington Street From South				Financial Park From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	24	21	0	45	36	35	0	71	**30**	29	0	59	175
07:45 AM	25	25	0	50	38	47	0	85	6	5	0	11	146
08:00 AM	**40**	**35**	0	**75**	30	**48**	0	78	26	**39**	0	**65**	**218**
08:15 AM	8	27	0	35	**51**	41	0	**92**	12	13	0	25	152
Total Volume	97	108	0	205	155	171	0	326	74	86	0	160	691
% App. Total	47.3	52.7	0		47.5	52.5	0		46.2	53.8	0		
PHF	.606	.771	.000	.683	.760	.891	.000	.886	.617	.551	.000	.615	.792
Lights	97	106	0	203	151	168	0	319	72	84	0	156	678
% Lights	100	98.1	0	99.0	97.4	98.2	0	97.9	97.3	97.7	0	97.5	98.1
Buses	0	1	0	1	3	0	0	3	1	2	0	3	7
% Buses	0	0.9	0	0.5	1.9	0	0	0.9	1.4	2.3	0	1.9	1.0
Single-Unit Trucks	0	1	0	1	1	3	0	4	1	0	0	1	6
% Single-Unit Trucks	0	0.9	0	0.5	0.6	1.8	0	1.2	1.4	0	0	0.6	0.9



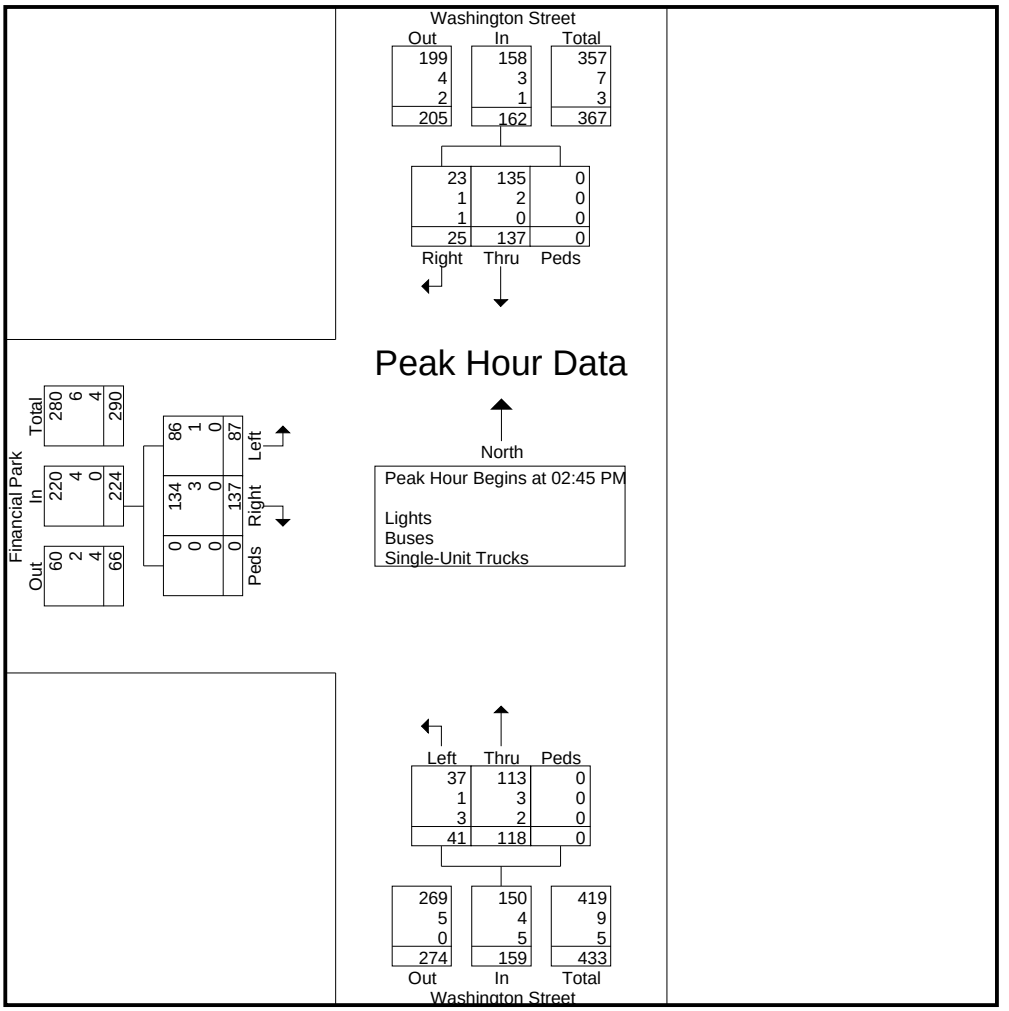
MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA, 01752

N/S: Washington Street
EB: Financial Park
Franklin, MA

File Name : 1259_Washington_at_Financial_Park_01-26-2023
Site Code : 1259
Start Date : 1/26/2023
Page No : 3

	Washington Street From North				Washington Street From South				Financial Park From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 03:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 02:45 PM													
02:45 PM	8	22	0	30	**35**	**21**	0	**56**	9	3	0	12	98
03:00 PM	**10**	**40**	0	**50**	27	13	0	40	39	25	0	64	**154**
03:15 PM	4	39	0	43	29	4	0	33	38	**32**	0	70	146
03:30 PM	3	36	0	39	27	3	0	30	**51**	27	0	**78**	147
Total Volume	25	137	0	162	118	41	0	159	137	87	0	224	545
% App. Total	15.4	84.6	0		74.2	25.8	0		61.2	38.8	0		
PHF	.625	.856	.000	.810	.843	.488	.000	.710	.672	.680	.000	.718	.885
Lights	23	135	0	158	113	37	0	150	134	86	0	220	528
% Lights	92.0	98.5	0	97.5	95.8	90.2	0	94.3	97.8	98.9	0	98.2	96.9
Buses	1	2	0	3	3	1	0	4	3	1	0	4	11
% Buses	4.0	1.5	0	1.9	2.5	2.4	0	2.5	2.2	1.1	0	1.8	2.0
Single-Unit Trucks	1	0	0	1	2	3	0	5	0	0	0	0	6
% Single-Unit Trucks	4.0	0	0	0.6	1.7	7.3	0	3.1	0	0	0	0	1.1



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28 Lord Road, Suite 280
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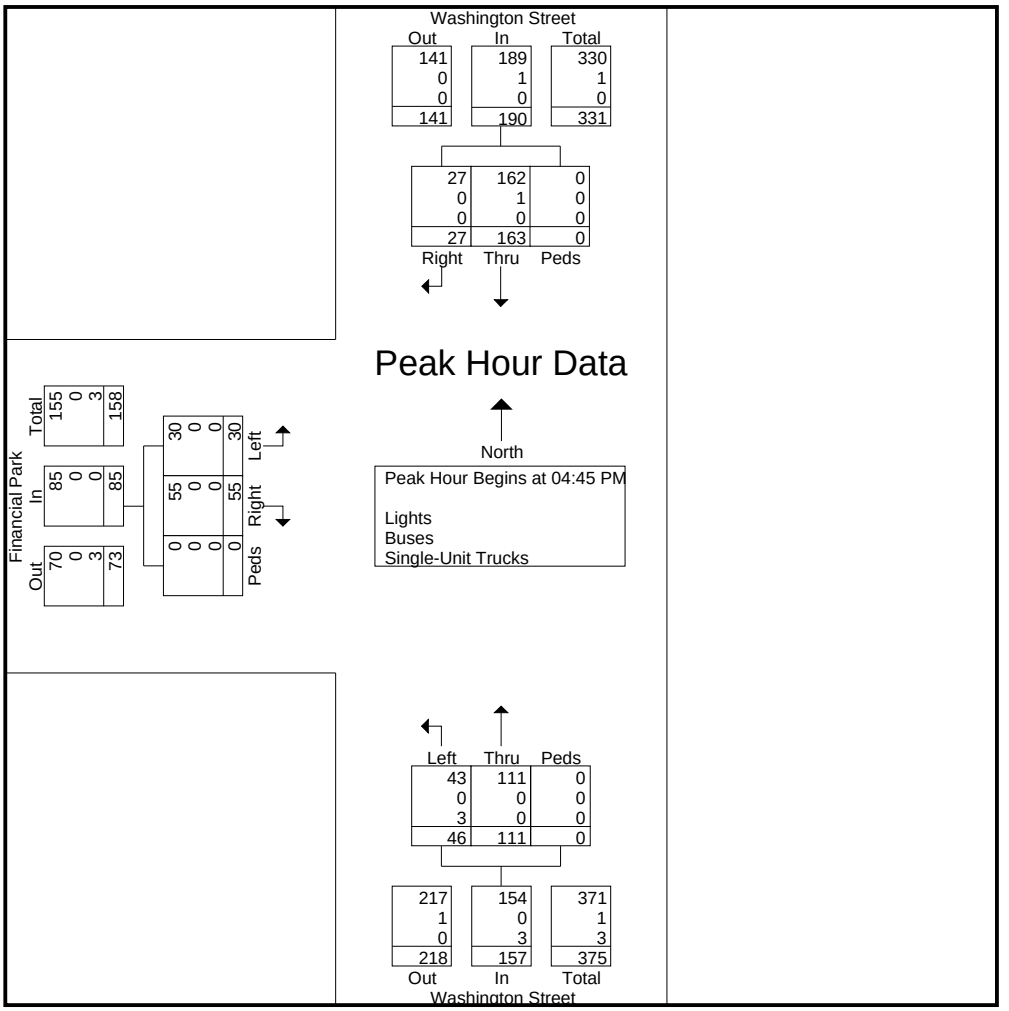
N/S: Washington Street
EB: Financial Park
Franklin, MA

File Name : 1259_Washington_at_Financial_Park_01-26-2023
Site Code : 1259
Start Date : 1/26/2023
Page No : 4

	Washington Street From North				Washington Street From South				Financial Park From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	7	36	0	43	**35**	8	0	**43**	11	1	0	12	98
05:00 PM	4	38	0	42	31	12	0	43	12	5	0	17	102
05:15 PM	**9**	**51**	0	**60**	22	**15**	0	37	5	1	0	6	103
05:30 PM	7	38	0	45	23	11	0	34	**27**	**23**	0	**50**	**129**
Total Volume	27	163	0	190	111	46	0	157	55	30	0	85	432
% App. Total	14.2	85.8	0		70.7	29.3	0		64.7	35.3	0		
PHF	.750	.799	.000	.792	.793	.767	.000	.913	.509	.326	.000	.425	.837
Lights	27	162	0	189	111	43	0	154	55	30	0	85	428
% Lights	100	99.4	0	99.5	100	93.5	0	98.1	100	100	0	100	99.1
Buses	0	1	0	1	0	0	0	0	0	0	0	0	1
% Buses	0	0.6	0	0.5	0	0	0	0	0	0	0	0	0.2
Single-Unit Trucks	0	0	0	0	0	3	0	3	0	0	0	0	3
% Single-Unit Trucks	0	0	0	0	0	6.5	0	1.9	0	0	0	0	0.7



MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA, 01752

EB/SB: Washington Street
WB: King Street
Franklin, MA

File Name : 1259_Washington_at_King_Signal_01-26-2023
Site Code : 1259
Start Date : 1/26/2023
Page No : 1

Groups Printed- Lights - Buses - Unit Trucks - Articulated Trucks

	Washington Street From North				King Street From East				Washington Street From West				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	25	6	0	31	11	93	0	104	142	46	0	188	323
07:15 AM	17	5	0	22	24	63	0	87	178	84	0	262	371
07:30 AM	32	16	0	48	26	53	0	79	141	46	0	187	314
07:45 AM	22	8	0	30	30	85	0	115	119	55	0	174	319
Total	96	35	0	131	91	294	0	385	580	231	0	811	1327
08:00 AM	35	15	0	50	34	88	0	122	130	43	0	173	345
08:15 AM	40	12	0	52	34	68	0	102	124	58	0	182	336
08:30 AM	23	9	0	32	22	63	0	85	120	34	0	154	271
08:45 AM	39	26	0	65	31	54	0	85	118	39	0	157	307
Total	137	62	0	199	121	273	0	394	492	174	0	666	1259
09:00 AM	19	14	0	33	5	46	0	51	92	7	0	99	183
09:15 AM	16	5	0	21	12	41	0	53	96	18	0	114	188
Total	35	19	0	54	17	87	0	104	188	25	0	213	371
02:30 PM	54	11	0	65	13	128	0	141	101	34	0	135	341
02:45 PM	24	9	0	33	19	114	0	133	109	41	0	150	316
Total	78	20	0	98	32	242	0	274	210	75	0	285	657
03:00 PM	50	21	0	71	8	136	0	144	89	31	0	120	335
03:15 PM	54	26	0	80	7	151	0	158	101	27	0	128	366
03:30 PM	55	38	0	93	5	130	0	135	88	26	0	114	342
03:45 PM	33	14	0	47	9	138	0	147	74	25	0	99	293
Total	192	99	0	291	29	555	0	584	352	109	0	461	1336
04:00 PM	35	9	0	44	4	143	0	147	73	20	0	93	284
04:15 PM	46	6	0	52	4	135	0	139	73	19	0	92	283
04:30 PM	41	9	0	50	8	123	0	131	70	22	0	92	273
04:45 PM	39	8	0	47	11	141	0	152	69	31	0	100	299
Total	161	32	0	193	27	542	0	569	285	92	0	377	1139
05:00 PM	39	6	0	45	14	139	0	153	92	30	0	122	320
05:15 PM	47	9	0	56	11	109	0	120	62	26	0	88	264
05:30 PM	56	14	0	70	9	132	0	141	61	25	0	86	297
05:45 PM	41	14	0	55	4	115	0	119	61	21	0	82	256
Total	183	43	0	226	38	495	0	533	276	102	0	378	1137
Grand Total	882	310	0	1192	355	2488	0	2843	2383	808	0	3191	7226
Apprch %	74	26	0		12.5	87.5	0		74.7	25.3	0		
Total %	12.2	4.3	0	16.5	4.9	34.4	0	39.3	33	11.2	0	44.2	
Lights	869	278	0	1147	319	2407	0	2726	2307	796	0	3103	6976
% Lights	98.5	89.7	0	96.2	89.9	96.7	0	95.9	96.8	98.5	0	97.2	96.5
Buses	4	8	0	12	3	11	0	14	5	3	0	8	34
% Buses	0.5	2.6	0	1	0.8	0.4	0	0.5	0.2	0.4	0	0.3	0.5
Single-Unit Trucks	6	7	0	13	14	51	0	65	50	7	0	57	135
% Single-Unit Trucks	0.7	2.3	0	1.1	3.9	2	0	2.3	2.1	0.9	0	1.8	1.9
Articulated Trucks	3	17	0	20	19	19	0	38	21	2	0	23	81
% Articulated Trucks	0.3	5.5	0	1.7	5.4	0.8	0	1.3	0.9	0.2	0	0.7	1.1

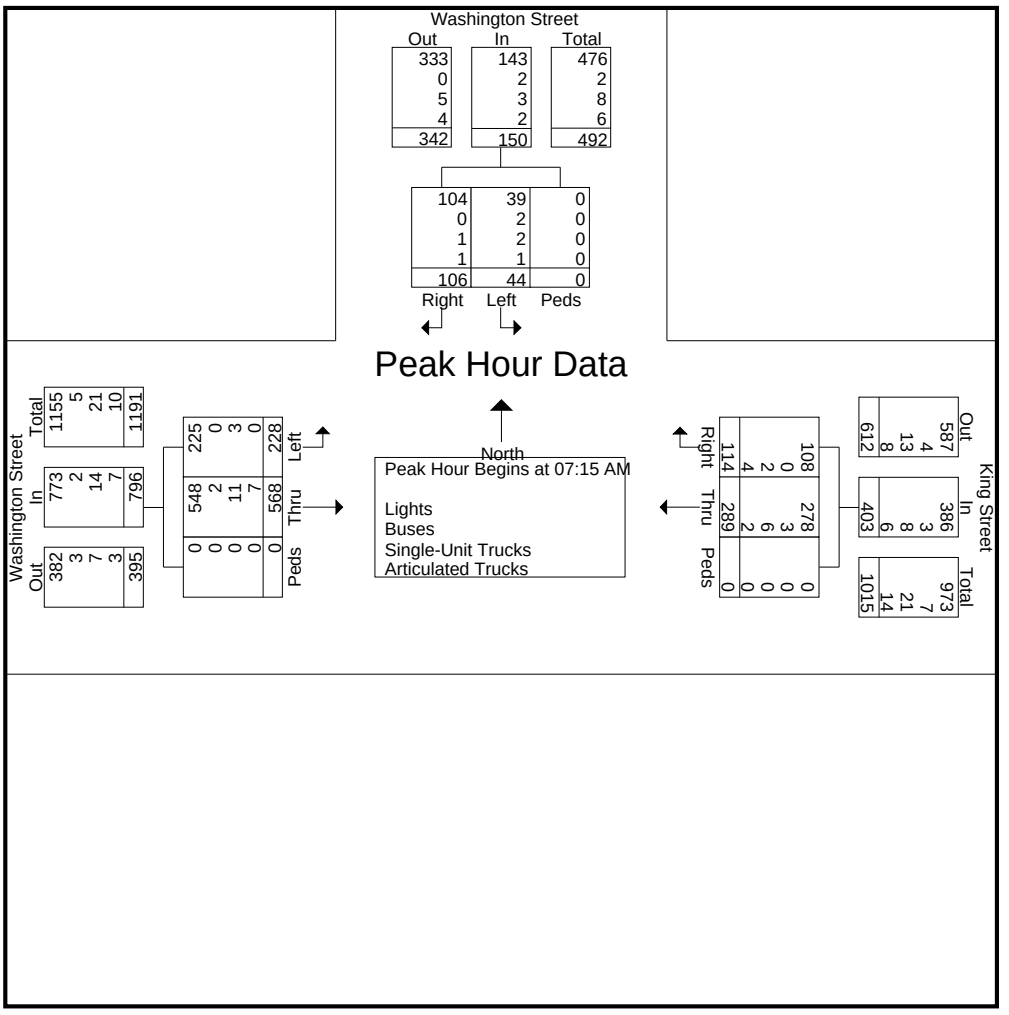
MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA, 01752

EB/SB: Washington Street
WB: King Street
Franklin, MA

File Name : 1259_Washington_at_King_Signal_01-26-2023
Site Code : 1259
Start Date : 1/26/2023

	Washington Street From North				King Street From East				Washington Street From West				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:15 AM													
07:15 AM	17	5	0	22	24	63	0	87	**178**	**84**	0	**262**	**371**
07:30 AM	32	**16**	0	48	26	53	0	79	141	46	0	187	314
07:45 AM	22	8	0	30	30	85	0	115	119	55	0	174	319
08:00 AM	**35**	15	0	**50**	**34**	**88**	0	**122**	130	43	0	173	345
Total Volume	106	44	0	150	114	289	0	403	568	228	0	796	1349
% App. Total	70.7	29.3	0		28.3	71.7	0		71.4	28.6	0		
PHF	.757	.688	.000	.750	.838	.821	.000	.826	.798	.679	.000	.760	.909
Lights	104	39	0	143	108	278	0	386	548	225	0	773	1302
% Lights	98.1	88.6	0	95.3	94.7	96.2	0	95.8	96.5	98.7	0	97.1	96.5
Buses	0	2	0	2	0	3	0	3	2	0	0	2	7
% Buses	0	4.5	0	1.3	0	1.0	0	0.7	0.4	0	0	0.3	0.5
Single-Unit Trucks	1	2	0	3	2	6	0	8	11	3	0	14	25
% Single-Unit Trucks	0.9	4.5	0	2.0	1.8	2.1	0	2.0	1.9	1.3	0	1.8	1.9
Articulated Trucks	1	1	0	2	4	2	0	6	7	0	0	7	15
% Articulated Trucks	0.9	2.3	0	1.3	3.5	0.7	0	1.5	1.2	0	0	0.9	1.1



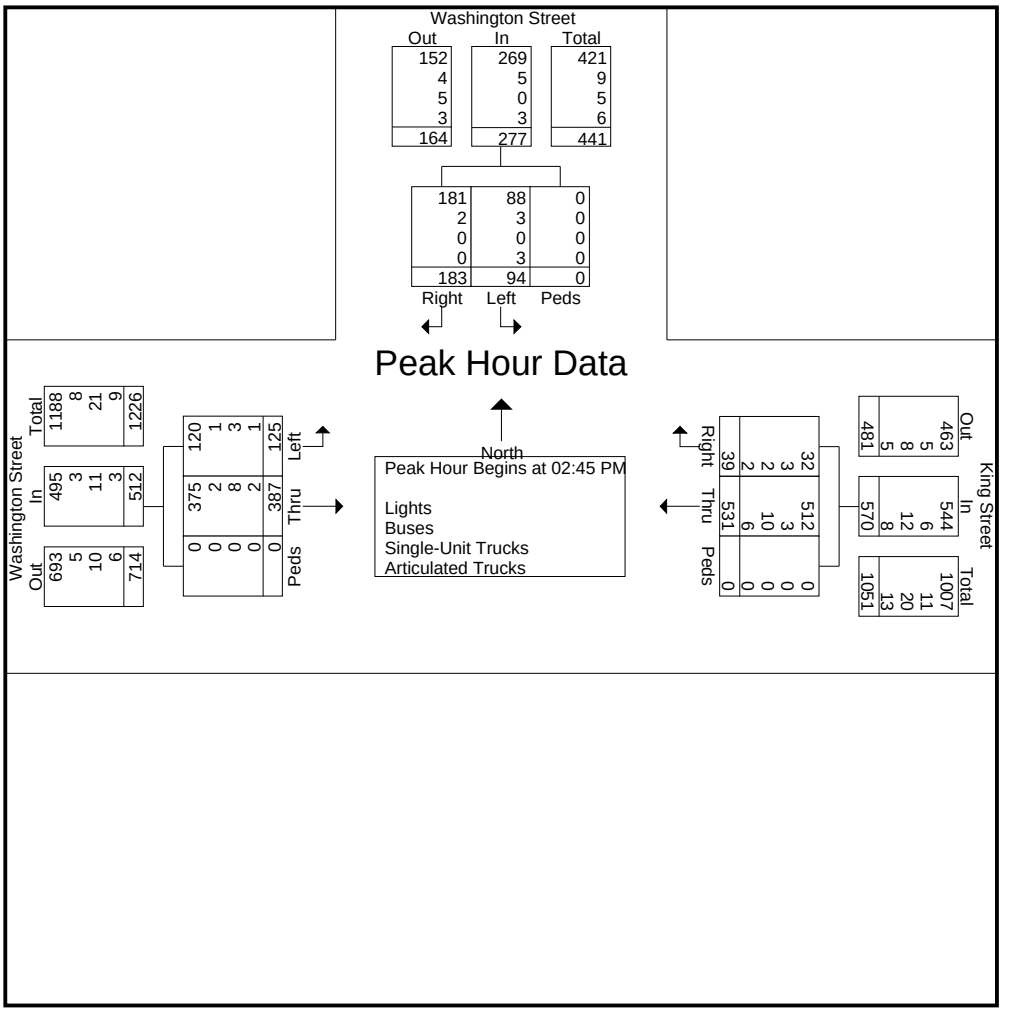
MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA, 01752

EB/SB: Washington Street
WB: King Street
Franklin, MA

File Name : 1259_Washington_at_King_Signal_01-26-2023
Site Code : 1259
Start Date : 1/26/2023
Page No : 3

	Washington Street From North				King Street From East				Washington Street From West				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 03:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 02:45 PM													
02:45 PM	24	9	0	33	**19**	114	0	133	**109**	**41**	0	**150**	316
03:00 PM	50	21	0	71	8	136	0	144	89	31	0	120	335
03:15 PM	54	26	0	80	7	**151**	0	**158**	101	27	0	128	**366**
03:30 PM	**55**	**38**	0	**93**	5	130	0	135	88	26	0	114	342
Total Volume	183	94	0	277	39	531	0	570	387	125	0	512	1359
% App. Total	66.1	33.9	0		6.8	93.2	0		75.6	24.4	0		
PHF	.832	.618	.000	.745	.513	.879	.000	.902	.888	.762	.000	.853	.928
Lights	181	88	0	269	32	512	0	544	375	120	0	495	1308
% Lights	98.9	93.6	0	97.1	82.1	96.4	0	95.4	96.9	96.0	0	96.7	96.2
Buses	2	3	0	5	3	3	0	6	2	1	0	3	14
% Buses	1.1	3.2	0	1.8	7.7	0.6	0	1.1	0.5	0.8	0	0.6	1.0
Single-Unit Trucks	0	0	0	0	2	10	0	12	8	3	0	11	23
% Single-Unit Trucks	0	0	0	0	5.1	1.9	0	2.1	2.1	2.4	0	2.1	1.7
Articulated Trucks	0	3	0	3	2	6	0	8	2	1	0	3	14
% Articulated Trucks	0	3.2	0	1.1	5.1	1.1	0	1.4	0.5	0.8	0	0.6	1.0



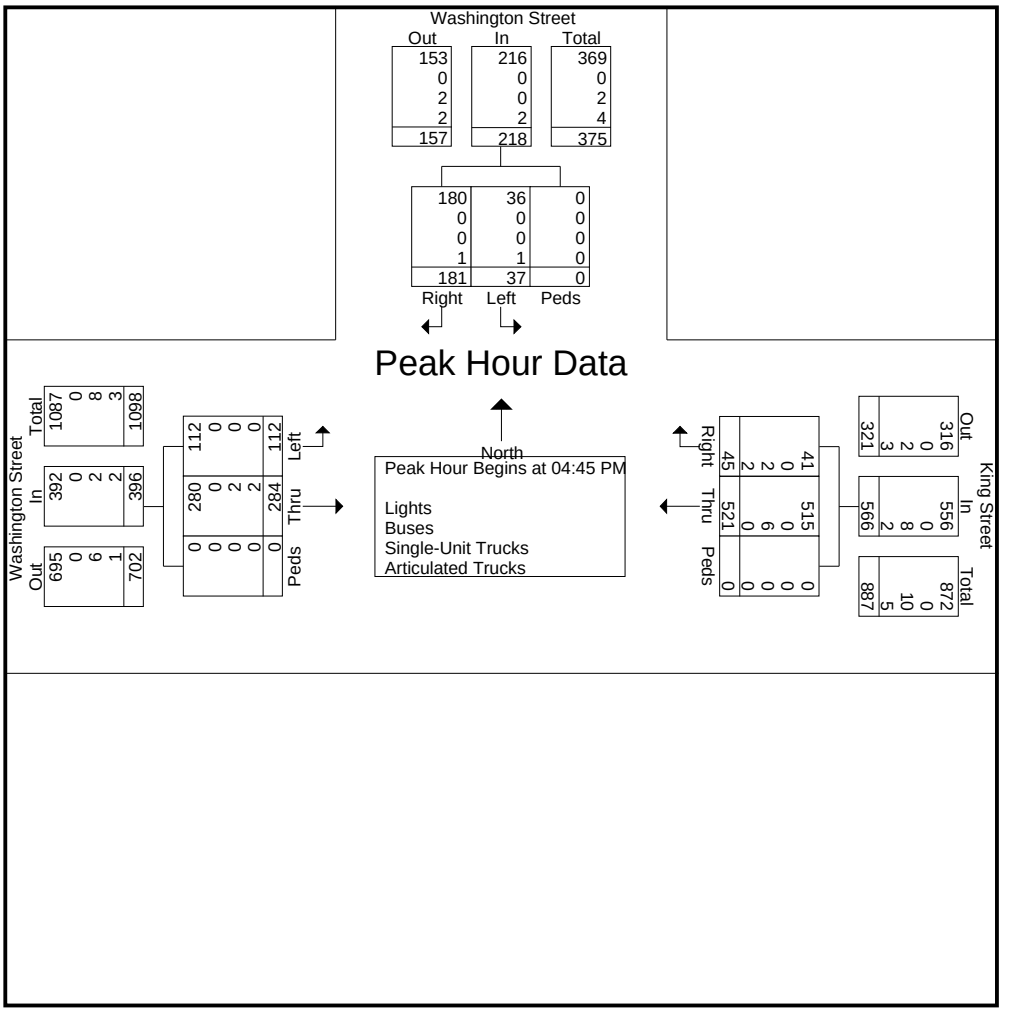
MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA, 01752

EB/SB: Washington Street
WB: King Street
Franklin, MA

File Name : 1259_Washington_at_King_Signal_01-26-2023
Site Code : 1259
Start Date : 1/26/2023
Page No : 4

	Washington Street From North				King Street From East				Washington Street From West				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	39	8	0	47	11	**141**	0	152	69	**31**	0	100	299
05:00 PM	39	6	0	45	**14**	139	0	**153**	**92**	30	0	**122**	**320**
05:15 PM	47	9	0	56	11	109	0	120	62	26	0	88	264
05:30 PM	**56**	**14**	0	**70**	9	132	0	141	61	25	0	86	297
Total Volume	181	37	0	218	45	521	0	566	284	112	0	396	1180
% App. Total	83	17	0		8	92	0		71.7	28.3	0		
PHF	.808	.661	.000	.779	.804	.924	.000	.925	.772	.903	.000	.811	.922
Lights	180	36	0	216	41	515	0	556	280	112	0	392	1164
% Lights	99.4	97.3	0	99.1	91.1	98.8	0	98.2	98.6	100	0	99.0	98.6
Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
% Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
Single-Unit Trucks	0	0	0	0	2	6	0	8	2	0	0	2	10
% Single-Unit Trucks	0	0	0	0	4.4	1.2	0	1.4	0.7	0	0	0.5	0.8
Articulated Trucks	1	1	0	2	2	0	0	2	2	0	0	2	6
% Articulated Trucks	0.6	2.7	0	0.9	4.4	0	0	0.4	0.7	0	0	0.5	0.5



MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA, 01752

N/S: Union Street
EB: Washington Street
WB: Arlington Street
Franklin, MA

File Name : 1259_Washington_at_Union_01-26-2023
Site Code : 1259
Start Date : 1/26/2023
Page No : 1

Groups Printed- Lights - Mediums - Articulated Trucks

	Union Street From North						Arlington Street From East						Union Street From South					Washington Street From West						Saxon Street From Northwest		
Start Time	Hard Right	Right	Thru	Left	Peds	App. Total	Right	Bear Right	Thru	Left	Peds	App. Total	Right	Thru	Bear Left	Left	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total	Peds	App. Total	Int. Total
07:00 AM	0	15	25	0	0	40	1	0	5	2	0	8	1	52	2	1	56	0	1	47	0	0	48	0	0	152
07:15 AM	1	30	39	0	0	70	2	0	2	0	0	4	1	52	0	2	55	8	7	64	0	0	79	0	0	208
07:30 AM	0	37	74	4	0	115	2	0	2	0	0	4	2	40	1	2	45	3	4	52	0	0	59	0	0	223
07:45 AM	0	37	43	0	0	80	2	0	2	0	0	4	3	52	3	0	58	0	2	47	0	0	49	0	0	191
Total	1	119	181	4	0	305	7	0	11	2	0	20	7	196	6	5	214	11	14	210	0	0	235	0	0	774
08:00 AM	0	55	46	0	0	101	1	0	6	1	0	8	3	45	0	0	48	4	5	55	0	0	64	0	0	221
08:15 AM	1	32	53	2	0	88	1	0	5	0	0	6	8	47	2	3	60	2	11	60	0	0	73	0	0	227
08:30 AM	0	36	52	2	0	90	1	0	4	0	0	5	1	46	2	0	49	2	1	31	0	0	34	0	0	178
08:45 AM	0	34	38	1	0	73	0	1	5	2	0	8	0	45	0	2	47	4	7	38	0	0	49	0	0	177
Total	1	157	189	5	0	352	3	1	20	3	0	27	12	183	4	5	204	12	24	184	0	0	220	0	0	803
09:00 AM	0	11	33	2	0	46	2	0	1	1	0	4	0	36	3	0	39	6	5	31	0	0	42	0	0	131
09:15 AM	1	13	35	4	0	53	1	0	1	2	0	4	1	35	2	2	40	1	4	18	0	0	23	0	0	120
Total	1	24	68	6	0	99	3	0	2	3	0	8	1	71	5	2	79	7	9	49	0	0	65	0	0	251
02:30 PM	0	58	61	1	0	120	1	0	4	1	0	6	4	40	1	3	48	0	2	11	0	0	13	0	0	187
02:45 PM	0	32	57	3	0	92	4	1	6	4	0	15	2	50	0	0	52	0	3	40	0	0	43	0	0	202
Total	0	90	118	4	0	212	5	1	10	5	0	21	6	90	1	3	100	0	5	51	0	0	56	0	0	389
03:00 PM	1	51	71	1	0	124	2	1	5	0	0	8	2	45	1	3	51	6	5	33	0	0	44	0	0	227
03:15 PM	1	42	58	0	0	101	2	0	5	0	0	7	1	63	0	0	64	6	6	64	0	0	76	0	0	248
03:30 PM	0	36	65	2	0	103	5	0	3	0	0	8	2	55	2	3	62	4	2	39	0	0	45	0	0	218
03:45 PM	0	30	48	2	0	80	1	0	1	2	0	4	0	52	0	5	57	3	4	44	0	0	51	0	0	192
Total	2	159	242	5	0	408	10	1	14	2	0	27	5	215	3	11	234	19	17	180	0	0	216	0	0	885
04:00 PM	0	43	44	9	0	96	2	0	1	1	0	4	1	43	1	2	47	3	4	21	0	0	28	0	0	175
04:15 PM	1	43	53	0	0	97	6	0	4	2	0	12	2	44	0	3	49	3	2	21	0	0	26	0	0	184
04:30 PM	0	36	52	2	0	90	4	0	2	0	0	6	2	50	0	3	55	2	5	38	1	0	46	0	0	197
04:45 PM	1	38	64	3	0	106	3	0	3	2	0	8	1	39	3	0	43	2	3	26	5	0	36	0	0	193
Total	2	160	213	14	0	389	15	0	10	5	0	30	6	176	4	8	194	10	14	106	6	0	136	0	0	749
05:00 PM	0	37	63	6	0	106	1	1	3	3	0	8	0	46	2	1	49	1	1	25	2	0	29	0	0	192
05:15 PM	0	52	62	1	0	115	3	0	2	3	0	8	1	53	4	1	59	2	4	27	2	0	35	0	0	217
05:30 PM	0	40	50	0	0	90	2	0	4	2	0	8	3	53	1	3	60	3	5	35	1	0	44	0	0	202
05:45 PM	1	44	44	8	0	97	2	1	0	0	0	3	2	51	2	5	60	3	0	27	2	0	32	0	0	192
Total	1	173	219	15	0	408	8	2	9	8	0	27	6	203	9	10	228	9	10	114	7	0	140	0	0	803
Grand Total	8	882	1230	53	0	2173	51	5	76	28	0	160	43	1134	32	44	1253	68	93	894	13	0	1068	0	0	4654
Apprch %	0.4	40.6	56.6	2.4	0		31.9	3.1	47.5	17.5	0		3.4	90.5	2.6	3.5		6.4	8.7	83.7	1.2	0		0		
Total %	0.2	19	26.4	1.1	0	46.7	1.1	0.1	1.6	0.6	0	3.4	0.9	24.4	0.7	0.9	26.9	1.5	2	19.2	0.3	0	22.9	0	0	
Lights	6	869	1200	53	0	2128	50	4	74	27	0	155	43	1108	29	40	1220	67	90	881	13	0	1051	0	0	4554
% Lights	75	98.5	97.6	100	0	97.9	98	80	97.4	96.4	0	96.9	100	97.7	90.6	90.9	97.4	98.5	96.8	98.5	100	0	98.4	0	0	97.9
Mediums	1	13	28	0	0	42	1	1	2	1	0	5	0	23	3	4	30	1	3	13	0	0	17	0	0	94
% Mediums	12.5	1.5	2.3	0	0	1.9	2	20	2.6	3.6	0	3.1	0	2	9.4	9.1	2.4	1.5	3.2	1.5	0	0	1.6	0	0	2
Articulated Trucks	1	0	2	0	0	3	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	6
% Articulated Trucks	12.5	0	0.2	0	0	0.1	0	0	0	0	0	0	0	0.3	0	0	0.2	0	0	0	0	0	0	0	0	0.1

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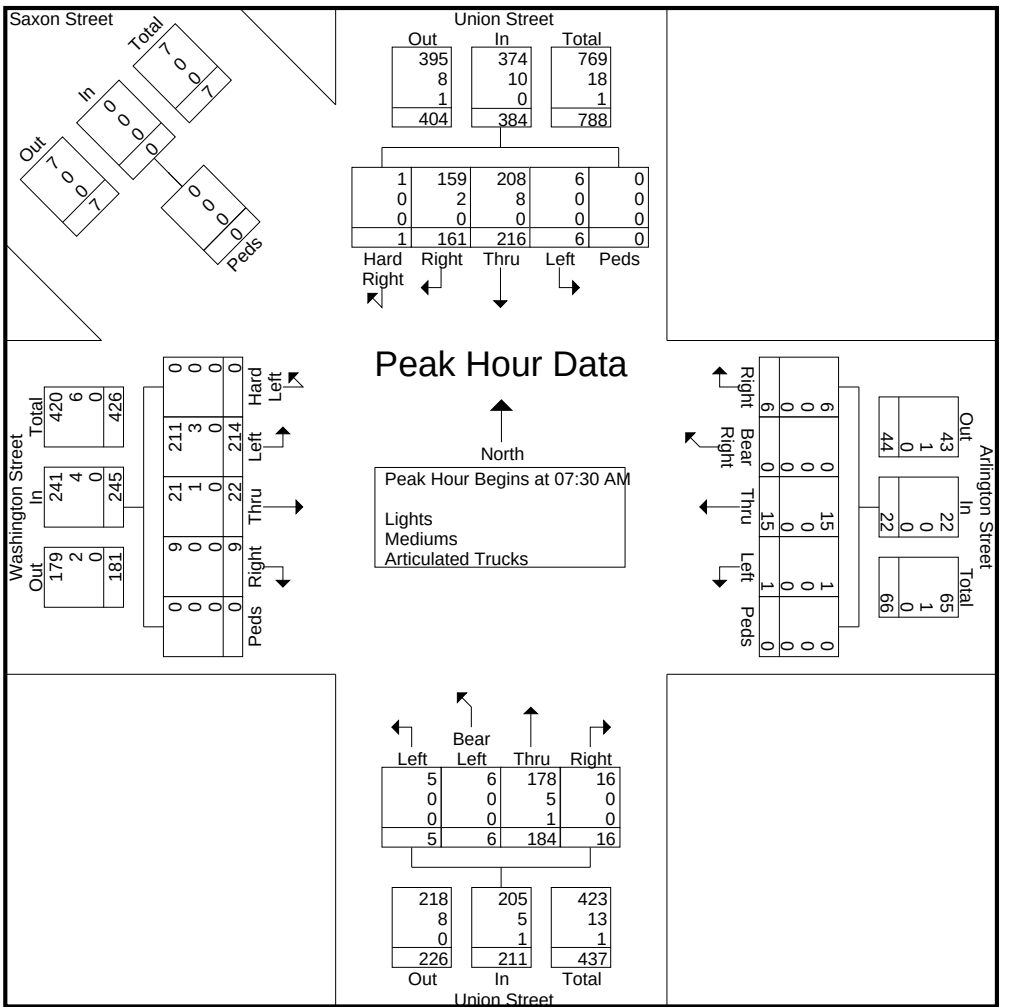
File Name : 1259_Washington_at_Union_01-26-2023
Site Code : 1259
Start Date : 1/26/2023
Page No : 2

	Union Street From North						Arlington Street From East						Union Street From South					Washington Street From West						Saxon Street From Northwest		
Start Time	Hard Right	Right	Thru	Left	Peds	App. Total	Right	Bear Right	Thru	Left	Peds	App. Total	Right	Thru	Bear Left	Left	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 07:30 AM																										
07:30 AM	0	37	**74**	**4**	0	**115**	**2**	0	2	0	0	4	2	40	1	2	45	3	4	52	0	0	59	0	0	223
07:45 AM	0	37	43	0	0	80	2	0	2	0	0	4	3	**52**	**3**	0	58	0	2	47	0	0	49	0	0	191
08:00 AM	0	**55**	46	0	0	101	1	0	**6**	**1**	0	**8**	3	45	0	0	48	**4**	5	55	0	0	64	0	0	221
08:15 AM	**1**	32	53	2	0	88	1	0	5	0	0	6	**8**	47	2	**3**	**60**	2	**11**	**60**	0	0	**73**	0	0	**227**
Total Volume	1	161	216	6	0	384	6	0	15	1	0	22	16	184	6	5	211	9	22	214	0	0	245	0	0	862
% App. Total	0.3	41.9	56.2	1.6	0		27.3	0	68.2	4.5	0		7.6	87.2	2.8	2.4		3.7	9	87.3	0	0		0		
PHF	.250	.732	.730	.375	.000	.835	.750	.000	.625	.250	.000	.688	.500	.885	.500	.417	.879	.563	.500	.892	.000	.000	.839	.000	.000	.949
Lights	1	159	208	6	0	374	6	0	15	1	0	22	16	178	6	5	205	9	21	211	0	0	241	0	0	842
% Lights	100	98.8	96.3	100	0	97.4	100	0	100	100	0	100	100	96.7	100	100	97.2	100	95.5	98.6	0	0	98.4	0	0	97.7
Mediums	0	2	8	0	0	10	0	0	0	0	0	0	0	5	0	0	5	0	1	3	0	0	4	0	0	19
% Mediums	0	1.2	3.7	0	0	2.6	0	0	0	0	0	0	0	2.7	0	0	2.4	0	4.5	1.4	0	0	1.6	0	0	2.2
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
% Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0	0	0.5	0	0	0	0	0	0	0	0	0.1



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28 Lord Road, Suite 280
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N/S: Union Street
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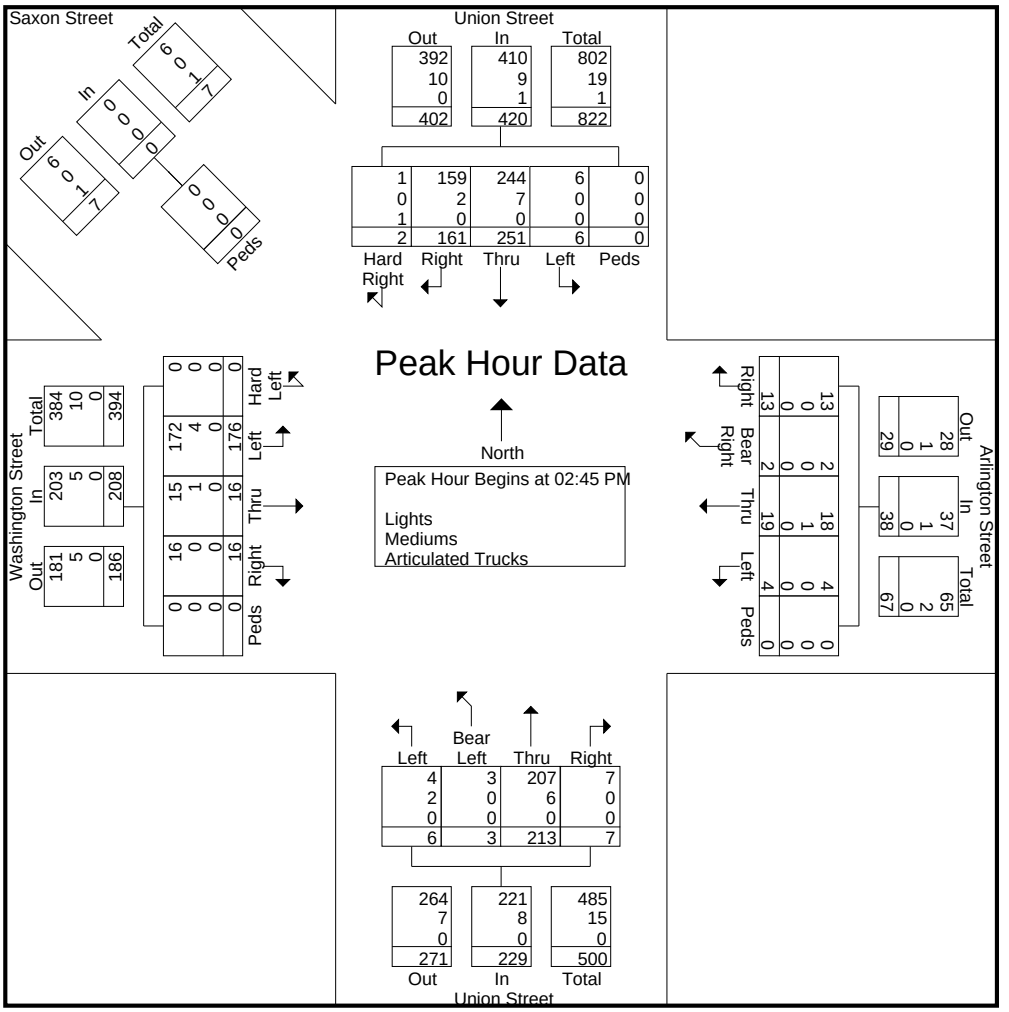
File Name : 1259_Washington_at_Union_01-26-2023
Site Code : 1259
Start Date : 1/26/2023
Page No : 3

	Union Street From North						Arlington Street From East						Union Street From South					Washington Street From West						Saxon Street From Northwest		
Start Time	Hard Right	Right	Thru	Left	Peds	App. Total	Right	Bear Right	Thru	Left	Peds	App. Total	Right	Thru	Bear Left	Left	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total	Peds	App. Total	Int. Total
Peak Hour Analysis From 10:00 AM to 03:45 PM - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 02:45 PM																										
02:45 PM	0	32	57	**3**	0	92	4	**1**	**6**	**4**	0	**15**	**2**	50	0	0	52	0	3	40	0	0	43	0	0	202
03:00 PM	**1**	**51**	**71**	1	0	**124**	2	1	5	0	0	8	2	45	1	**3**	51	**6**	5	33	0	0	44	0	0	227
03:15 PM	1	42	58	0	0	101	2	0	5	0	0	7	1	**63**	0	0	**64**	6	**6**	**64**	0	0	**76**	0	0	**248**
03:30 PM	0	36	65	2	0	103	**5**	0	3	0	0	8	2	55	**2**	3	62	4	2	39	0	0	45	0	0	218
Total Volume	2	161	251	6	0	420	13	2	19	4	0	38	7	213	3	6	229	16	16	176	0	0	208	0	0	895
% App. Total	0.5	38.3	59.8	1.4	0		34.2	5.3	50	10.5	0		3.1	93	1.3	2.6		7.7	7.7	84.6	0	0		0		
PHF	.500	.789	.884	.500	.000	.847	.650	.500	.792	.250	.000	.633	.875	.845	.375	.500	.895	.667	.667	.688	.000	.000	.684	.000	.000	.902
Lights	1	159	244	6	0	410	13	2	18	4	0	37	7	207	3	4	221	16	15	172	0	0	203	0	0	871
% Lights	50.0	98.8	97.2	100	0	97.6	100	100	94.7	100	0	97.4	100	97.2	100	66.7	96.5	100	93.8	97.7	0	0	97.6	0	0	97.3
Mediums	0	2	7	0	0	9	0	0	1	0	0	1	0	6	0	2	8	0	1	4	0	0	5	0	0	23
% Mediums	0	1.2	2.8	0	0	2.1	0	0	5.3	0	0	2.6	0	2.8	0	33.3	3.5	0	6.3	2.3	0	0	2.4	0	0	2.6
Articulated Trucks	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Articulated Trucks	50.0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1



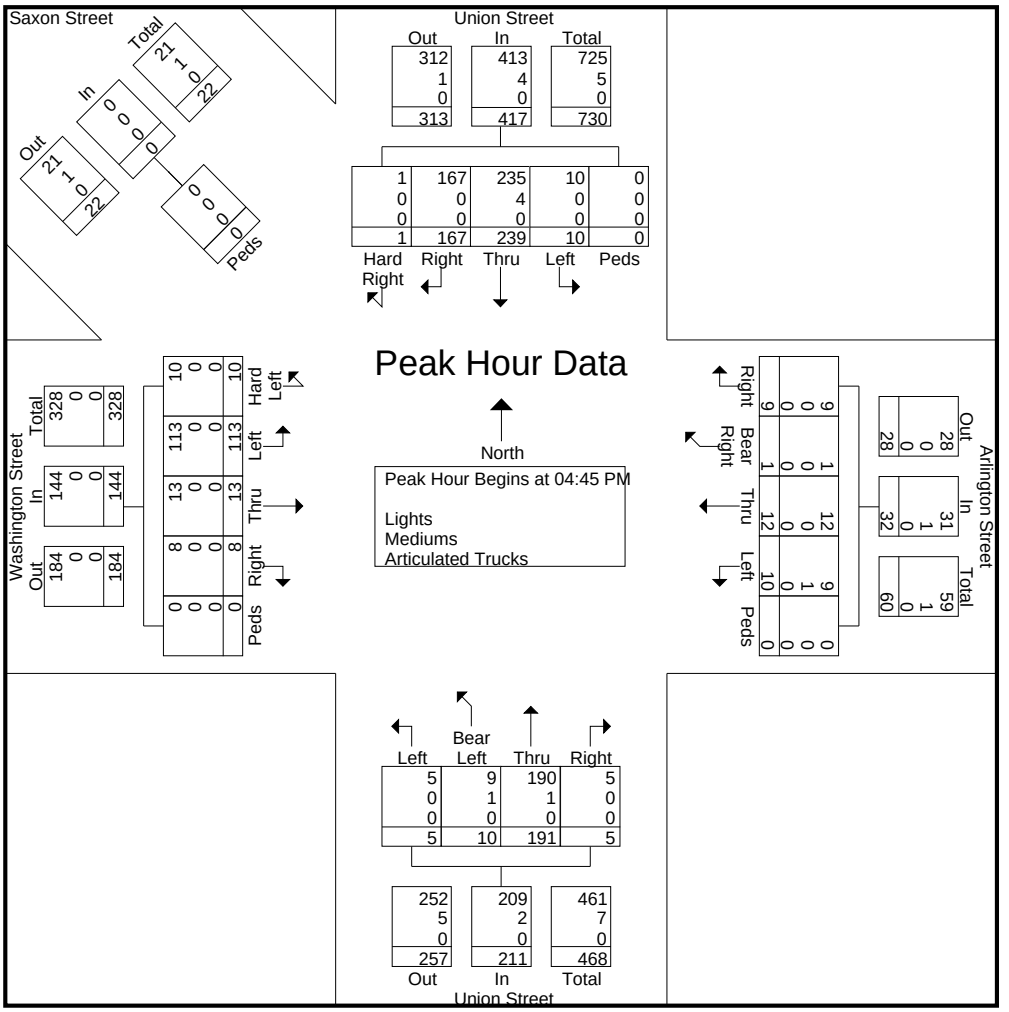
MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA, 01752

N/S: Union Street
EB: Washington Street
WB: Arlington Street
Franklin, MA

File Name : 1259_Washington_at_Union_01-26-2023
Site Code : 1259
Start Date : 1/26/2023
Page No : 4

	Union Street From North						Arlington Street From East						Union Street From South					Washington Street From West						Saxon Street From Northwest		
Start Time	Hard Right	Right	Thru	Left	Peds	App. Total	Right	Bear Right	Thru	Left	Peds	App. Total	Right	Thru	Bear Left	Left	App. Total	Right	Thru	Left	Hard Left	Peds	App. Total	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 04:45 PM																										
04:45 PM	**1**	38	**64**	3	0	106	**3**	0	3	2	0	**8**	1	39	3	0	43	2	3	26	**5**	0	36	0	0	193
05:00 PM	0	37	63	**6**	0	106	1	**1**	3	**3**	0	8	0	46	2	1	49	1	1	25	2	0	29	0	0	192
05:15 PM	0	**52**	62	1	0	**115**	3	0	2	3	0	8	1	**53**	**4**	1	59	2	4	27	2	0	35	0	0	**217**
05:30 PM	0	40	50	0	0	90	2	0	**4**	2	0	8	**3**	53	1	**3**	**60**	**3**	**5**	**35**	1	0	**44**	0	0	202
Total Volume	1	167	239	10	0	417	9	1	12	10	0	32	5	191	10	5	211	8	13	113	10	0	144	0	0	804
% App. Total	0.2	40	57.3	2.4	0		28.1	3.1	37.5	31.2	0		2.4	90.5	4.7	2.4		5.6	9	78.5	6.9	0		0		
PHF	.250	.803	.934	.417	.000	.907	.750	.250	.750	.833	.000	1.00	.417	.901	.625	.417	.879	.667	.650	.807	.500	.000	.818	.000	.000	.926
Lights	1	167	235	10	0	413	9	1	12	9	0	31	5	190	9	5	209	8	13	113	10	0	144	0	0	797
% Lights	100	100	98.3	100	0	99.0	100	100	100	90.0	0	96.9	100	99.5	90.0	100	99.1	100	100	100	100	0	100	0	0	99.1
Mediums	0	0	4	0	0	4	0	0	0	1	0	1	0	1	1	0	2	0	0	0	0	0	0	0	0	7
% Mediums	0	0	1.7	0	0	1.0	0	0	0	10.0	0	3.1	0	0.5	10.0	0	0.9	0	0	0	0	0	0	0	0	0.9
Articulated Trucks	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
% Articulated Trucks	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



All Vehicle Traffic Summary by Use

	Charter School Total Trips			Champaigne Logistics/100 Financial Total Trips			Imperial Dade Total Trips			**Entire Financial Park Campus**		
	In	Out	Total	In	Out	Total	In	Out	Total	**In**	**Out**	**Total**
12:00 AM	0	0	0	0	0	0	0	0	0	**0**	**0**	**0**
1:00 AM	0	0	0	0	0	0	3	2	5	**3**	**2**	**5**
2:00 AM	0	0	0	0	0	0	6	1	7	**6**	**1**	**7**
3:00 AM	0	0	0	0	0	0	14	3	17	**14**	**3**	**17**
4:00 AM	0	0	0	1	0	1	43	17	60	**44**	**17**	**61**
5:00 AM	1	1	2	1	1	2	21	18	39	**23**	**20**	**43**
6:00 AM	4	4	8	9	0	9	9	5	14	**22**	**9**	**31**
7:00 AM	160	71	231	17	2	19	16	8	24	**193**	**81**	**274**
8:00 AM	244	204	448	14	3	17	10	6	16	**268**	**213**	**481**
9:00 AM	23	31	54	0	13	13	12	8	20	**35**	**52**	**87**
10:00 AM	7	7	14	7	4	11	20	15	35	**34**	**26**	**60**
11:00 AM	6	6	12	5	5	10	20	26	46	**31**	**37**	**68**
12:00 PM	9	10	19	9	9	18	22	26	48	**40**	**45**	**85**
1:00 PM	14	2	16	2	6	8	44	25	69	**60**	**33**	**93**
2:00 PM	46	15	61	7	5	12	22	21	43	**75**	**41**	**116**
3:00 PM	81	222	303	2	1	3	4	15	19	**87**	**238**	**325**
4:00 PM	30	42	72	4	9	13	8	14	22	**42**	**65**	**107**
5:00 PM	61	78	139	1	12	13	6	10	16	**68**	**100**	**168**
6:00 PM	2	6	8	1	3	4	5	9	14	**8**	**18**	**26**
7:00 PM	0	1	1	1	5	6	11	12	23	**12**	**18**	**30**
8:00 PM	0	0	0	1	4	5	1	4	5	**2**	**8**	**10**
9:00 PM	2	0	2	1	2	3	1	4	5	**4**	**6**	**10**
10:00 PM	1	1	2	2	1	3	1	15	16	**4**	**17**	**21**
11:00 PM	0	4	4	0	0	0	2	20	22	**2**	**24**	**26**
Total Daily	691	705	1396	85	85	170	301	284	585	**1077**	**1074**	**2151**

Truck Only Traffic Summary by Use

	Charter School Truck Trips			Champaigne Logistics/100 Financial Truck Trips			Imperial Dade Truck Trips			**Entire Financial Park Campus - Trucks**		
	In	Out	Total	In	Out	Total	In	Out	Total	**In**	**Out**	**Total**
12:00 AM	0	0	0	0	0	0	0	0	0	**0**	**0**	**0**
1:00 AM	0	0	0	0	0	0	2	1	3	**2**	**1**	**3**
2:00 AM	0	0	0	0	0	0	2	0	2	**2**	**0**	**2**
3:00 AM	0	0	0	0	0	0	0	2	2	**0**	**2**	**2**
4:00 AM	0	0	0	1	0	1	3	16	19	**4**	**16**	**20**
5:00 AM	1	1	2	1	0	1	3	18	21	**5**	**19**	**24**
6:00 AM	0	0	0	0	0	0	4	5	9	**4**	**5**	**9**
7:00 AM	0	0	0	2	0	2	7	7	14	**9**	**7**	**16**
8:00 AM	1	0	1	4	3	7	3	3	6	**8**	**6**	**14**
9:00 AM	2	2	4	0	3	3	5	4	9	**7**	**9**	**16**
10:00 AM	0	0	0	3	3	6	9	6	15	**12**	**9**	**21**
11:00 AM	0	0	0	2	1	3	11	5	16	**13**	**6**	**19**
12:00 PM	0	0	0	2	5	7	8	2	10	**10**	**7**	**17**
1:00 PM	0	0	0	2	0	2	7	3	10	**9**	**3**	**12**
2:00 PM	0	0	0	3	2	5	6	2	8	**9**	**4**	**13**
3:00 PM	0	0	0	2	1	3	3	1	4	**5**	**2**	**7**
4:00 PM	1	0	1	2	1	3	2	3	5	**5**	**4**	**9**
5:00 PM	0	0	0	1	4	5	4	0	4	**5**	**4**	**9**
6:00 PM	0	0	0	0	0	0	2	1	3	**2**	**1**	**3**
7:00 PM	0	0	0	0	0	0	2	1	3	**2**	**1**	**3**
8:00 PM	0	0	0	0	0	0	0	1	1	**0**	**1**	**1**
9:00 PM	0	0	0	0	0	0	1	2	3	**1**	**2**	**3**
10:00 PM	0	0	0	0	0	0	0	1	1	**0**	**1**	**1**
11:00 PM	0	0	0	0	0	0	1	0	1	**1**	**0**	**1**
Total Daily	5	3	8	25	23	48	85	84	169	**115**	**110**	**225**

MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA, 01752

N/S: Washington Street
Just South of Financial Park
Franklin, MA
TRUCKS ONLY

Site Code: 1259
Station ID:
1259

Start Time	26-Jan-23 Thu	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		0	1			0	3				
12:15		0	3			0	2				
12:30		0	1			0	2				
12:45		0	3	0	8	0	1	0	8	0	16
01:00		1	3			0	1				
01:15		0	3			0	4				
01:30		1	4			1	1				
01:45		0	2	2	12	0	1	1	7	3	19
02:00		1	1			0	2				
02:15		1	0			0	0				
02:30		0	3			0	0				
02:45		0	3	2	7	1	2	1	4	3	11
03:00		0	0			0	1				
03:15		1	1			0	0				
03:30		0	3			1	0				
03:45		0	1	1	5	1	2	2	3	3	8
04:00		0	0			0	0				
04:15		1	0			3	0				
04:30		3	1			6	0				
04:45		0	1	4	2	7	1	16	1	20	3
05:00		0	2			1	1				
05:15		1	0			7	0				
05:30		2	2			9	2				
05:45		1	1	4	5	3	2	20	5	24	10
06:00		0	0			4	1				
06:15		0	1			0	0				
06:30		1	0			0	1				
06:45		2	1	3	2	1	0	5	2	8	4
07:00		4	1			3	0				
07:15		5	0			2	1				
07:30		2	1			1	0				
07:45		2	1	13	3	2	0	8	1	21	4
08:00		1	0			0	0				
08:15		2	1			1	1				
08:30		2	0			0	0				
08:45		3	0	8	1	4	0	5	1	13	2
09:00		1	0			2	2				
09:15		3	0			3	0				
09:30		2	1			2	0				
09:45		1	0	7	1	3	0	10	2	17	3
10:00		4	0			4	0				
10:15		6	0			3	0				
10:30		3	0			2	0				
10:45		4	0	17	0	4	0	13	0	30	0
11:00		1	0			1	0				
11:15		3	1			0	0				
11:30		6	0			2	0				
11:45		3	0	13	1	3	0	6	0	19	1
Total		74	47			87	34			161	81
Percent		61.2%	38.8%			71.9%	28.1%			66.5%	33.5%
Total		74	47			87	34			161	81
Percent		61.2%	38.8%			71.9%	28.1%			66.5%	33.5%
Combined Total		121				121				242	

MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA, 01752

N/S: Washington Street
Just South of Financial Park
Franklin, MA

Site Code: 1259
Station ID:
1259

Start Time	26-Jan-23 Thu	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		2	25			0	29				
12:15		1	27			1	33				
12:30		1	27			0	25				
12:45		1	31	5	110	0	24	1	111	6	221
01:00		1	36			4	24				
01:15		0	38			0	26				
01:30		1	24			1	37				
01:45		1	29	3	127	2	32	7	119	10	246
02:00		1	40			1	30				
02:15		1	28			0	35				
02:30		1	46			1	65				
02:45		3	60	6	174	1	34	3	164	9	338
03:00		0	40			1	80				
03:15		2	33			0	76				
03:30		6	32			1	89				
03:45		12	36	20	141	2	49	4	294	24	435
04:00		12	23			2	42				
04:15		12	24			3	52				
04:30		8	31			6	45				
04:45		20	44	52	122	11	49	22	188	74	310
05:00		10	44			4	51				
05:15		8	37			7	55				
05:30		10	34			10	66				
05:45		9	25	37	140	5	55	26	227	63	367
06:00		21	20			8	39				
06:15		11	23			5	33				
06:30		35	25			13	25				
06:45		42	12	109	80	16	35	42	132	151	212
07:00		55	27			31	27				
07:15		111	18			22	24				
07:30		71	28			51	14				
07:45		87	16	324	89	32	17	136	82	460	171
08:00		77	6			60	23				
08:15		92	18			38	16				
08:30		56	15			27	13				
08:45		70	10	295	49	70	16	195	68	490	117
09:00		13	9			28	25				
09:15		30	15			20	8				
09:30		19	12			19	11				
09:45		24	4	86	40	13	4	80	48	166	88
10:00		20	4			19	12				
10:15		23	5			15	1				
10:30		27	1			17	11				
10:45		23	3	93	13	20	17	71	41	164	54
11:00		17	3			19	13				
11:15		18	4			20	11				
11:30		22	1			22	7				
11:45		20	0	77	8	28	6	89	37	166	45
Total		1107	1093			676	1511			1783	2604
Percent		50.3%	49.7%			30.9%	69.1%			40.6%	59.4%
Total		1107	1093			676	1511			1783	2604
Percent		50.3%	49.7%			30.9%	69.1%			40.6%	59.4%
Combined Total		2200				2187				4387	

□ Seasonal/Yearly Growth Data

SECTION I - CONTINUOUS COUNTING STATION MONTHLY AVERAGE DAILY TRAFFIC

STATION 6125 - BELLINGHAM - RTE.I-495 - AT FRANKLIN T.L.

YR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
05	68,859	75,000	76,114	81,056	84,692	92,299	90,531	93,731	85,564	81,684	78,522	76,419	82,039
	9%	-3%	3%	-1%	-3%	-6%	-4%	-3%	-1%	0%	3%	2%	-1%
06	74,825	72,901	78,382	80,386	82,080	86,982	86,481	90,748	84,958	81,767	80,901	77,982	81,533
	-4%	-1%	-4%	-3%	3%	2%	1%	1%	0%	2%	-2%	-7%	-1%
07	72,153	71,826	75,186	78,376	84,242	88,793	87,242	91,996	85,043	83,370	79,615	72,604	80,871
	-1%	-1%	-3%	-1%	-4%	-6%	-3%	-4%	-5%	-2%	-5%	-1%	-3%
08	71,744	70,760	73,000	77,938	81,066	83,867	84,721	88,163	80,551	81,608	75,924	71,971	78,443
	-6%	1%	-1%	-4%	-7%	0%	6%	2%	6%	-1%	1%	4%	0%
09	67,317	71,174	71,926	74,852	75,774	84,000	89,606	89,969	85,237	81,173	76,814	74,493	78,528
	-2%	2%	3%	2%	4%	1%	0%	0%	0%	1%	2%	3%	1%
11	64,573	73,381	76,211	78,566	82,215	86,478	*90,105*	*89,088*	85,985	82,359	80,578	78,732	80,689
	3%	0%	1%	2%	2%	3%	2%	2%	2%	1%	1%	1%	2%
16	74,598	74,431	81,821	84,531	91,258	97,762	97,449	98,357	94,689	88,031	85,984	83,059	87,480
Seasonal Adjustment Factor	*1.15*	*1.11*	*1.07*	*1.02*	*0.98*	*0.92*	*0.91*	*0.89*	*0.95*	*0.98*	*1.02*	*1.07*	
(to average month)												**Growth**	**-0.21%**

STATION 6647 - PLAINVILLE - RTE.1 - SOUTH OF RTE.152

YR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YEAR
06	16,136	16,177	16,793	16,635	16,763	17,137	16,432	16,995	17,013	17,067	17,113	*17,769*	16,836
	-1%	-2%	3%	2%	7%	4%	3%	2%	-2%	0%	1%	-5%	1%
07	15,944	15,859	17,304	17,030	17,864	17,901	16,906	17,416	16,727	17,138	17,324	16,879	17,024
	-1%	-1%	-3%	-1%	-4%	-4%	-1%	0%	3%	4%	-1%	5%	0%
08	15,821	15,698	16,800	16,942	17,171	17,178	16,746	17,340	17,202	17,760	17,072	17,679	16,951
	1%	4%	2%	4%	5%	7%	7%	5%	5%	3%	7%	8%	5%
09	16,043	16,380	17,174	17,667	17,999	18,392	17,996	18,129	18,133	18,217	18,190	19,022	17,779
	12%	15%	3%	5%	5%	6%	1%	4%	1%	-25%	-26%	-15%	-1%
10	17,960	18,783	17,755	18,532	18,895	19,448	18,255	18,919	18,282	13,691	13,549	16,257	17,527
	-2%	-5%	-1%	0%	0%	0%	0%	0%	0%	12%	11%	2%	1%
13	16,927	15,836	17,405	18,408	19,117	19,419	18,199	18,723	18,472	18,737	18,205	17,328	18,065
	-1%	-2%	-50%	1%	1%	1%	2%	0%	1%	0%	1%	7%	1%
15	16,524	15,242		18,866	19,424	19,678	18,842	18,863	18,782	18,894	18,426	19,907	18,495
	4%	9%	#DIV/0!	0%	1%	0%	-1%	0%	-1%	0%	1%	-4%	1%
17	17,706	17,890	17,915	19,029	20,003	19,636	18,552	18,745	18,579	18,970	18,705	18,257	18,761
	1%	1%	3%	3%	0%	4%	3%	2%	2%	0%	0%	0%	1%
19	17,990	18,216	18,917	20,071	19,898	21,248	19,845	19,455	19,142	18,793	18,637	18,240	19,204
Seasonal Adjustment Factor	*1.06*	*1.06*	*1.01*	*0.99*	*0.97*	*0.95*	*1.00*	*0.97*	*0.98*	*1.03*	*1.04*	*1.00*	
(to average month)												**Growth**	**1.03%**

Average	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Seasonal Adjustment Factor	*1.10*	*1.08*	*1.04*	*1.01*	*0.98*	*0.94*	*0.95*	*0.93*	*0.97*	*1.00*	*1.03*	*1.03*
(to average month)												

Average Yearly Growth Calculated 0.4%
Yearly Growth Factor Used **1.0%**

ITALICS = ESTIMATED DATA
MADT

- Crash Data

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Franklin, MA COUNT DATE : Jan-23

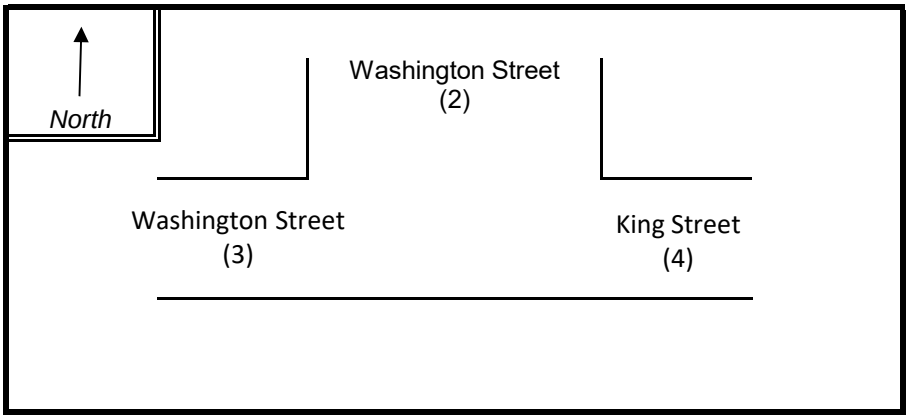
DISTRICT : 3 UNSIGNALIZED : X SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Sparks Avenue

MINOR STREET(S) : Pleasant Street/Hooper Farm Road

INTERSECTION DIAGRAM
(Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (PM) :		277	512	570		**1,359**

" K " FACTOR : **0.082**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **16,573**

TOTAL # OF CRASHES : 2

OF YEARS : 5

AVERAGE # OF CRASHES PER YEAR (**A**) : **0.40**

CRASH RATE CALCULATION : **0.07**

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

Comments : MassDOT District 3 Avg: Signalized = 0.89; Unsignalized = 0.61

Project Title & Date: 1259 - Franklin

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Franklin, MA COUNT DATE : Jan-23

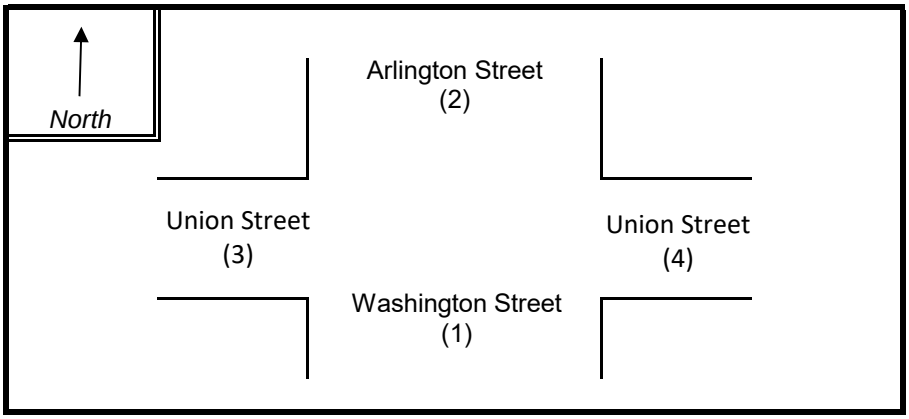
DISTRICT : 3 UNSIGNALIZED : X SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Sparks Avenue

MINOR STREET(S) : Pleasant Street/Hooper Farm Road

INTERSECTION DIAGRAM
(Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (PM) :	208	38	420	229		**895**

" K " FACTOR : **0.082**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **10,915**

TOTAL # OF CRASHES : 5

OF YEARS : 5

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

CRASH RATE CALCULATION : **0.25**

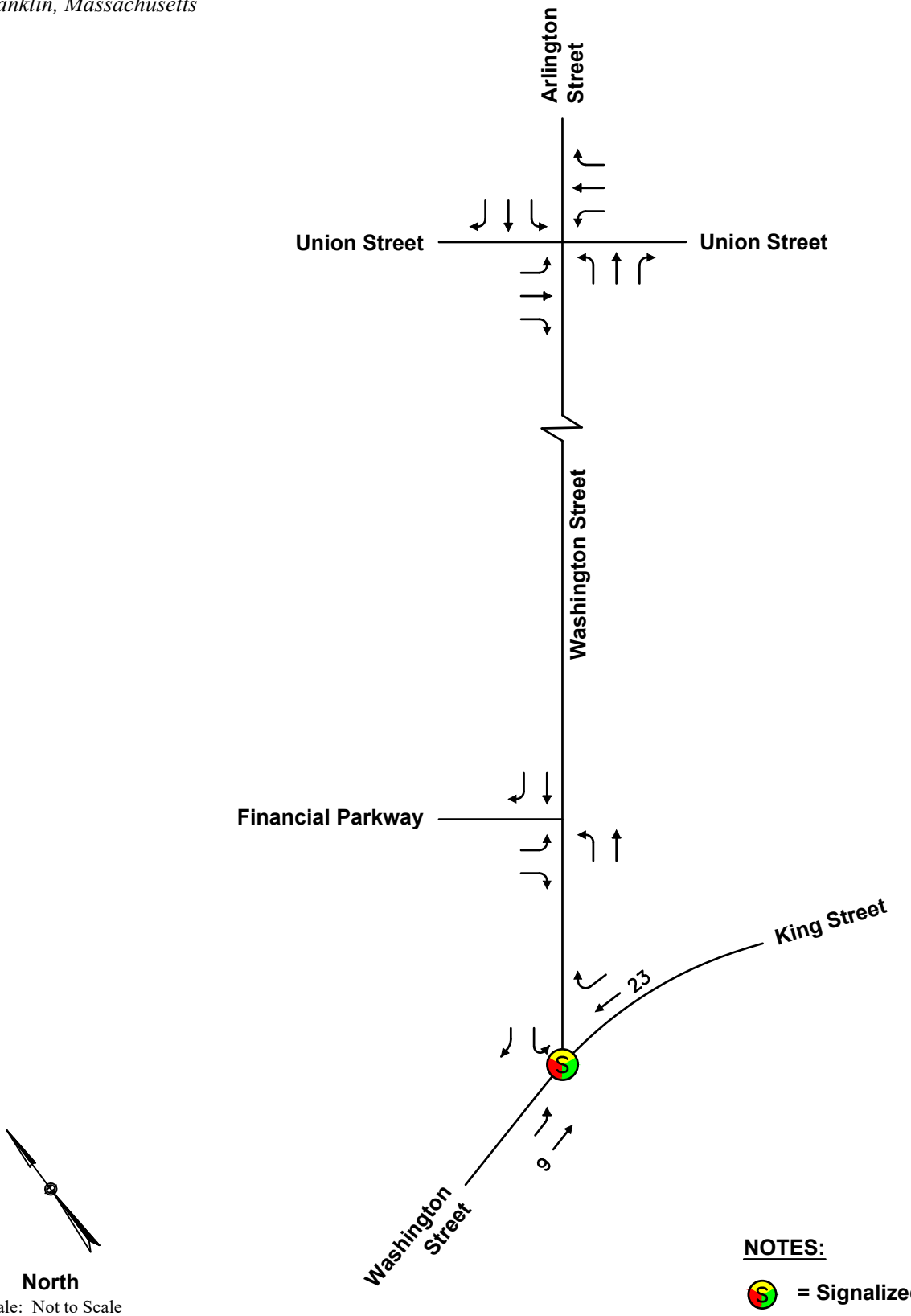
RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : MassDOT District 3 Avg: Signalized = 0.89; Unsignalized = 0.61

Project Title & Date: 1259 - Franklin

Crash Number	Crash Date	Crash Severity	Crash Time	First Harmful Event	Light Conditions	Manner of Collision	Road Surface Condition	Vehicle Actions Prior to Crash (All Vehicles)	Vehicle Travel Directions (A	Weather Conditions	Vehicle Sequence of E	X	Y	Roadway
Washington Street at King Street														
4990915	07/30/2021	Property damage only (n	9:39 PM	Collision with motor vehicle in traffic	Dark - lighted roa	Rear-end	Dry	V1: Slowing or stopped in traffic / V2: Travelling straight aheac	V1: S / V2: S	Clear	V1:(Collision with mot	206954.4964	867589.2093	KING STREET / WASHINGTON STREET
5025360	10/15/2021	Property damage only (n	12:34 PM	Collision with utility pole	Daylight	Single vehicle crash	Dry	V1: Turning left	V1: E	Clear/Clear	V1:(Collision with mot	206954.4964	867589.2093	KING STREET / WASHINGTON STREET
Washington Street at Union Street/Arlington Street														
5035725	11/17/2021	Property damage only (n	7:13 AM	Collision with motor vehicle in traffic	Daylight	Angle	Dry	V1: Travelling straight ahead / V2: Turning right	V1: N / V2: N	Clear	V1:(Collision with mot	207985.4504	869392.9827	UNION STREET / ARLINGTON STREET
4950453	03/26/2021	Property damage only (n	8:52 AM	Collision with motor vehicle in traffic	Daylight	Sideswipe, opposite direction	Dry	V1: Turning left / V2: Travelling straight aheac	V1: E / V2: S	Clear/Other	V1:(Collision with mot	207985.4504	869392.9827	UNION STREET / WASHINGTON STREET
5002043	08/24/2021	Property damage only (n	7:20 AM	Collision with motor vehicle in traffic	Daylight	Angle	Wet	V1: Travelling straight ahead / V2: Turning left	V1: S / V2: E	Cloudy	V1:(Collision with mot	207985.4504	869392.9827	UNION STREET / WASHINGTON STREET
5072367	02/15/2022	Property damage only (n	2:28 PM	Collision with other	Daylight	Sideswipe, same direction	Dry	V1: Turning left / V2: Travelling straight aheac	V1: E / V2: S	Clear/Clear	V1:(Collision with mot	207985.4504	869392.9827	UNION STREET / WASHINGTON STREET
4852520	06/19/2020	Property damage only (n	5:32 PM	Collision with motor vehicle in traffic	Daylight	Front to Rear	Dry	V1: Travelling straight ahead / V2: Turning left	V1: S / V2: E	Clear/Clear	V1:(Collision with mot	207985.4504	869392.9827	WASHINGTON ST/ UNION ST / WASHINGTON STREET / UNION STREET

- Background Projects

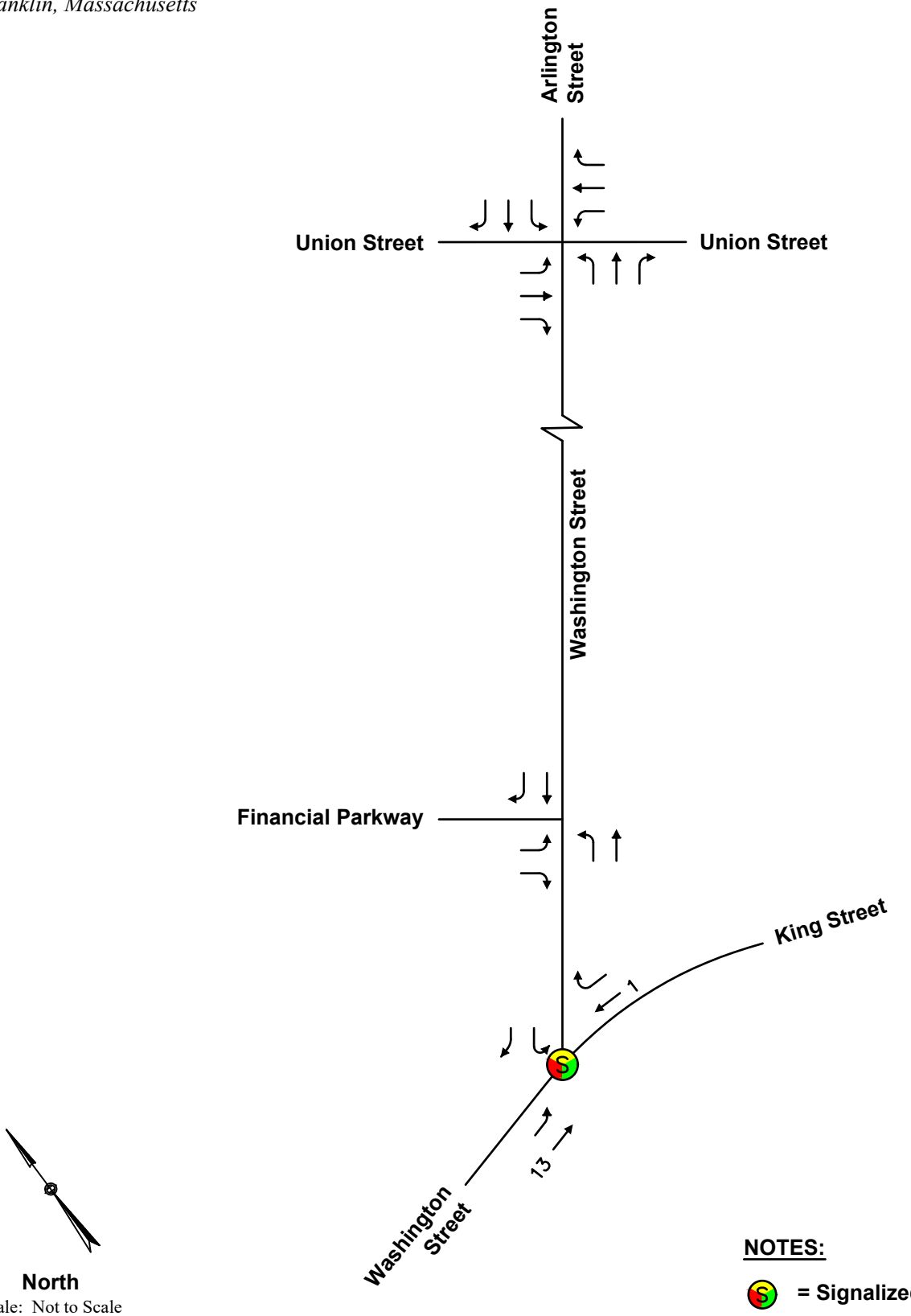


MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Attachments

160 Grove Street
Weekday Morning Peak Hour
Traffic Volumes

Date: April 2023
Dwg No. 1259 TIA.dwg

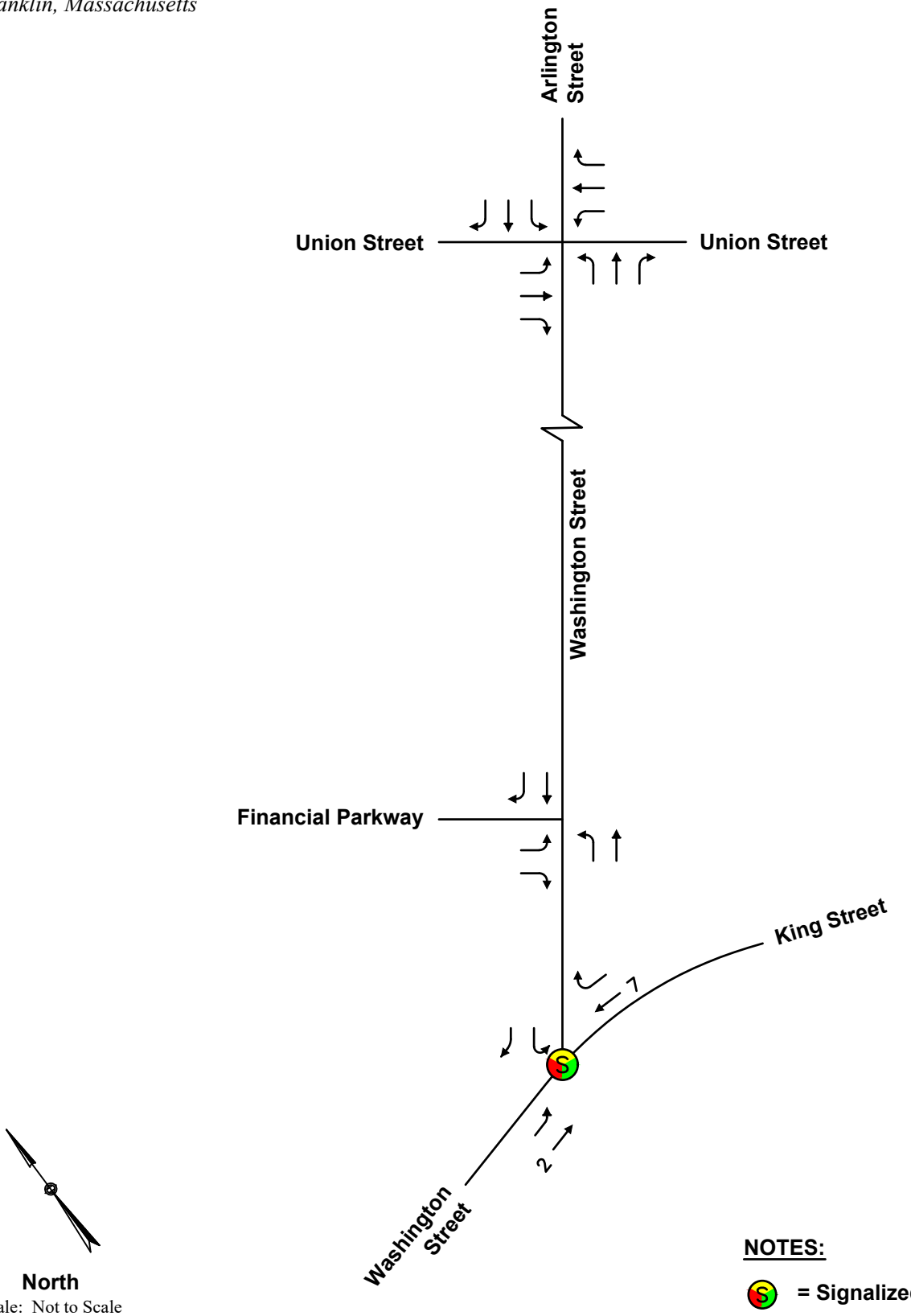


MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Attachments

160 Grove Street
Weekday Afternoon Peak Hour
Traffic Volumes

Date: April 2023
Dwg No. 1259 TIA.dwg

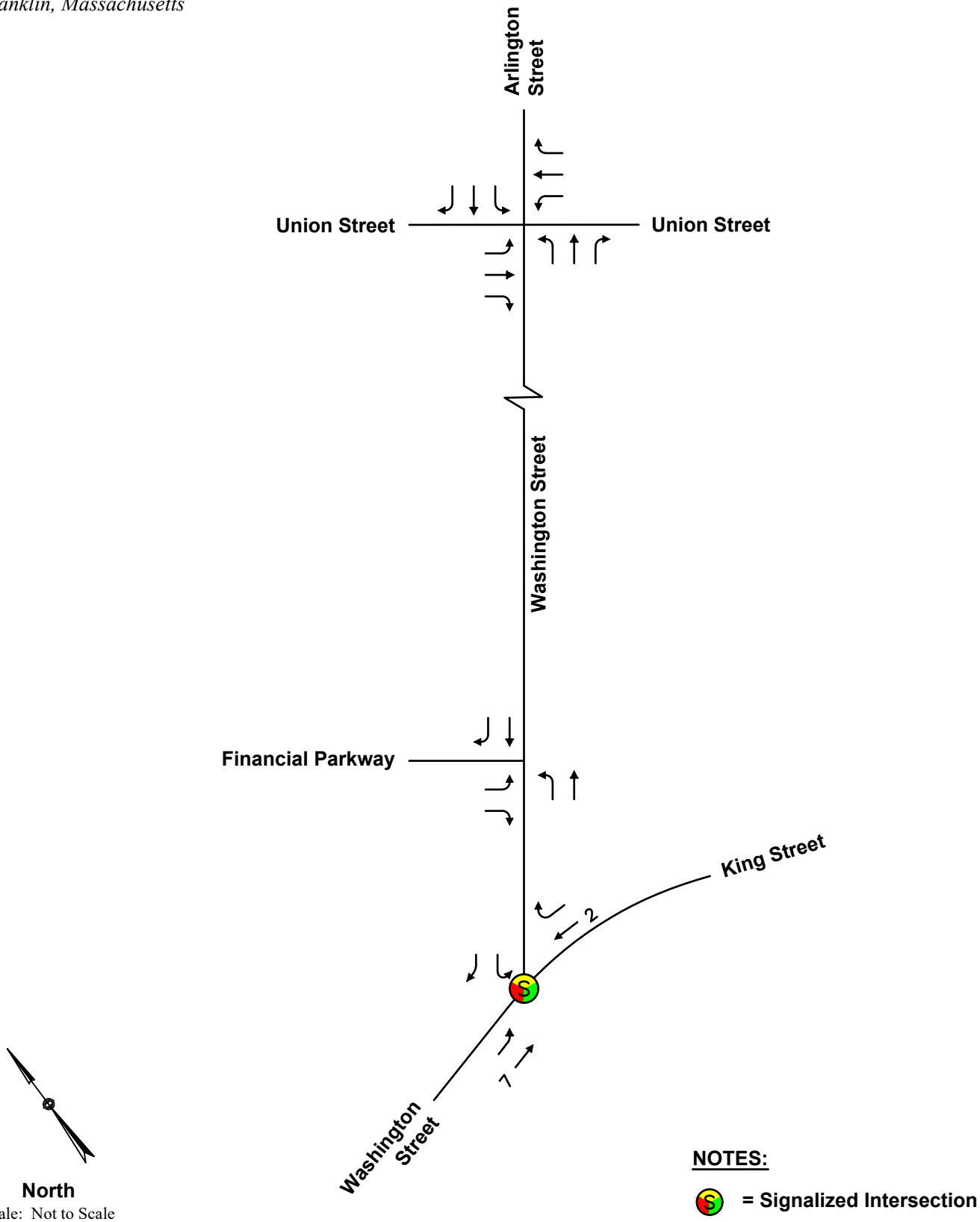


MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Attachments

200 Grove Street
Weekday Morning Peak Hour
Traffic Volumes

Date: April 2023
Dwg No. 1259 TIA.dwg

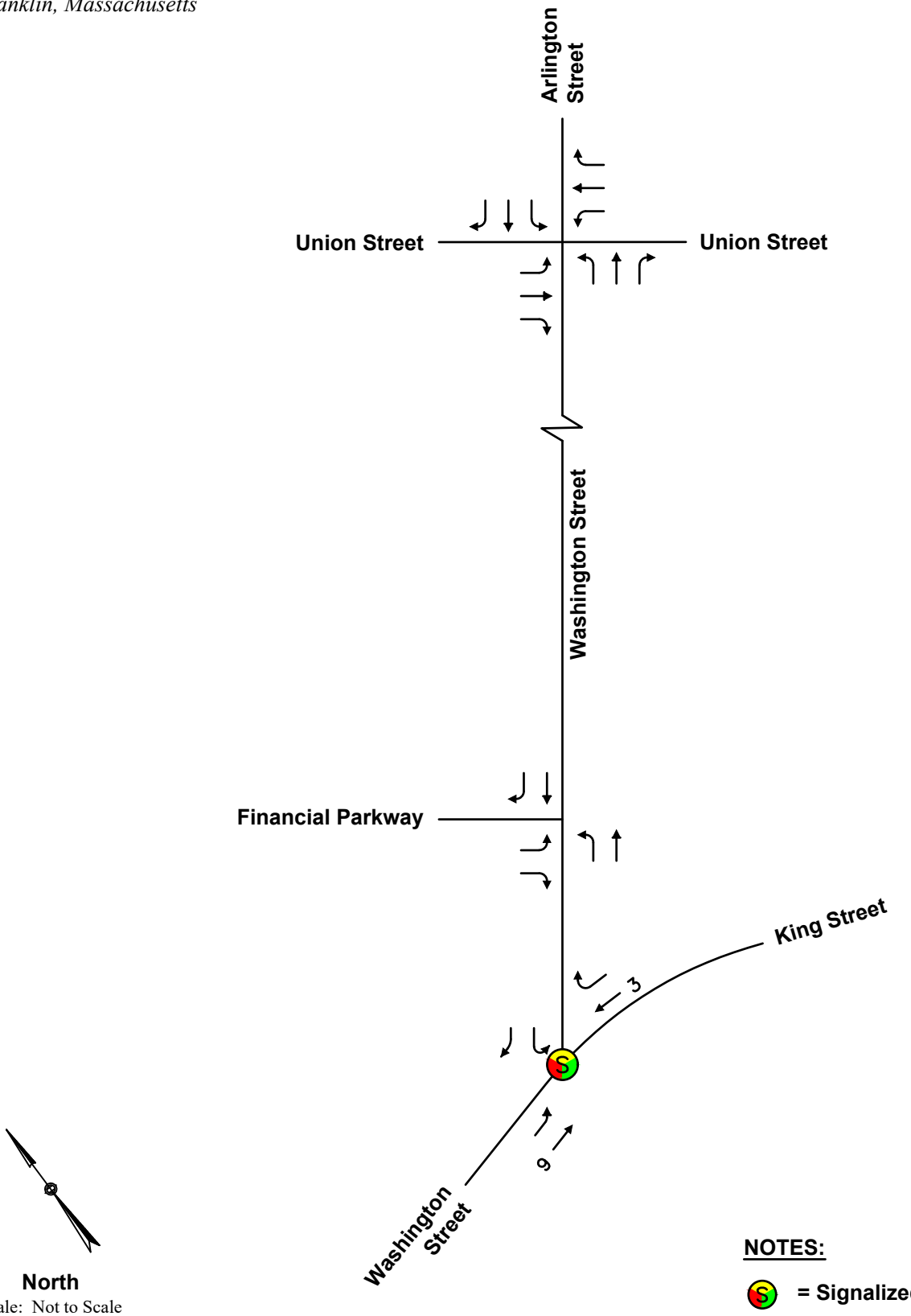


MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Attachments

200 Grove Street
Weekday Afternoon Peak Hour
Traffic Volumes

Date: April 2023
Dwg No. 1259 TIA.dwg

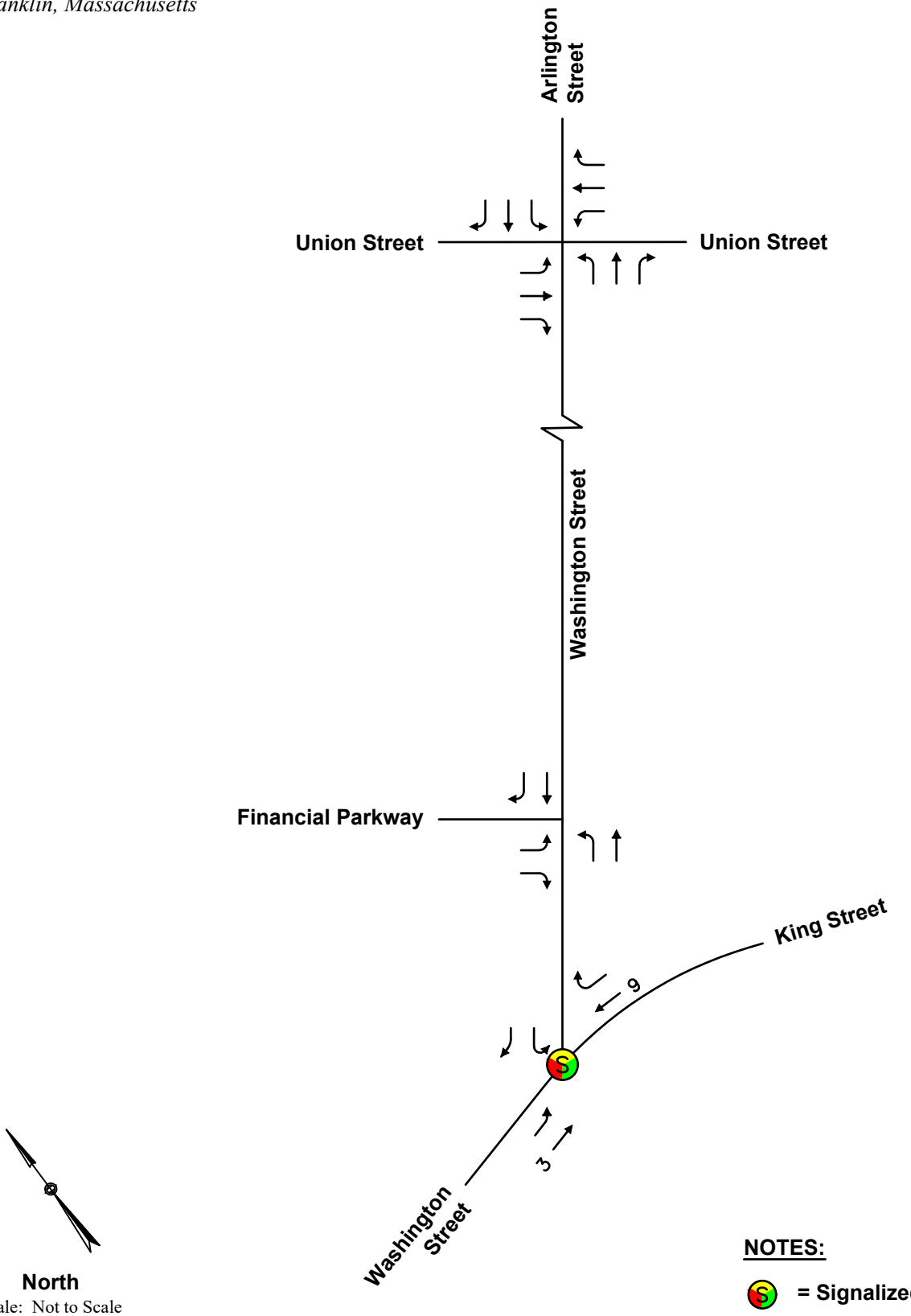


MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Attachments

585 King Street
Weekday Morning Peak Hour
Traffic Volumes

Date: April 2023
Dwg No. 1259 TIA.dwg

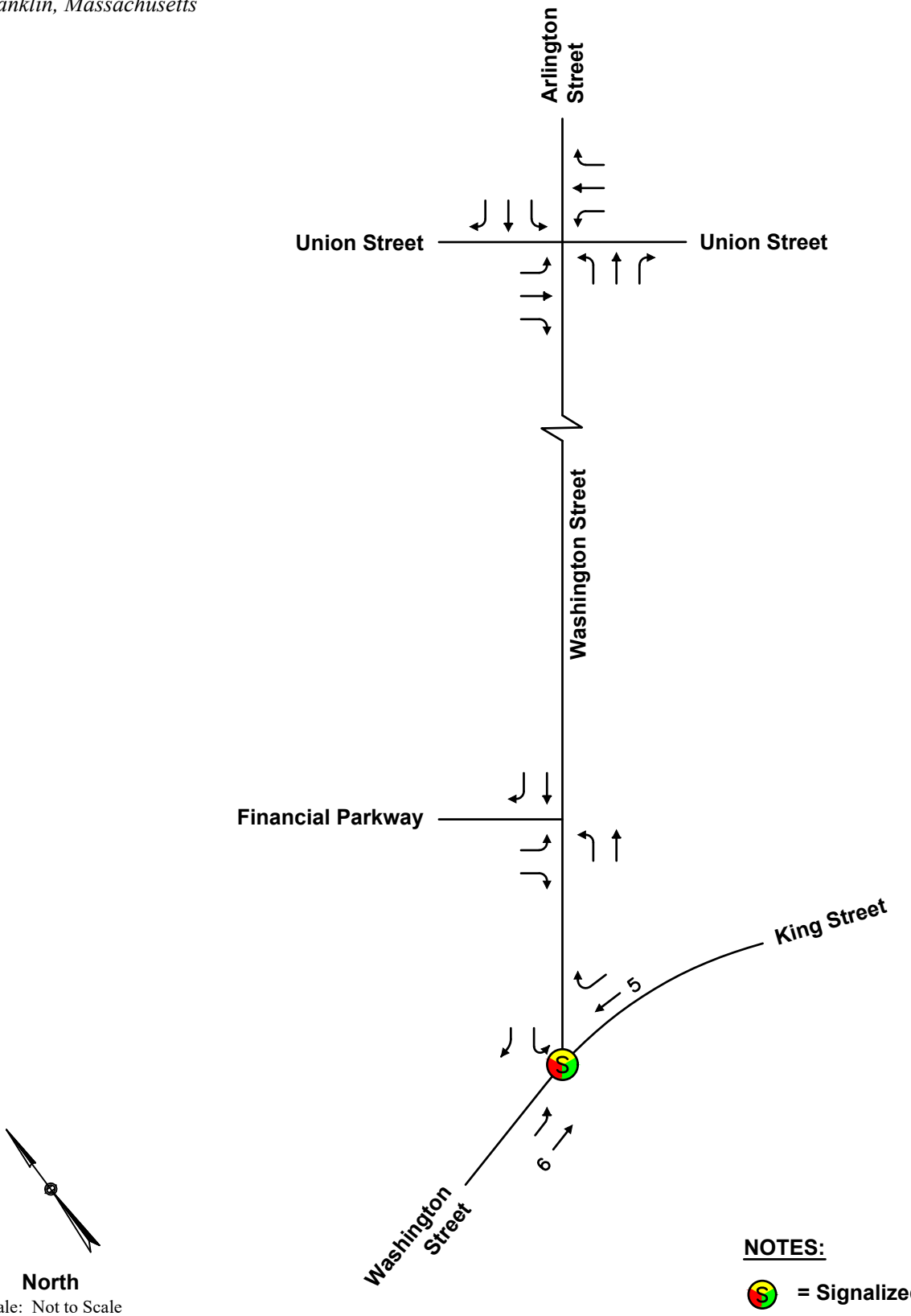


MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Attachments

585 King Street
Weekday Afternoon Peak Hour
Traffic Volumes

Date: April 2023
Dwg No. 1259 TIA.dwg

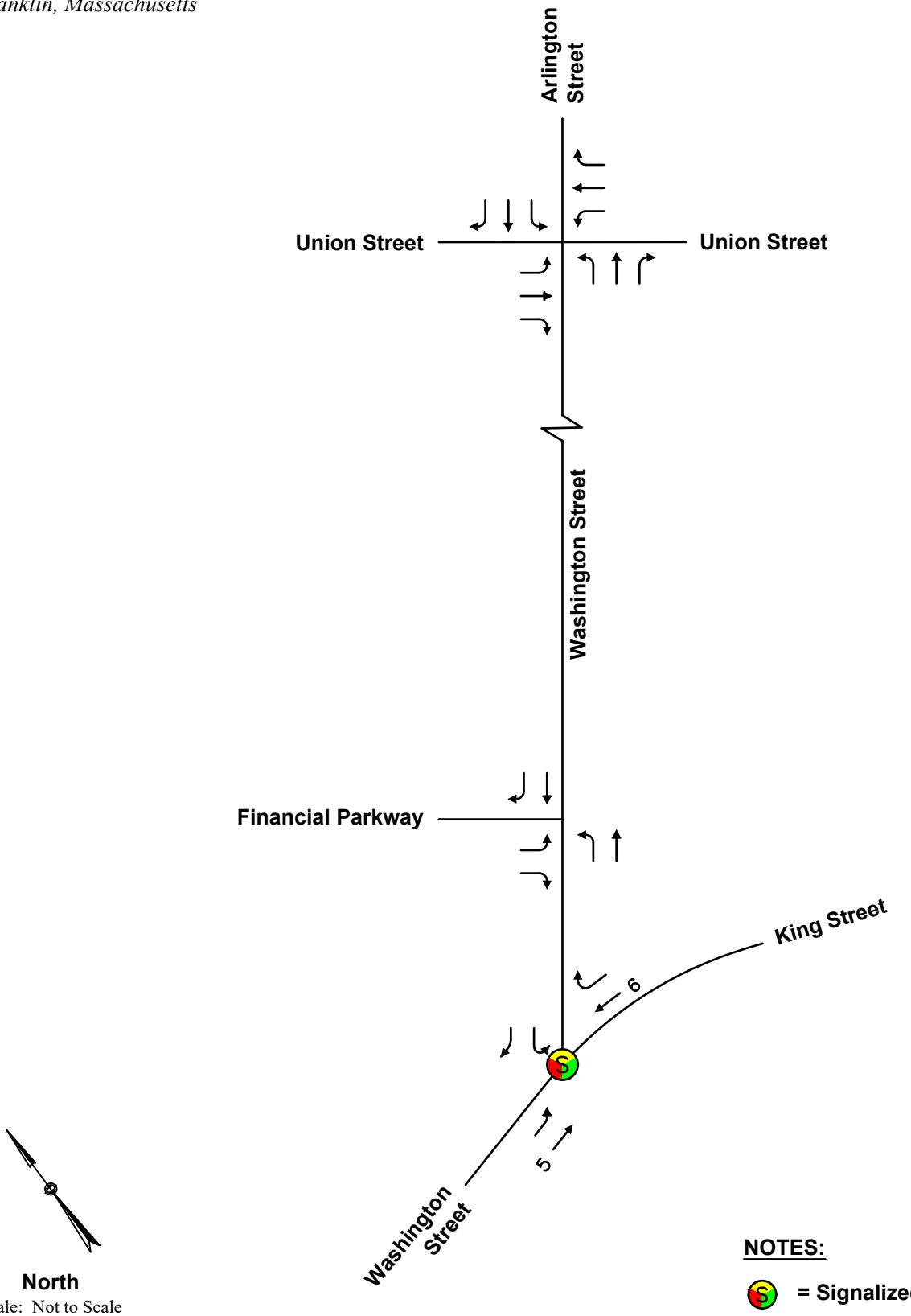


MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Attachments

700-712 Union Street
Weekday Morning Peak Hour
Traffic Volumes

Date: April 2023
Dwg No. 1259 TIA.dwg

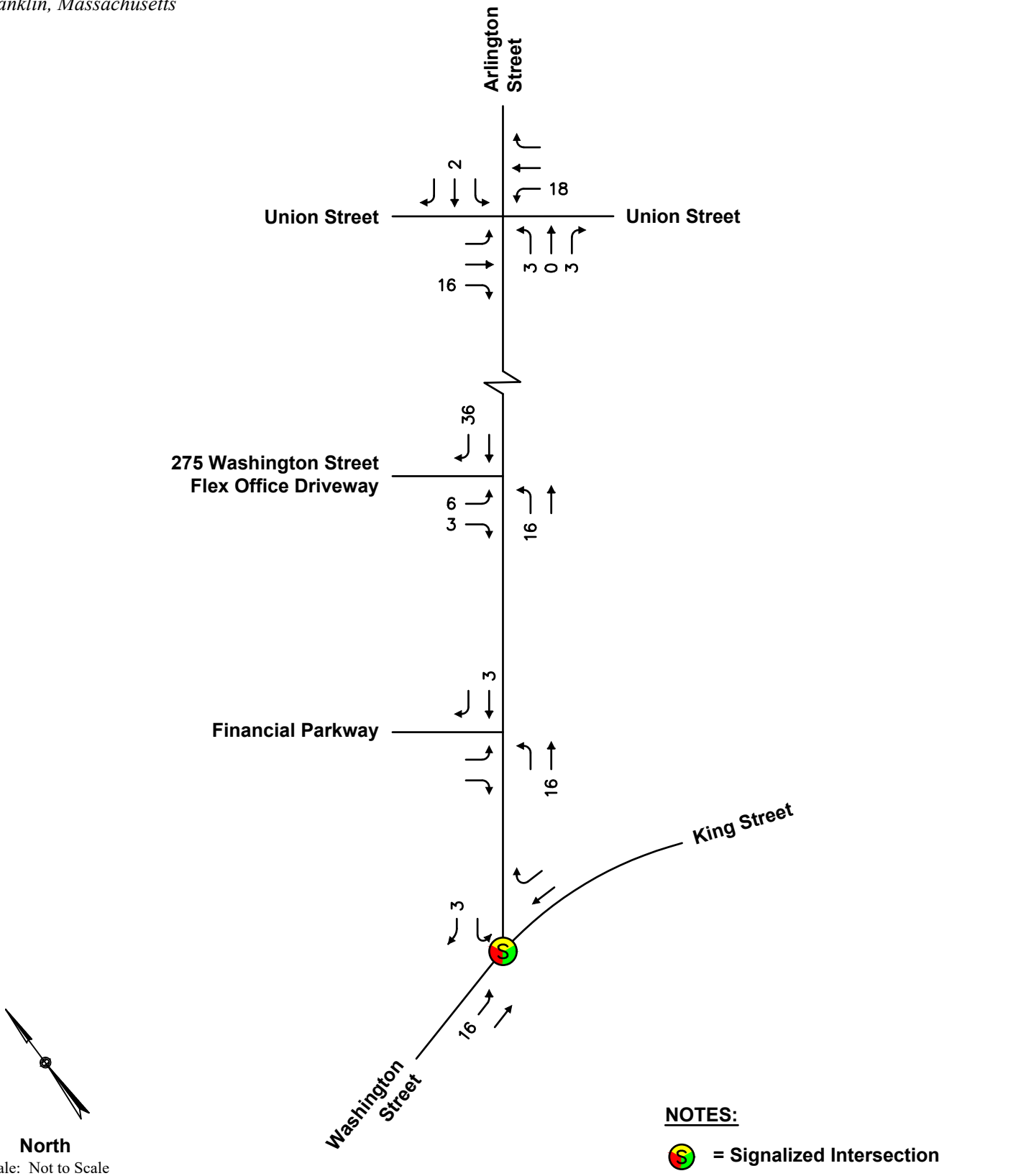


MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Attachments

700-712 Union Street
Weekday Afternoon Peak Hour
Traffic Volumes

Date: April 2023
Dwg No. 1259 TIA.dwg

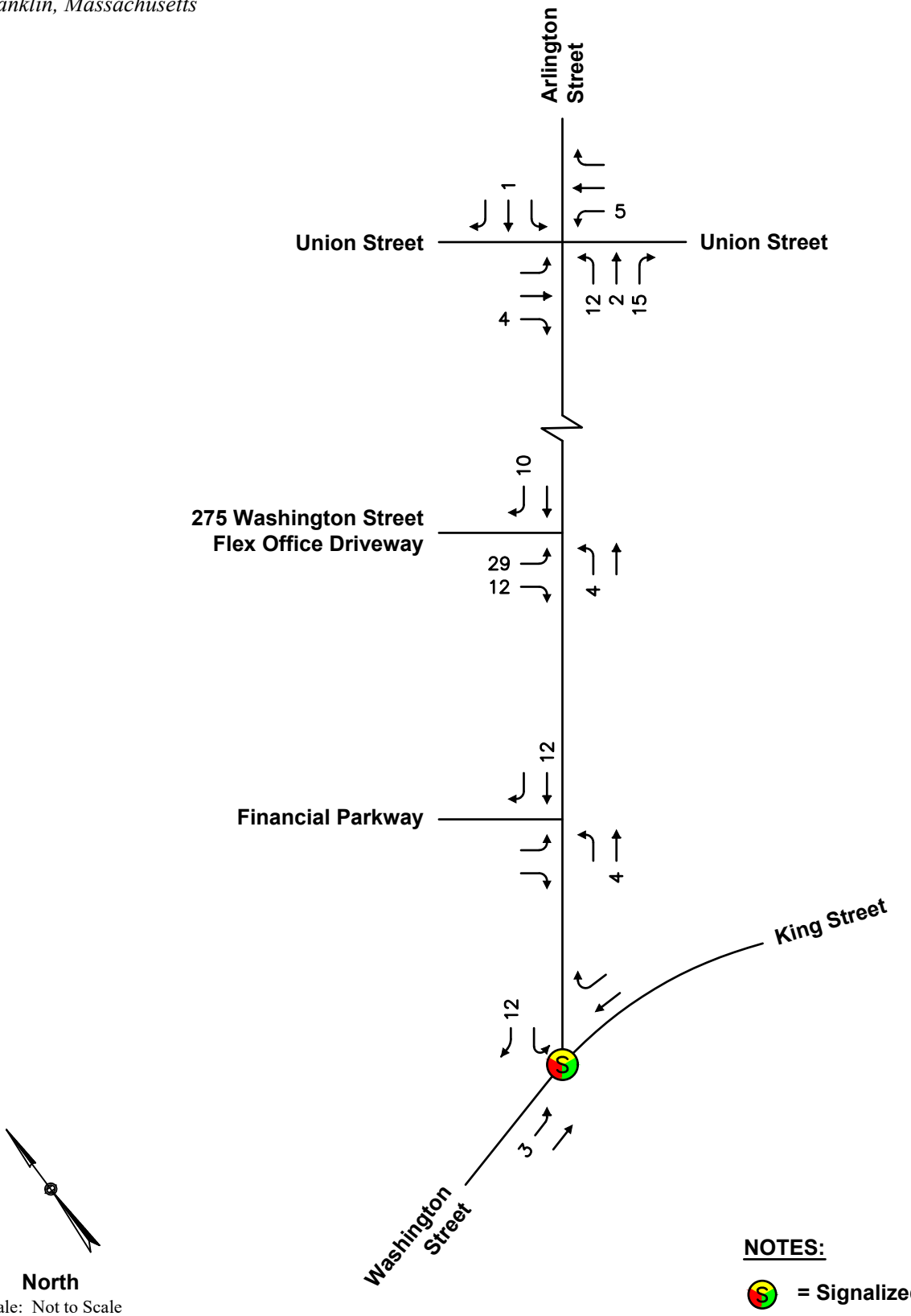


MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Attachments

275 Washington Street
Weekday Morning Peak Hour
Traffic Volumes

Date: April 2023
Dwg No. 1259 TIA.dwg



MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

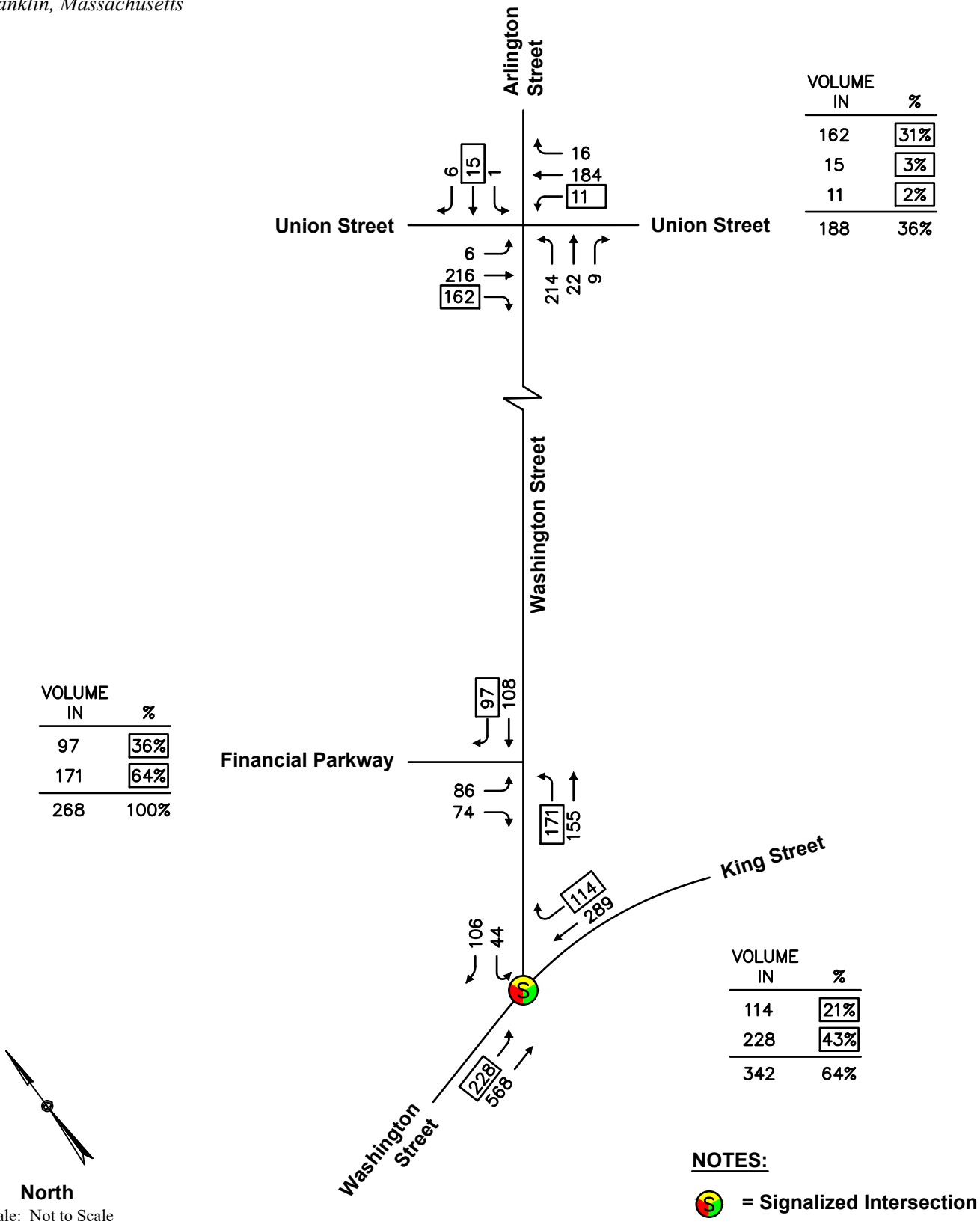
Attachments

275 Washington Street
Weekday Afternoon Peak Hour
Traffic Volumes

Date: April 2023
Dwg No. 1259 TIA.dwg

- Trip Generation

- Trip Distribution

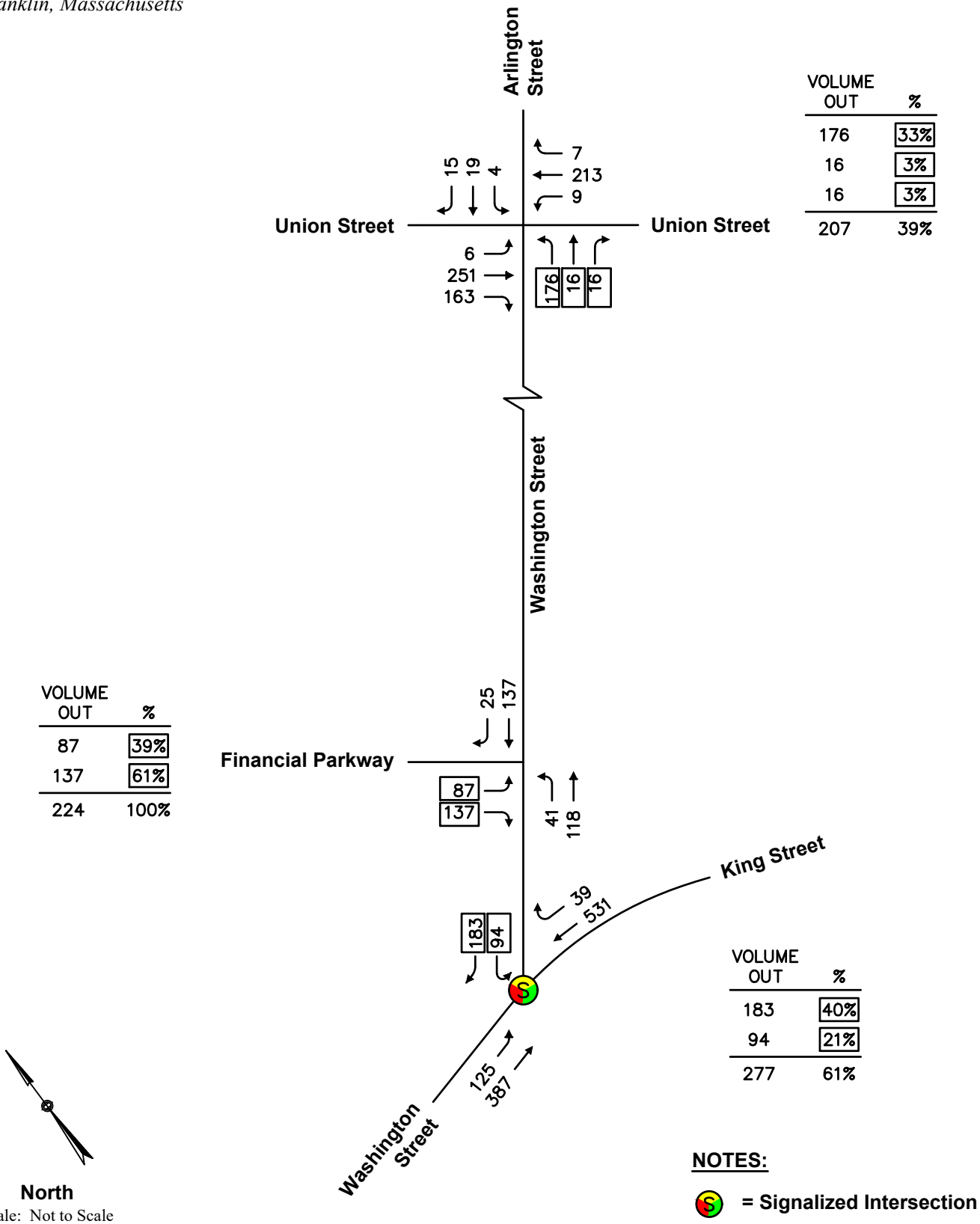


MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Attachments

Trip Distribution Calculation
Step 1
Weekday Morning Peak Hour Volumes

Date: April 2023
Dwg No. 1259 TIA.dwg

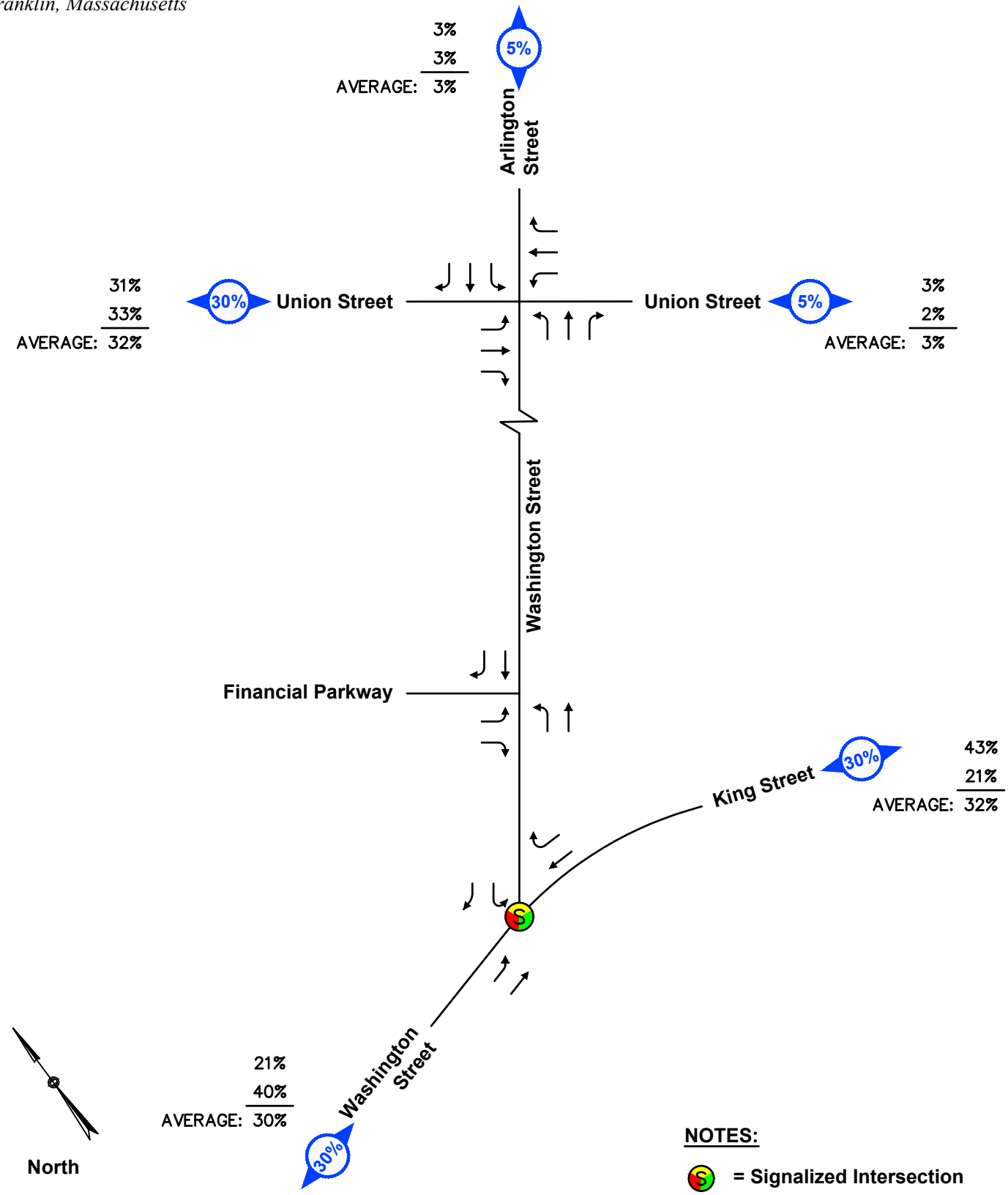


MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Attachments

Trip Distribution Calculation
Step 2
Weekday Affternoon Peak Hour Volumes

Date: April 2023
Dwg No. 1259 TIA.dwg



Attachments

Trip Distribution Calculation
Step 3
Average

- [ ] Capacity Analysis

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	251	625	318	125	48	117
Future Volume (vph)	251	625	318	125	48	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200			0	50	0
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.962			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1863	1736	0	1736	1583
Flt Permitted	0.324				0.950	
Satd. Flow (perm)	604	1863	1736	0	1736	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			27			126
Link Speed (mph)		30	30		30	
Link Distance (ft)		1000	500		500	
Travel Time (s)		22.7	11.4		11.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	5%	6%	4%	2%
Adj. Flow (vph)	270	672	342	134	52	126
Shared Lane Traffic (%)						
Lane Group Flow (vph)	270	672	476	0	52	126
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Turn Type	pm+pt	NA	NA		Prot	pt+ov
Protected Phases	5	2	6		4	4 5
Permitted Phases	2					
Minimum Split (s)	13.0	16.0	16.0		13.0	
Total Split (s)	26.0	82.0	56.0		21.0	
Total Split (%)	25.2%	79.6%	54.4%		20.4%	
Maximum Green (s)	20.0	76.0	50.0		15.0	
Yellow Time (s)	4.0	4.0	4.0		4.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.0	6.0	6.0		6.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Act Effct Green (s)	76.0	76.0	50.0		15.0	41.0
Actuated g/C Ratio	0.74	0.74	0.49		0.15	0.40
v/c Ratio	0.40	0.49	0.56		0.21	0.18
Control Delay	6.0	7.0	20.6		41.2	4.3
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Total Delay	6.0	7.0	20.6		41.2	4.3
LOS	A	A	C		D	A
Approach Delay		6.7	20.6		15.1	
Approach LOS		A	C		B	
Queue Length 50th (ft)	46	153	201		31	0
Queue Length 95th (ft)	72	219	299		67	35
Internal Link Dist (ft)		920	420		420	
Turn Bay Length (ft)	200				50	
Base Capacity (vph)	672	1374	856		252	705
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.40	0.49	0.56		0.21	0.18

Intersection Summary

Area Type: Other
Cycle Length: 103
Actuated Cycle Length: 103
Offset: 13 (13%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 55
Control Type: Pretimed
Maximum v/c Ratio: 0.56
Intersection Signal Delay: 11.8 Intersection LOS: B
Intersection Capacity Utilization 59.1% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: Washington Street & King Street

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	138	426	584	43	103	201
Future Volume (vph)	138	426	584	43	103	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200			0	50	0
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.991			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1827	1792	0	1736	1583
Flt Permitted	0.211				0.950	
Satd. Flow (perm)	393	1827	1792	0	1736	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			6			218
Link Speed (mph)		30	30		30	
Link Distance (ft)		1000	500		500	
Travel Time (s)		22.7	11.4		11.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	5%	6%	4%	2%
Adj. Flow (vph)	150	463	635	47	112	218
Shared Lane Traffic (%)						
Lane Group Flow (vph)	150	463	682	0	112	218
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Turn Type	pm+pt	NA	NA		Prot	pt+ov
Protected Phases	5	2	6		4	4 5
Permitted Phases	2					
Minimum Split (s)	13.0	16.0	16.0		13.0	
Total Split (s)	21.0	82.0	61.0		21.0	
Total Split (%)	20.4%	79.6%	59.2%		20.4%	
Maximum Green (s)	15.0	76.0	55.0		15.0	
Yellow Time (s)	4.0	4.0	4.0		4.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.0	6.0	6.0		6.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Act Effct Green (s)	76.0	76.0	55.0		15.0	36.0
Actuated g/C Ratio	0.74	0.74	0.53		0.15	0.35
v/c Ratio	0.31	0.34	0.71		0.44	0.31
Control Delay	5.5	5.6	23.0		46.5	4.6
Queue Delay	0.0	0.0	0.0		0.0	0.0

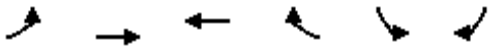
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Total Delay	5.5	5.6	23.0		46.5	4.6
LOS	A	A	C		D	A
Approach Delay		5.6	23.0		18.8	
Approach LOS		A	C		B	
Queue Length 50th (ft)	24	91	318		68	0
Queue Length 95th (ft)	41	132	460		124	49
Internal Link Dist (ft)		920	420		420	
Turn Bay Length (ft)	200				50	
Base Capacity (vph)	490	1348	959		252	695
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.31	0.34	0.71		0.44	0.31

Intersection Summary

Area Type: Other
Cycle Length: 103
Actuated Cycle Length: 103
Offset: 12 (12%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Natural Cycle: 60
Control Type: Pretimed
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 15.6 Intersection LOS: B
Intersection Capacity Utilization 61.8% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 1: Washington Street & King Street

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	285	696	379	134	51	128
Future Volume (vph)	285	696	379	134	51	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200			0	50	0
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.965			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1863	1742	0	1736	1583
Flt Permitted	0.208				0.950	
Satd. Flow (perm)	387	1863	1742	0	1736	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			24			138
Link Speed (mph)		30	30		30	
Link Distance (ft)		1000	500		500	
Travel Time (s)		22.7	11.4		11.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	5%	6%	4%	2%
Adj. Flow (vph)	306	748	408	144	55	138
Shared Lane Traffic (%)						
Lane Group Flow (vph)	306	748	552	0	55	138
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA		Prot	pt+ov
Protected Phases	5	2	6		4	4 5



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	2					
Detector Phase	5	2	6		4	4 5
Switch Phase						
Minimum Initial (s)	7.0	10.0	10.0		7.0	
Minimum Split (s)	13.0	16.0	16.0		13.0	
Total Split (s)	26.0	82.0	56.0		21.0	
Total Split (%)	25.2%	79.6%	54.4%		20.4%	
Maximum Green (s)	20.0	76.0	50.0		15.0	
Yellow Time (s)	4.0	4.0	4.0		4.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.0	6.0	6.0		6.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	Min	Min		None	
Act Effct Green (s)	47.0	49.2	25.3		8.6	25.7
Actuated g/C Ratio	0.73	0.77	0.39		0.13	0.40
v/c Ratio	0.50	0.52	0.79		0.24	0.19
Control Delay	7.7	6.1	26.8		33.7	3.8
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	7.7	6.1	26.8		33.7	3.8
LOS	A	A	C		C	A
Approach Delay		6.6	26.8		12.3	
Approach LOS		A	C		B	
90th %ile Green (s)	20.0	65.9	39.9		11.0	
90th %ile Term Code	Max	Hold	Gap		Gap	
70th %ile Green (s)	17.8	53.1	29.3		8.7	
70th %ile Term Code	Gap	Hold	Gap		Gap	
50th %ile Green (s)	15.0	45.2	24.2		7.5	
50th %ile Term Code	Gap	Hold	Gap		Gap	
30th %ile Green (s)	12.4	38.4	20.0		7.0	
30th %ile Term Code	Gap	Hold	Gap		Min	
10th %ile Green (s)	9.5	30.1	14.6		0.0	
10th %ile Term Code	Gap	Hold	Gap		Skip	
Queue Length 50th (ft)	35	117	184		20	0
Queue Length 95th (ft)	92	220	351		64	33
Internal Link Dist (ft)		920	420		420	
Turn Bay Length (ft)	200				50	
Base Capacity (vph)	755	1809	1358		444	863
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.41	0.41	0.41		0.12	0.16

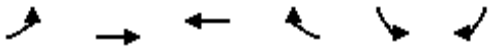
Intersection Summary

Area Type: Other
Cycle Length: 103
Actuated Cycle Length: 64.2

Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 13.4
Intersection LOS: B
Intersection Capacity Utilization 64.7%
ICU Level of Service C
Analysis Period (min) 15
90th %ile Actuated Cycle: 88.9
70th %ile Actuated Cycle: 73.8
50th %ile Actuated Cycle: 64.7
30th %ile Actuated Cycle: 57.4
10th %ile Actuated Cycle: 36.1

Splits and Phases: 1: Washington Street & King Street

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	152	485	644	46	110	227
Future Volume (vph)	152	485	644	46	110	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200			0	50	0
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.991			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1827	1792	0	1736	1583
Flt Permitted	0.126				0.950	
Satd. Flow (perm)	235	1827	1792	0	1736	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			5			196
Link Speed (mph)		30	30		30	
Link Distance (ft)		1000	500		500	
Travel Time (s)		22.7	11.4		11.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	5%	6%	4%	2%
Adj. Flow (vph)	165	527	700	50	120	247
Shared Lane Traffic (%)						
Lane Group Flow (vph)	165	527	750	0	120	247
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA		Prot	pt+ov
Protected Phases	5	2	6		4	4 5



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	2					
Detector Phase	5	2	6		4	4 5
Switch Phase						
Minimum Initial (s)	7.0	10.0	10.0		7.0	
Minimum Split (s)	13.0	16.0	16.0		13.0	
Total Split (s)	21.0	82.0	61.0		21.0	
Total Split (%)	20.4%	79.6%	59.2%		20.4%	
Maximum Green (s)	15.0	76.0	55.0		15.0	
Yellow Time (s)	4.0	4.0	4.0		4.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.0	6.0	6.0		6.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	Min	Min		None	
Act Effct Green (s)	55.2	55.2	37.0		10.9	29.0
Actuated g/C Ratio	0.70	0.70	0.47		0.14	0.37
v/c Ratio	0.42	0.41	0.89		0.50	0.35
Control Delay	8.4	5.9	32.6		43.4	7.3
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	8.4	5.9	32.6		43.4	7.3
LOS	A	A	C		D	A
Approach Delay		6.5	32.6		19.1	
Approach LOS		A	C		B	
90th %ile Green (s)	15.0	76.0	55.0		15.0	
90th %ile Term Code	Max	Hold	Max		Max	
70th %ile Green (s)	15.0	67.4	46.4		13.4	
70th %ile Term Code	Max	Hold	Gap		Gap	
50th %ile Green (s)	12.1	54.8	36.7		10.8	
50th %ile Term Code	Gap	Hold	Gap		Gap	
30th %ile Green (s)	9.9	45.7	29.8		8.8	
30th %ile Term Code	Gap	Hold	Gap		Gap	
10th %ile Green (s)	7.4	34.8	21.4		7.0	
10th %ile Term Code	Gap	Hold	Gap		Min	
Queue Length 50th (ft)	21	87	310		54	16
Queue Length 95th (ft)	58	156	541		132	79
Internal Link Dist (ft)		920	420		420	
Turn Bay Length (ft)	200				50	
Base Capacity (vph)	472	1657	1314		348	758
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.35	0.32	0.57		0.34	0.33

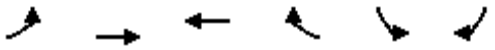
Intersection Summary

Area Type: Other
Cycle Length: 103
Actuated Cycle Length: 78.7

Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 19.9
Intersection LOS: B
Intersection Capacity Utilization 66.2%
ICU Level of Service C
Analysis Period (min) 15
90th %ile Actuated Cycle: 103
70th %ile Actuated Cycle: 92.8
50th %ile Actuated Cycle: 77.6
30th %ile Actuated Cycle: 66.5
10th %ile Actuated Cycle: 53.8

Splits and Phases: 1: Washington Street & King Street

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	297	696	379	146	54	132
Future Volume (vph)	297	696	379	146	54	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200			0	50	0
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.962			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1863	1736	0	1736	1583
Flt Permitted	0.201				0.950	
Satd. Flow (perm)	374	1863	1736	0	1736	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			26			142
Link Speed (mph)		30	30		30	
Link Distance (ft)		1000	500		500	
Travel Time (s)		22.7	11.4		11.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	5%	6%	4%	2%
Adj. Flow (vph)	319	748	408	157	58	142
Shared Lane Traffic (%)						
Lane Group Flow (vph)	319	748	565	0	58	142
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA		Prot	pt+ov
Protected Phases	5	2	6		4	4 5



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	2					
Detector Phase	5	2	6		4	4 5
Switch Phase						
Minimum Initial (s)	7.0	10.0	10.0		7.0	
Minimum Split (s)	13.0	16.0	16.0		13.0	
Total Split (s)	26.0	82.0	56.0		21.0	
Total Split (%)	25.2%	79.6%	54.4%		20.4%	
Maximum Green (s)	20.0	76.0	50.0		15.0	
Yellow Time (s)	4.0	4.0	4.0		4.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.0	6.0	6.0		6.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	Min	Min		None	
Act Effct Green (s)	48.9	51.0	26.5		8.8	26.5
Actuated g/C Ratio	0.74	0.77	0.40		0.13	0.40
v/c Ratio	0.52	0.52	0.80		0.25	0.20
Control Delay	8.6	6.1	27.4		34.9	3.9
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	8.6	6.1	27.4		34.9	3.9
LOS	A	A	C		C	A
Approach Delay		6.8	27.4		12.9	
Approach LOS		A	C		B	
90th %ile Green (s)	20.0	67.7	41.7		11.4	
90th %ile Term Code	Max	Hold	Gap		Gap	
70th %ile Green (s)	19.1	56.6	31.5		9.0	
70th %ile Term Code	Gap	Hold	Gap		Gap	
50th %ile Green (s)	15.8	46.9	25.1		7.7	
50th %ile Term Code	Gap	Hold	Gap		Gap	
30th %ile Green (s)	13.0	39.6	20.6		7.0	
30th %ile Term Code	Gap	Hold	Gap		Min	
10th %ile Green (s)	9.9	30.9	15.0		0.0	
10th %ile Term Code	Gap	Hold	Gap		Skip	
Queue Length 50th (ft)	37	119	196		22	0
Queue Length 95th (ft)	109	224	364		68	34
Internal Link Dist (ft)		920	420		420	
Turn Bay Length (ft)	200				50	
Base Capacity (vph)	739	1793	1324		432	847
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.43	0.42	0.43		0.13	0.17

Intersection Summary

Area Type: Other
Cycle Length: 103
Actuated Cycle Length: 66.2

Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 13.9
Intersection LOS: B
Intersection Capacity Utilization 66.1%
ICU Level of Service C
Analysis Period (min) 15
90th %ile Actuated Cycle: 91.1
70th %ile Actuated Cycle: 77.6
50th %ile Actuated Cycle: 66.6
30th %ile Actuated Cycle: 58.6
10th %ile Actuated Cycle: 36.9

Splits and Phases: 1: Washington Street & King Street

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	158	485	644	52	125	242
Future Volume (vph)	158	485	644	52	125	242
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200			0	50	0
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.990			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1827	1790	0	1736	1583
Flt Permitted	0.122				0.950	
Satd. Flow (perm)	227	1827	1790	0	1736	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			6			196
Link Speed (mph)		30	30		30	
Link Distance (ft)		1000	500		500	
Travel Time (s)		22.7	11.4		11.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	5%	6%	4%	2%
Adj. Flow (vph)	172	527	700	57	136	263
Shared Lane Traffic (%)						
Lane Group Flow (vph)	172	527	757	0	136	263
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors	1	2	2		1	1
Detector Template	Left	Thru	Thru		Left	Right
Leading Detector (ft)	20	100	100		20	20
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	6	6		20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)		94	94			
Detector 2 Size(ft)		6	6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA		Prot	pt+ov
Protected Phases	5	2	6		4	4 5

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Permitted Phases	2					
Detector Phase	5	2	6		4	4 5
Switch Phase						
Minimum Initial (s)	7.0	10.0	10.0		7.0	
Minimum Split (s)	13.0	16.0	16.0		13.0	
Total Split (s)	21.0	82.0	61.0		21.0	
Total Split (%)	20.4%	79.6%	59.2%		20.4%	
Maximum Green (s)	15.0	76.0	55.0		15.0	
Yellow Time (s)	4.0	4.0	4.0		4.0	
All-Red Time (s)	2.0	2.0	2.0		2.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	6.0	6.0	6.0		6.0	
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	Min	Min		None	
Act Effct Green (s)	56.4	56.4	38.1		11.4	29.8
Actuated g/C Ratio	0.70	0.70	0.47		0.14	0.37
v/c Ratio	0.44	0.41	0.89		0.55	0.37
Control Delay	9.6	6.1	33.4		45.2	8.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	9.6	6.1	33.4		45.2	8.2
LOS	A	A	C		D	A
Approach Delay		6.9	33.4		20.8	
Approach LOS		A	C		C	
90th %ile Green (s)	15.0	76.0	55.0		15.0	
90th %ile Term Code	Max	Hold	Max		Max	
70th %ile Green (s)	15.0	69.0	48.0		14.6	
70th %ile Term Code	Max	Hold	Gap		Gap	
50th %ile Green (s)	12.6	56.8	38.2		11.7	
50th %ile Term Code	Gap	Hold	Gap		Gap	
30th %ile Green (s)	10.3	47.2	30.9		9.5	
30th %ile Term Code	Gap	Hold	Gap		Gap	
10th %ile Green (s)	7.6	35.7	22.1		7.0	
10th %ile Term Code	Gap	Hold	Gap		Min	
Queue Length 50th (ft)	24	91	328		64	22
Queue Length 95th (ft)	68	156	552		146	91
Internal Link Dist (ft)		920	420		420	
Turn Bay Length (ft)	200				50	
Base Capacity (vph)	461	1636	1288		340	746
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.37	0.32	0.59		0.40	0.35

Intersection Summary

Area Type: Other
Cycle Length: 103
Actuated Cycle Length: 80.5

Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 20.7
Intersection LOS: C
Intersection Capacity Utilization 67.7%
ICU Level of Service C
Analysis Period (min) 15
90th %ile Actuated Cycle: 103
70th %ile Actuated Cycle: 95.6
50th %ile Actuated Cycle: 80.5
30th %ile Actuated Cycle: 68.7
10th %ile Actuated Cycle: 54.7

Splits and Phases: 1: Washington Street & King Street

□ Delay Study

MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA, 01752

EB: Financial Park
N/S: Washington Street
Franklin, MA

File Name : 1259 Financial Park AM Delay Study
Site Code : 1259
Start Date : 1/26/2023

Summary Information:

7:30:00 AM - 8:30:00 AM	Left Turns	Right Turns
Total Vehicle Count:	85	77
Delayed Vehicle Count:	85	77
Through Vehicle Count:	0	0
Average Stopped Time:	7.54	3.506
Maximum Stopped Time:	31	15
Min. Secs. for Delay:	0	0
Average Queue:	0.20	0.076
Queue Density:	1.19	1.234
Maximum Queue:	3	4
Delay in Vehicle Hour:	0.20	0.08
Total Delay:	641	270

MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA, 01752

EB: Financial Park
N/S: Washington Street
Franklin, MA

File Name : 1259 Financial Park PM Delay Study
Site Code : 1259
Start Date : 1/26/2023

Summary Information:

2:45:00 PM - 3:45:00 PM	Left Turns	Right Turns
Total Vehicle Count:	86	140
Delayed Vehicle Count:	86	140
Through Vehicle Count:	0	0
Average Stopped Time:	11.02	5.893
Maximum Stopped Time:	32	37
Min. Secs. for Delay:	0	0
Average Queue:	0.31	0.236
Queue Density:	1.42	1.250
Maximum Queue:	4	4
Delay in Vehicle Hour:	0.31	0.24
Total Delay:	948	825