
Traffic Impact and Access Study

129 Parker Street

Maynard Crossing

Maynard, Massachusetts

Prepared for

Capital Group Properties

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Prepared by



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1.0 INTRODUCTION AND EXECUTIVE SUMMARY

This report provides an analysis of the potential traffic and access impacts of a proposed commercial and residential development project, known as Maynard Crossing. The development project is planned to be located at 129 Parker Street in Maynard, Massachusetts, and the location is shown in Figure 1. The project proponent, Capital Group Partners, is proposing to redevelop the project site with approximately 240,490 square feet (SF) of retail space including a 68,000 SF supermarket, 30,300 SF of commercial, office, or retail space, a 20,000 SF fitness center, 180 apartment units for multi-family rental, and 143 units of senior independent living housing. The existing 50,300 SF commercial building is planned to be retained, with 20,000 SF converted into a fitness center and the remaining 30,300 SF used as commercial, office, or retail space. The currently proposed development project is somewhat smaller than similar mixed-use plans to redevelop the project site in 2006 and 2013.

Green International Affiliates, Inc. (Green) completed a Traffic Impact & Access Study (TIAS) in February 2013¹ to evaluate the most recent prior proposal to re-develop the project site. At a Special Town Meeting on January 11, 2016, the Town approved a Zoning By-Law Amendment to the Neighborhood Business Overlay District (NBOD), which includes the project site. Subsequent to the NBOD amendment, Green completed a Preliminary Traffic Evaluation (dated March 9, 2016) in conjunction with the development of the current Concept Plan for the project site. The currently proposed concept plan was approved at a Special Town Meeting on October 5, 2016.

This report builds upon and provides an update to both the 2013 TIAS and the March 2016 Preliminary Traffic Evaluation. An analysis and evaluation of the existing and future 2023 (No-Build and Build conditions) traffic volumes, roadway/site access and safety considerations are included in this report. The guidelines of the Massachusetts Department of Transportation (MassDOT), as well as considering those of the Institute of Transportation Engineers (ITE) and the regulations of the Town of Maynard were used for conducting this traffic impact and access study. The report contains descriptions of the existing characteristics of the abutting roadway network, current traffic conditions, estimated traffic impacts, and the access-egress characteristics of the proposed mixed-use development project.

EXISTING CONDITIONS

Given that the site was studied in detail in the 2013 Traffic Impact & Access Study (TIAS) and the economy has remained fairly stable over the past three years, the study area for the updated TIAS is generally consistent with that of the 2013 TIAS. Based on a request from the Town's peer reviewer during the Conceptual Plan approval stage in the Spring of 2016, two intersections were added to the study including Great Road (Route 117) at Thompson Street and Haynes Street/Brown Street (Route 27) at Concord Street. The full list of study intersections is as follows:

- Great Road (Route 117) at Main Street (Route 62)
- Great Road (Route 117) at Sudbury Street
- Great Road (Route 117) at Parker Street (Route 27)
- Great Road (Route 117) at Thompson Street
- Parker Street (Route 27) at Waltham Street/Powder Mill Road (Route 62)
- Parker Street (Route 27) at Walnut Street

¹ Green International Affiliates, Inc. [Traffic Impact & Access Study: Proposed The Shoppes at Maynard Crossing, 129 Parker Street, Maynard, Massachusetts](#), February 2013.

- Parker Street (Route 27) at Field Street/North Street
- Parker Street (Route 27) at South Street
- Parker Street (Route 27) at Old Marlboro Road (northern intersection)
- Parker Street (Route 27) at Vose Hill Road
- Haynes Street/Brown Street (Route 27) at Concord Street

The two major roadways serving the study area, Parker Street (Route 27) and Great Road (Route 117), were reviewed for any substantive physical changes since the 2013 TIAS was completed. The following summarizes the characteristics of these two roadways.

Parker Street (Route 27) is a two lane undivided road with one travel lane for each direction of traffic. It is under the jurisdiction of the Town of Maynard and is classified as an urban principal arterial in the vicinity of the project site. Parker Street has signalized intersections with Great Road (Route 117) and Waltham Street/Powder Mill Road (Route 62) within the study area.

Great Road (Route 117) is a two lane undivided road functioning as an urban principal arterial west of Parker Street (Route 27) and an urban minor arterial east of Parker Street (Route 27). It is under the jurisdiction of the Town of Maynard and has signalized intersections with Main Street (Route 62) and Parker Street (Route 27) within the study area. Great Road (Route 117) provides access to the Town's Public Schools, including Maynard High School, Fowler Middle School, and Green Meadow Elementary School, approximately 800 feet west of Parker Street (Route 27).

Traffic data collected on November 17-19, 2016 indicate that the daily traffic volumes on Parker Street (Route 27) and Great Road (Route 117) are approximately 11,300 and 10,700 vehicles per day (vpd), respectively, on weekdays and approximately 8,500 and 6,500 vehicles per day (vpd), respectively, on Saturdays. The weekday morning peak hour on Parker Street (Route 27) generally occurs from 7:15-8:15 AM and represents approximately 9% of the daily traffic, while the weekday morning peak hour on Great Road (Route 117) also generally occurs from 7:15-8:15 AM and represents approximately 11% of the daily traffic. The weekday afternoon peak hour on Parker Street (Route 27) generally occurs from 4:15-5:15 PM and represents approximately 9% of the daily traffic, while the weekday afternoon peak hour on Great Road (Route 117) generally occurs from 5:00-6:00 PM and represents approximately 10% of the daily traffic. The Saturday midday peak hour on Parker Street (Route 27) generally occurs from 11:15 AM-12:15 PM and represents approximately 9% of the daily traffic, while the Saturday midday peak hour on Great Road (Route 117) generally occurs from 12:15-1:15 PM and also represents approximately 9% of the daily traffic.

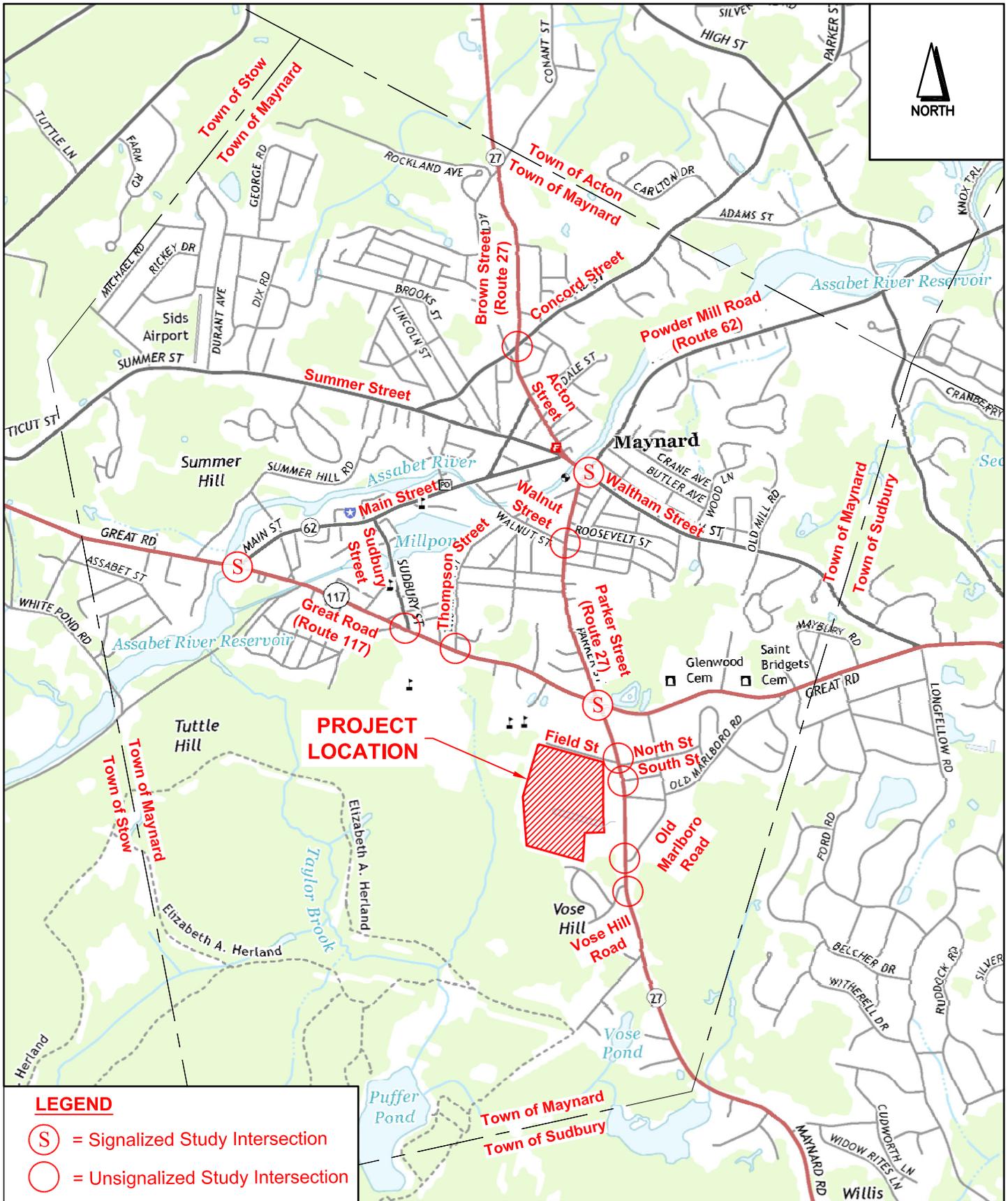


Figure 1
Project Location
129 Parker Street
Maynard, MA

FUTURE CONDITIONS

A seven-year timeframe was used in the analysis that is consistent with current state guidelines. For the future No-Build analysis, a 1 percent annual background growth rate was applied, based on regional traffic growth data as well as relevant site-specific developments. Traffic volume forecasts of the proposed development project were based on models published by the Institute of Transportation Engineers (ITE) and observations of similar land uses. The project is expected to generate approximately 10,258 new vehicle trips per weekday and 14,710 new vehicle trips per Saturday. On weekdays, there are expected to be approximately 371 and 930 new vehicle trips during the morning and afternoon peak hours, respectively. On Saturdays, there are expected to be approximately 1,441 new vehicle trips made during the mid-day peak hour. The trips were distributed across the study area network based on existing traffic patterns.

There are several important aspects of the traffic forecasts to note including:

- A significant portion of the site-generated trips are anticipated to be “internal” trips, as trips are made between the different on-site land uses (i.e. residential to/from retail),
- A significant amount of pass-by and diverted trips are anticipated. These are trips made by vehicles already on Parker Street and/or Great Road, and are not new trips to the roadway network,
- The project-related trips will be spread out throughout the day, and
- A sidewalk is proposed to be constructed along the west side of Parker Street (Route 27) alongside the project site and a wide shoulder is proposed to be included along Parker Street (Route 27) alongside the project site to facilitate future access for bicyclists.

Based on the analyses included in this report, a traffic control signal is proposed at the primary site driveway. With the traffic signal in place, the new intersection is expected to operate at an overall Level of Service (LOS) A, B, or C, depending on the peak hour with minimal average delays. It is noted the proposed project is anticipated to generate fewer vehicle-trips when compared with either of the two prior proposals to redevelop the project site. However, the project proponent is committed to implementing all of the previously proposed transportation improvements. Furthermore, some additional recommendations have been developed as part of this study, and are outlined in the following section.

CONCLUSIONS/RECOMMENDATIONS

This traffic report describes the analysis procedures, assumptions, and results of this traffic study. The following summarizes the traffic analysis findings:

- The proposed development is estimated to generate approximately 371 new vehicle trips during the weekday morning peak hour, 930 new vehicle trips during the weekday afternoon peak hour, and 1,441 new vehicle trips during the Saturday midday peak hour.
- The proposed traffic signal where the Primary Site Drive intersects Route 27 (Parker Street) is expected to operate safely and efficiently with minimal delays.
- Compared to the Future No Build conditions, most of the study intersections will experience modest increases in average delay and queue length. The most significant increases are expected to occur at the signalized intersection of Parker Street (Route 27) with Great Road (Route 117) and at the intersection of Parker Street (Route 27) / Powder Mill Road (Route 62) with Waltham Street.

The analysis showed the proposed project could be accommodated by the study area roadways with several improvements to the transportation infrastructure to improve safety, traffic operating conditions, and to encourage alternative modes of transportation:

- It is recommended to install a 5-foot shoulder on both sides of Parker Street (Route 27) wide enough to accommodate bicycles along the project site.
 - Bicycle lanes are proposed along the primary site driveway, and safe and secure bicycle racks are proposed at convenient locations throughout the project site to encourage residents and visitors to the site to use alternate means of transportation.
 - At the project site, a network of sidewalks/walkways are proposed to connect the various uses within the site and connect with the external sidewalk network.
 - A sidewalk is recommended to be reconstructed on the west side of Parker Street (Route 27) along the project site.
 - A Rectangular Rapid Flashing Beacon (RRFB) is proposed to be installed to facilitate a safe pedestrian crossing at the existing crosswalk across Parker Street (Route 27) at Field Street/North Street.
 - It is recommended that a traffic signal be constructed at the intersection of Parker Street (Route 27) with the Primary Site Drive. An additional unsignalized access driveway is proposed approximately 600 feet north of the Primary Site Drive. This northern site driveway will be a “right-turn” entrance only driveway.
 - At the Parker Street (Route 27) / Great Road (Route 117) intersection, the following transportation infrastructure improvements are recommended:
 - Minor geometric improvements are proposed, including extending the existing left-turn lanes on the Parker Street (Route 27) northbound and Great Road (Route 117) westbound approaches.
 - The existing pedestrian signal equipment is proposed to be replaced with pedestrian signal heads that provide a countdown indication during the “Flashing Don’t Walk” period.
 - Vehicle detection is recommended to be installed on all approaches to the intersection. This will substantially reduce vehicle delays and 95th percentile queue lengths as compared to the existing operation.
 - Green and yellow arrow indications are recommended to be installed for the northbound and eastbound protected left turn phases.
 - Optimized traffic signal timings are proposed, including pedestrian signal timings that are consistent with the current MUTCD.
 - Vehicle detection is recommended to be installed at the intersection of Route 27 (Parker Street) / Powder Mill Road (Route 62) with Waltham Street and to optimize the traffic signal timings to mitigate the impacts of the site-generated trips.
 - It is recommended to reconstruct the following intersections to form more conventional perpendicular T-intersections:
 - Parker Street (Route 27) at Old Marlboro Road,
 - Old Marlboro Road at B Street and Marlboro Street, and
 - Old Marlboro Road at Great Road (Route 117)
- It is anticipated that these geometric improvements will better define the travel way, reduce conflicts, improve safety, act as traffic calming measures in the nearby residential neighborhood, and discourage cut-through traffic between Great Road and Parker Street.
- Traffic monitoring is proposed at the signalized intersection of Parker Street (Route 27) with the Primary Site Drive. The traffic monitoring will be conducted every 6 months for a period of 2

years following the initial occupancy. The goal of the traffic monitoring is to evaluate the traffic operations of the new traffic signal, and will provide an opportunity to make signal timing and/or phasing adjustments as needed.

- Traffic monitoring could be considered at the intersection of Haynes Street/Brown Street (Route 27) / Concord Street. This intersection is farther from the project site (on the opposite end of Town), and any direct impacts to traffic operations at this location are more difficult to predict. Traffic monitoring could allow a direct comparison of traffic volumes and operations before and after the project site is occupied.

In addition to the recommended mitigation discussed above, it is noted that the project proponent has committed to making significant financial contributions to the Town of Maynard. As outlined in the Memorandum of Agreement (MOA) between the Town of Maynard and the project proponent, dated September 6, 2016, the project proponent will be making a \$1,000,000 financial contribution to offset the “anticipated direct and indirect impacts of the project”. Furthermore, the project proponent has committed to making a \$260,000 contribution to a Traffic Improvement Fund controlled by the Town of Maynard. The Traffic Improvement Fund contribution is in addition to the \$1,000,000 financial contribution, and is for the express purpose of mitigating transportation impacts related to the proposed development project.

In summary, with the mitigation outlined above in place, the surrounding roadway network will be able to safely and efficiently accommodate the anticipated traffic.

2.0 EXISTING CONDITIONS

The following sections describe the existing transportation system in terms of physical and operational characteristics. The selection of the study area took into account the location and type of project and focused on the evaluation of the roadways and intersections in the vicinity of the site that will potentially be impacted by the proposed mixed-use development project.

2.1 Existing Roadway Network

The study focused on the roadway network in the vicinity of the proposed project with an emphasis on the following 11 intersections:

- Great Road (Route 117) at Parker Street (Route 27)
- Great Road (Route 117) at Main Street (Route 62)
- Great Road (Route 117) at Sudbury Street
- Great Road (Route 117) at Thompson Street
- Parker Street (Route 27) at Waltham Street/Powder Mill Road (Route 62)
- Parker Street (Route 27) at Walnut Street
- Parker Street (Route 27) at Field Street / North Street
- Parker Street (Route 27) at South Street
- Parker Street (Route 27) at Old Marlboro Road (northern intersection)
- Parker Street (Route 27) at Vose Hill Road
- Concord Street at Haynes Street at Brown Street (Route 27)

As part of this study, a field reconnaissance was conducted to verify the current physical and operational features in the study area. A description of the study roadways and intersections follows:

2.1.1 Great Road (Route 117)

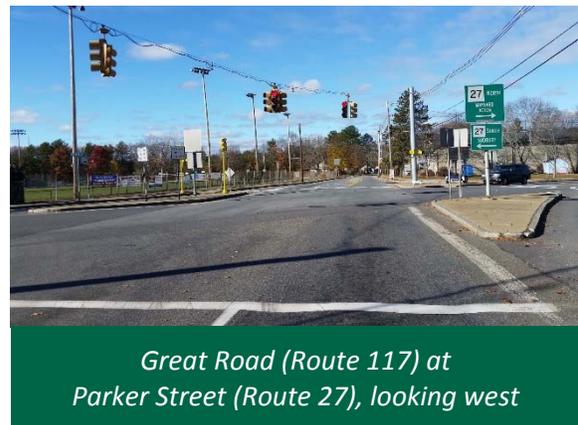
Great Road (Route 117) consists of one travel lane in each direction in the vicinity of the proposed development site. It provides connections between Maynard and Stow, Bolton, and I-495 to the west and Sudbury, Concord, and I-95/Route 128 to the east. The roadway is under local jurisdiction in the vicinity of the project site. A double yellow center line separates the eastbound and westbound lanes of the road. A 2-foot shoulder is marked on each side of the road. Sidewalks exist along both sides of Great Road (Route 117) in the study area. Posted speed limits on Great Road (Route 117) in the project area were noted as 35 miles per hour (mph). All of the Town's public schools are located off of Great Road including the high school. During school drop-off and pick-up hours, a school zone speed limit of 20 mph is in place for approximately 2,400 feet in both directions starting in the west at a location 250 feet east of the intersection at Sudbury Street.

2.1.2 Parker Street (Route 27)

Parker Street (Route 27) is a two-lane, two-way road in the project area. It provides connections to Sudbury to the south and, via continuations of Route 27 such as Acton Street, to Acton and Route 2 to the north. In the vicinity of the project site, a double yellow center line separates the northbound and southbound travel lanes, and there are approximately one-foot shoulders marked on either side of the road. The posted speed limit along Parker Street (Route 27) is 35 mph south of Great Road (Route 117) and 30 mph north of Great Road (Route 117) with 20 mph posted speed limits on the immediate northbound and southbound approaches to the intersection with Great Road (Route 117). An asphalt sidewalk runs along the west side of Parker Street (Route 27) in the vicinity of the project site.

2.1.3 Great Road (Route 117) at Parker Street (Route 27)

This signalized intersection is formed by Parker Street (Route 27) crossing Great Road (Route 117). The intersection angle is at a skew. Great Road (Route 117) runs east-west while Parker Street (Route 27) runs in a north-south direction. Each approach has exclusive left-turn lanes, 12-foot wide through lanes, and channelized right-turn lanes.



*Great Road (Route 117) at
Parker Street (Route 27), looking west*

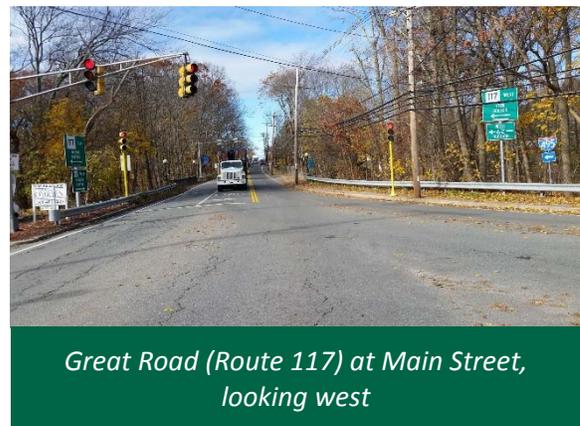
The right-turn lane of the Great Road (Route 117) eastbound approach has a right turn signal and one of the signal heads is optically programmed to reduce confusion with signal indications for through traffic. Great Road (Route 117) eastbound has an 80-foot-long left-turn lane approximately 10 feet wide and an 11-foot-wide right-turn lane. Great Road (Route 117) westbound has a right-turn lane approximately 12 feet wide and a left-turn lane approximately 11 feet wide and 90 feet long.

Parker Street (Route 27) northbound has an approximately nine-foot wide, 70-foot-long left-turn lane and a 13-foot-wide right-turn lane. Parker Street (Route 27) southbound has an approximately 16-foot wide right-turn lane and a 10-foot wide left-turn lane. Cement concrete sidewalks with granite vertical curbing are provided throughout the intersection except on the east side of the south leg and the south side of the east leg. Wheelchair ramps are provided but there are no detectable warning panels. Pedestrians cross at the

northern and western legs; each leg being serviced by a separate pushbutton-activated pedestrian crossing phase. However, the pedestrian signals do not provide accessible or countdown features. Pedestrian clearance intervals are not consistent with MUTCD guidelines for the 58-foot crossing of the west leg of Great Road (Route 117). Parker Street (Route 27) has a posted speed limit of 20 mph for both northbound and southbound approaches. The intersection is bordered by the Boys & Girls Club of Assabet Valley building in the northwest corner, the high school track in the southwest corner, houses in the southeast corner, and the Glenwood Cemetery and wooded area in the northeast corner. There is no functioning vehicle detection at the intersection, resulting in operational inefficiencies. It is also noted that the Parker Street (Route 27) northbound and Great Road (Route 117) eastbound approaches have leading protected left turn phases that are not indicated by arrows. This can result in driver confusion and potential safety concerns.

2.1.4 Great Road (Route 117) at Main Street (Route 62)

This signalized intersection is located approximately 5,800 feet to the west of the Great Road (Route 117) at Parker Street (Route 27) intersection. Great Road (Route 117) forms the east and west legs while Main Street (Route 62), intersecting and ending at Great Road at a skew, provides the north leg. In addition, a driveway serving a parking lot for a dentist's office and several other small offices at the southern end of the intersection are controlled by the traffic signal. This south leg operates as one-way northbound as indicated by a DO NOT ENTER sign. Right turns on red are not permitted from the Driveway northbound approach, nor from the Main Street (Route 62) southbound approach to the intersection.



Main Street (Route 62), like Great Road (Route 117), is a two-lane two-way road with directions separated by a double yellow center line. On the eastbound approach, Great Road (Route 117) has a through and a left-turn lane marked with left-turn arrows and "ONLY" pavement markings as well as overhead advanced lane use signs. In the westbound direction, Great Road (Route 117) has a through lane and a channelized right-turn lane, while the Main Street (Route 62) approach has an exclusive right-turn lane and an exclusive left-turn lane with left arrows and "ONLY" pavement markings. Travel lane widths are generally 10-11 feet on the eastbound Great Road (Route 117) and southbound Main Street (Route 62) approaches. The eastbound and southbound left-turn movements are serviced with protected only left-turn signals. Pedestrians cross from the northwest, northeast, and southeast corners to a center island. The crossings to the northwest and southeast corners operate on the same pedestrian pushbutton-activated phase. The crosswalk lengths of the two legs from the center island to the northwest corner and the southeast corner are approximately 39 feet and 35 feet in length, respectively. Speed limits are 35 mph along both Great Road (Route 117) and Main Street (Route 62). In the northeast quadrant of the intersection is a gas station, and in the northwest quadrant of the intersection, there are wooded areas and houses.

2.1.5 Great Road (Route 117) at Sudbury Street

Sudbury Street intersects Great Road (Route 117) on the north side approximately 2,700 feet east of Main Street, forming a slightly skewed, three-legged unsignalized intersection. Sudbury Street southbound, the minor approach, operates under STOP control whereas Great Road (Route 117) eastbound and westbound traffic flows freely at this intersection. Visibility of the STOP sign on Sudbury Street southbound is partially obstructed by overhanging tree branches. All three approaches have a single striped lane from which through movements and/or turns are made, but the southbound Sudbury Street approach has a stop bar that changes angle in the middle of the lane and is sufficiently wide to accommodate side-by-side left-turning and right-turning vehicles. Crosswalks traverse Sudbury Street and the west leg of Great Road (Route 117). Both of the single-lane Great Road (Route 117) approaches are approximately 12 feet wide, whereas the Sudbury Street approach widens at the mouth of the intersection with an approximately 14-foot wide STOP bar for left-turning traffic and an approximately 22-foot wide STOP bar for right-turning vehicles. This intersection is abutted by houses along Sudbury Street and the westbound side of Great Road (Route 117), and due south of the intersection is a baseball field (Crowe Park, adjacent to Green Meadow Elementary School).



*Sudbury Street at Great Road (Route 117),
looking south*

2.1.6 Great Road (Route 117) at Thompson Street

The intersection of Great Road (Route 117) at Thompson Street is a STOP-controlled intersection located approximately 750 feet east of the intersection of Great Road (Route 27) with Sudbury Street. Thompson Street forms the north leg and is STOP-controlled, while Great Road (Route 117) provides the east and west legs and operates freely. The posted speed limit on Thompson Street is 25 mph. A marked crosswalk with wheelchair ramps and detectable warning panels is provided across the north leg. Cement concrete sidewalks are present along both sides of Thompson Street in the immediate vicinity of the intersection. Asphalt sidewalks continue along both sides of Thompson Street. The travel lanes on Thompson Street are approximately 11 feet wide and are separated by a single yellow center line.



*Great Road (Route 117) at Thompson Street,
looking west*

2.1.7 Parker Street (Route 27)/Powder Mill Road (Route 62) at Waltham Street

At this four-legged signalized intersection, Parker Street (Route 27) forms the south leg, Powder Mill Road (Route 62) forms the north leg, and Waltham Street forms the east and west legs. Waltham Street westbound descends into the intersection at an approximately four percent slope and Parker Street (Route 27) descends down to the intersection at approximately five to six percent. Route 27 turns from Parker Street to the west leg of Waltham Street. All four approaches meet at approximately right angles.



Parker Street (Route 27) at Waltham Street, looking north

The Waltham Street (Route 27) eastbound approach provides a shared through/left-turn lane approximately 14 feet wide and a 12 foot exclusive right-turn lane. The Parker Street (Route 27) northbound approach has a single shared approach lane that is approximately 16 feet wide at the intersection. Protected left-turn phases are provided for northbound and eastbound traffic. The Waltham Street westbound approach provides a single shared 15-foot-wide lane. The Powder Mill Road (Route 62) southbound approach consists of a shared through/left-turn lane and an exclusive right-turn lane that are each approximately 11 feet wide. Both right-turn lanes have a right-turn arrow and "ONLY" pavement markings. The posted speed limit along the north leg of Powder Mill Road (Route 62) is 25 mph and the posted speed limit along the south leg of Parker Street (Route 27) is 30 mph. The east and west legs have no posted speed limit in the vicinity of the intersection. A pushbutton-activated exclusive pedestrian phase is provided. However, there are no countdown or accessible features. Curb ramps with detectable warning panels are provided on the southeast corner. Abutting land uses include a residential apartment building at the southeast corner of the intersection, a gas station at the northeast corner, small commercial businesses on the northwest corner, and a Tedeschi's convenience store and a Dunkin' Donuts occupying the southwest corner of the intersection. It is noted that the commercial building immediately adjacent to the intersection on the southwest corner has been vacant for some time.

2.1.8 Parker Street (Route 27) at Walnut Street

Parker Street (Route 27) intersects Walnut Street, forming a three-legged 'T'-type unsignalized intersection approximately 1,100 feet south of the intersection with Waltham Street. Walnut Street is the minor approach, forming the west leg of the intersection and Parker Street (Route 27) runs along a north-south alignment. Parker Street (Route 27) traffic flows freely in both directions, while eastbound Walnut Street traffic is STOP controlled. Each of the approaches provides a single shared travel lane. Pavement markings on Walnut Street include a STOP bar and a crosswalk. A crosswalk also traverses Parker Street (Route 27) just north of McKinley Street. Parker Street (Route 27) has 11-foot wide lanes in this location while the Walnut Street eastbound approach is approximately 14 to 15 feet wide.



Parker Street (Route 27) at Walnut Street, looking south

2.1.9 Parker Street (Route 27) at Field Street/North Street

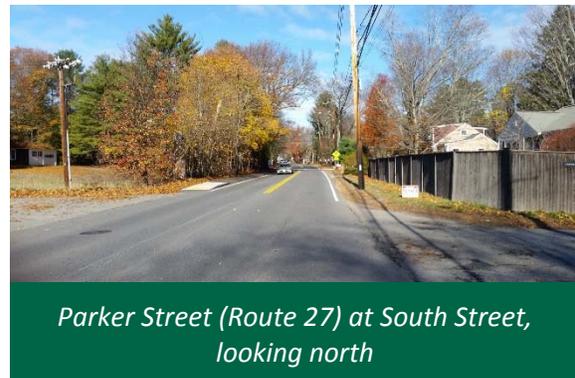
Field Street and North Street form an offset four way intersection with Parker Street (Route 27) just north of the project site. Field Street forms the west leg, North Street forms the east leg, and Parker Street (Route 27) follows a north-south alignment. Both Field Street and North Street are local residential streets, have no pavement markings, and are STOP controlled. Parker Street (Route 27) northbound and southbound traffic flows freely. Each approach consists of a single shared lane. North Street is also posted with a “DO NOT ENTER” sign with posted times of “3:30 PM – 5:30 PM.” A crosswalk traverses Parker Street (Route 27) diagonally, connecting the northeast corner of Parker Street (Route 27) at North Street with the southwest corner of Parker Street (Route 27) at Field Street. Parker Street (Route 27) provides one shared approximately 11-foot wide lane at each of its approaches, while unstriped Field Street and North Street are each approximately 26 feet wide in total. Field Street serves 21 homes while North Street is one of the local streets serving the neighborhood east of the project site.



Parker Street (Route 27) at Field Street/North Street, looking south

2.1.10 Parker Street (Route 27) at South Street

This unsignalized intersection has four legs with the existing secondary site drive at 129 Parker Street forming the fourth (west) leg. South Street, which forms the east leg of the intersection, is approximately 24 feet wide. Houses abut the northeast and southeast corners of the intersection. South Street eastbound is posted with a faded “Do Not Enter” sign accompanied by a smaller sign listing the times “3:30 PM – 5:30 PM.” Neither the site drive nor South Street currently has pavement markings. A crosswalk traverses Parker Street (Route 27) just south of South Street. Parker Street (Route 27) provides one shared 11-foot wide travel lane in each direction. South Street is one of the local roadways serving the neighborhood east of the project site.



Parker Street (Route 27) at South Street, looking north

2.1.11 Parker Street (Route 27) at Old Marlborough Road (north)

Old Marlboro Road consists of two separate sections, with the two portions being approximately 1,400 feet apart along Parker Street (Route 27). This analysis focuses on the northern intersection. The northern intersection of Parker Street (Route 27) at Old Marlboro Road is a three-legged intersection with Parker Street (Route 27) forming the north and south legs and Old Marlboro Road forming the east leg. There are no pavement markings on Old Marlboro Road at this intersection. Old Marlboro Road intersects Parker Street

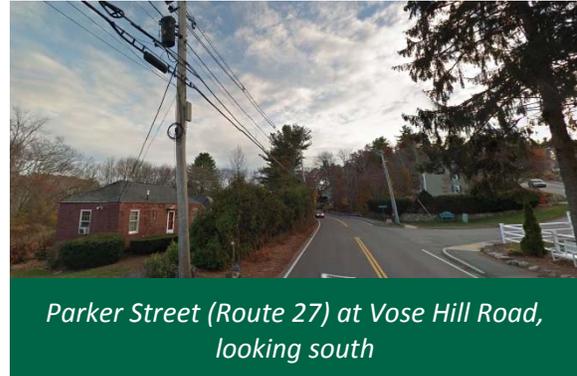


Parker Street (Route 27) at Old Marlboro Road (north intersection), looking south

(Route 27) at a skewed angle, although the roadway flares significantly at the intersection with Parker Street. The wide (70 feet) opening for Old Marlboro Road has a STOP-sign posted at each corner of the leg. This intersection is located within approximately 650 feet of the project site. Old Marlboro Road also intersects Great Road (Route 117) to the east. Old Marlborough Road serves a residential neighborhood.

2.1.12 Parker Street (Route 27) at Vose Hill Road

Vose Hill Road forms an unsignalized intersection with Parker Street (Route 27) approximately 1,000 feet south of the project site. Vose Hill Road forms the west leg of the intersection and is STOP-controlled, while Parker Street (Route 27) forms the north and south legs, with traffic flowing freely. Vose Hill Road descends downhill at an approximately five percent grade, while the intersection is approximately perpendicular to Parker Street (Route 27). Vose Hill Road has no pavement markings or signage, but the intersection has recently been reconstructed with new wheelchair ramps, curbing, and a southward extension of the existing sidewalk along the western side of Parker Street (Route 27). Vose Hill Road is approximately 40 feet wide at the mouth of the intersection.



2.1.13 Haynes Street/Brown Street (Route 27) at Concord Street

Haynes Street/Brown Street (Route 27) intersects Concord Street at an unsignalized intersection. The Concord Street eastbound and westbound approaches are STOP-controlled, while the Route 27 northbound and southbound approaches flow freely. The intersection has significant skew, making operations awkward. During peak periods, significant queueing was observed on both Concord Street approaches. There are automotive service shops on the northwest and northeast corners. Horizontal curvature is present on the north and south legs of Route 27. However, it is noted that intersection sight distances looking in both directions from both Concord Street approaches exceed minimum and desirable distances for vehicles traveling 25-30 mph (the posted speed limit is 25 mph). Although the available sight distance is sufficient, it is an awkward intersection due to the skew; drivers need to look over their shoulders to see oncoming traffic. Marked crosswalks are provided across the south, east, and west legs of the intersection, with a sidewalk present along the east side of Route 27. The Assabet River Rail Trail (ARRT) will cross the west leg of Concord Street immediately adjacent to this intersection. The ARRT is currently under construction and is anticipated to be completed during Summer 2017.



2.2 Traffic Volumes

As part of this study, new traffic volume data were collected to form the basis of the traffic analysis. The new data were collected on Thursday, November 17, 2016 through Saturday, November 19, 2016 and included weekday peak period (7:00-9:00 AM and 4:00-6:00 PM) manual turning movement counts (TMC) and Saturday mid-day (11:00 AM – 2:00 PM) counts at each of the 11 study intersections previously described. The count program also included two (2) 72 hour Automatic Traffic Recorder (ATR) vehicle counts. One of the ATR locations was on Parker Street (Route 27) between Old Marlboro Road and B Street and the other ATR was installed on Great Road (Route 117) approximately 300 feet west of Parker Street (Route 27). The complete TMC and ATR data are included in the Appendix.

The new ATR data collected on Parker Street (Route 27) were reviewed and compared to the previous ATR data also collected on Parker Street (Route 27) in the vicinity of the site for the 2013 TIAS in November 2012 and for the Preliminary Traffic Evaluation in October 2015. Table 2.1 summarizes the changes in the ATR data on Parker Street.

Table 2.1 –Summary of Trends in Parker Street (Route 27) ATR Data

	Weekday			Saturday	
	AM Peak Hour	PM Peak Hour	Daily	Mid-Day Peak Hour	Daily
November 2012	1,156 vph	1,265 vph	14,608 vpd	934 vph	11,815 vpd
October 2015	873 vph	971 vph	10,968 vpd	711 vph	8,169 vpd
November 2016	974 vph	1,001 vph	11,288 vpd	778 vph	8,537 vpd
2012-2015 Change	-283 vph	-294 vph	-3,640 vpd	-223 vph	-3,646 vpd
2012-2015 % Change	-24%	-23%	-25%	-24%	-31%
2015-2016 Change	+101 vph	+30 vph	+320 vpd	+67 vph	+368 vpd
2015-2016 % Change	+12%	+3%	+3%	+9%	+5%
2012-2016 Change	-182 vph	-264 vph	-3,320 vpd	-156 vph	-3,278 vpd
2012-2016 % Change	-16%	-21%	-23%	-17%	-28%
Notes: vph = vehicles per hour vpd = vehicles per day					

As shown in Table 2.1, traffic volumes have increased somewhat over the past year during all of the time periods analyzed, but 2016 traffic volumes are still down significantly from 2012 levels.

Table 2.2 summarizes the ATR data collected on Parker Street. The average weekday traffic on Parker Street (Route 27) is 11,288 vehicles per day (vpd), with 8.6% occurring during the morning peak hour and 8.9% occurring during the afternoon peak hour. The Saturday traffic on Parker Street (Route 27) was measured to be 8,537 vehicles per day (vpd), with 9.1% occurring during the mid-day peak hour. The directional distribution of traffic on Parker Street (Route 27) is approximately 40% NB / 60% SB during the weekday morning peak hour, 54% NB / 46% SB during the weekday afternoon peak hour, and 49% NB / 51% SB during the Saturday mid-day peak hour.

Table 2.2 –Summary of Parker Street (Route 27) Traffic Volumes

	AM PEAK HOUR	PM PEAK HOUR	WEEKDAY AVERAGE	SATURDAY MID-DAY PEAK HOUR	SATURDAY
Time Period	7:15-8:15	4:15-5:15	Daily	11:15-12:15	Daily
Traffic Volume ¹	974 vph	1,001 vph	11,288 vpd	778 vph	8,537 vpd
K-Factor ²	8.6%	8.9%	-	9.1%	-
Directional Distribution	59.7% SB	54.4% NB	50.9% SB	50.9% SB	50.4% SB
Average Speed	34 mph NB / 32 mph SB				
85th %-ile Speed	37 mph NB / 36 mph SB				

¹ vpd = volume per day, vph = volume per hour, volumes are rounded, based on ATR data (November 17-19, 2016)

² percent of daily traffic that occurs during the peak hour

Table 2.3 summarizes the ATR data collected on Great Road (Route 117). The average weekday traffic on Great Road (Route 117) is 10,689 vehicles per day (vpd), with 10.6% occurring during the morning peak hour and 9.6% occurring during the afternoon peak hour. The Saturday traffic on Great Road (Route 117) was measured to be 6,529 vehicles per day (vpd), with 8.5% occurring during the mid-day peak hour. The directional distribution of traffic on Great Road (Route 117) is approximately 56% EB / 44% WB during the weekday morning peak hour, 28% EB / 72% WB during the weekday afternoon peak hour, and 49% EB / 51% WB during the Saturday mid-day peak hour.

Table 2.3 –Summary of Great Road (Route 117) Traffic Volumes

	AM PEAK HOUR	PM PEAK HOUR	WEEKDAY AVERAGE	SATURDAY MID-DAY PEAK HOUR	SATURDAY
Time Period	7:15-8:15	5:00-6:00	Daily	12:15-13:15	Daily
Traffic Volume ¹	1,130 vph	1,023 vph	10,689 vpd	555 vph	6,529 vpd
K-Factor ²	10.6%	9.6%	-	8.5%	-
Directional Distribution	55.6% EB	71.5% WB	54.2% WB	51.2% WB	51.6% WB
Average Speed	28 mph EB / 28 mph WB				
85th %-ile Speed	33 mph EB / 32 mph WB				

¹ vpd = volume per day, vph = volume per hour, volumes are rounded, based on ATR data (November 17-19, 2016)

² percent of daily traffic that occurs during the peak hour

To develop the estimated average or typical volume conditions for analysis purposes, permanent traffic count station data maintained by the Massachusetts Department of Transportation (MassDOT) were reviewed. This review determined the seasonal variation of traffic flow on roadways in the general region and serves as the basis of any appropriate seasonal adjustments. The count stations used to observe seasonal data were Station 4172 located on Route 2 in Acton, Station 403 located on Route 2 in Concord, Station 4950 located east of Station 403 on Route 2 in Concord, Station 5 located on Route 12 in Sterling, Station 4114 located on the Lowell Connector in Chelmsford, Station 3295 located on I-190 in Sterling, Station 3293 located on I-190 in West Boylston, and Station 307 located on Route 9 in Westborough. The permanent count station data indicated that the average daily traffic volumes in November tended to be approximately 1% below annual average daily traffic volume levels. Traffic volumes recorded in the turning movement count data were therefore adjusted upward by 1% to better reflect average seasonal conditions. Figures 2 through 4 show the seasonally adjusted 2016 weekday morning peak hour, weekday afternoon peak hour, and Saturday mid-day peak hour traffic volumes respectively at each study intersection.

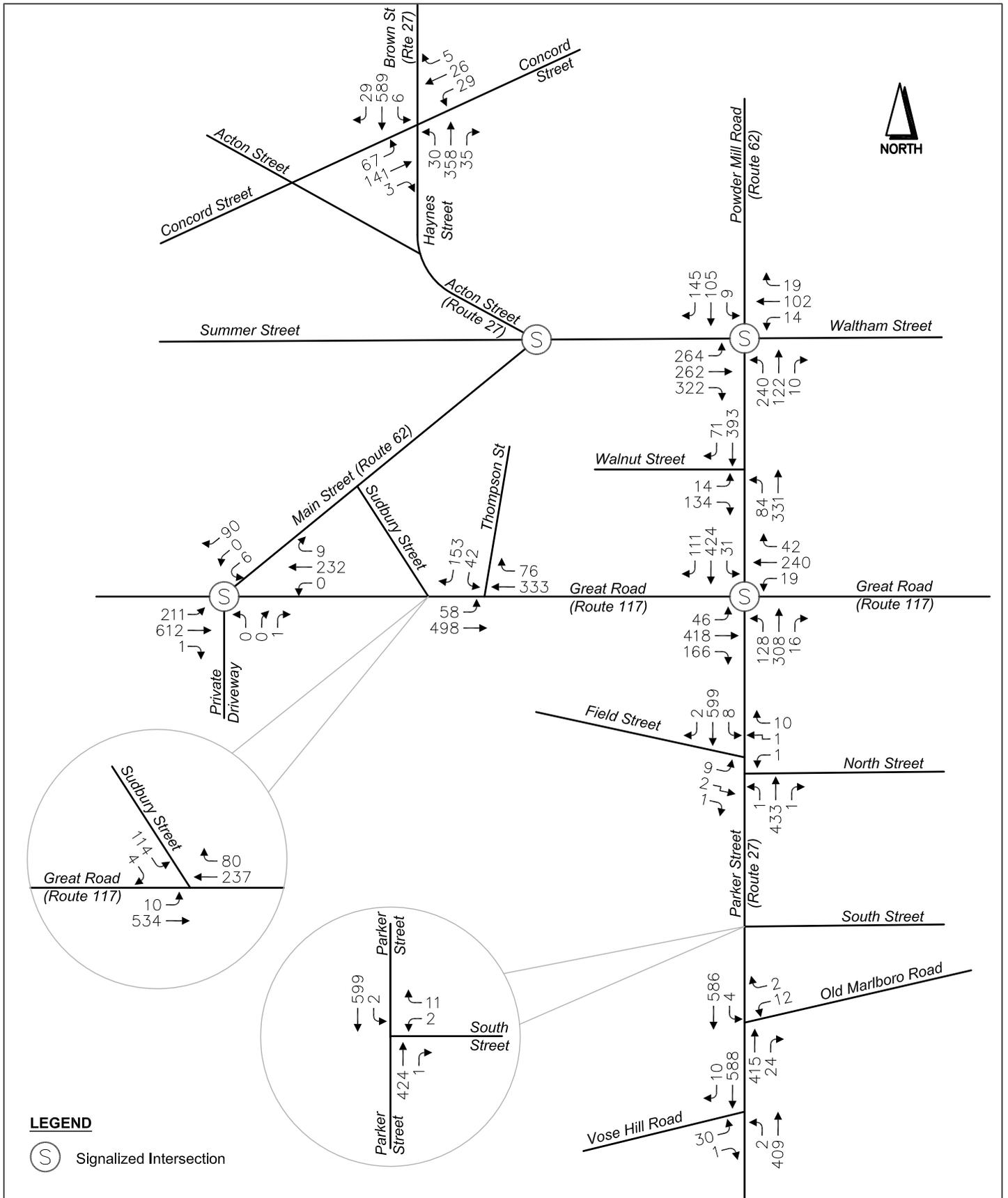
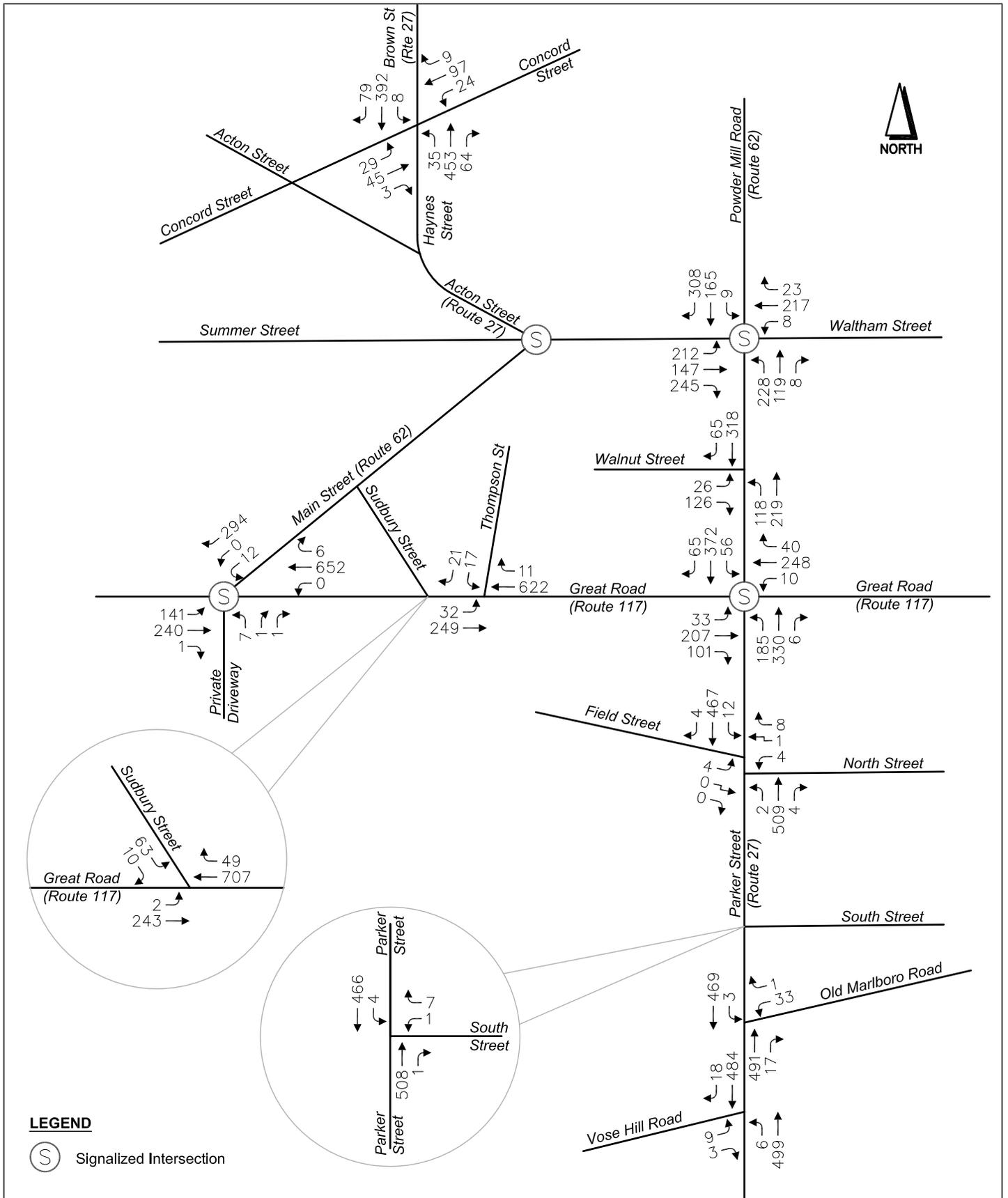
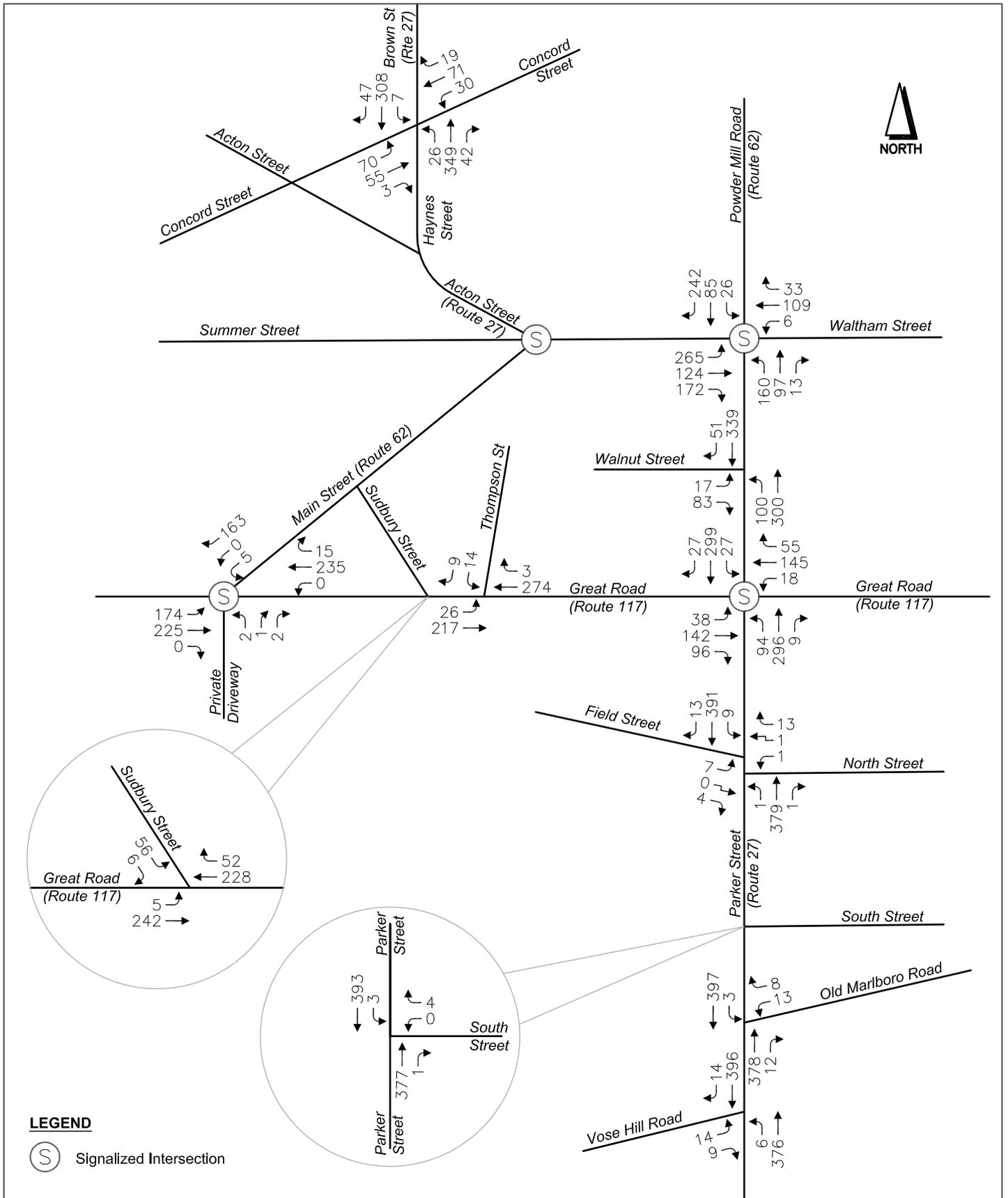


Figure 2
2016 Existing Traffic Volumes
Weekday AM Peak Hour
129 Parker Street
Maynard, MA





2.3 Crash Experience

The crash history of all the study intersections was obtained from the MassDOT Crash Record System (CRS) for the most recent five-year period available (2010-2014) as part of this study. The year 2014 was added to the analysis as this crash data has now become available from MassDOT and the year 2010 was added to fill out the five-year analysis requested as part of the peer review.

In addition to summarizing the data and identifying the crash characteristics, the average number of crashes reported annually and the reported crash rate were computed. The crash rate at each study intersection is measured in crashes per million entering vehicles (MEV). The standard MassDOT Crash Rate Worksheet was used to determine the crash rate at each location. The calculation of the crash rate relates the number of accidents at a location to the amount of traffic that passes through the location. It is a more comprehensive measure for identifying potentially hazardous locations compared to simple averages as it takes into account volume, although crash rates can skew higher due to low volumes. The calculated rate is compared to the MassDOT District-wide averages. Intersections experiencing crash rates greater than the averages are potentially experiencing an unusually high number or higher than expected number of crashes relative to traffic volumes at that particular location and may warrant further investigation or improvements. MassDOT District 3, which includes the Town of Maynard, has an average crash rate of 0.90 crashes per MEV for signalized intersections and 0.65 crashes per MEV for unsignalized intersections. The crash rate worksheets are included in the attached Appendix.

It is noted that there were zero reported crashes at the following study intersection during the five-year period that was examined:

- Parker Street at South Street

Table 2.4 shows that the crash rate at each study intersection as well as the intersection of the Site Drive with Parker Street (Route 27) is below the MassDOT District 3 average crash rate for the corresponding type of intersection control with the exception of the intersection of Route 27 at Concord Street, whose crash rate is approximately 34 percent higher than the MassDOT District 3 average.

In addition to the crashes listed at the study intersections in Table 2.4, several other crashes occurred within the study area:

- Parker Street (Route 27) at B Street (2013, rear-end, unreported severity)
- 140 Parker Street (Route 27) (2010, rear-end, unreported severity)
- 141 Parker Street (Route 27) (2010, rear-end, property damage only, icy roadway condition)
- Parker Street (Route 27), unspecified location (2011, rear-end, injury)

Table 2.4 - Summary of Reported Crash Data (2010-2014)

	<i>Great Road (Route 117) at Main Street (Route 62) – Signalized</i>					<i>Great Road at Parker Street (Route 27) – Signalized</i>					<i>Parker Street / Powder Mill Road (Route 62) at Waltham Street – Signalized</i>				
	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014
Severity															
Property Damage	1	3	1	1	2	1	1	1	1	2	4	1	2	4	9
Injury			1			1									
Fatality															
Unknown		1		1							2		1	1	
Collision Type															
Rear End		2			1	1				1	3	1		2	3
Angle	1		1				1			1	1		1	2	3
Side Swipe		1			1			1			1		1		
Head On		1											1	1	
Single Vehicle				1		1			1		1				2
Collision with Ped															
Collision with Bike			1	1											
Other/Unknown															1
Time of Day															
6:01 AM – 10:00 AM		1									3			3	3
10:01 AM – 4:00 PM	1	1	1	1	1		1			1	1	1		1	3
4:01 PM – 7:00 PM		2	1		1	1				1	1				2
7:01 PM – 6:00 AM				1		1		1	1		1		3	1	1
Roadway Conditions															
Dry	1	3	2	2	1	1	1	1	1	1	5	1	3	3	5
Wet		1			1					1	1			1	4
Snow/Ice						1								1	
Other/Unknown															
Season															
Dec-Feb		2			1	1	1	1			3	1	2	3	3
Mar-May		1								1	2				2
June-Aug	1		2	2	1				1		1				3
Sept-Nov		1				1				1			1	2	1
Light Conditions															
Daylight	1	3	2	1	1	2	1			1	6	1		3	7
Dawn/Dusk														1	1
Dark (Unlit)										1					
Dark (Lit)		1		1	1			1	1				3	1	1
Unknown															
Totals	1	4	2	2	2	2	1	1	1	2	6	1	3	5	9
Annual Average Crashes	2.20					1.40					4.80				
Intersection Crash Rate	0.43					0.21					0.69				
MassDOT District 3 Average Crash Rate	0.90					0.90					0.90				

Table 2.4 - Summary of Reported Crash Data (2010-2014)

	<i>Parker Street (Route 27) at Old Marlboro Road – Unsignalized</i>					<i>Parker Street (Route 27) at Walnut Street – Unsignalized</i>					<i>Parker Street (Route 27) at Field Street/North Street – Unsignalized</i>				
	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014
Severity															
Property Damage					1	2		3	1	3					1
Injury	1				1										
Fatality															
Unknown			1					1							
Collision Type															
Rear End						1		2	1	2					1
Angle								1							
Side Swipe															
Head On						1									
Single Vehicle	1		1		2										
Collision with Ped															
Collision with Bike															
Other/Unknown								1	1						
Time of Day															
6:01 AM – 10:00 AM						1									1
10:01 AM – 4:00 PM	1		1					1		1					
4:01 PM – 7:00 PM					1	1		1	2						
7:01 PM – 6:00 AM					1			1		2					
Roadway Conditions															
Dry			1		1	1		3	2	1					1
Wet	1				1	1				2					
Snow/Ice															
Other/Unknown															
Season															
Dec-Feb						1		1							
Mar-May			1		1			1	1	1					
June-Aug	1					1				1					1
Sept-Nov					1			1	1	1					
Light Conditions															
Daylight	1		1			2		1	1	1					1
Dawn/Dusk															
Dark (Unlit)					1					1					
Dark (Lit)					1			2	1	1					
Unknown															
Totals	1	0	1	0	2	2	0	3	2	3	0	0	0	0	1
Annual Average Crashes	0.80					2.00					0.20				
Intersection Crash Rate	0.19					0.56					0.05				
MassDOT District 3 Average Crash Rate	0.65					0.65					0.65				

Table 2.4 - Summary of Reported Crash Data (2010-2014)

	<i>Parker Street (Route 27) at Vose Hill Road – Unsignalized</i>					<i>Great Road (Route 117) at Thompson Street – Unsignalized</i>					<i>Brown Street/Haynes Street (Route 27) at Concord Street – Unsignalized</i>				
	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014
Severity															
Property Damage					1	1	2	2	2	2	4	3	2	2	6
Injury												1			
Fatality															
Unknown											1	1	1	1	
Collision Type															
Rear End						1	1	2	1	1		1	1		3
Angle							1		1		2	4	1	2	3
Side Swipe											2			1	
Head On											1				
Single Vehicle					1								1		
Collision with Ped															
Collision with Bike															
Other/Unknown										1					
Time of Day															
6:01 AM – 10:00 AM					1		1	1	1	2	1			2	
10:01 AM – 4:00 PM											1	1		1	1
4:01 PM – 7:00 PM							1	1	1		2	3	2		2
7:01 PM – 6:00 AM						1					1	1	1		3
Roadway Conditions															
Dry						1	1	1	1	2	5	5	3	1	5
Wet							1	1	1					2	1
Snow/Ice															
Other/Unknown					1										
Season															
Dec-Feb						1			1	2			1		1
Mar-May							1	1			3	2		1	1
June-Aug								1	1			3		2	3
Sept-Nov					1		1				2		2		1
Light Conditions															
Daylight					1	1	2	2	2	2	4	4	3	3	4
Dawn/Dusk												1			1
Dark (Unlit)															
Dark (Lit)											1				1
Unknown															
Totals	0	0	0	0	1	1	2	2	2	2	5	5	3	3	6
Annual Average Crashes	0.20					1.80					4.40				
Intersection Crash Rate	0.05					0.50					0.87				
MassDOT District 3 Average Crash Rate	0.65					0.65					0.65				

Table 2.4 - Summary of Reported Crash Data (2010-2014), continued

	<i>Parker Street (Route 27) at Site Drive (#129) – Unsignalized</i>					<i>Great Road (Route 117) at Sudbury Street – Unsignalized</i>				
	2010	2011	2012	2013	2014	2010	2011	2012	2013	2014
Severity										
Property Damage					1					
Injury						1				
Fatality										
Unknown										
Collision Type										
Rear End										
Angle										
Side Swipe										
Head On										
Single Vehicle					1	1				
Collision with Ped										
Collision with Bike										
Other/Unknown										
Time of Day										
6:01 AM – 10:00 AM										
10:01 AM – 4:00 PM										
4:01 PM – 7:00 PM					1	1				
7:01 PM – 6:00 AM										
Roadway Conditions										
Dry										
Wet					1					
Snow/Ice										
Other/Unknown						1				
Season										
Dec-Feb					1					
Mar-May						1				
June-Aug										
Sept-Nov										
Light Conditions										
Daylight						1				
Dawn/Dusk										
Dark (Unlit)										
Dark (Lit)					1					
Unknown										
Totals	0	0	0	0	1	1	0	0	0	0
Annual Average Crashes	0.20					0.20				
Intersection Crash Rate	0.05					0.05				
MassDOT District 3 Average Crash Rate	0.65					0.65				

An analysis of the crash history at the study intersections revealed the following:

- At the intersection of Parker Street (Route 27), Waltham Street, and Powder Mill Road (Route 62), a total of 24 crashes occurred from 2010-2014. No injuries were reported for these crashes, though four crashes had unknown severities. Crash types were predominantly rear end (38%) and angle (29%). There were the most crashes in December through February (50%) of any season, though only one collision (4%) involved snow/ice and five (21%) occurred at night.
- At the intersection of Brown Street/Haynes Street (Route 27) at Concord Street, a total of 22 crashes occurred from 2010-2014. Of the 22, one (5%) injury was reported and four had unknown severities. The most predominant crash types were angle (45%) and rear end (23%). The crash rate at this intersection of 0.87 per MEV is above the District 3 average for unsignalized intersections.
- All of the other study intersections experienced less than 3 crashes per year from 2010-2014. No crashes occurred at the Parker Street/South Street intersection and this intersection was therefore omitted from Table 2.3.
- The one reported crash that was reported on Parker Street (Route 27) at the Site Driveway was a single-vehicle crash on wet pavement.

3.0 PROBABLE IMPACTS OF THE PROJECT

The potential impact of the proposed development project on the roadway network within the study area was evaluated and the results are described in this section. For this study, the year 2023 was selected for the future build out analysis. This allows for a 2 year permitting-construction start and a 5 year build out/full occupancy timeframe, and is consistent with current guidelines from MassDOT.

3.1 No-Build Traffic Volumes

The future year 2023 No-Build traffic volume networks were developed with the application of a background growth rate. Other site-specific planned development projects that could generate additional traffic flow within the study network were identified.

3.1.1 Background Growth Rate

In order to determine an appropriate annual background growth rate, traffic growth and historical count trends in regard to traffic volumes across the commonwealth have been reviewed. Based upon review of local count stations, an annual growth rate of one percent (1%) per year for seven years was used to forecast future traffic volumes. Several MassDOT count stations in the larger region surrounding Maynard were used in our analysis to gain an understanding of the regional growth rates. The one percent background rates would presumably account for some of the more remote growth in the region as well as potential nearby smaller residential and business growth that could result in added traffic through the study area. The MassDOT count station data are contained in the Appendix.

3.1.2 Background Transportation Improvement Projects

The Assabet River Rail Trail is a multi-use path that will ultimately connect the communities of Marlborough, Hudson, Stow, Maynard, and Acton. The current project will connect Maynard with Stow to the southwest and the South Acton Commuter Rail Station to the north. It will also link the Maynard business district with the Assabet River National Wildlife Refuge. This represents an extension of approximately 3.4 miles. The proposed route through Maynard Center will take the Trail within 1 mile of 129 Parker Street and is expected to generate significant bicycle traffic.

The Bruce Freeman Rail Trail, a multiuse, 10-foot-wide paved path which currently extends from Lowell to Westford through Chelmsford, is currently being extended by several MassDOT projects. Phase II-A spans approximately 4.88 miles from the existing Trail's southern terminus in Westford through Carlisle and ending in Acton at the intersection of Route 2A with Wetherbee Street. Phase II-B will extend the Bruce Freeman Rail Trail an additional 1.04 miles south into Concord, terminating at Commonwealth Avenue. This trailhead will be accessible by bicycle via Route 62 and is approximately 5 miles from the project site at 129 Parker Street in Maynard. Phase III will extend the Trail to Station Road in Sudbury.

The proposed Central Massachusetts Rail Trail would intersect with the Assabet River Rail Trail in Hudson, approximately 8.6 miles from the project site.

3.1.3 Site-Specific Developments

In addition to the general background growth rate, research on other specific development projects in the vicinity of 129 Parker Street was conducted. The Towns of Maynard, Sudbury, Acton, and Stow were contacted to inquire about new development projects likely to generate traffic in the study area. The following sections summarize the current projects.

Maynard

The owner of the Mill & Main facility, located at the mill complex formerly known as Clock Tower Place in Maynard, has changed since the previous 2013 TIAS, and the future plans and vision for the Mill & Main facility have changed over the past year. The Site Plan and Special Permit request for "Phase 1 and Phase 1A" for the redevelopment of the Mill & Main Building at 12 Suite 200, Clock Tower Place was approved by the Town of Maynard Planning Board in November of 2015. This phase includes the removal of two buildings on-site, construction of new on-site building entrances, exterior renovations to several on-site buildings, and parking lot improvements including an ornamental feature of the garage. This project is a reuse of existing buildings and no additional buildings are proposed at this time. Since the 2013 TIAS, several new tenants have moved to the Mill & Main property (including Stratus Technologies, relocated from Powder Mill Rd, and Battle Road Brewery).

The Mill & Main project is currently in discussions with the Town of Maynard Planning Board and would like to make revisions to some driveway openings and landscaping. At the time of this report, a formal Site Plan application has not been filed with the Planning Board. The changes being discussed would not change the overall land use at the Mill & Main site.

In addition to Mill & Main, there are several small residential projects in Maynard, including projects along Keene Avenue, Waltham Street, and at 129 Acton Street. The 129 Acton Street development project is substantially complete at the time of this report. Both the Keene Avenue and Waltham Street residential

projects are small in nature, and are not expected to generate significant levels of new traffic on the roadway network.

Sudbury

A 30-unit subdivision has been approved called The Village at Sudbury Station, located on the northeast corner of the intersection of Concord Road with Hudson Road and Old Sudbury Road. This is not expected to generate significant traffic on Route 27 past the 129 Parker Street development project. Other development projects in Sudbury include The Coolidge (56 residential units), the Raytheon townhouses (250 units plus 55 age-restricted units), and the Avalon Meadow Walk, which includes a Whole Foods supermarket and restaurants. These development projects are all located on Route 20 (Boston Post Road), which is far enough away to be unlikely to generate significant traffic within the study area for this project.

Acton

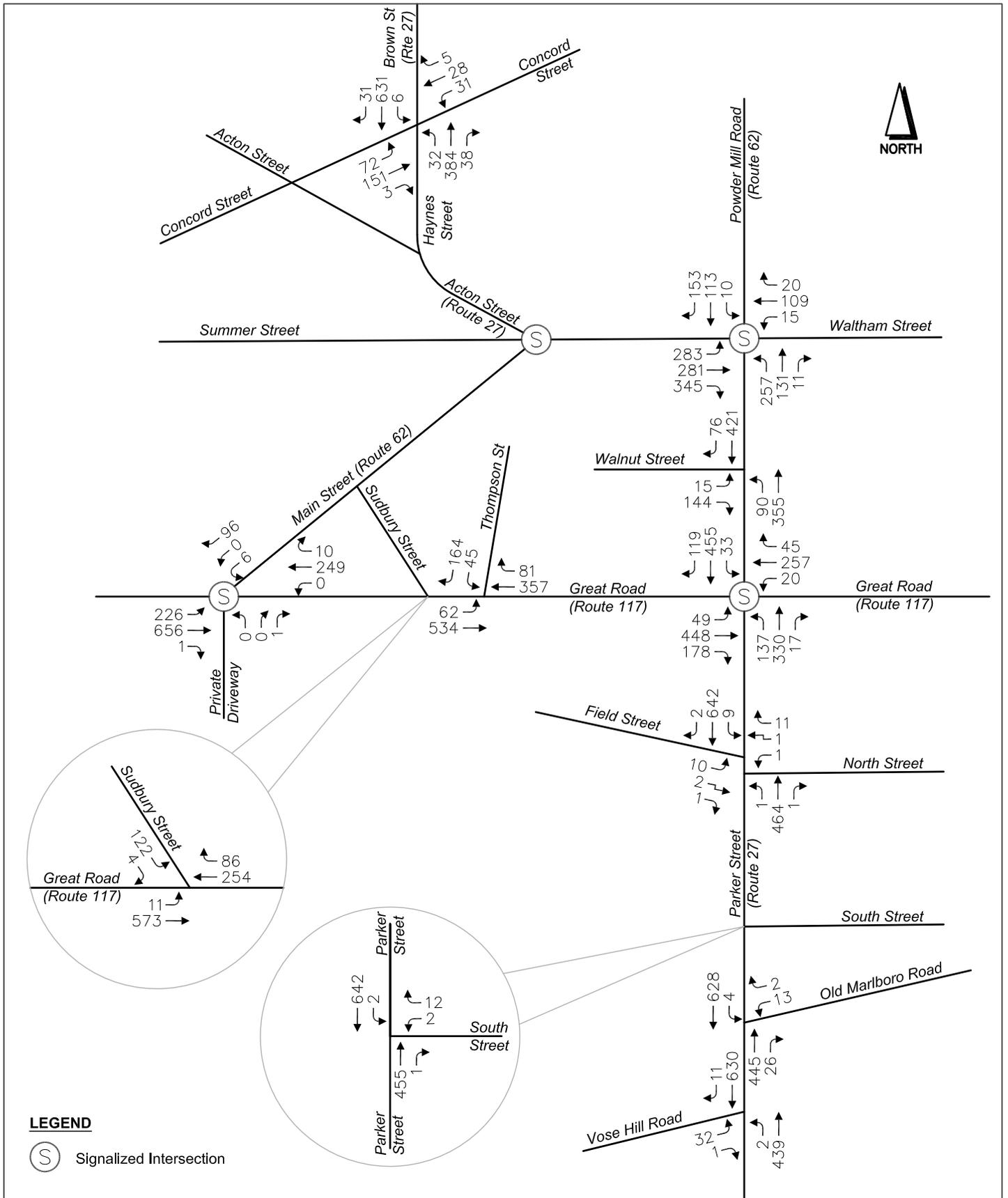
Based on a conversation with the Acton Planning Department, there are no currently planned development projects in Acton that would be expected to generate significant traffic within the study area for this project.

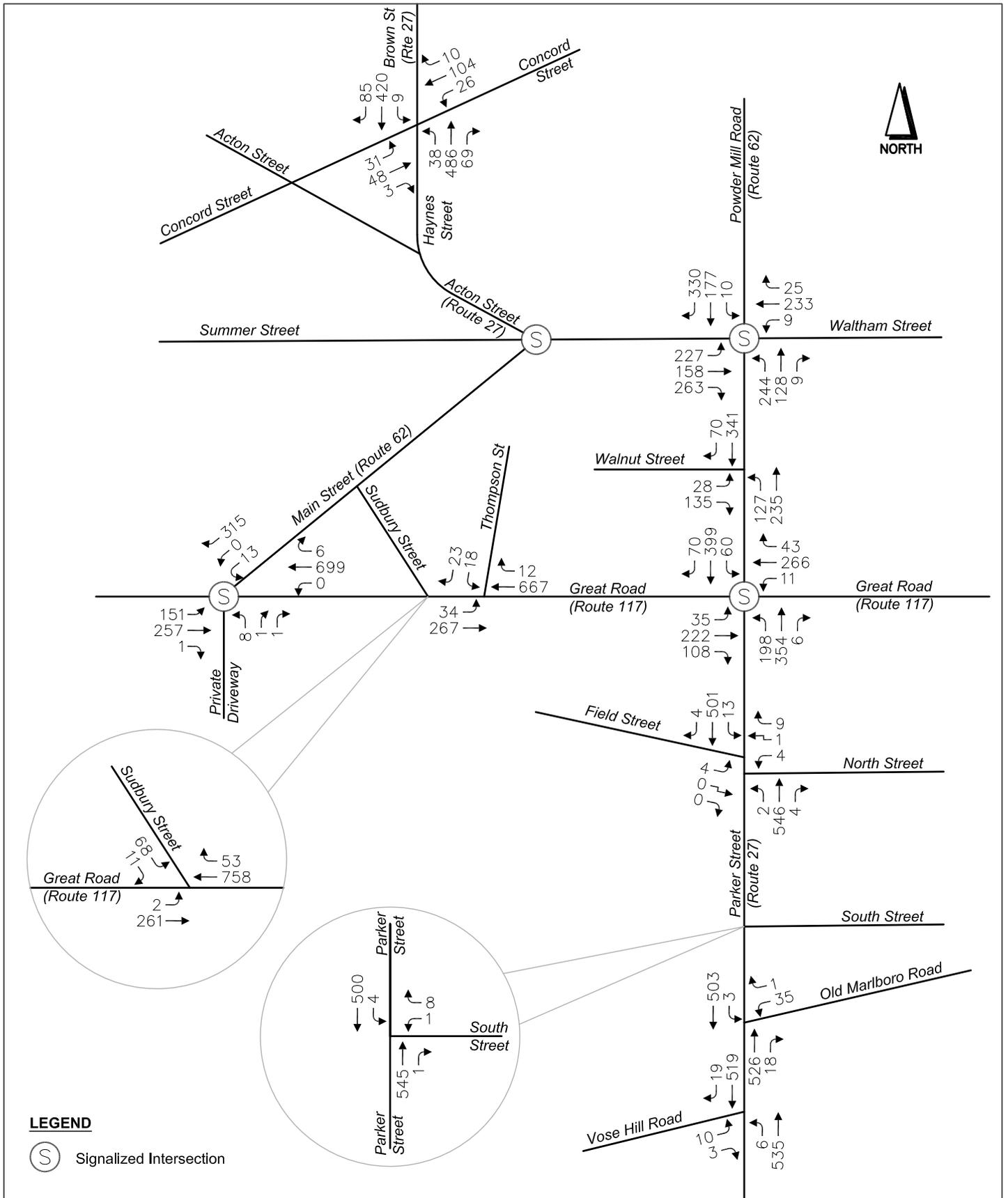
Stow

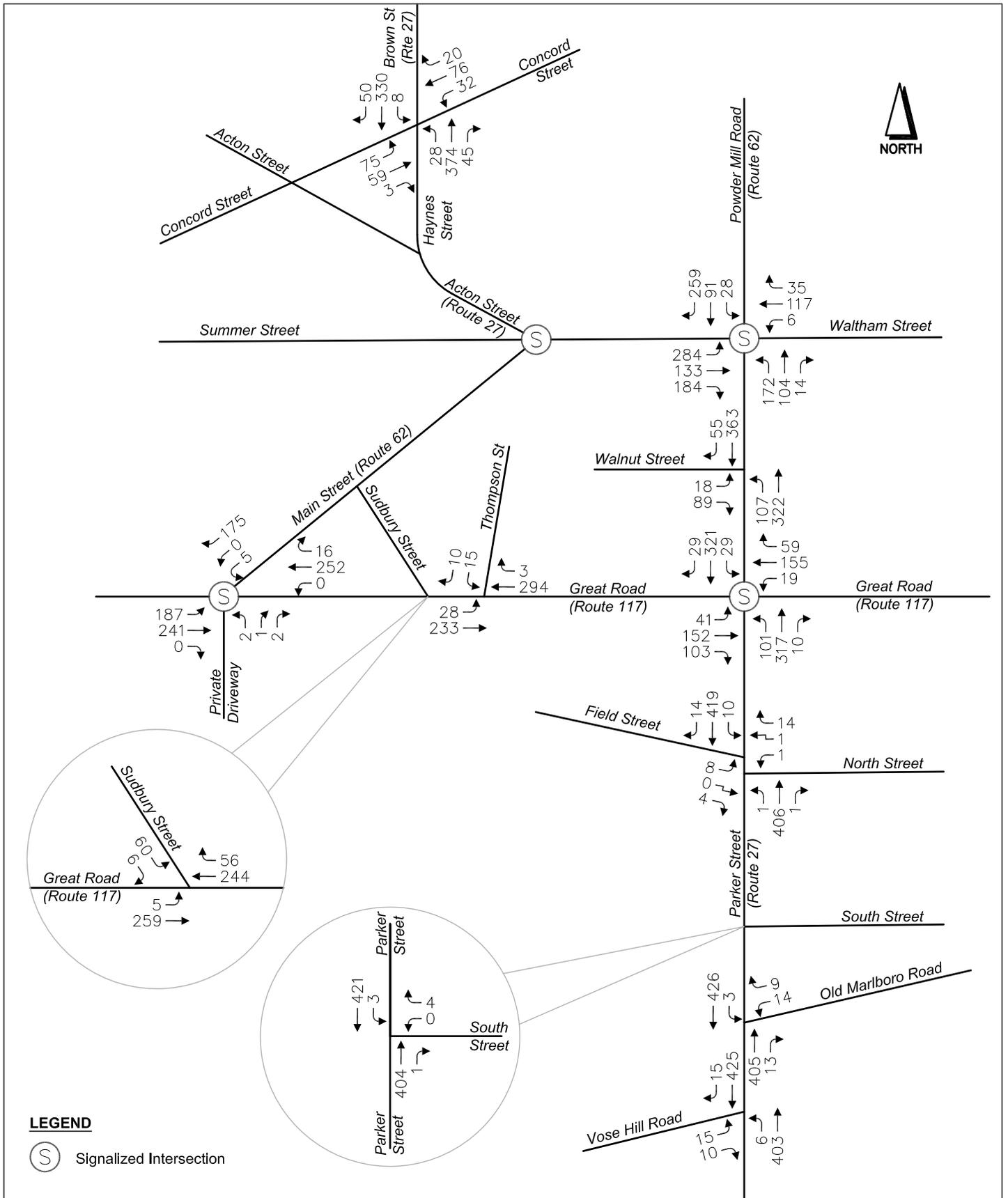
Based on a conversation with the Assistant Town Planner, improvements to Route 117 in Stow have been proposed, but a study has not yet been released. There is also a proposed 3-dwelling subdivision in the southwestern part of Stow, which is not expected to generate significant traffic to the study area and a 66-unit assisted living community at 203 Boxborough Road, which is far enough away not to have a significant impact on the study area.

3.1.4 No-Build Traffic Volumes

Consequently, the 2023 No-Build traffic volumes were estimated by applying a 1% annual background traffic growth rate for seven (7) years to the existing traffic volumes in the study area. The estimated year 2023 No-Build traffic volumes projected for the weekday morning, weekday afternoon, and Saturday midday peak hours are shown in Figures 5 through 7, respectively.







3.2 Proposed Project Description/History

In 2013, Capital Group Properties (CGP) had proposed a redevelopment plan for the 129 Parker Street site. This plan varied from the previous master plan for the site that was endorsed by the Town of Maynard in 2006. The 2013 proposed plan for the mixed-use development, called the Shoppes at Maynard Crossing, was intended to include a total of 16 new buildings and one renovated building presently on-site with approximately 720,400 square feet of space. The existing 50,300 square foot commercial building was planned to be renovated and provided to the Town for their use. However, neither the 2006 or 2013 plans were ultimately advanced.

Since 2013, CGP has been working closely with the Town to develop an alternative plan that would be acceptable to both parties. The access for the new proposal is still from Parker Street (Route 27), which abuts the east side of the project site. Parker Street provides connections to the Town of Sudbury to the south and, via continuations of Route 27 such as Acton Street, to the Town of Acton and Route 2 to the north. The currently proposed plan being advanced is anticipated to include: 240,490 square feet (SF) of retail space including a 68,000 SF supermarket; 30,300 SF of commercial, office, or retail space; a 20,000 SF fitness center; 180 apartment units for multi-family rental; and 143 units of senior independent living housing. The existing commercial building is still planned to be retained, with 20,000 SF converted to a fitness center and 30,300 SF remaining as commercial, office, or retail space. In general, the new proposal, while remaining a mixed-use type development, is somewhat smaller in terms of overall size when compared to the 2013 plan. The currently proposed concept plan was approved at a Special Town Meeting on October 5, 2016.

3.3 Site Generated Traffic Volumes

In this section, an estimate of traffic to be generated by the proposed project was completed, assigned to roadways/intersections within the study area, and added to the No-Build traffic volume network to develop the Build traffic volume networks.

3.3.1 Site Trip Generation

In order to estimate the number of trips that could be generated by the proposed mixed use development project at 129 Parker Street, statistics published by the Institute of Transportation Engineers (ITE) in Trip Generation Manual² for similar land uses were examined. The ITE trip generation statistics represent compilations of data from studies/projects throughout the United States collected over the past 30+ years on trip generation characteristics for different types of land uses. The data has been compiled to provide transportation analysts with guidelines in forecasting daily and peak hour volumes for the specified use.

Based on a review of the ITE database, a combination of the five different proposed land uses have been selected as the most similar to the project type. These land uses correspond to Land Use Code (LUC) 220 for residential apartments; LUC 252 for a senior independent living facility; LUC 492 for the fitness club; LUC 710 for general office/commercial space; and LUC 820, which corresponds to the retail component. Calculations were first completed for each land use and the estimated vehicle trips (without adjustment) generated by the project. Adjustments related to internal capture, pass-by, and diverted traffic were then

² Institute of Transportation Engineers (ITE), Trip Generation Manual, Washington, D.C., 9th Edition, 2012.

applied consistent with current industry practices and MassDOT guidelines. Driveway volumes included new, pass-by, and diverted trips. Internal capture trips represent trips between different land uses on the site and do not reach the street network. Table 3.1 presents a summary of the estimated net new vehicle trips generated by the currently proposed project. Detailed trip generation calculations for each use and the internal capture worksheets are shown in the Appendix.

Table 3.1 – Trip Generation Summary

LAND USE	WEEKDAY							SATURDAY			
	AM PEAK HOUR			PM PEAK HOUR			DAILY	MIDDAY PEAK HOUR			DAILY
	ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL		ENTER	EXIT	TOTAL	
Shopping Center (240.49 KSF)											
Total trips	165	101	266	518	561	1,079	12,013	804	742	1,546	16,060
Internal Trips	4	4	8	28	47	75	582	18	34	52	526
Pass-by/Diverted Trips	44	44	88	150	150	300	3,124	95	95	190	2,202
Net New Trips	117	53	170	340	364	704	8,307	691	613	1,304	13,332
Fitness Club (20 KSF)											
Total trips	14	14	28	42	32	74	660	25	31	56	418
Internal Trips	0	0	0	2	3	5	31	1	1	2	14
Pass-by/Diverted Trips	5	5	10	10	10	20	172	3	3	6	58
Net New Trips	9	9	18	30	19	49	457	21	27	48	346
Commercial/Retail/Office (30.3 KSF)											
Total trips	65	9	74	19	93	112	530	7	6	13	76
Internal Trips	5	3	8	8	16	24	56	5	1	6	8
Net New Trips	60	6	66	11	77	88	474	2	5	7	68
Apartments (180 units)											
Total trips	18	74	92	76	41	117	1,156	46	46	92	1,126
Internal Trips	1	1	2	37	13	50	414	22	15	37	402
Net New Trips	17	73	90	39	28	67	742	24	31	55	724
Independent Living (143 units)											
Total trips	10	18	28	19	17	36	432	25	19	44	372
Internal Trips	0	1	1	9	5	14	154	11	6	17	132
Net New Trips	10	17	27	10	12	22	278	14	13	27	240
Total Net New Trips	213	158	371	430	500	930	10,258	752	689	1,441	14,710

As indicated in the table above, the new building program is expected to result in a weekday total of 10,258 net new vehicle trips over the course of a typical weekday with 5,129 entering trips and 5,129 exiting trips made in that time. During the weekday morning peak hour, it is estimated that 371 net new vehicle trips will be generated with 213 entering trips and 158 exiting trips. It is estimated that 930 net new vehicle trips will be generated during the weekday afternoon peak hour including 430 entering trips and 500 exiting trips. Saturday traffic estimates are somewhat higher than the weekday forecasts given the retail and supermarket uses. However, it is noted that the Parker Street (Route 27) volumes are substantially lower on Saturday as compared to a typical weekday.

Under the current development plan, 20,000 SF of the existing 50,300 SF commercial building located on the site is proposed to be converted to a fitness center, with the remaining 30,300 SF retained as

commercial, office, or retail space. However, the exact disposition of the existing commercial building has not yet been finalized. Another alternative is to eliminate the fitness center and commercial space from the redevelopment and convert the entire 50,300 SF to retail space. These redevelopment alternatives are estimated to decrease the number of site-generated vehicle trips by as much as 54 vehicle trips during the weekday morning peak hour, but increase the number of site-generated vehicle trips by as much as 42 vehicle trips during the weekday afternoon peak hour, and increase the estimated site-generated vehicle-trips by 184 vehicles during a typical weekday. The Saturday site-generated vehicle trips are expected to increase under both alternatives for this building, with the mid-day peak hour and daily site-generated vehicle trips increasing by as much as 146 and 1,561 vehicle trips, respectively.

In all scenarios, the expected trip generation characteristics of the current concept plan are expected to be lower than that of the previously proposed plan analyzed in the 2013 TIAS, and also lower than the previously proposed 2006 redevelopment plan. Table 3.2 provides a comparison of the current and previous trip generation estimates.

Table 3.2 – Trip Generation Comparison – Net External Trips

Proposal Plan	Weekday AM Peak Hour	Weekday PM Peak Hour	Weekday Daily	Saturday Midday Peak Hour	Saturday Daily
October 2006 Study	749	1,366	13,904	1,258	17,522
February 2013 Study	508	1,540	16,649	2,054	20,918
Current 2016 Plan	469	1,250	13,554	1,637	16,970
Change relative to 2006	-37.4%	-8.5%	-2.5%	30.1%	-3.2%
Change relative to 2013	-7.7%	-18.8%	-18.6%	-20.3%	-18.9%

Note: includes pass-by & diverted trips

Compared to the 2013 redevelopment proposal, the current trip generations are approximately 8% and 19% lower during the weekday morning and the weekday afternoon peak hours, respectively. Under the current plan, the net new weekday daily traffic is expected to be approximately 19% lower as compared with the 2013 redevelopment proposal. The current projections for net new trips are approximately 20% lower during the Saturday mid-day peak hour and approximately 19% lower in total on Saturdays.

3.3.2 Site Trip Distribution/Assignment

The trip distribution pattern that vehicles use to travel to and from the site is the same as the pattern developed in the 2013 TIAS and is displayed in Figures 8 through 10 for the residential, retail, and commercial land uses, respectively. The pass-by and diverted trip distribution is shown in Figure 11. The new trips generated by the development project during the weekday morning, weekday afternoon, and Saturday mid-day peak hours are shown in Figures 12 through 14, respectively. The project-generated pass-by and diverted trips during the weekday morning, weekday afternoon, and Saturday mid-day peak hours are shown in Figures 15 through 17, respectively.

3.3.3 Build Traffic Volumes

The peak hour site-generated traffic volumes were added to the future No-Build traffic volumes in order to establish the 2023 Build condition traffic volume networks. Figures 18 through 20 present the Build traffic volumes for the weekday morning, weekday afternoon, and Saturday mid-day peak hours, respectively.

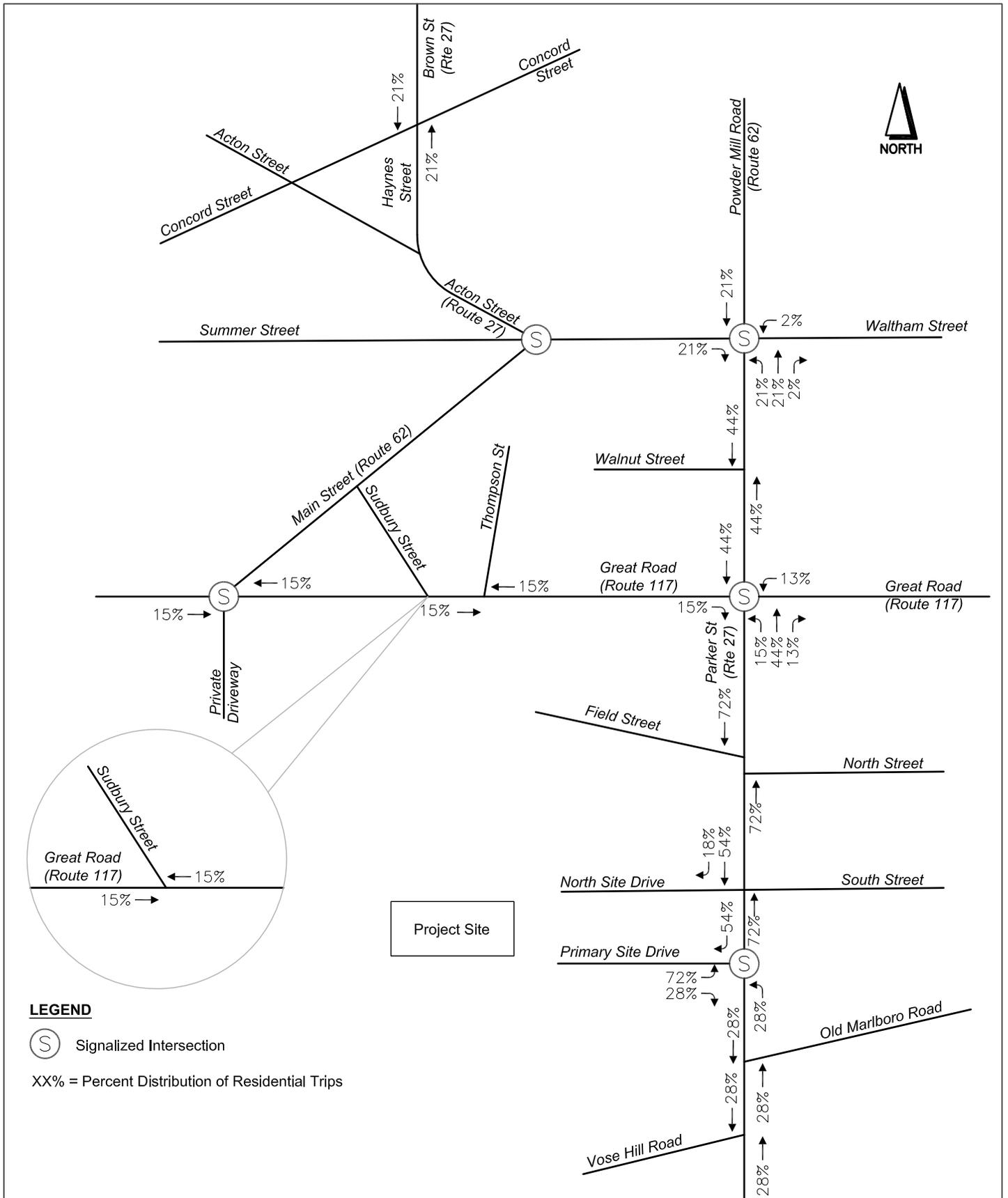
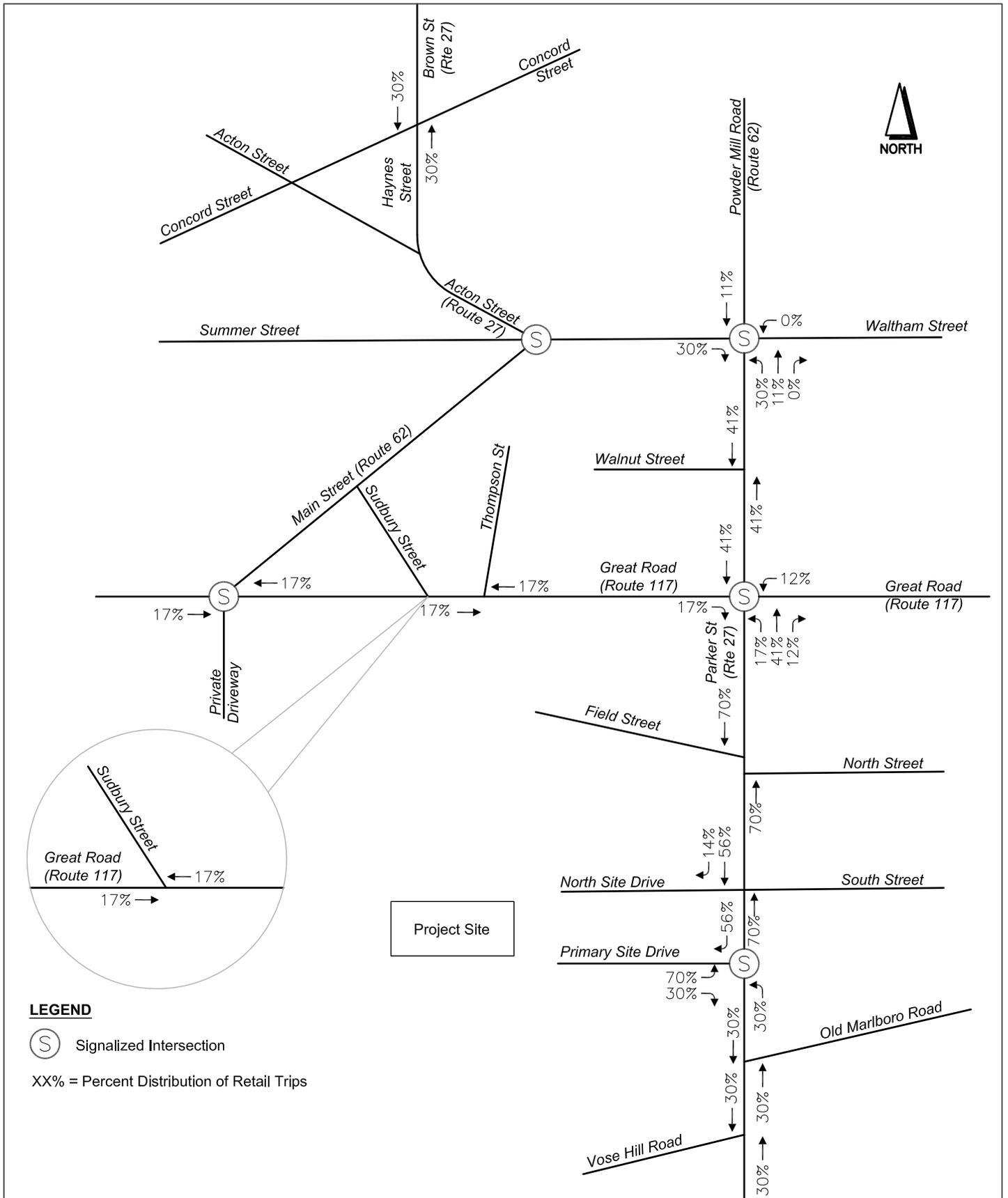


Figure 8
Estimated Residential Trip Distribution
129 Parker Street
Maynard, MA



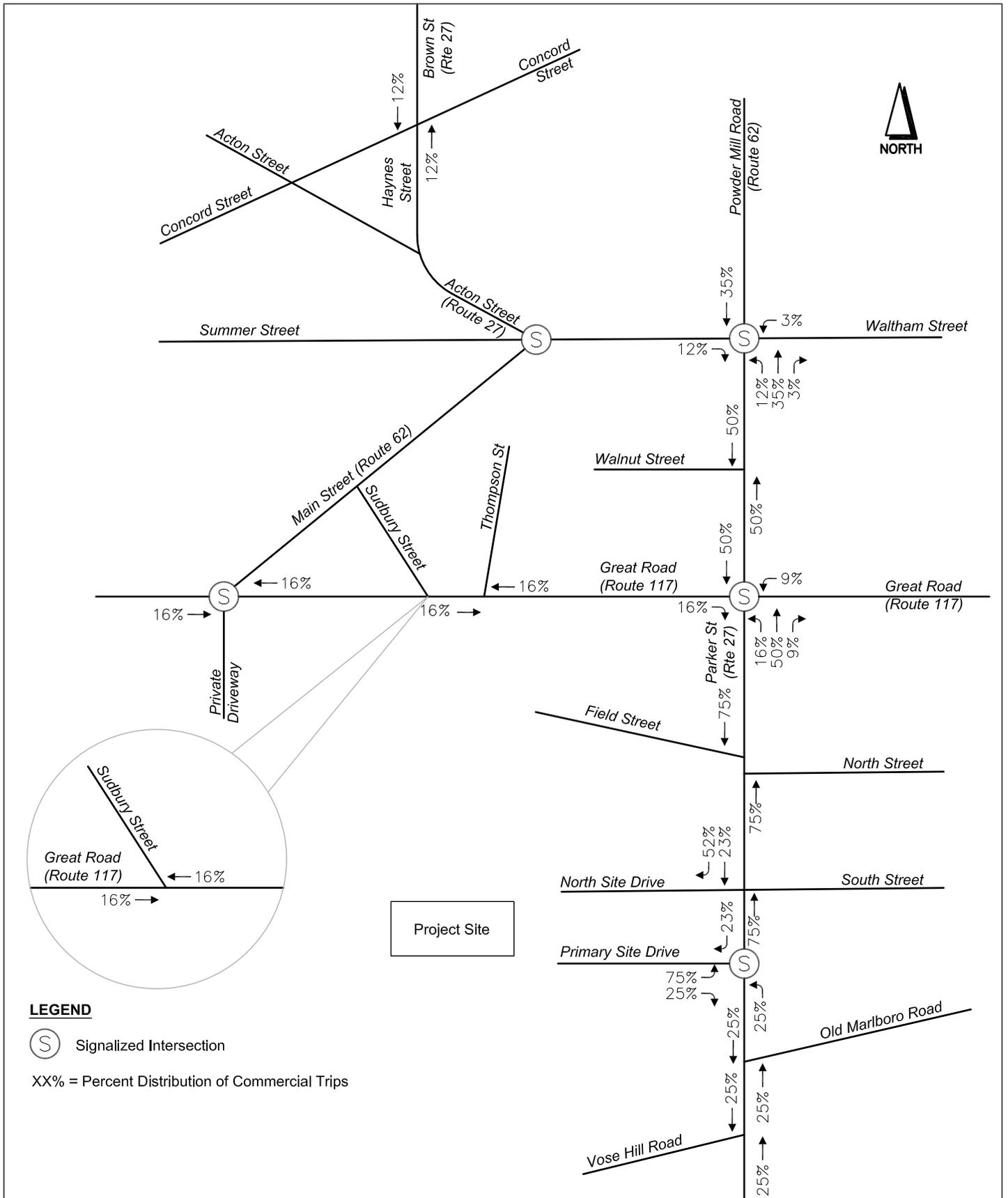


Figure 10
Estimated Commercial Trip Distribution
129 Parker Street
Maynard, MA

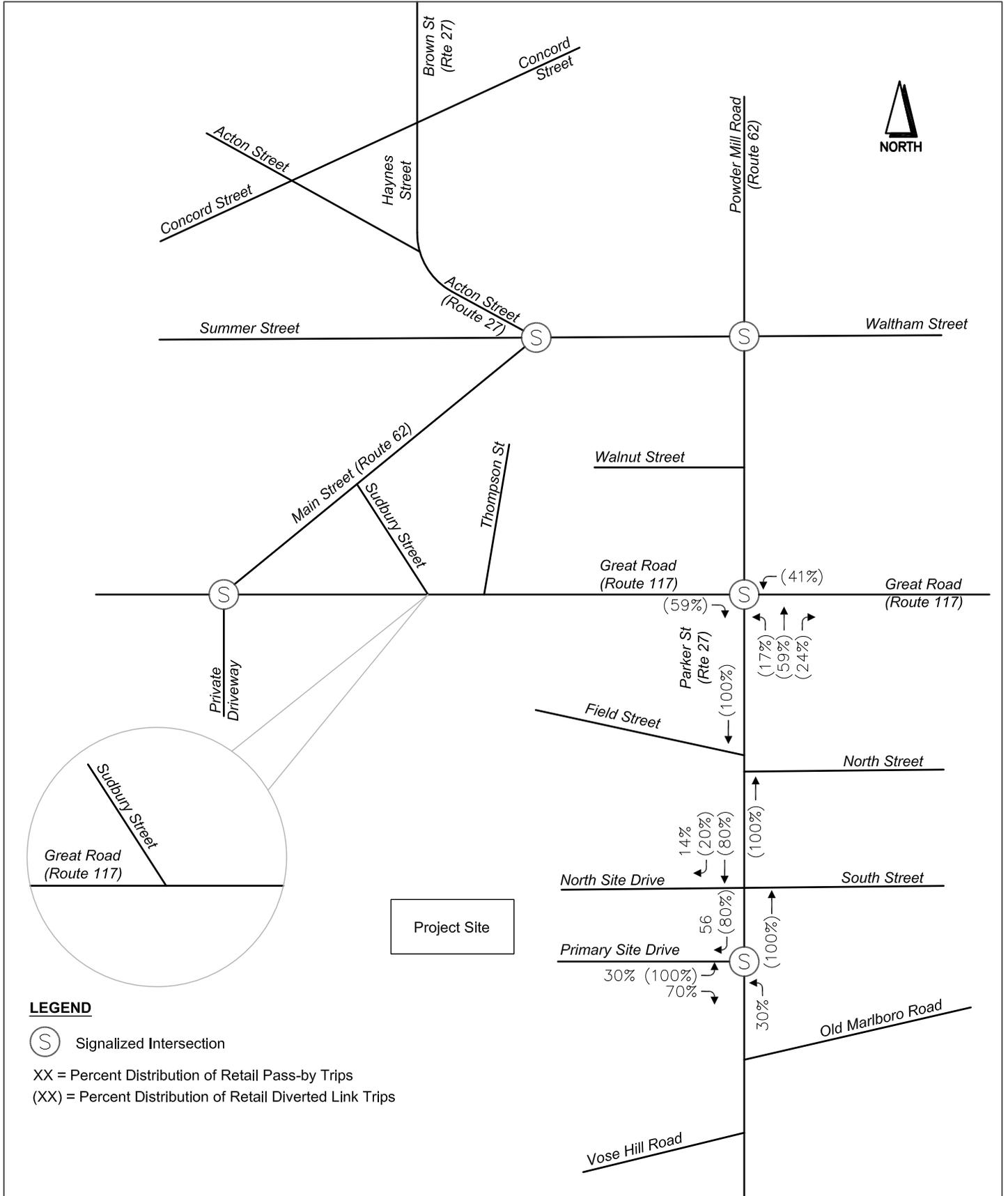
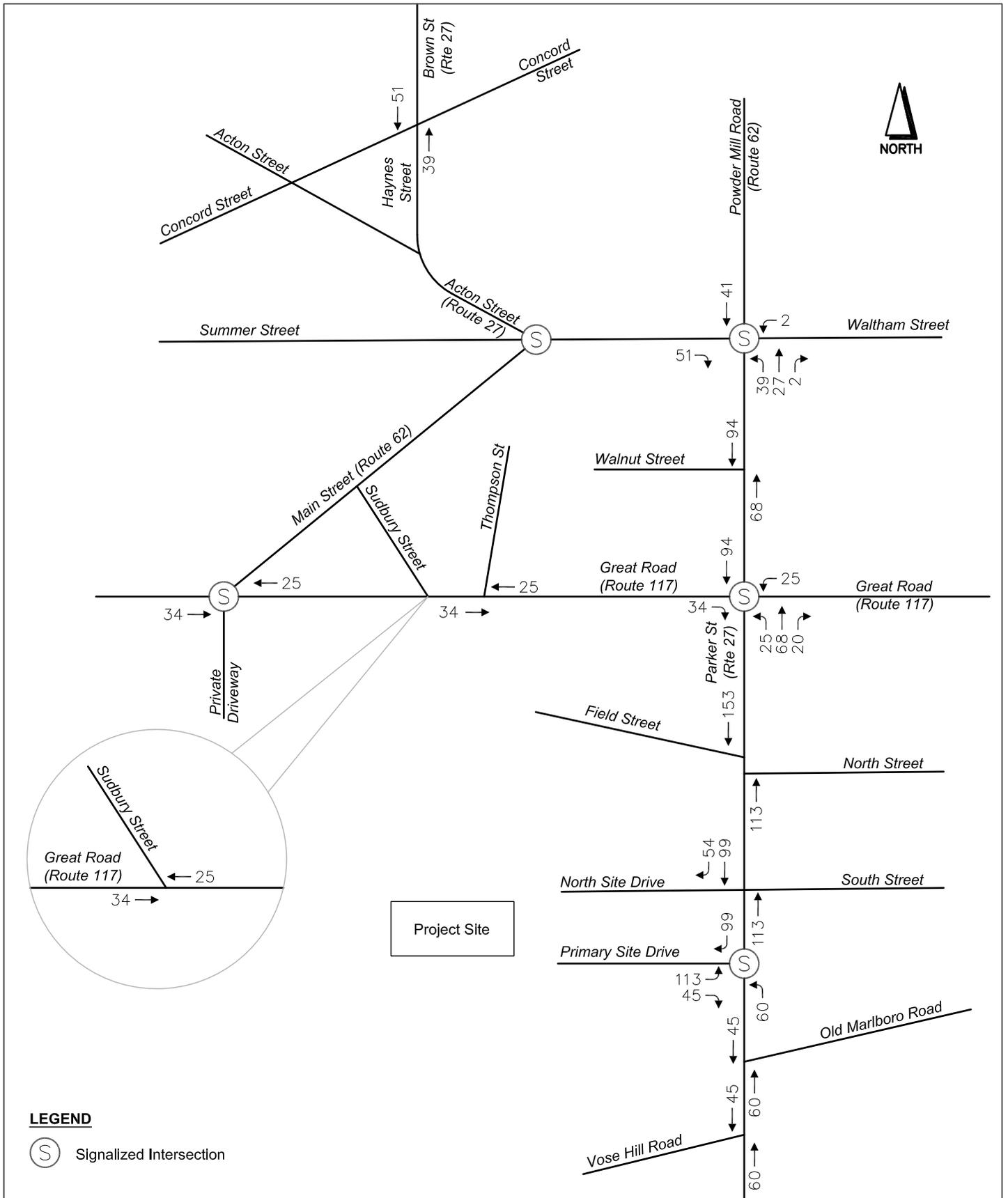
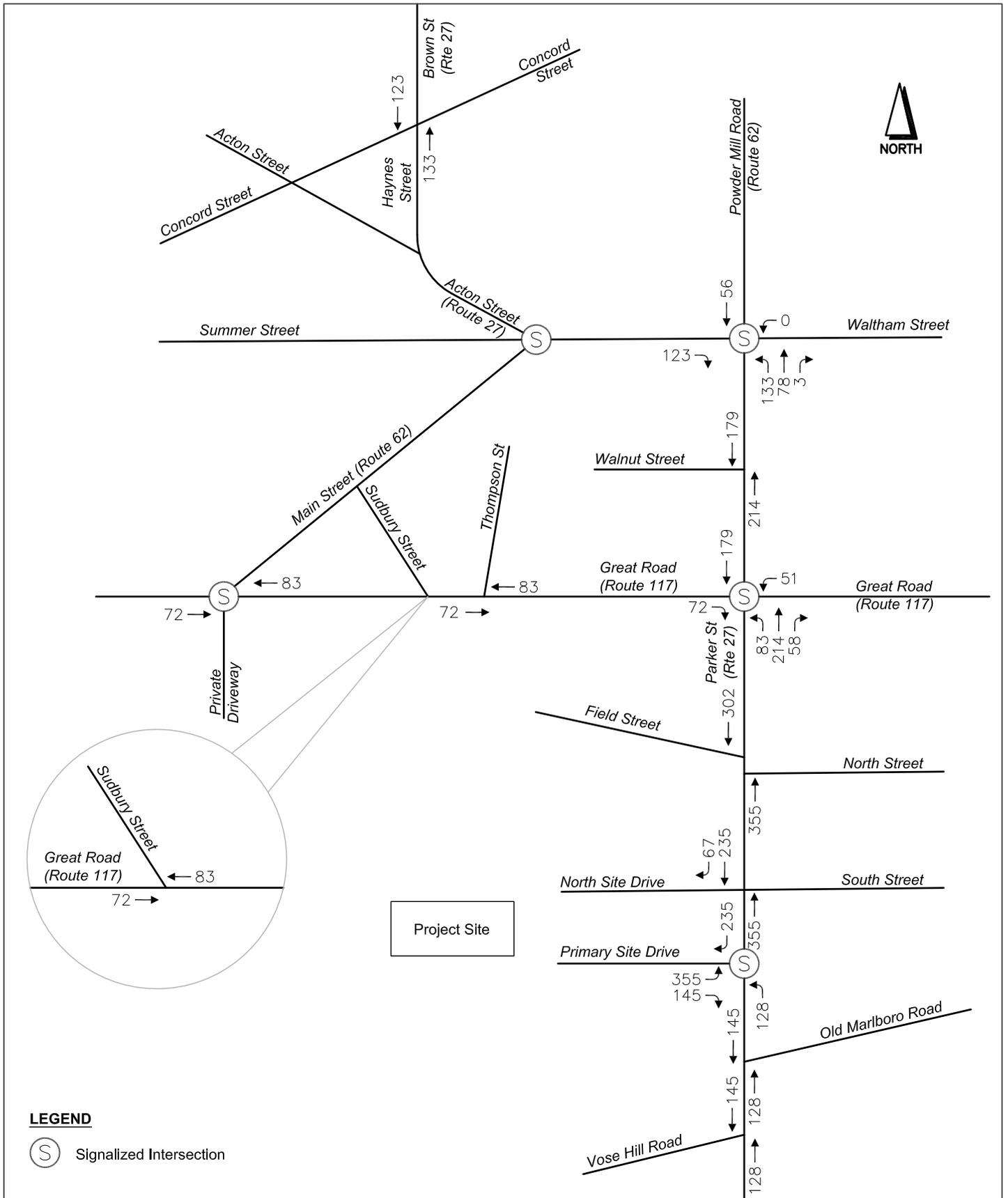
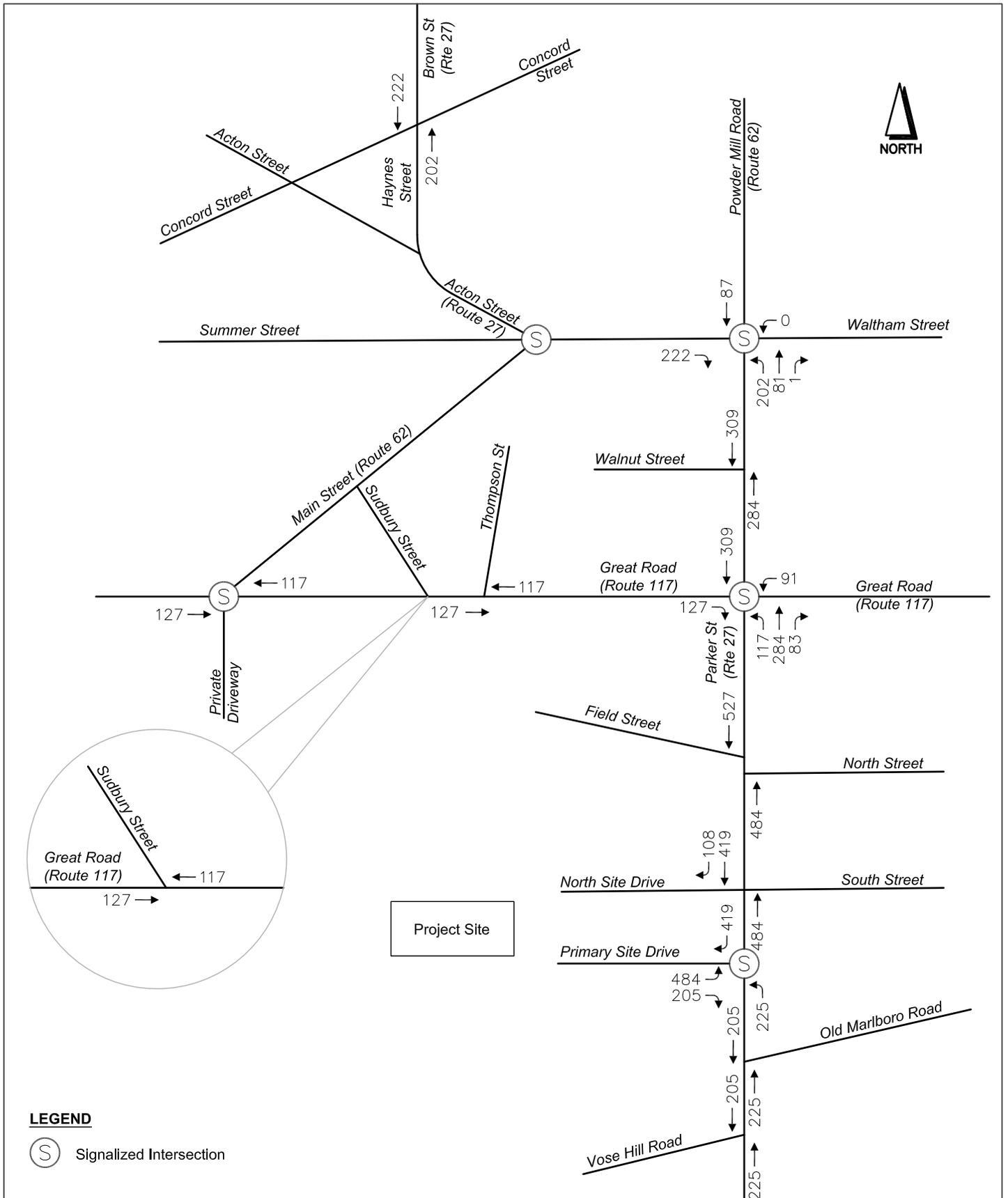


Figure 11
Pass-by and Diverted Trip Distribution
129 Parker Street
Maynard, MA







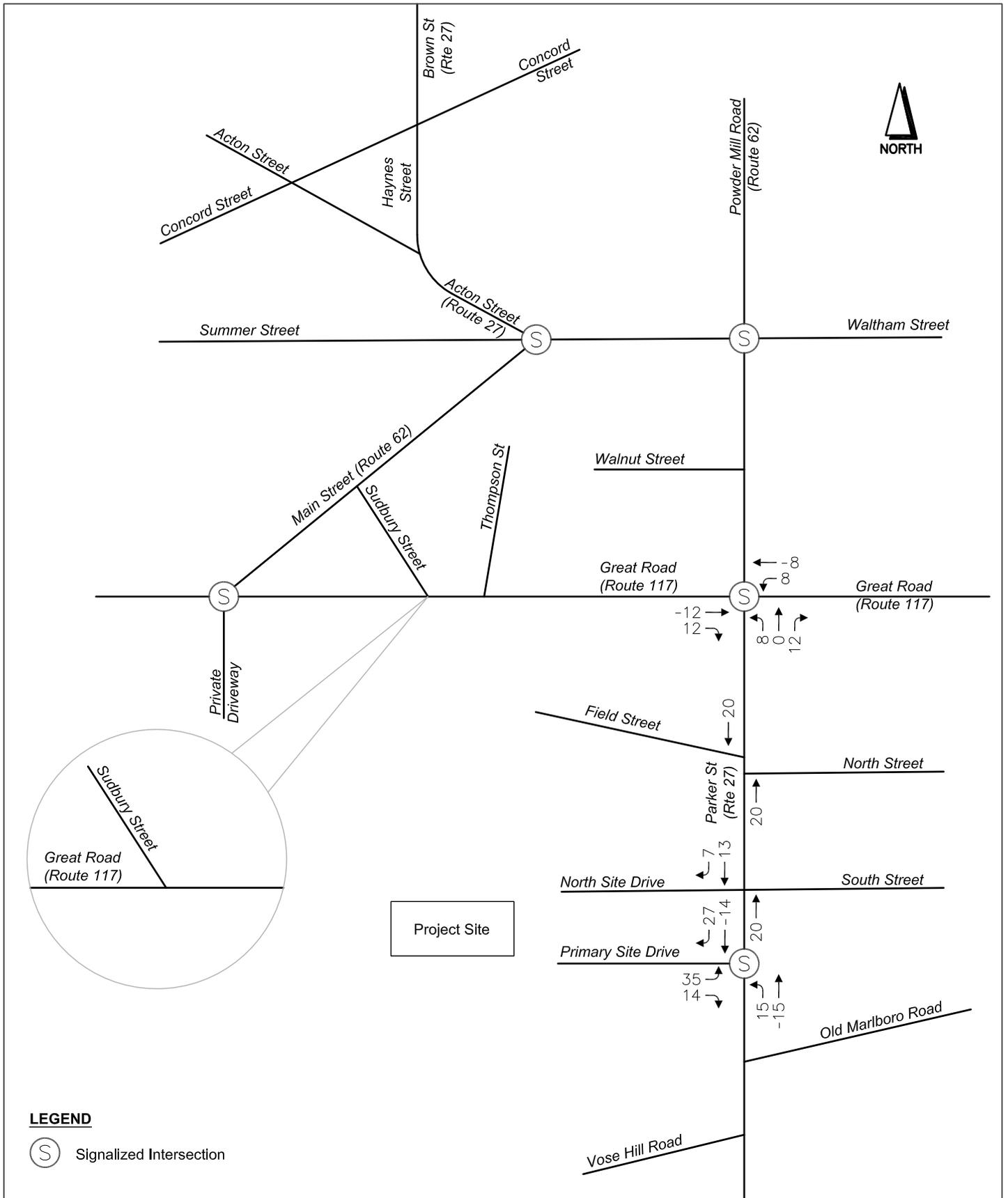


Figure 15
Pass-by and Diverted Trips
Weekday AM Peak Hour
129 Parker Street
Maynard, MA

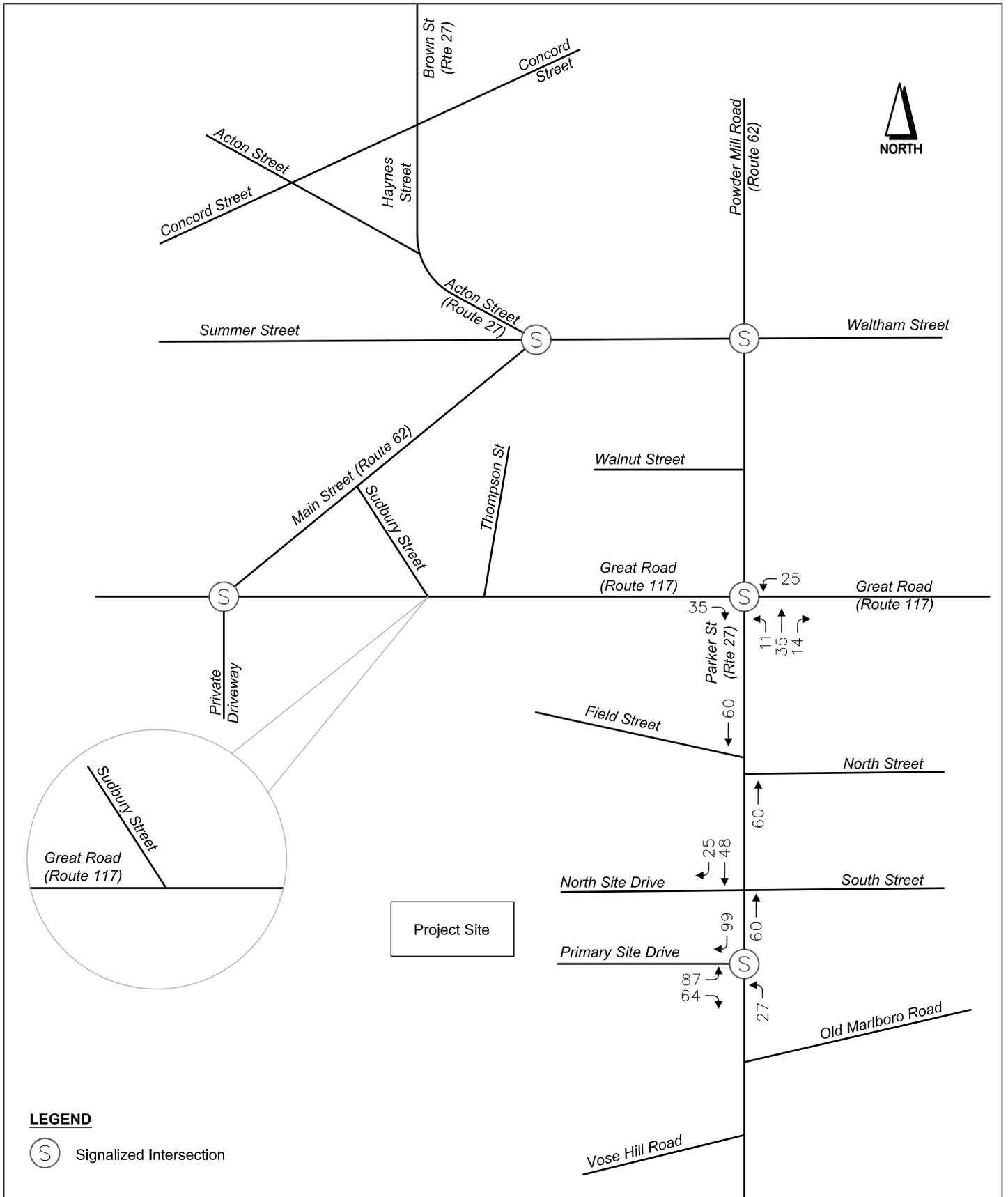
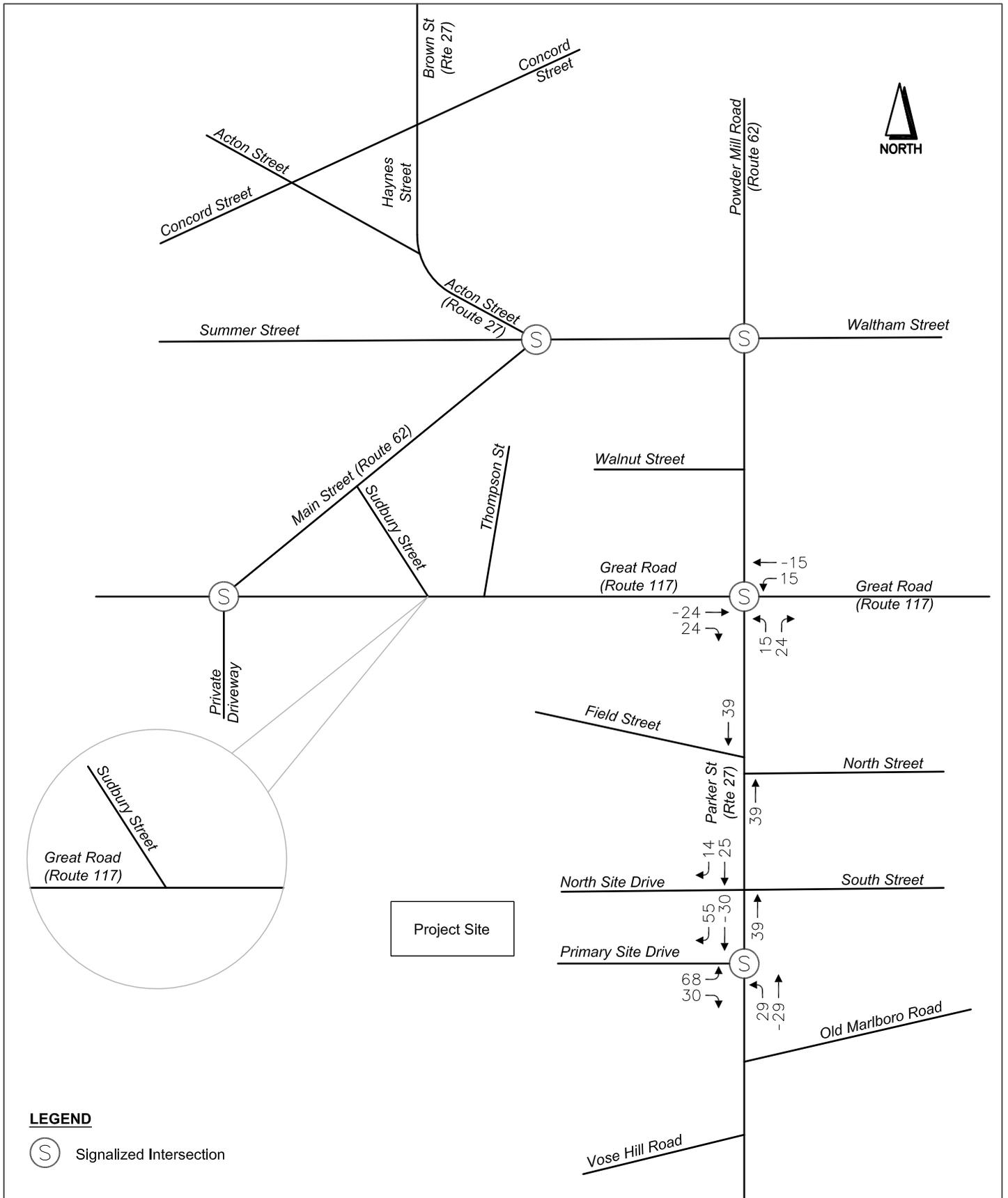


Figure 14
Pass-by and Diverted Trips
Weekday PM Peak Hour
129 Parker Street
Maynard, MA



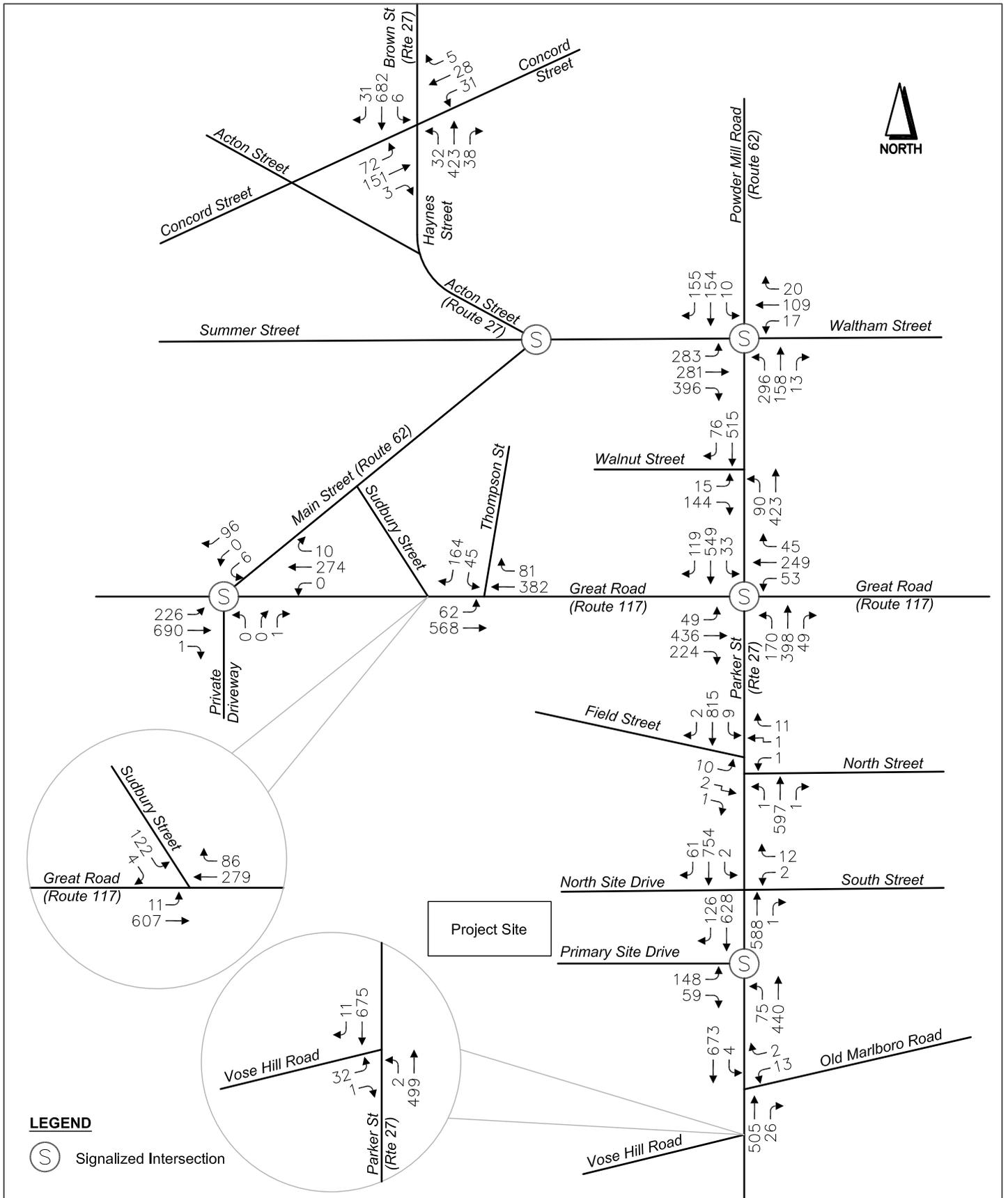


Figure 18
2023 Build Traffic Volumes
Weekday AM Peak Hour
129 Parker Street
Maynard, MA

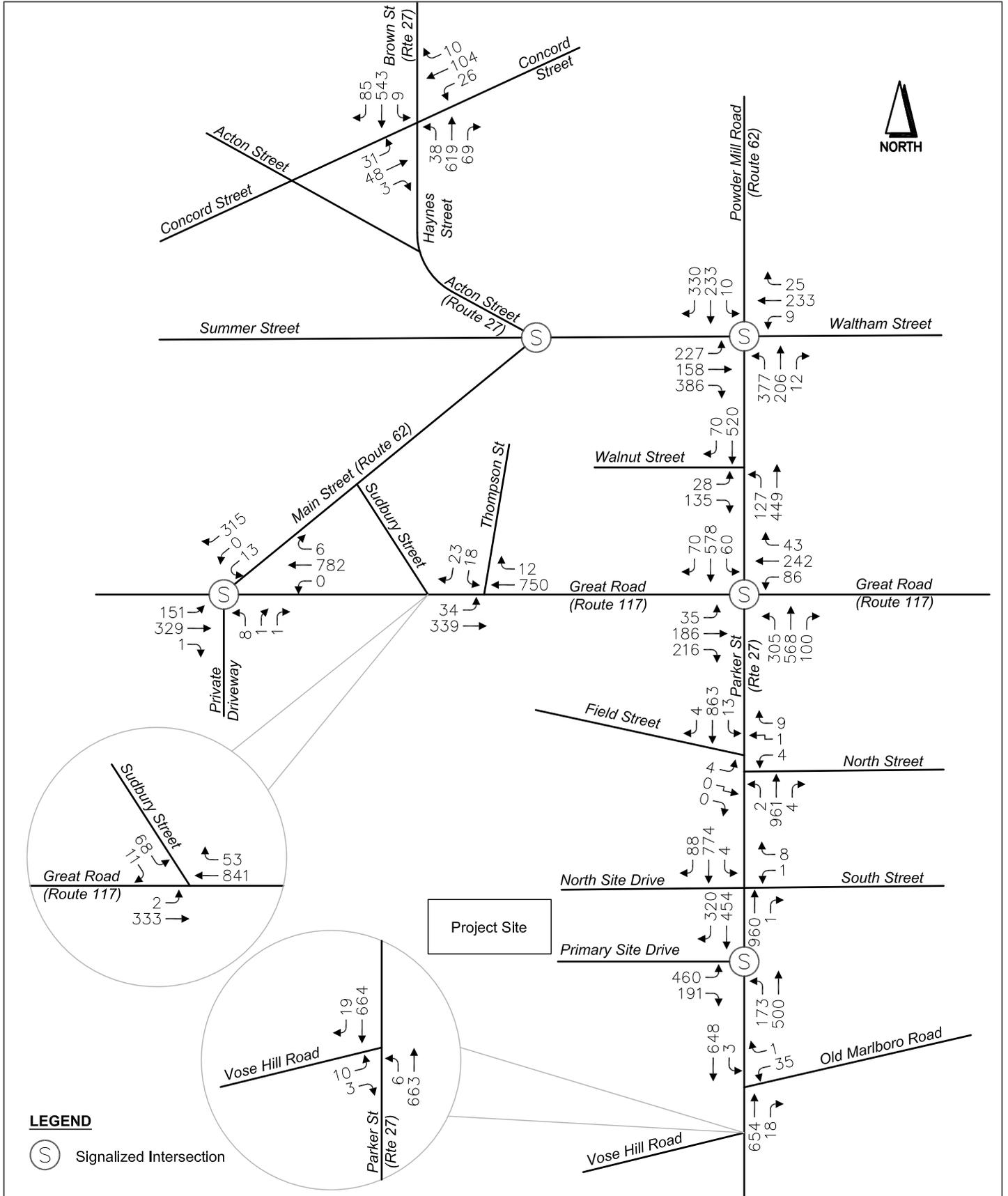


Figure 19
2023 Build Traffic Volumes
Weekday PM Peak Hour
129 Parker Street
Maynard, MA

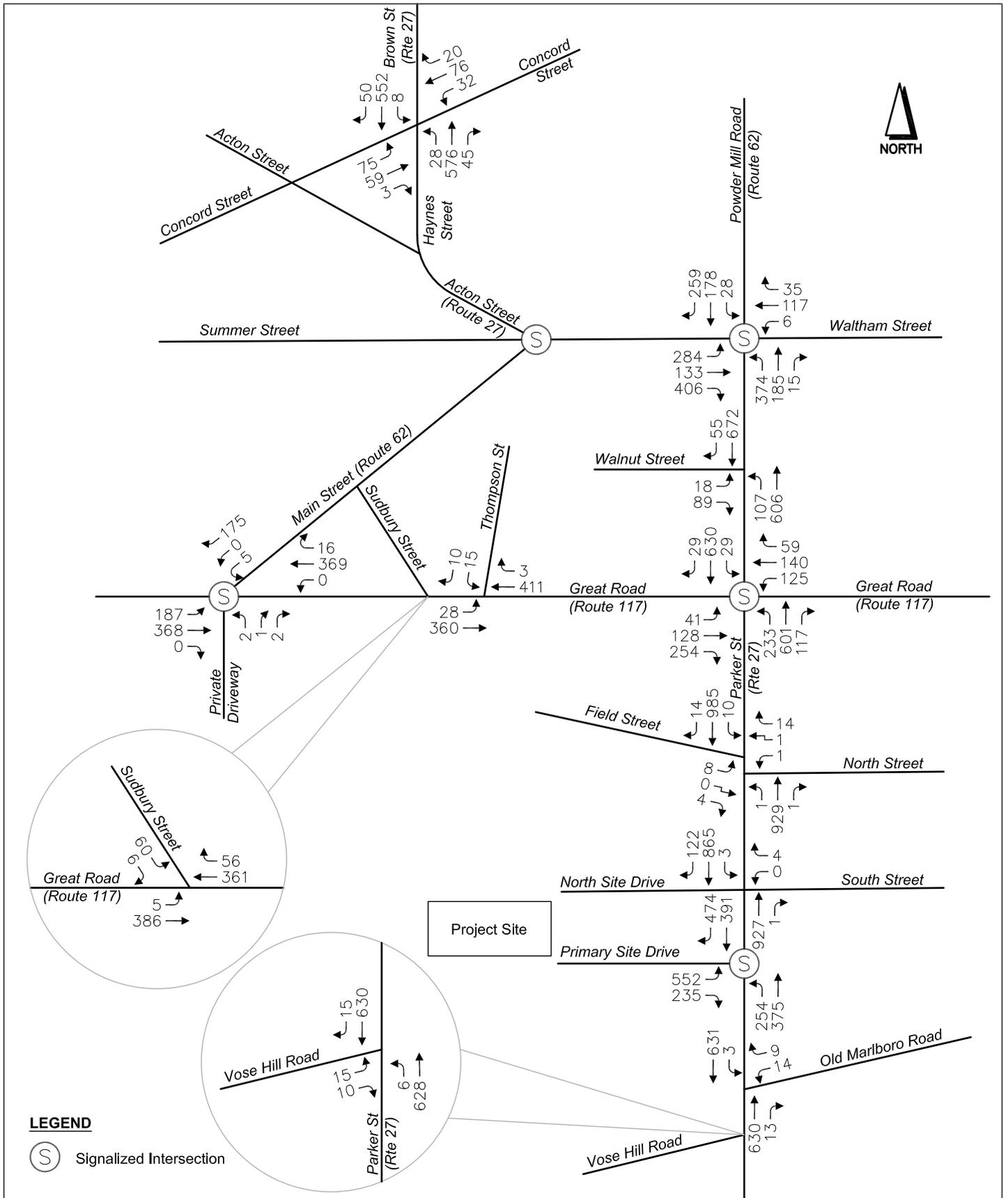


Figure 20
2023 Build Traffic Volumes
Saturday Midday Peak Hour
129 Parker Street
Maynard, MA

4.0 TRAFFIC SIGNAL WARRANT ANALYSIS

To confirm that a traffic control signal is still justified at the intersection of the Primary Site Drive with Parker Street (Route 27), an updated traffic signal warrant analysis was performed based on the updated Parker Street (Route 27) traffic volumes. The analysis was conducted for a Saturday, when site-generated traffic volumes are estimated to peak.

Chapter 4C of the Manual on Uniform Traffic Control Devices (MUTCD) provides multiple warrants for determining if traffic signal control could be installed at an intersection. If one or more warrants is met, the installation of a traffic signal is not required but should be considered. While any of the traffic signal warrants may be used to justify a traffic signal, Warrant 1 (Eight-hour vehicular volume) generally should be satisfied prior to the installation of a traffic signal. Warrant 1 has two conditions, either of which may be used to satisfy the warrant. Condition A is Minimum Vehicular Volume and Condition B is interruption of Continuous Traffic Flow. Compared to Condition A, Condition B has a higher threshold for vehicular volume on the major street but a lower threshold for vehicular volume on the minor street. Warrant 2, Four-Hour Vehicular Volume, provides minimum thresholds of combinations of traffic volumes on the major and minor streets that must be exceeded for at least four hours per day in order for the installation of a traffic control signal to be justified. Warrant 3, Peak Hour, also provides minimum thresholds of combinations of major and minor street traffic volumes that must be exceeded for at least one hour per day in order for the installation of a traffic control signal to be justified. Warrant 3 is intended for use at a location where traffic conditions are such that for a minimum of 1 hour of an average day, the minor-street traffic suffers undue delay when entering or crossing the major street.

To determine hourly turning movement counts throughout the entire day, the ITE Trip Generation Manual was consulted. The Manual includes a Table identifying the proportion of the daily retail trips entering and exiting a site during each hour of the day. No such information is available for the other land uses, so for a conservative analysis, the retail trips generated were the only ones considered in the traffic signal warrant analysis. Parker Street (Route 27) traffic volumes were determined from the ATR data collected as part of this study.

The Warrant 1 analysis is shown in Table 4.1.

Table 4.1 – Signal Warrant Analysis, Parker Street at Primary Site Drive

2016 EXISTING AND ESTIMATED SITE-GENERATED TRAFFIC VOLUMES				
WARRANT 1, EIGHT-HOUR VEHICULAR VOLUME	INTERSECTION APPROACH VOLUMES		CONDITION A MET?	CONDITION B MET?
	PARKER STREET (TOTAL OF BOTH APPROACHES)	PRIMARY SITE DRIVE EASTBOUND LEFT		
Condition A Thresholds	500	150		
Condition B Thresholds	750	75		
Time Period				
12:00 AM to 1:00 AM	56	20	no	no
1:00 AM to 2:00 AM	31	20	no	no
2:00 AM to 3:00 AM	15	20	no	no
3:00 AM to 4:00 AM	13	20	no	no
4:00 AM to 5:00 AM	26	20	no	no
5:00 AM to 6:00 AM	59	20	no	no
6:00 AM to 7:00 AM	182	12	no	no
7:00 AM to 8:00 AM	306	23	no	no
8:00 AM to 9:00 AM	547	57	no	no
9:00 AM to 10:00 AM	698	125	no	no
10:00 AM to 11:00 AM	796	272	yes	no
11:00 AM to 12:00 PM	1,012	424	yes	yes
12:00 PM to 1:00 PM	965	527	yes	yes
1:00 PM to 2:00 PM	1,014	583	yes	yes
2:00 PM to 3:00 PM	955	668	yes	yes
3:00 PM to 4:00 PM	902	708	yes	yes
4:00 PM to 5:00 PM	831	708	yes	no
5:00 PM to 6:00 PM	678	640	yes	no
6:00 PM to 7:00 PM	516	379	no	no
7:00 PM to 8:00 PM	390	164	no	no
8:00 PM to 9:00 PM	282	125	no	no
9:00 PM to 10:00 PM	271	90	no	no
10:00 PM to 11:00 PM	210	20	no	no
11:00 PM to 12:00 AM	137	20	no	no
Number of Hours in which Condition is Met			8	5
Warrant 1 Satisfied?			yes	
Note: Volume thresholds are based on 2+ lanes on the Major St and 2+ lanes on the Minor St				

As indicated in the Table, the anticipated traffic volumes at the Parker Street / Primary Site Drive intersection exceeds the thresholds for Warrant 1, and a traffic signal is justified at this intersection. It is also noted that Warrant 2 (Four-hour vehicular volume) and Warrant 3 (Peak Hour Volume) are satisfied.

Detailed signal warrant analysis traffic volume calculations are shown in the Appendix.

5.0 ANALYSIS

Previous sections of this report described the current conditions of the study intersections and the development of the 2023 No-Build and 2023 Build future traffic volume projections, including the site-generated trip forecasts. Included in this section is an intersection capacity/Level of Service (LOS) analysis for the study intersections under each condition.

5.1 Intersection Capacity Analysis

The 11 study intersections were examined with regard to flow rates, capacity, and delay characteristics to determine the Level of Service (LOS), as described in the Highway Capacity Manual (HCM)³, for the existing and future (No-Build and Build) traffic conditions. Level of Service is an indicator of operating conditions which occur on a given roadway or intersection while accommodating varying levels of traffic volumes. It is a qualitative measure that accounts for a number of operational factors including roadway geometry, speed, traffic composition, travel delay, freedom to maneuver, and driver expectation. When all of these measures are assessed and a Level of Service is assigned to a roadway or intersection, it is equivalent to presenting an “index” to the operational qualities of the section under study. Level of Service is classified into six levels that are designated ‘A’ through ‘F’ based on the control delay ranges they fall under. Additionally, a movement with a volume-to-capacity ratio of over 1.00 also operates at LOS ‘F’, regardless of delay. The LOS delay criteria for both unsignalized and signalized intersections are presented in Table 5.1. The thresholds of delay for signalized intersections are somewhat longer than for unsignalized intersections because drivers waiting at signalized intersections are expected to be willing to accept longer delays if they are guaranteed to have a safe time during which to cross or enter a roadway.

Table 5.1 – Level of Service Criteria for Unsignalized and Signalized Intersections

LOS	UNSIGNALIZED INTERSECTION (SEC)	SIGNALIZED INTERSECTION (SEC)
A	≤10	≤10
B	>10 and ≤15	>10 and ≤20
C	>15 and ≤25	>20 and ≤35
D	>25 and ≤35	>35 and ≤55
E	>35 and ≤50	>55 and ≤80
F	>50 or v/c ≥1.00	>80 or v/c ≥1.00

In practice, any given roadway/intersection may operate at a wide LOS range depending upon time of day, day of week, or period of year. It should be noted that for unsignalized intersections, the Level of Service is not computed for the intersection as a whole. Instead, the LOS is determined by the computed or measured control delay for each individual critical movement. This is done because the majority of traffic on the major roadway at an unsignalized intersection may travel through the intersection freely, and experience no delay at all.

³ Transportation Research Board, Highway Capacity Manual, Washington, DC, 2010

The 11 study intersections were evaluated using the Synchro 9 computer software that implements the procedures established in the HCM 2010 to complete the analyses. Synchro is approved by MassDOT for traffic operations analysis. Using the existing roadway features and the intersection controls, traffic operations at the study intersections were evaluated for existing as well as future conditions. Analysis results are presented in Tables 5.2 through 5.7 for the study intersections. The intersection capacity analysis worksheets are provided in the Appendix.

Table 5.2 – Weekday Morning Peak Hour Analysis – Unsignalized Intersections

	EXISTING				2023 No BUILD				2023 BUILD			
	DELAY (s)	LOS	v/c	95 TH % Q (FT)	DELAY (s)	LOS	v/c	95 TH % Q (FT)	DELAY (s)	LOS	v/c	95 TH % Q (FT)
ROUTE 27 (HAYNES STREET/BROWN STREET) AT CONCORD STREET												
Concord St EB LTR	>80	F	1.15	275	>80	F	1.40	358	>80	F	1.62	410
Concord St WB LTR	77.0	F	0.58	70	>80	F	0.99	123	>80	F	3.47	218
Haynes St NB LTR	8.9	A	0.03	3	9.1	A	0.04	3	9.3	A	0.04	3
Brown St SB LTR	8.1	A	0.01	0	8.2	A	0.01	0	8.3	A	0.01	0
ROUTE 27 (PARKER STREET) AT WALNUT STREET												
Walnut St EB LR	15.1	C	0.31	33	16.4	C	0.36	40	19.8	C	0.42	50
Parker St NB LT	8.7	A	0.09	8	8.9	A	0.10	8	9.3	A	0.11	8
ROUTE 117 (GREAT ROAD) AT SUDBURY STREET												
Great Rd EB LT	8.0	A	0.01	0	8.0	A	0.01	0	8.1	A	0.01	0
Sudbury St SB L	23.9	C	0.39	45	28.1	D	0.46	58	32.1	D	0.50	65
Sudbury St SB R	9.9	A	0.01	0	10.0	B	0.01	0	10.2	B	0.01	0
ROUTE 117 (GREAT ROAD) AT THOMPSON STREET												
Great Rd EB LT	8.4	A	0.06	5	8.5	A	0.06	5	8.6	A	0.06	5
Thompson St SB LR	19.1	C	0.46	58	22.2	C	0.53	75	24.6	C	0.56	83
ROUTE 27 (PARKER STREET) AT VOSE HILL ROAD												
Vose Hill Rd EB LR	22.5	C	0.14	13	25.3	D	0.17	15	29.6	D	0.20	18
Parker St NB LT	8.9	A	0.00	0	9.0	A	0.00	0	9.2	A	0.00	0
ROUTE 27 (PARKER STREET) AT OLD MARLBORO ROAD												
Old Marlboro Rd WB LR	19.4	C	0.06	5	21.3	C	0.07	5	24.5	C	0.08	8
Parker St SB LT	8.3	A	0.00	0	8.5	A	0.00	0	8.7	A	0.00	0
ROUTE 27 (PARKER STREET) AT SOUTH STREET/NORTH SITE DRIVE												
South St WB LR	13.1	B	0.03	3	13.6	B	0.03	3	16.7	C	0.05	3
Parker St SB LTR	8.3	A	0.00	0	8.3	A	0.00	0	8.8	A	0.00	0
ROUTE 27 (PARKER STREET) AT FIELD STREET/NORTH STREET												
Field St EB LTR	25.4	D	0.07	5	28.8	D	0.09	8	47.8	E	0.14	13
North St WB LTR	13.4	B	0.03	3	13.9	B	0.03	3	17.4	C	0.05	3
Parker St NB LTR	8.8	A	0.00	0	9.0	A	0.00	0	9.7	A	0.00	0
Parker St SB LTR	8.3	A	0.01	0	8.4	A	0.01	0	8.9	A	0.01	0
Abbreviations:												
EB = Eastbound	L=Left	Delay = Average delay per vehicle (measured in seconds)										
WB = Westbound	T=Through	LOS = Level of Service										
NB = Northbound	R=Right	v/c = Volume-to-Capacity Ratio										
SB = Southbound		95 th % Q = 95 th percentile queue length (measured in feet), assumes 25 feet per vehicle										

Table 5.3 – Weekday Morning Peak Hour Analysis – Signalized Intersections

	EXISTING					2023 NO BUILD					2023 BUILD				
	DELAY (SEC)	LOS	v/c	50 TH Q (FT)	95 TH Q (FT)	DELAY (SEC)	LOS	v/c	50 TH Q (FT)	95 TH Q (FT)	DELAY (SEC)	LOS	v/c	50 TH Q (FT)	95 TH Q (FT)
GREAT ROAD (ROUTE 117) AT MAIN STREET (ROUTE 62) / PRIVATE DRIVEWAY															
Great Rd EB L	16.3	B	0.35	52	139	17.0	B	0.37	59	155	17.2	B	0.36	61	161
Great Rd EB TR	5.7	A	0.50	74	213	5.7	A	0.52	83	234	5.7	A	0.54	91	253
Great Rd WB LT	22.0	C	0.41	65	183	22.6	C	0.42	73	208	23.7	C	0.46	87	237
Great Rd WB R	0.0	A	0.01	0	0	0.0	A	0.01	0	0	0.0	A	0.01	0	0
Driveway NB LTR	0.0	A	0.00	0	0	0.0	A	0.00	0	0	0.0	A	0.00	0	0
Main St SB L	30.0	C	0.02	2	15	32.5	C	0.02	2	16	34.7	C	0.02	2	16
Main St SB R	2.5	A	0.11	0	21	2.5	A	0.12	0	22	2.6	A	0.12	0	23
Overall	10.7	B	-	-	-	10.9	B	-	-	-	11.3	B	-	-	-
GREAT ROAD (ROUTE 117) AT PARKER STREET (ROUTE 27)															
Great Rd EB L	25.7	C	0.12	28	55	25.8	C	0.13	30	59	25.8	C	0.13	30	59
Great Rd EB T	35.0	D	0.56	324	437	36.3	D	0.60	357	477	35.8	D	0.58	344	462
Great Rd EB R	7.5	A	0.19	41	74	7.9	A	0.21	46	81	8.6	A	0.26	62	104
Great Rd WB L	46.7	D	0.09	15	40	47.0	D	0.11	17	44	51.5	D	0.28	46	91
Great Rd WB T	57.7	E	0.59	227	324	59.4	E	0.64	245	348	58.6	E	0.62	237	338
Great Rd WB R	0.0	A	0.03	0	0	0.0	A	0.03	0	0	0.0	A	0.03	0	0
Parker St NB L	24.2	C	0.40	72	116	28.0	C	0.45	78	141	41.2	D	0.59	118	205
Parker St NB T	24.2	C	0.36	193	268	24.7	C	0.38	210	290	26.4	C	0.46	266	361
Parker St NB R	0.0	A	0.01	0	0	0.0	A	0.01	0	0	0.0	A	0.03	0	0
Parker St SB L	39.5	D	0.11	23	53	39.8	D	0.12	25	56	40.1	D	0.13	25	56
Parker St SB T	61.8	E	0.82	415	567	67.6	E	0.88	456	650	103.7	F	1.06	630	867
Parker St SB R	0.1	A	0.07	0	0	0.1	A	0.07	0	0	0.1	A	0.07	0	0
Overall	35.8	D	-	-	-	37.9	D	-	-	-	47.1	D	-	-	-
PARKER STREET (ROUTE 27) AT PRIMARY SITE DRIVE															
Site Drive EB L	-	-	-	-	-	-	-	-	-	-	18.7	B	0.36	30	94
Site Drive EB R	-	-	-	-	-	-	-	-	-	-	6.8	A	0.15	0	25
Parker St NB L	-	-	-	-	-	-	-	-	-	-	7.8	A	0.24	9	31
Parker St NB T	-	-	-	-	-	-	-	-	-	-	7.2	A	0.41	60	126
Parker St SB T	-	-	-	-	-	-	-	-	-	-	9.4	A	0.59	100	210
Parker St SB R	-	-	-	-	-	-	-	-	-	-	1.1	A	0.13	0	0
Overall	-	-	-	-	-	-	-	-	-	-	8.8	A	-	-	-
PARKER STREET (ROUTE 27) AND POWDER MILL ROAD (ROUTE 62) AT WALTHAM STREET															
Waltham St EB LT	23.7	C	0.75	168	264	28.8	C	0.81	186	330	28.8	C	0.81	186	330
Waltham St EB R	7.2	A	0.40	39	92	8.0	A	0.43	46	104	8.6	A	0.49	54	122
Waltham St WB LTR	24.1	C	0.31	49	96	24.5	C	0.33	53	101	24.7	C	0.34	54	103
Parker St NB LTR	29.4	C	0.77	127	245	34.7	C	0.83	140	295	76.8	F	1.04	187	418
Powder Mill Rd SB LT	25.4	C	0.29	44	87	25.8	C	0.31	47	92	27.6	C	0.42	65	119
Powder Mill Rd SB R	6.6	A	0.32	0	42	6.6	A	0.34	0	43	6.6	A	0.34	0	43
Overall	20.3	C	-	-	-	23.4	C	-	-	-	34.2	C	-	-	-
Abbreviations:															
EB = Eastbound		L=Left		Delay = Average delay per vehicle (measured in seconds)											
WB = Westbound		T=Through		LOS = Level of Service											
NB = Northbound		R=Right		v/c = Volume-to-Capacity Ratio											
SB = Southbound		50 th % Q = 50 th percentile queue length (measured in feet)													
										95 th % Q = 95 th percentile queue length (measured in feet)					

Table 5.4 – Weekday Afternoon Peak Hour Analysis – Unsignalized Intersections

	EXISTING				2023 No BUILD				2023 BUILD			
	DELAY (s)	LOS	v/c	95 TH % Q (FT)	DELAY (s)	LOS	v/c	95 TH % Q (FT)	DELAY (s)	LOS	v/c	95 TH % Q (FT)
ROUTE 27 (HAYNES STREET/BROWN STREET) AT CONCORD STREET												
Concord St EB LTR	44.4	E	0.47	55	66.7	F	0.62	80	>80	F	1.35	178
Concord St WB LTR	48.1	E	0.64	93	71.0	F	0.78	130	>80	F	1.18	220
Haynes St NB LTR	8.4	A	0.03	3	8.5	A	0.04	3	9.0	A	0.04	3
Brown St SB LTR	8.5	A	0.01	0	8.6	A	0.01	0	9.0	A	0.01	0
ROUTE 27 (PARKER STREET) AT WALNUT STREET												
Walnut St EB LR	14.6	B	0.30	33	15.8	C	0.35	38	26.7	D	0.52	70
Parker St NB LT	8.5	A	0.11	10	8.7	A	0.12	10	9.4	A	0.14	13
ROUTE 117 (GREAT ROAD) AT SUDBURY STREET												
Great Rd EB LT	9.3	A	0.00	0	9.5	A	0.00	0	9.9	A	0.00	0
Sudbury St SB L	22.9	C	0.24	23	33.7	D	0.36	38	33.9	D	0.36	40
Sudbury St SB R	14.0	B	0.03	3	14.7	B	0.03	3	15.9	C	0.03	3
ROUTE 117 (GREAT ROAD) AT THOMPSON STREET												
Great Rd EB LT	9.1	A	0.04	3	9.3	A	0.04	3	9.7	A	0.05	3
Thompson St SB LR	17.3	C	0.12	10	18.8	C	0.15	13	22.2	C	0.18	15
ROUTE 27 (PARKER STREET) AT VOSE HILL ROAD												
Vose Hill Rd EB LR	19.0	C	0.05	3	20.8	C	0.06	5	29.3	D	0.08	8
Parker St NB LT	8.5	A	0.01	0	8.6	A	0.01	0	9.1	A	0.01	0
ROUTE 27 (PARKER STREET) AT OLD MARLBORO ROAD												
Old Marlboro Rd WB LR	20.4	C	0.13	13	22.5	C	0.16	13	33.7	D	0.23	23
Parker St SB LT	8.5	A	0.00	0	8.6	A	0.00	0	9.0	A	0.00	0
ROUTE 27 (PARKER STREET) AT SOUTH STREET/NORTH SITE DRIVE												
South St WB LR	13.2	B	0.02	3	13.6	B	0.02	3	25.1	D	0.05	5
Parker St SB LTR	8.5	A	0.00	0	8.6	A	0.00	0	10.4	B	0.01	0
ROUTE 27 (PARKER STREET) AT FIELD STREET/NORTH STREET												
Field St EB LTR	24.6	C	0.02	3	27.4	D	0.03	3	>80	F	0.11	8
North St WB LTR	16.6	C	0.04	3	17.5	C	0.05	5	47.8	E	0.15	13
Parker St NB LTR	8.4	A	0.00	0	8.5	A	0.00	0	9.9	A	0.00	0
Parker St SB LTR	8.6	A	0.01	0	8.7	A	0.01	0	10.5	B	0.02	3
Abbreviations:												
EB = Eastbound L=Left Delay = Average delay per vehicle (measured in seconds)												
WB = Westbound T=Through LOS = Level of Service												
NB = Northbound R=Right v/c = Volume-to-Capacity Ratio												
SB = Southbound 95 th % Q = 95 th percentile queue length (measured in feet), assumes 25 feet per vehicle												

Table 5.5 – Weekday Afternoon Peak Hour Analysis – Signalized Intersections

	EXISTING					2023 NO BUILD					2023 BUILD				
	DELAY (SEC)	LOS	v/c	50 TH Q (FT)	95 TH Q (FT)	DELAY (SEC)	LOS	v/c	50 TH Q (FT)	95 TH Q (FT)	DELAY (SEC)	LOS	v/c	50 TH Q (FT)	95 TH Q (FT)
GREAT ROAD (ROUTE 117) AT MAIN STREET (ROUTE 62) / PRIVATE DRIVEWAY															
Great Rd EB L	31.7	C	0.40	51	156	36.4	D	0.45	67	166	41.3	D	0.51	85	166
Great Rd EB TR	4.2	A	0.20	22	88	4.4	A	0.21	29	95	4.5	A	0.26	47	124
Great Rd WB LT	22.9	C	0.74	207	529	23.3	C	0.73	254	598	23.3	C	0.72	337	778
Great Rd WB R	0.0	A	0.00	0	0	0.0	A	0.00	0	0	0.0	A	0.00	0	0
Driveway NB LTR	40.4	D	0.07	3	22	45.0	D	0.09	5	26	47.4	D	0.12	6	26
Main St SB L	35.2	D	0.06	5	27	38.2	D	0.06	6	28	39.6	D	0.07	7	29
Main St SB R	8.4	A	0.41	25	122	11.3	B	0.46	44	153	13.9	B	0.51	67	165
Overall	17.5	B	-	-	-	18.9	B	-	-	-	19.5	B	-	-	-
GREAT ROAD (ROUTE 117) AT PARKER STREET (ROUTE 27)															
Great Rd EB L	25.2	C	0.08	20	43	25.3	C	0.09	21	44	25.3	C	0.09	21	44
Great Rd EB T	28.4	C	0.27	135	198	28.7	C	0.29	147	212	27.9	C	0.24	120	179
Great Rd EB R	3.5	A	0.11	8	32	3.9	A	0.12	11	36	8.6	A	0.24	59	99
Great Rd WB L	45.3	D	0.04	8	27	45.5	D	0.05	9	28	52.1	D	0.34	75	132
Great Rd WB T	57.7	E	0.60	229	328	59.5	E	0.64	249	353	57.2	E	0.58	223	321
Great Rd WB R	0.0	A	0.03	0	0	0.0	A	0.03	0	0	0.0	A	0.03	0	0
Parker St NB L	25.9	C	0.49	106	160	27.5	C	0.55	114	171	99.5	F	1.02	278	484
Parker St NB T	24.3	C	0.37	204	280	24.9	C	0.39	223	304	31.1	C	0.63	418	551
Parker St NB R	0.0	A	0.00	0	0	0.0	A	0.00	0	0	0.1	A	0.06	0	0
Parker St SB L	41.5	D	0.20	43	84	42.0	D	0.22	46	89	44.7	D	0.29	47	93
Parker St SB T	54.1	D	0.70	340	464	56.7	E	0.74	372	503	109.4	F	1.08	661	900
Parker St SB R	0.0	A	0.04	0	0	0.0	A	0.04	0	0	0.0	A	0.04	0	0
Overall	34.6	C	-	-	-	35.8	D	-	-	-	56.3	E	-	-	-
PARKER STREET (ROUTE 27) AT PRIMARY SITE DRIVE															
Site Drive EB L	-	-	-	-	-	-	-	-	-	-	53.1	D	0.95	176	355
Site Drive EB R	-	-	-	-	-	-	-	-	-	-	3.5	A	0.28	6	35
Parker St NB L	-	-	-	-	-	-	-	-	-	-	15.8	B	0.59	32	65
Parker St NB T	-	-	-	-	-	-	-	-	-	-	12.0	B	0.56	115	190
Parker St SB T	-	-	-	-	-	-	-	-	-	-	30.1	C	0.81	152	284
Parker St SB R	-	-	-	-	-	-	-	-	-	-	1.7	A	0.33	5	22
Overall	-	-	-	-	-	-	-	-	-	-	22.9	C	-	-	-
PARKER STREET (ROUTE 27) AND POWDER MILL ROAD (ROUTE 62) AT WALTHAM STREET															
Waltham St EB LT	26.8	C	0.69	101	288	31.1	C	0.76	110	291	31.1	C	0.76	110	291
Waltham St EB R	6.4	A	0.32	13	73	7.1	A	0.35	17	85	7.8	A	0.48	26	122
Waltham St WB LTR	36.0	D	0.57	98	219	37.8	D	0.62	107	257	37.8	D	0.62	107	257
Parker St NB LTR	51.8	D	0.90	118	408	71.4	E	0.99	130	454	>120	F	1.75	406	784
Powder Mill Rd SB LT	34.8	C	0.46	68	163	35.7	D	0.50	74	175	41.1	D	0.66	100	254
Powder Mill Rd SB R	8.3	A	0.55	0	73	8.4	A	0.58	0	76	8.5	A	0.58	1	78
Overall	27.9	C	-	-	-	33.4	C	-	-	-	117.2	F	-	-	-
Abbreviations:															
EB = Eastbound	L=Left	Delay = Average delay per vehicle (measured in seconds)													
WB = Westbound	T=Through	LOS = Level of Service													
NB = Northbound	R=Right	v/c = Volume-to-Capacity Ratio													
SB = Southbound		50 th % Q = 50 th percentile queue length (measured in feet)													
		95 th % Q = 95 th percentile queue length (measured in feet)													

Table 5.6 – Saturday Midday Peak Hour Analysis – Unsignalized Intersections

	EXISTING				2023 No BUILD				2023 BUILD			
	DELAY (s)	LOS	v/c	95 TH % Q (FT)	DELAY (s)	LOS	v/c	95 TH % Q (FT)	DELAY (s)	LOS	v/c	95 TH % Q (FT)
ROUTE 27 (HAYNES STREET/BROWN STREET) AT CONCORD STREET												
Concord St EB LTR	32.6	D	0.51	68	42.6	E	0.61	90	>80	F	1.43	258
Concord St WB LTR	23.6	C	0.39	45	27.9	D	0.46	58	>80	F	0.91	158
Haynes St NB LTR	8.1	A	0.02	3	8.1	A	0.02	3	8.8	A	0.03	3
Brown St SB LTR	8.1	A	0.01	0	8.2	A	0.01	0	8.8	A	0.01	0
ROUTE 27 (PARKER STREET) AT WALNUT STREET												
Walnut St EB LR	14.2	B	0.22	20	15.1	C	0.25	25	35.3	E	0.51	65
Parker St NB LT	8.5	A	0.10	8	8.7	A	0.11	10	10.1	B	0.15	13
ROUTE 117 (GREAT ROAD) AT SUDBURY STREET												
Great Rd EB LT	7.9	A	0.01	0	8.0	A	0.01	0	8.3	A	0.01	0
Sudbury St SB L	13.6	B	0.13	10	15.7	C	0.17	15	23.2	C	0.26	25
Sudbury St SB R	9.8	A	0.01	0	9.9	A	0.01	0	10.9	B	0.01	0
ROUTE 117 (GREAT ROAD) AT THOMPSON STREET												
Great Rd EB LT	7.9	A	0.02	3	8.0	A	0.03	3	8.4	A	0.03	3
Thompson St SB LR	12.2	B	0.05	5	12.7	B	0.06	5	15.9	C	0.08	8
ROUTE 27 (PARKER STREET) AT VOSE HILL ROAD												
Vose Hill Rd EB LR	14.1	B	0.06	5	14.8	B	0.07	5	22.8	C	0.11	10
Parker St NB LT	8.2	A	0.01	0	8.3	A	0.01	0	8.9	A	0.01	0
ROUTE 27 (PARKER STREET) AT OLD MARLBORO ROAD												
Old Marlboro Rd WB LR	11.7	B	0.04	3	12.2	B	0.05	3	18.9	C	0.09	8
Parker St SB LT	8.1	A	0.00	0	8.2	A	0.00	0	8.9	A	0.00	0
ROUTE 27 (PARKER STREET) AT SOUTH STREET/NORTH SITE DRIVE												
South St WB LR	10.4	B	0.01	0	10.6	B	0.01	0	16.3	C	0.01	0
Parker St SB LTR	8.1	A	0.00	0	8.1	A	0.00	0	9.9	A	0.00	0
ROUTE 27 (PARKER STREET) AT FIELD STREET/NORTH STREET												
Field St EB LTR	15.2	C	0.03	3	16.4	C	0.04	3	79.6	F	0.20	18
North St WB LTR	11.4	B	0.03	3	11.7	B	0.03	3	25.0	D	0.08	8
Parker St NB LTR	8.1	A	0.00	0	8.2	A	0.00	0	10.2	B	0.00	0
Parker St SB LTR	8.1	A	0.01	0	8.2	A	0.01	0	10.0	A	0.01	0
Abbreviations:												
EB = Eastbound			L=Left			Delay = Average delay per vehicle (measured in seconds)						
WB = Westbound			T=Through			LOS = Level of Service						
NB = Northbound			R=Right			v/c = Volume-to-Capacity Ratio						
SB = Southbound			95 th % Q = 95 th percentile queue length (measured in feet), assumes 25 feet per vehicle									

Table 5.7 – Saturday Midday Peak Hour Analysis – Signalized Intersections

	EXISTING					2023 NO BUILD					2023 BUILD				
	DELAY (SEC)	LOS	v/c	50 TH Q (FT)	95 TH Q (FT)	DELAY (SEC)	LOS	v/c	50 TH Q (FT)	95 TH Q (FT)	DELAY (SEC)	LOS	v/c	50 TH Q (FT)	95 TH Q (FT)
GREAT ROAD (ROUTE 117) AT MAIN STREET (ROUTE 62) / PRIVATE DRIVEWAY															
Great Rd EB L	20.8	C	0.39	35	142	21.7	C	0.41	40	157	24.6	C	0.42	47	177
Great Rd EB TR	6.6	A	0.23	19	104	6.4	A	0.24	20	111	6.3	A	0.34	34	171
Great Rd WB LT	21.7	C	0.47	48	184	21.8	C	0.49	54	200	22.5	C	0.58	91	303
Great Rd WB R	0.0	A	0.01	0	0	0.0	A	0.01	0	0	0.0	A	0.01	0	0
Driveway NB LTR	26.0	C	0.03	1	1	27.0	C	0.03	1	13	31.8	C	0.03	1	14
Main St SB L	20.2	C	0.01	1	1	21.4	C	0.02	1	11	27.0	C	0.02	1	13
Main St SB R	2.1	A	0.18	0	0	2.1	A	0.19	0	28	2.7	A	0.20	0	34
Overall	13.1	B	-	-	-	13.3	B	-	-	-	14.2	B	-	-	-
GREAT ROAD (ROUTE 117) AT PARKER STREET (ROUTE 27)															
Great Rd EB L	25.3	C	0.08	23	47	25.4	C	0.09	25	50	25.4	C	0.09	25	50
Great Rd EB T	27.0	C	0.19	90	140	27.2	C	0.20	97	150	26.7	C	0.17	80	128
Great Rd EB R	2.1	A	0.11	0	22	2.0	A	0.12	0	23	10.7	B	0.30	88	135
Great Rd WB L	45.8	D	0.07	15	39	45.9	D	0.07	15	40	56.1	E	0.47	113	185
Great Rd WB T	50.9	D	0.35	127	198	51.4	D	0.38	137	211	50.6	D	0.34	123	191
Great Rd WB R	0.0	A	0.04	0	0	0.1	A	0.04	0	0	0.1	A	0.04	0	0
Parker St NB L	21.5	C	0.23	51	87	21.8	C	0.25	55	92	59.5	E	0.80	188	325
Parker St NB T	23.9	C	0.34	182	253	24.3	C	0.36	197	274	33.3	C	0.69	466	614
Parker St NB R	0.0	A	0.01	0	0	0.0	A	0.01	0	0	0.1	A	0.08	0	0
Parker St SB L	39.1	D	0.10	21	48	39.3	D	0.11	22	50	41.6	D	0.16	22	52
Parker St SB T	48.9	D	0.56	263	367	50.3	D	0.60	286	396	>120	F	1.19	787	1,032
Parker St SB R	0.0	A	0.02	0	0	0.0	A	0.02	0	0	0.0	A	0.02	0	0
Overall	30.4	C	-	-	-	31.0	C	-	-	-	62.3	E	-	-	-
PARKER STREET (ROUTE 27) AT PRIMARY SITE DRIVE															
Site Drive EB L	-	-	-	-	-	-	-	-	-	-	44.4	D	0.93	222	421
Site Drive EB R	-	-	-	-	-	-	-	-	-	-	3.7	A	0.30	12	43
Parker St NB L	-	-	-	-	-	-	-	-	-	-	50.6	D	0.91	64	174
Parker St NB T	-	-	-	-	-	-	-	-	-	-	13.5	B	0.47	100	165
Parker St SB T	-	-	-	-	-	-	-	-	-	-	33.0	C	0.80	147	267
Parker St SB R	-	-	-	-	-	-	-	-	-	-	4.5	A	0.50	39	72
Overall	-	-	-	-	-	-	-	-	-	-	25.6	C	-	-	-
PARKER STREET (ROUTE 27) AND POWDER MILL ROAD (ROUTE 62) AT WALTHAM STREET															
Waltham St EB LT	28.0	C	0.70	118	326	31.7	C	0.76	128	384	31.7	C	0.76	128	384
Waltham St EB R	7.5	A	0.25	13	66	8.1	A	0.27	16	74	9.6	A	0.52	38	158
Waltham St WB LTR	29.7	C	0.36	53	135	30.3	C	0.38	58	143	30.3	C	0.38	58	143
Parker St NB LTR	28.7	C	0.62	88	228	31.3	C	0.68	96	275	>120	F	1.64	396	776
Powder Mill Rd SB LT	33.2	C	0.35	44	115	33.8	C	0.38	48	123	41.6	D	0.64	88	231
Powder Mill Rd SB R	8.2	A	0.49	0	65	8.2	A	0.51	0	67	8.2	A	0.51	0	67
Overall	22.5	C	-	-	-	24.3	C	-	-	-	108.0	F	-	-	-
Abbreviations:															
EB = Eastbound		L=Left		Delay = Average delay per vehicle (measured in seconds)											
WB = Westbound		T=Through		LOS = Level of Service											
NB = Northbound		R=Right		v/c = Volume-to-Capacity Ratio											
SB = Southbound		50 th % Q = 50 th percentile queue length (measured in feet)													
										95 th % Q = 95 th percentile queue length (measured in feet)					

The intersection capacity analyses indicated the following:

- During all of the peak hours, the proposed signalized intersection of Route 27 at the Primary Site Driveway operates well, with minimal delays and short queue lengths.
- At the intersection of Brown Street/Haynes Street (Route 27)/Concord Street, the Concord Street approaches are expected to experience increased delays and queues as a result of project-related traffic on Route 27. However, relative to the No-Build conditions, the anticipated queues in the Build scenario are estimated to increase by a maximum of approximately 6-8 vehicles on the Concord Street eastbound approach, and a maximum of approximately 4-5 vehicles on the Concord Street westbound approach.
- Relative to the No-Build conditions, the Build traffic operations at the intersection of Great Road (Route 117) at Main Street (Route 62) are not expected to change significantly.
- Compared to the No-Build conditions, the Build traffic operations at the intersection of Great Road (Route 117) at Parker Street (Route 27) are expected to experience increases in delays and in queue length. Under No-Build conditions, the Parker Street (Route 27) southbound approach is expected to operate at LOS D or E, depending on the peak hour. Under Build conditions (*without* the proposed mitigation in place), this approach is expected to operate at LOS E or F. Relative to the No-Build conditions, the anticipated Parker Street (Route 27) southbound queues in the Build scenario (*without* the proposed mitigation in place) are estimated to increase by a maximum of approximately 600 feet and the anticipated Parker Street (Route 27) northbound queues are expected to increase by approximately 340 feet. **However**, the operation of this signalized intersection is anticipated to improve significantly with the proposed infrastructure improvements, as discussed in the following section.
- Compared to the No-Build conditions, the Build traffic operations at the intersection of Parker Street (Route 27) / Powder Mill Road (Route 62) at Waltham Street are expected to experience increases in delays and in queue length. Under No-Build conditions, the Parker Street (Route 27) northbound approach is expected to operate at LOS C through E depending on the peak hour. Under Build conditions (*without* the proposed mitigation in place), this approach is expected to operate at LOS F. Relative to the No-Build conditions, the anticipated Parker Street (Route 27) northbound queues in the Build scenario (*without* the proposed mitigation in place) are estimated to increase by a maximum of approximately 500 feet. **However**, the operation of this signalized intersection is anticipated to improve significantly with the proposed infrastructure improvements, as discussed in the following section.

5.2 Mitigation

5.2.1 Parker Street (Route 27) at Primary Site Drive

As part of this updated traffic impact and access study, potential locations of off-site mitigation were identified. The external intersection of the primary site drive with Parker Street (Route 27) is proposed to be placed under traffic signal control. An exclusive left-turn lane and a through lane will be provided on the Parker Street (Route 27) northbound approach; a through lane and an exclusive right-turn lane will be provided on the Parker Street (Route 27) southbound approach; and an exclusive left-turn lane and an exclusive right-turn lane will be provided on the Primary Site Drive eastbound approach. The northbound left turn was analyzed using permitted-only operation during the weekday morning peak hour and protected-permitted operation during the weekday afternoon and Saturday mid-day peak hours. This will reduce delays on Parker Street (Route 27) during the weekday morning peak hour, when only 75 vehicles are expected to make the Parker Street (Route 27) northbound left turn movement, while still safely serving

the heavier demand for this movement during the weekday afternoon and Saturday mid-day peak hours. A four-section signal head using a green arrow, a flashing yellow arrow, a solid yellow arrow, and a solid red arrow will allow for this flexibility in changing signal phasing by time-of-day. This signal head configuration has been installed over the past several years at many intersections statewide, including many in the Metrowest area. Right turn overlap phases will be provided for the Parker Street (Route 27) southbound and Primary Site Drive eastbound approaches. A sidewalk and a bicycle lane will be constructed along the property frontage on Parker Street (Route 27) and along the Primary Site Drive. A secondary site drive will exclusively serve Parker Street (Route 27) southbound traffic turning right into the development. All other movements will be accommodated using the Primary Site Drive. A conceptual drawing illustrating this design is shown in Figure 21.

5.2.2 Parker Street (Route 27) at Great Road (Route 117)

To accommodate the increasing traffic volume at the signalized intersection of Route 117 (Great Road) with Route 27 (Parker Street), left turn lanes are proposed to be lengthened on the northbound Parker Street (Route 27) and the westbound Great Road (Route 117) approaches to approximately 170 feet each. The existing cobblestone medians on the south leg of Parker Street (Route 27) and on the east leg of Great Road (Route 117) are proposed to be removed. The proposed mitigation improvements to this intersection are shown in Figure 22. The signal will be placed under actuated control, enabling the traffic signal controller to be responsive to actual traffic demands in real-time. Signal timing modifications are proposed. Table 5.8 presents a comparison of the intersection capacity analyses for the 2023 Build condition at the intersection of Parker Street (Route 27) with Great Road (Route 117) with and without mitigation during the weekday morning, weekday afternoon, and Saturday midday peak hours.

It also is worth noting that no arrow indications are currently provided at the intersection of Great Road (Route 117) and Parker Street (Route 27) despite the provision of leading protected left-turn phases for northbound and eastbound traffic. Green arrow indications for approaches with protected turn phases will be incorporated into the proposed mitigation.



SCALE: 1" = 120'

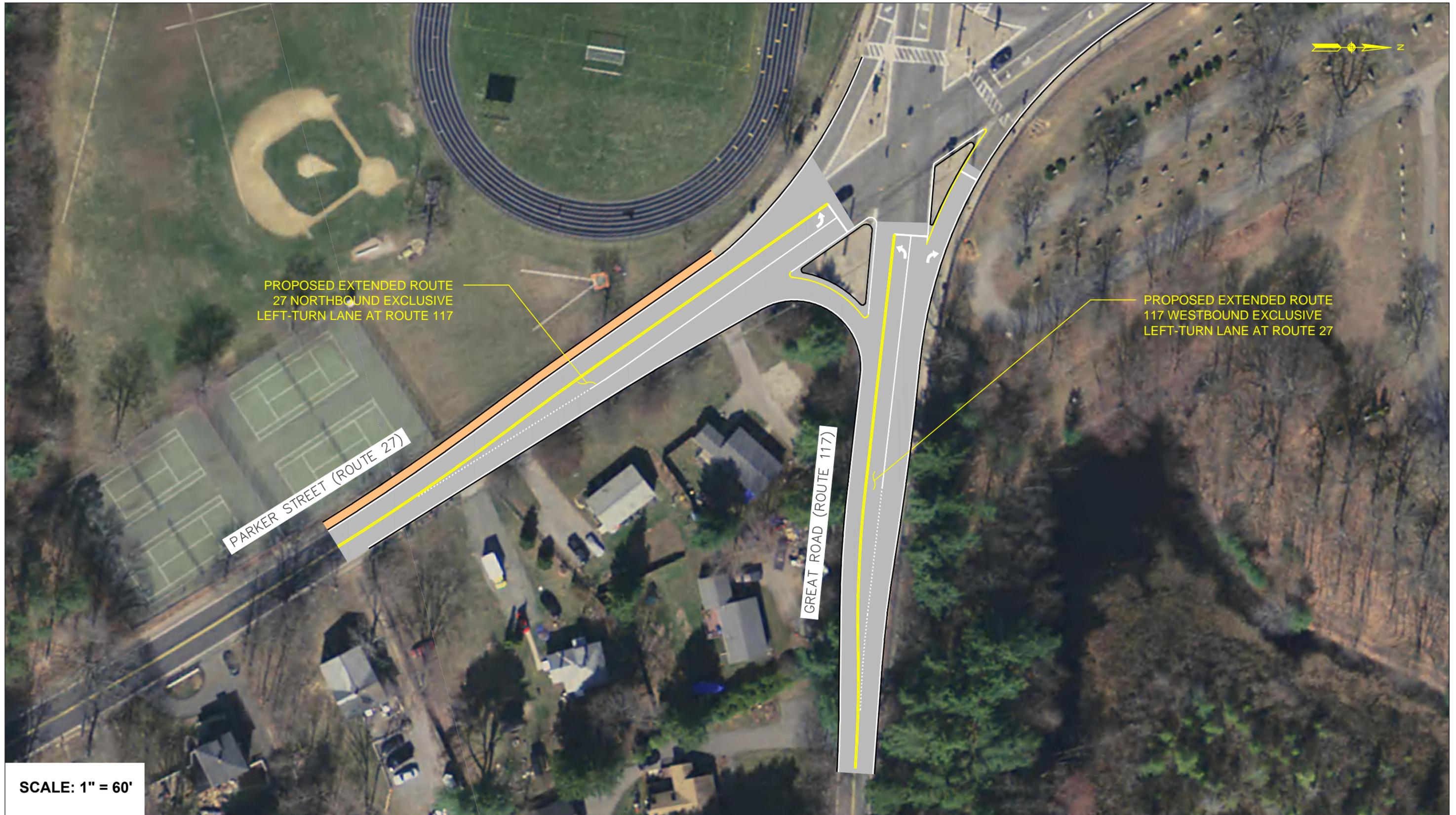


Table 5.8 – Great Road (Route 117) at Parker Street (Route 27) Mitigation Improvements

	2023 NO BUILD					2023 BUILD					2023 BUILD WITH MITIGATION				
	DELAY (SEC)	LOS	v/c	50 TH Q (FT)	95 TH Q (FT)	DELAY (SEC)	LOS	v/c	50 TH Q (FT)	95 TH Q (FT)	DELAY (SEC)	LOS	v/c	50 TH Q (FT)	95 TH Q (FT)
WEEKDAY MORNING PEAK HOUR															
Great Rd EB L	25.8	C	0.13	30	59	25.8	C	0.13	30	59	15.9	B	0.20	13	34
Great Rd EB T	36.3	D	0.60	357	477	36.3	D	0.60	357	477	31.6	C	0.81	148	281
Great Rd EB R	7.9	A	0.21	46	81	8.2	A	0.24	56	97	7.0	A	0.37	25	60
Great Rd WB L	47.0	D	0.11	17	44	50.1	D	0.22	37	77	28.5	C	0.34	19	53
Great Rd WB T	59.4	E	0.64	245	348	59.4	E	0.64	245	348	36.2	D	0.69	96	213
Great Rd WB R	0.0	A	0.03	0	0	0.0	A	0.03	0	0	0.0	A	0.03	0	0
Parker St NB L	28.0	C	0.45	78	141	39.9	D	0.57	112	197	28.7	C	0.72	35	98
Parker St NB T	24.7	C	0.38	210	290	26.5	C	0.46	270	364	11.1	B	0.44	93	156
Parker St NB R	0.0	A	0.01	0	0	0.0	A	0.03	0	0	0.0	A	0.03	0	0
Parker St SB L	39.8	D	0.12	25	56	40.1	D	0.13	25	56	15.2	B	0.11	9	26
Parker St SB T	67.6	E	0.88	456	650	100.8	F	1.05	618	855	43.6	D	0.92	204	389
Parker St SB R	0.1	A	0.07	0	0	0.1	A	0.07	0	0	0.1	A	0.07	0	0
Overall Intersection	37.9	D	-	-	-	46.7	D	-	-	-	25.4	C	-	-	-
WEEKDAY AFTERNOON PEAK HOUR															
Great Rd EB L	25.3	C	0.09	21	44	25.3	C	0.09	21	44	23.3	C	0.19	13	35
Great Rd EB T	28.7	C	0.29	147	212	28.7	C	0.29	147	212	25.1	C	0.36	78	134
Great Rd EB R	3.9	A	0.12	11	36	7.6	A	0.20	44	78	6.7	A	0.29	30	66
Great Rd WB L	45.5	D	0.05	9	28	50.1	D	0.26	54	102	40.3	D	0.49	42	88
Great Rd WB T	59.5	E	0.64	249	353	59.5	E	0.64	249	353	57.5	E	0.84	125	248
Great Rd WB R	0.0	A	0.03	0	0	0.0	A	0.03	0	0	0.0	A	0.03	0	0
Parker St NB L	27.5	C	0.55	114	171	81.3	F	0.94	242	429	36.3	D	0.82	105	242
Parker St NB T	24.9	C	0.39	223	304	31.2	C	0.63	422	556	12.2	B	0.54	164	249
Parker St NB R	0.0	A	0.00	0	0	0.0	A	0.04	0	0	0.1	A	0.06	0	0
Parker St SB L	42.0	D	0.22	46	89	44.9	D	0.29	47	93	22.3	C	0.24	22	54
Parker St SB T	56.7	E	0.74	372	503	112.1	F	1.09	671	913	55.1	E	0.96	294	501
Parker St SB R	0.0	A	0.04	0	0	0.0	A	0.04	0	0	0.0	A	0.04	0	0
Overall Intersection	35.8	D	-	-	-	55.9	E	-	-	-	30.3	C	-	-	-
SATURDAY MIDDAY PEAK HOUR															
Great Rd EB L	25.4	C	0.09	25	50	25.4	C	0.09	25	50	23.5	C	0.18	16	41
Great Rd EB T	27.2	C	0.20	97	150	27.2	C	0.20	97	150	24.9	C	0.31	53	99
Great Rd EB R	2.0	A	0.12	0	23	10.2	B	0.27	76	121	9.6	A	0.42	40	91
Great Rd WB L	45.9	D	0.07	15	40	54.6	D	0.42	98	164	52.8	D	0.70	64	152
Great Rd WB T	51.4	D	0.38	137	211	51.4	D	0.38	137	211	36.6	D	0.50	70	128
Great Rd WB R	0.1	A	0.04	0	0	0.1	A	0.04	0	0	0.1	A	0.04	0	0
Parker St NB L	21.8	C	0.25	55	92	53.6	D	0.75	169	284	37.5	D	0.81	69	205
Parker St NB T	24.3	C	0.36	197	274	33.3	C	0.69	466	614	11.0	B	0.56	176	268
Parker St NB R	0.0	A	0.01	0	0	0.1	A	0.06	0	0	0.1	A	0.08	0	0
Parker St SB L	39.3	D	0.11	22	50	41.6	D	0.16	22	52	14.9	B	0.10	9	26
Parker St SB T	50.3	D	0.60	286	396	>120	F	1.19	789	1,034	33.6	C	0.87	289	486
Parker St SB R	0.0	A	0.02	0	0	0.0	A	0.02	0	0	0.0	A	0.02	0	0
Overall Intersection	31.0	C	-	-	-	62.6	E	-	-	-	23.2	C	-	-	-
Abbreviations:															
EB = Eastbound L=Left Delay = Average delay per vehicle (measured in seconds)															
WB = Westbound T=Through LOS = Level of Service															
NB = Northbound R=Right v/c = Volume-to-Capacity Ratio															
SB = Southbound 50 th % Q = 50 th percentile queue length (measured in feet)															
95 th % Q = 95 th percentile queue length (measured in feet)															

As shown in Table 5.8, these timing modifications greatly improve the operational efficiency of the Great Road (Route 117) at Parker Street (Route 27) intersection compared to the unmitigated Build scenario. While all movements at the intersection have reduced delays and queue lengths, particularly improved is the southbound Parker Street (Route 27) through movement, for which delays decrease by over 50 percent during all three peak hours. The overall intersection average delays are lower in the 2023 Build with Mitigation Scenario than in the 2023 No Build Scenario.

5.2.3 Great Road (Route 117) at Old Marlboro Road

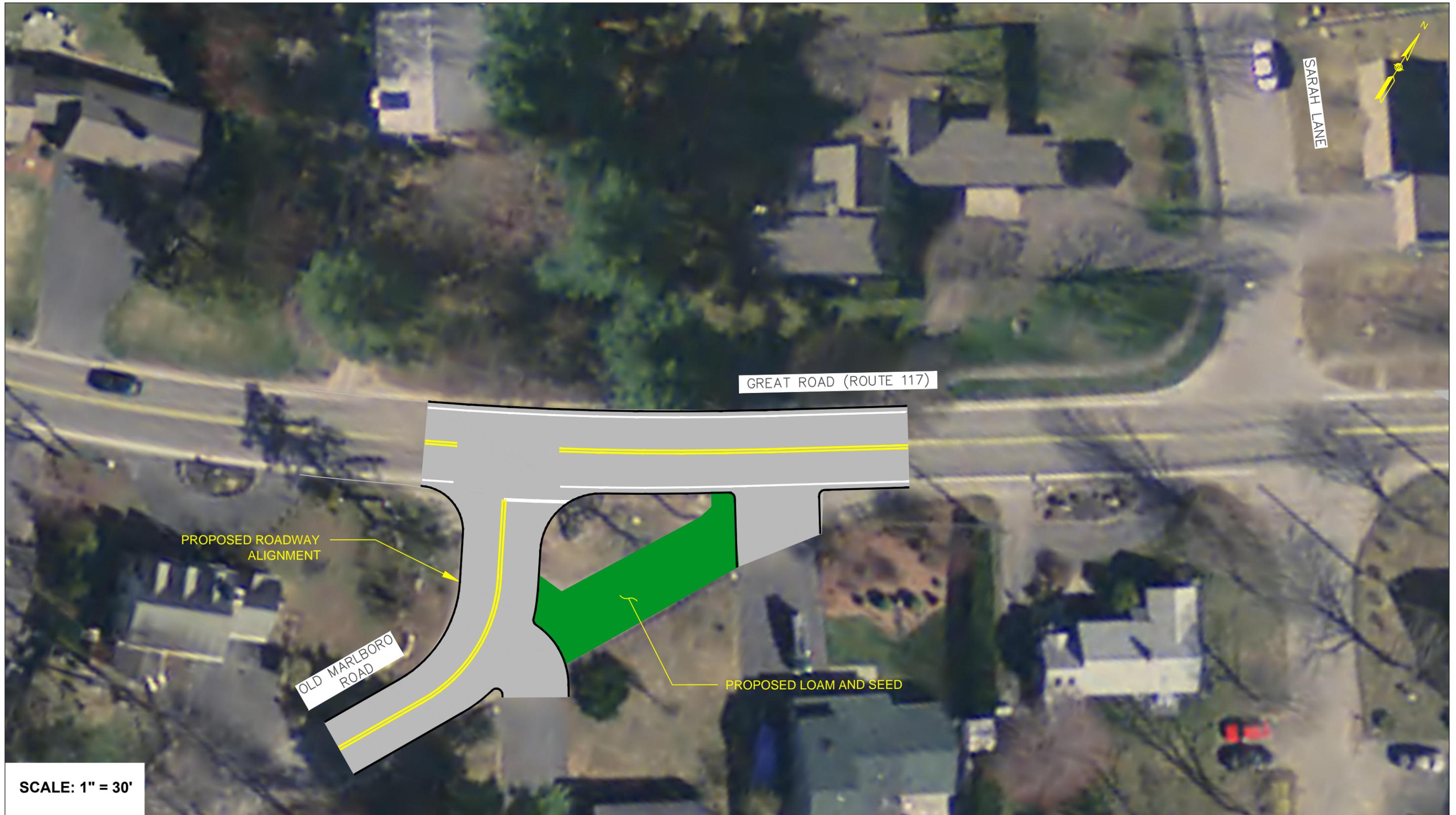
The existing intersection geometry is unconventional and may cause confusion. By eliminating the roadway running along the southeast side of the island, a more typical perpendicular T-intersection can be formed. The existing residential driveways along the eliminated roadway would be extended to directly connect to Great Road (Route 117) or Old Marlboro Road, as appropriate. The conceptual plan is shown in Figure 23.

5.2.4 Old Marlboro Road at B Street and Marlboro Street

At the intersection of Old Marlboro Road with B Street, additional cut-through traffic is likely to be generated by the development project. To more clearly define travel paths through this intersection and to separate conflict points, B Street would be relocated to meet Old Marlboro Road at a perpendicular angle south of Marlboro Street, which would also be relocated to meet Old Marlboro Road at a perpendicular angle north of its intersection with B Street. It is anticipated that the proposed roadway improvements would improve safety and act as a traffic calming measure. The conceptual plan is shown in Figure 24.

5.2.5 Parker Street (Route 27) at Old Marlboro Road (northern intersection)

The east leg of the intersection of Old Marlboro Road with Parker Street (Route 27) is approximately 70 feet wide. By narrowing this width to 30 feet, turning speeds can be reduced, safety can be improved, and cut-through traffic volume can be potentially reduced. This is shown in Figure 25.



SCALE: 1" = 30'

Figure 23
Off-Site Mitigation Conceptual Drawing
Route 117 (Great Road) at Old Marlboro Road
Maynard, MA



SCALE: 1" = 30'

Figure 24
Off-Site Mitigation Conceptual Drawing
Old Marlboro Road at B Street/Marlboro Street
Maynard, MA



Figure 25
Off-Site Mitigation Conceptual Drawing
Route 27 (Parker Street) at Old Marlboro Road
Maynard, MA

5.2.6 Parker Street (Route 27) / Powder Mill Road (Route 62) at Waltham Street Intersection

To accommodate the additional traffic expected to use the signalized intersection of Parker Street (Route 27) and Powder Mill Road (Route 62) at Waltham Street, signal timing modifications are proposed. Vehicle detection) is also proposed to be installed to improve traffic operations and allow the traffic signal controller to respond to the actual traffic demands in real-time.

Timings are proposed to be modified for this intersection. Table 5.9 presents a comparison of the intersection capacity analyses for the 2023 Build condition at the intersection of Parker Street (Route 27) / Powder Mill Road (Route 62) with Waltham Street with and without mitigation during the weekday morning, weekday afternoon, and Saturday mid-day peak hours. It is noted that the benefits of signal timing and vehicle detection are somewhat limited. A dedicated northbound left-turn lane would significantly improve traffic operations at this location, and is warranted under the existing conditions. However, there are constraints (both Right-of-Way, and existing buildings located at the back of the existing sidewalk) on both sides of Parker Street and it is not feasible to widen the roadway to accommodate an exclusive northbound left-turn lane.

Table 5.9 – Great Road (Route 117) / Powder Mill Road (Route 62) at Waltham Street Mitigation Improvements

	2023 No BUILD					2023 BUILD					2023 BUILD WITH MITIGATION				
	DELAY (SEC)	LOS	v/c	50 TH Q (FT)	95 TH Q (FT)	DELAY (SEC)	LOS	v/c	50 TH Q (FT)	95 TH Q (FT)	DELAY (SEC)	LOS	v/c	50 TH Q (FT)	95 TH Q (FT)
WEEKDAY MORNING PEAK HOUR															
Waltham St EB LT	28.8	C	0.81	186	330	28.8	C	0.81	186	330	34.4	C	0.86	236	431
Waltham St EB R	8.0	A	0.43	46	104	8.6	A	0.49	54	122	10.6	B	0.52	65	142
Waltham St WB LTR	24.5	C	0.33	53	101	24.7	C	0.34	54	103	12.7	B	0.18	39	74
Parker St NB LTR	34.7	C	0.83	140	295	76.8	F	1.04	187	418	41.0	D	0.89	199	388
Powder Mill Rd SB LT	25.8	C	0.31	47	92	27.6	C	0.42	65	119	13.8	B	0.22	47	85
Powder Mill Rd SB R	6.6	A	0.34	0	43	6.6	A	0.34	0	43	3.1	A	0.21	0	31
Overall	23.4	C	-	-	-	34.2	C	-	-	-	25.0	C	-	-	-
WEEKDAY AFTERNOON PEAK HOUR															
Waltham St EB LT	31.1	C	0.76	110	291	31.1	C	0.76	110	291	75.6	E	0.96	324	540
Waltham St EB R	7.1	A	0.35	17	85	7.8	A	0.48	26	122	26.8	C	0.59	185	304
Waltham St WB LTR	37.8	D	0.62	107	257	37.8	D	0.62	107	257	73.5	E	0.78	260	405
Parker St NB LTR	71.4	E	0.99	130	454	>120	F	1.75	406	784	90.5	F	1.08	574	817
Powder Mill Rd SB LT	35.7	D	0.50	74	175	41.1	D	0.66	100	254	64.2	E	0.68	230	333
Powder Mill Rd SB R	8.4	A	0.58	0	76	8.5	A	0.58	1	78	7.5	A	0.46	37	98
Overall	33.4	C	-	-	-	117.2	F	-	-	-	59.4	E	-	-	-
SATURDAY MIDDAY PEAK HOUR															
Waltham St EB LT	31.7	C	0.76	128	384	31.7	C	0.76	128	384	71.8	E	0.90	365	522
Waltham St EB R	8.1	A	0.27	16	74	9.6	A	0.52	38	158	30.5	C	0.64	225	354
Waltham St WB LTR	30.3	C	0.38	58	143	30.3	C	0.38	58	143	60.7	E	0.52	147	227
Parker St NB LTR	31.3	C	0.68	96	275	>120	F	1.64	396	776	79.6	F	1.04	573	816
Powder Mill Rd SB LT	33.8	C	0.38	48	123	41.6	D	0.64	88	231	77.9	E	0.79	210	351
Powder Mill Rd SB R	8.2	A	0.51	0	67	8.2	A	0.51	0	67	26.7	C	0.66	79	187
Overall	24.3	C	-	-	-	108.0	F	-	-	-	59.7	E	-	-	-
Abbreviations:															
EB = Eastbound		L=Left		Delay = Average delay per vehicle (measured in seconds)											
WB = Westbound		T=Through		LOS = Level of Service											
NB = Northbound		R=Right		v/c = Volume-to-Capacity Ratio											
SB = Southbound		50 th % Q = 50 th percentile queue length (measured in feet)													
										95 th % Q = 95 th percentile queue length (measured in feet)					

By implementing the recommended timing modifications in combination with the installation of vehicle actuation, the overall intersection delays can be reduced by more than 40 percent during the weekday afternoon and the Saturday mid-day peak hours.

6.0 CONCLUSIONS AND RECOMMENDATIONS

This traffic report describes the analysis procedures, assumptions, and results of this traffic study. The following summarizes the traffic analysis findings:

- The proposed development is estimated to generate approximately 371 new vehicle trips during the weekday morning peak hour, 930 new vehicle trips during the weekday afternoon peak hour, and 1,441 new vehicle trips during the Saturday mid-day peak hour.
- The proposed traffic signal where the Primary Site Drive intersects Route 27 (Parker Street) is expected to operate safely and efficiently with minimal delays.
- Compared to the Future No Build conditions, most of the study intersections will experience modest increases in average delay and queue length. The most significant increases are expected to occur at the signalized intersection of Parker Street (Route 27) with Great Road (Route 117) and at the intersection of Parker Street (Route 27) / Powder Mill Road (Route 62) with Waltham Street.

The analysis showed the proposed project could be accommodated by the study area roadways with several improvements to the transportation infrastructure to improve safety, traffic operating conditions, and to encourage alternative modes of transportation:

- It is recommended to install a 5-foot shoulder on both sides of Parker Street (Route 27) wide enough to accommodate bicycles along the project site.
- Bicycle lanes are proposed along the primary site driveway, and safe and secure bicycle racks are proposed at convenient locations throughout the project site to encourage residents and visitors to the site to use alternate means of transportation.
- At the project site, a network of sidewalks/walkways are proposed to connect the various uses within the site and connect with the external sidewalk network.
- A sidewalk is recommended to be reconstructed on the west side of Parker Street (Route 27) along the project site.
- A Rectangular Rapid Flashing Beacon (RRFB) is proposed to be installed to facilitate a safe pedestrian crossing at the existing crosswalk across Parker Street (Route 27) at Field Street/North Street.
- It is recommended that a traffic signal be constructed at the intersection of Parker Street (Route 27) with the Primary Site Drive. An additional unsignalized access driveway is proposed approximately 600 feet north of the Primary Site Drive. This northern site driveway will be a “right-turn” entrance only driveway.
- At the Parker Street (Route 27) / Great Road (Route 117) intersection, the following transportation infrastructure improvements are recommended:
 - Minor geometric improvements are proposed, including extending the existing left-turn lanes on the Parker Street (Route 27) northbound and Great Road (Route 117) westbound approaches.
 - The existing pedestrian signal equipment is proposed to be replaced with pedestrian signal heads that provide a countdown indication during the “Flashing Don’t Walk” period.
 - Vehicle detection is recommended to be installed on all approaches to the intersection. This will substantially reduce vehicle delays and 95th percentile queue lengths as compared to the existing operation.

- Green and yellow arrow indications are recommended to be installed for the northbound and eastbound protected left turn phases.
- Optimized traffic signal timings are proposed, including pedestrian signal timings that are consistent with the current MUTCD.
- Vehicle detection is recommended to be installed at the intersection of Route 27 (Parker Street) / Powder Mill Road (Route 62) with Waltham Street and to optimize the traffic signal timings to mitigate the impacts of the site-generated trips.
- It is recommended to reconstruct the following intersections to form more conventional perpendicular T-intersections:
 - Parker Street (Route 27) at Old Marlboro Road,
 - Old Marlboro Road at B Street and Marlboro Street, and
 - Old Marlboro Road at Great Road (Route 117)

It is anticipated that these geometric improvements will better define the travel way, reduce conflicts, improve safety, act as traffic calming measures in the nearby residential neighborhood, and discourage cut-through traffic between Great Road and Parker Street.

- Traffic monitoring is proposed at the signalized intersection of Parker Street (Route 27) with the Primary Site Drive. The traffic monitoring will be conducted every 6 months for a period of 2 years following the initial occupancy. The goal of the traffic monitoring is to evaluate the traffic operations of the new traffic signal, and will provide an opportunity to make signal timing and/or phasing adjustments as needed.
- Traffic monitoring could be considered at the intersection of Haynes Street/Brown Street (Route 27) / Concord Street. This intersection is farther from the project site (on the opposite end of Town), and any direct impacts to traffic operations at this location are more difficult to predict. Traffic monitoring could allow a direct comparison of traffic volumes and operations before and after the project site is occupied.

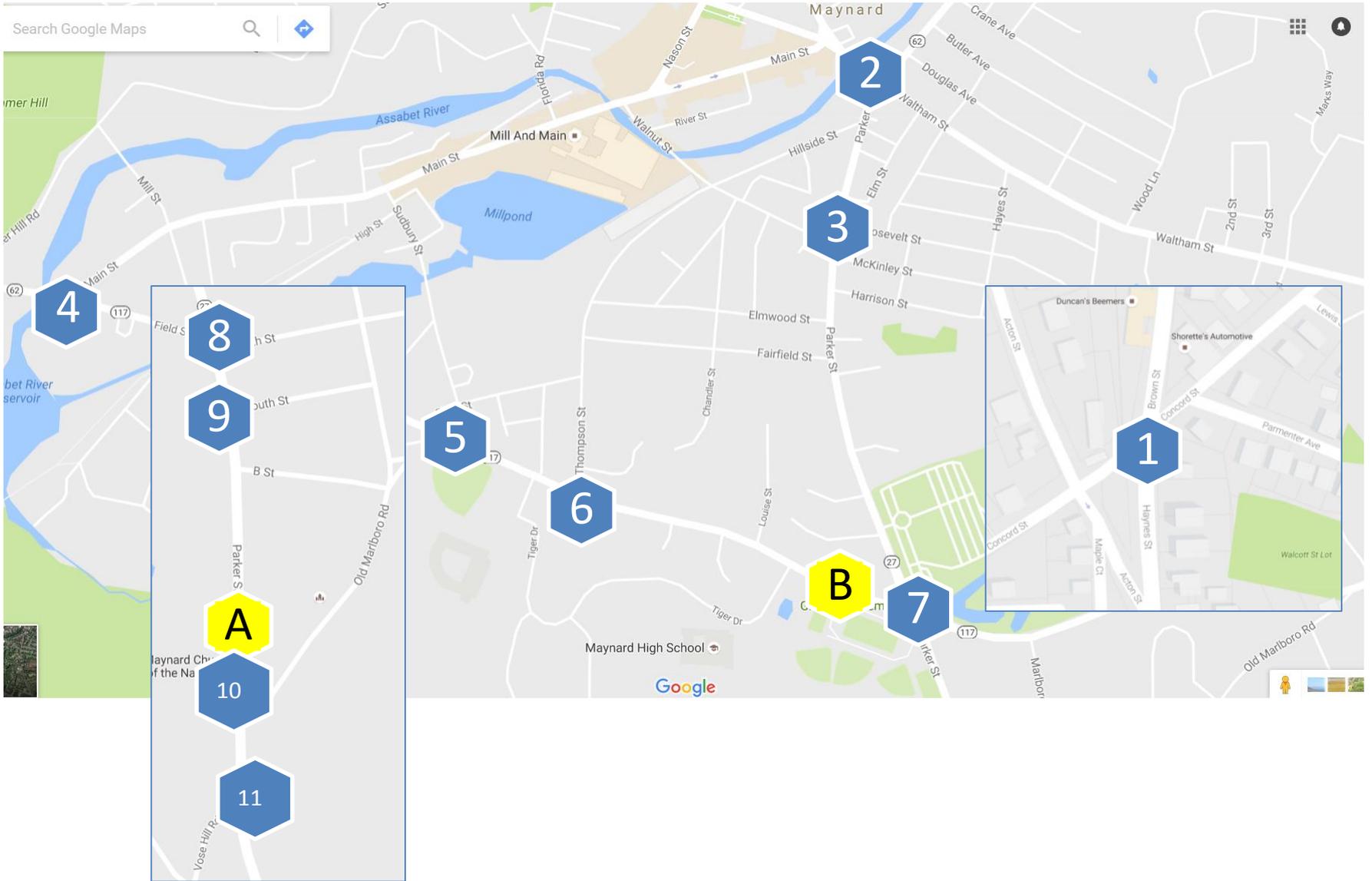
In addition to the recommended mitigation discussed above, it is noted that the project proponent has committed to making significant financial contributions to the Town of Maynard. As outlined in the Memorandum of Agreement (MOA) between the Town of Maynard and the project proponent, dated September 6, 2016, the project proponent will be making a \$1,000,000 financial contribution to offset the “anticipated direct and indirect impacts of the project”. Furthermore, the project proponent has committed to making a \$260,000 contribution to a Traffic Improvement Fund controlled by the Town of Maynard. The Traffic Improvement Fund contribution is in addition to the \$1,000,000 financial contribution, and is for the express purpose of mitigating transportation impacts related to the proposed development project.

In summary, with the mitigation outlined above in place, the surrounding roadway network will be able to safely and efficiently accommodate the anticipated traffic.

Appendices

- Traffic Volume Data
- MassDOT Seasonal Adjustment Factors and Historical Growth
 - Crash Rate Calculations
 - Trip Generation Calculations
 - Signal Warrant Analysis Calculations
- Intersection Capacity Analysis Worksheets

APPENDIX A – TRAFFIC VOLUME DATA



Map Credit: Google.com

	BTD ID: 0003_GI	Taunton, MA	# of TMC's: 011	Client: Green International Affiliates, Inc.
		Collected Nov 17-19, 2016	# of ATR's: 02	Contact: Jason Sobel, P.E., PTOE

Volume Report

Job 0003_GI_L1
 Area Maynard, MA
 Location Parker St, south of B St



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

Thursday, November 17, 2016

Time	Total	NB	SB	Time	Total	NB	SB						
0000	9	5	4	1200	151	589	80	71					
0015	6	4	2	1215	164	622	87	77					
0030	4	1	3	1230	165	633	82	83					
0045	4	23	3	13	1	10	1245	145	625	74	323	71	302
0100	7	21	4	3	1300	124	598	49	75				
0115	1	16	1	0	1315	127	561	58	69				
0130	3	15	1	2	1330	142	538	56	86				
0145	2	13	1	7	1	6	1345	138	531	61	224	77	307
0200	1	7	1	0	1400	167	574	85	82				
0215	2	8	0	2	1415	142	589	66	76				
0230	2	7	0	2	1430	186	633	108	78				
0245	1	6	1	2	0	4	1445	157	652	76	335	81	317
0300	0	5	0	0	1500	192	677	115	77				
0315	1	4	0	1	1515	209	744	101	108				
0330	2	4	1	1	1530	206	764	112	94				
0345	5	8	2	3	3	5	1545	212	819	109	437	103	382
0400	3	11	2	1	1600	214	841	118	96				
0415	8	18	4	4	1615	272	904	158	114				
0430	12	28	3	9	1630	218	916	111	107				
0445	11	34	5	14	6	20	1645	268	972	151	538	117	434
0500	21	52	7	14	1700	266	1,024	132	134				
0515	46	90	14	32	1715	253	1,005	119	134				
0530	34	112	10	24	1730	234	1,021	112	122				
0545	61	162	24	55	37	107	1745	249	1,002	139	502	110	500
0600	90	231	30	60	1800	215	951	128	87				
0615	130	315	38	92	1815	195	893	111	84				
0630	207	488	71	136	1830	191	850	103	88				
0645	204	631	58	197	146	434	1845	158	759	91	433	67	326
0700	206	747	90	116	1900	143	687	76	67				
0715	236	853	86	150	1915	119	611	63	56				
0730	270	916	121	149	1930	96	516	54	42				
0745	265	977	112	409	153	568	1945	89	447	47	240	42	207
0800	238	1,009	101	137	2000	77	381	42	35				
0815	230	1,003	86	144	2015	84	346	43	41				
0830	199	932	101	98	2030	84	334	52	32				
0845	199	866	95	383	104	483	2045	81	326	49	186	32	140
0900	207	835	105	102	2100	57	306	34	23				
0915	196	801	87	109	2115	86	308	55	31				
0930	182	784	82	100	2130	69	293	42	27				
0945	161	746	72	346	89	400	2145	43	255	28	159	15	96
1000	127	666	57	70	2200	41	239	28	13				
1015	124	594	56	68	2215	33	186	17	16				
1030	117	529	48	69	2230	36	153	19	17				
1045	130	498	51	212	79	286	2245	27	137	14	78	13	59
1100	150	521	75	75	2300	27	123	20	7				
1115	131	528	69	62	2315	24	114	12	12				
1130	154	565	93	61	2330	12	90	6	6				
1145	153	588	81	318	72	270	2345	27	90	19	57	8	33
Total	11,167						5,471		5,696				

Volume Report

Job 0003_GI_L1
Area Maynard, MA
Location Parker St, south of B St



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

Friday, November 18, 2016

Time	Total	NB	SB		Time	Total	NB	SB					
0000	16	8	8		1200	170	589	91	79				
0015	11	6	5		1215	149	598	73	76				
0030	5	2	3		1230	160	620	77	83				
0045	4	36	3	19	1	17	1245	143	622	73	314	70	308
0100	5	25	3		2	1300	174	626	83	91			
0115	6	20	4		2	1315	153	630	82	71			
0130	1	16	1		0	1330	147	617	63	84			
0145	2	14	2	10	0	4	1345	140	614	72	300	68	314
0200	4	13	2		2	1400	165	605	78	87			
0215	0	7	0		0	1415	187	639	111	76			
0230	3	9	1		2	1430	200	692	104	96			
0245	3	10	1	4	2	6	1445	182	734	110	403	72	331
0300	1	7	1		0	1500	241	810	126	115			
0315	3	10	1		2	1515	238	861	133	105			
0330	3	10	0		3	1530	237	898	119	118			
0345	3	10	2	4	1	6	1545	212	928	123	501	89	427
0400	5	14	1		4	1600	230	917	147	83			
0415	5	16	2		3	1615	238	917	127	111			
0430	8	21	2		6	1630	231	911	125	106			
0445	13	31	3	8	10	23	1645	246	945	143	542	103	403
0500	22	48	6		16	1700	263	978	143	120			
0515	32	75	16		16	1715	251	991	132	119			
0530	49	116	15		34	1730	200	960	110	90			
0545	65	168	23	60	42	108	1745	245	959	130	515	115	444
0600	85	231	28		57	1800	190	886	99	91			
0615	125	324	41		84	1815	224	859	117	107			
0630	169	444	39		130	1830	179	838	101	78			
0645	209	588	75	183	134	405	1845	173	766	108	425	65	341
0700	196	699	81		115	1900	158	734	92	66			
0715	221	795	83		138	1915	119	629	63	56			
0730	237	863	89		148	1930	103	553	60	43			
0745	245	899	100	353	145	546	1945	97	477	51	266	46	211
0800	235	938	94		141	2000	74	393	41	33			
0815	200	917	87		113	2015	65	339	33	32			
0830	199	879	95		104	2030	78	314	50	28			
0845	197	831	107	383	90	448	2045	77	294	36	160	41	134
0900	204	800	96		108	2100	71	291	41	30			
0915	167	767	83		84	2115	101	327	49	52			
0930	193	761	85		108	2130	58	307	38	20			
0945	148	712	57	321	91	391	2145	76	306	39	167	37	139
1000	151	659	62		89	2200	79	314	47	32			
1015	148	640	70		78	2215	56	269	23	33			
1030	154	601	71		83	2230	39	250	20	19			
1045	139	592	54	257	85	335	2245	39	213	24	114	15	99
1100	138	579	64		74	2300	31	165	19	12			
1115	140	571	66		74	2315	22	131	12	10			
1130	138	555	57		81	2330	24	116	14	10			
1145	141	557	67	254	74	303	2345	25	102	16	61	9	41
Total	11,408						5,624		5,784				

Volume Report

Job 0003_GI_L1
Area Maynard, MA
Location Parker St, south of B St



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

Saturday, November 19, 2016

Time	Total	NB		SB		Time	Total	NB		SB			
0000	16	8		8		1200	187	778	98		89		
0015	9	5		4		1215	166	742	80		86		
0030	12	10		2		1230	157	705	68		89		
0045	13	50	9	32	4	18	1245	180	690	81	327	99	363
0100	8	42	6		2		1300	178	681	74		104	
0115	4	37	1		3		1315	165	680	88		77	
0130	6	31	4		2		1330	183	706	73		110	
0145	7	25	2	13	5	12	1345	206	732	114	349	92	383
0200	2	19	1		1		1400	177	731	82		95	
0215	5	20	4		1		1415	176	742	78		98	
0230	1	15	0		1		1430	141	700	72		69	
0245	1	9	1	6	0	3	1445	186	680	89	321	97	359
0300	1	8	0		1		1500	163	666	83		80	
0315	1	4	1		0		1515	161	651	88		73	
0330	2	5	0		2		1530	173	683	78		95	
0345	3	7	2	3	1	4	1545	156	653	83	332	73	321
0400	1	7	1		0		1600	170	660	86		84	
0415	6	12	2		4		1615	154	653	81		73	
0430	6	16	3		3		1630	153	633	66		87	
0445	7	20	2	8	5	12	1645	149	626	77	310	72	316
0500	7	26	3		4		1700	166	622	91		75	
0515	13	33	5		8		1715	150	618	75		75	
0530	15	42	10		5		1730	121	586	56		65	
0545	18	53	6	24	12	29	1745	118	555	66	288	52	267
0600	20	66	5		15		1800	126	515	64		62	
0615	48	101	21		27		1815	112	477	63		49	
0630	52	138	18		34		1830	111	467	57		54	
0645	57	177	30	74	27	103	1845	90	439	47	231	43	208
0700	54	211	26		28		1900	84	397	48		36	
0715	70	233	31		39		1915	94	379	55		39	
0730	89	270	38		51		1930	83	351	42		41	
0745	72	285	28	123	44	162	1945	66	327	37	182	29	145
0800	106	337	49		57		2000	51	294	28		23	
0815	115	382	53		62		2015	66	266	35		31	
0830	130	423	60		70		2030	58	241	32		26	
0845	133	484	63	225	70	259	2045	65	240	40	135	25	105
0900	123	501	63		60		2100	70	259	44		26	
0915	142	528	62		80		2115	57	250	33		24	
0930	150	548	75		75		2130	59	251	39		20	
0945	155	570	68	268	87	302	2145	38	224	25	141	13	83
1000	129	576	56		73		2200	53	207	33		20	
1015	168	602	81		87		2215	52	202	29		23	
1030	154	606	77		77		2230	45	188	25		20	
1045	145	596	79	293	66	303	2245	54	204	34	121	20	83
1100	169	636	80		89		2300	31	182	15		16	
1115	202	670	101		101		2315	40	170	18		22	
1130	194	710	93		101		2330	28	153	16		12	
1145	195	760	90	364	105	396	2345	32	131	18	67	14	64
Total	8,537			4,237		4,300							

Volume Report

Job 0003_GI_L2
Area Maynard, MA
Location Great Rd, east of Tiger Dr



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

Thursday, November 17, 2016

Time	Total	EB	WB		Time	Total	EB	WB					
0000	3	1	2		1200	122	469	58	64				
0015	5	2	3		1215	117	478	55	62				
0030	3	0	3		1230	119	467	61	58				
0045	2	13	0	3	2	10	1245	107	465	47	221	60	244
0100	0	10	0		1300	101	444	59	42				
0115	2	7	1		1315	101	428	52	49				
0130	4	8	1		1330	110	419	48	62				
0145	2	8	0	2	2	6	1345	110	422	42	201	68	221
0200	5	13	1		1400	171	492	78	93				
0215	1	12	1		1415	184	575	82	102				
0230	3	11	2		1430	178	643	87	91				
0245	0	9	0	4	0	5	1445	205	738	79	326	126	412
0300	1	5	0		1500	207	774	98	109				
0315	2	6	2		1515	197	787	74	123				
0330	1	4	0		1530	222	831	87	135				
0345	4	8	2	4	2	4	1545	230	856	59	318	171	538
0400	2	9	1		1600	229	878	69	160				
0415	14	21	11		1615	254	935	75	179				
0430	6	26	5		1630	265	978	70	195				
0445	19	41	11	28	8	13	1645	251	999	63	277	188	722
0500	24	63	21		1700	275	1,045	86	189				
0515	41	90	36		1715	247	1,038	67	180				
0530	60	144	54		1730	254	1,027	77	177				
0545	76	201	69	180	7	21	1745	254	1,030	62	292	192	738
0600	135	312	123		1800	247	1,002	64	183				
0615	178	449	142		1815	205	960	55	150				
0630	187	576	142		1830	178	884	49	129				
0645	169	669	122	529	47	140	1845	144	774	44	212	100	562
0700	190	724	128		1900	133	660	54	79				
0715	270	816	154		1915	107	562	37	70				
0730	301	930	164		1930	78	462	30	48				
0745	285	1,046	165	611	120	435	1945	82	400	33	154	49	246
0800	243	1,099	141		102		2000	76	343	32	44		
0815	239	1,068	147		92		2015	70	306	25	45		
0830	207	974	134		73		2030	60	288	20	40		
0845	180	869	114	536	66	333	2045	59	265	20	97	39	168
0900	163	789	100		63		2100	52	241	19	33		
0915	151	701	98		53		2115	45	216	16	29		
0930	143	637	84		59		2130	49	205	13	36		
0945	132	589	80	362	52	227	2145	43	189	12	60	31	129
1000	100	526	48		52		2200	38	175	12	26		
1015	128	503	74		54		2215	23	153	4	19		
1030	90	450	48		42		2230	23	127	6	17		
1045	112	430	70	240	42	190	2245	24	108	7	29	17	79
1100	115	445	53		62		2300	15	85	3	12		
1115	108	425	61		47		2315	21	83	7	14		
1130	130	465	67		63		2330	16	76	0	16		
1145	109	462	51	232	58	230	2345	15	67	4	14	11	53
Total	10,658						4,932		5,726				

Volume Report

Job 0003_GI_L2
Area Maynard, MA
Location Great Rd, east of Tiger Dr



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

Friday, November 18, 2016

Time	Total	EB	WB		Time	Total	EB	WB					
0000	10	4	6		1200	141	471	76	65				
0015	9	3	6		1215	103	488	58	45				
0030	4	1	3		1230	119	499	51	68				
0045	5	28	0	8	5	20	1245	116	479	50	235	66	244
0100	3	21	0	3	20	1300	140	478	68	72			
0115	1	13	0	1	1315	117	492	44	73				
0130	1	10	0	1	1330	125	498	54	71				
0145	1	6	0	0	1	6	1345	146	528	62	228	84	300
0200	3	6	1	2	1400	193	581	81	112				
0215	2	7	1	1	1415	150	614	65	85				
0230	1	7	0	1	1430	208	697	94	114				
0245	4	10	2	4	2	6	1445	192	743	72	312	120	431
0300	0	7	0	0	1500	253	803	129	124				
0315	4	9	3	1	1515	211	864	94	117				
0330	0	8	0	0	1530	200	856	64	136				
0345	3	7	3	6	0	1	1545	230	894	70	357	160	537
0400	4	11	3	1	1600	225	866	72	153				
0415	9	16	7	2	1615	249	904	67	182				
0430	7	23	6	1	1630	227	931	61	166				
0445	17	37	13	29	4	8	1645	251	952	65	265	186	687
0500	24	57	20	4	1700	259	986	69	190				
0515	34	82	29	5	1715	257	994	72	185				
0530	50	125	38	12	1730	233	1,000	62	171				
0545	85	193	68	155	17	38	1745	266	1,015	88	291	178	724
0600	145	314	115	30	1800	202	958	54	148				
0615	193	473	125	68	1815	198	899	59	139				
0630	211	634	140	71	1830	166	832	55	111				
0645	178	727	108	488	70	239	1845	144	710	47	215	97	495
0700	246	828	141	105	1900	118	626	37	81				
0715	258	893	152	106	1915	74	502	26	48				
0730	358	1,040	174	184	1930	81	417	28	53				
0745	303	1,165	167	634	136	531	1945	56	329	27	118	29	211
0800	241	1,160	139	102	2000	62	273	28	34				
0815	226	1,128	128	98	2015	43	242	17	26				
0830	227	997	144	83	2030	55	216	21	34				
0845	155	849	87	498	68	351	2045	48	208	18	84	30	124
0900	169	777	98	71	2100	46	192	23	23				
0915	170	721	97	73	2115	43	192	13	30				
0930	139	633	80	59	2130	33	170	8	25				
0945	127	605	81	356	46	249	2145	39	161	11	55	28	106
1000	117	553	60	57	2200	38	153	13	25				
1015	116	499	65	51	2215	43	153	19	24				
1030	118	478	63	55	2230	18	138	7	11				
1045	98	449	57	245	41	204	2245	24	123	6	45	18	78
1100	108	440	43	65	2300	23	108	4	19				
1115	120	444	59	61	2315	13	78	4	9				
1130	108	434	54	54	2330	17	77	3	14				
1145	102	438	55	211	47	227	2345	10	63	4	15	6	48
Total	10,719						4,854		5,865				

Speed Report

Job 0003_GI_L1
 Area Maynard, MA
 Location Parker St, south of B St
 Dir Northbound
Thursday, November 17, 2016



Time	Total	Speed Bins(mph)															
		5 10	10 15	15 20	20 25	25 30	30 35	35 40	40 45	45 50	50 55	55 60	60 65	65 70	70 75	75 80	
0000	13	0	0	0	0	0	0	0	0	5	5	1	2	0	0	0	
0100	7	0	0	0	0	1	1	0	0	0	2	1	0	0	0		
0200	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0		
0300	3	0	0	0	0	0	0	1	0	0	1	1	0	0	0		
0400	14	0	0	0	0	0	0	0	0	3	5	5	0	1	0		
0500	55	0	0	0	0	0	1	0	6	10	27	9	0	1	1		
0600	197	0	0	0	0	0	0	3	12	69	69	36	8	0	0		
0700	409	0	1	0	0	0	0	5	57	147	143	40	15	0	1		
0800	383	0	0	0	0	1	1	5	40	113	148	65	9	1	0		
0900	346	0	0	1	0	1	4	7	19	100	144	61	7	2	0		
1000	212	0	0	0	0	0	0	7	25	40	73	52	12	3	0		
1100	318	0	0	0	0	1	3	1	17	94	119	70	12	1	0		
1200	323	0	0	0	0	0	2	4	18	89	126	65	17	2	0		
1300	224	0	0	1	0	1	1	1	14	47	75	66	14	4	0		
1400	335	0	0	0	0	1	5	6	22	91	133	61	13	3	0		
1500	437	0	1	1	2	3	1	16	46	162	146	52	7	0	0		
1600	538	0	0	1	2	6	6	11	56	190	223	41	2	0	0		
1700	502	0	0	0	0	1	1	10	72	221	161	31	4	1	0		
1800	433	0	0	0	0	0	0	3	37	154	181	53	4	1	0		
1900	240	0	0	0	1	0	1	3	23	76	99	37	0	0	0		
2000	186	0	0	0	0	0	0	1	19	55	79	19	10	3	0		
2100	159	0	0	0	0	0	1	0	3	35	77	32	10	1	0		
2200	78	0	0	0	0	1	1	1	4	24	36	8	2	1	0		
2300	57	0	0	0	0	0	0	0	0	15	20	17	5	0	0		
00-00	5471	0	2	4	5	17	29	85	490	1740	2094	824	154	25	2	0	
	100.00%	0.00%	0.04%	0.07%	0.09%	0.31%	0.53%	1.55%	8.96%	31.80%	38.27%	15.06%	2.81%	0.46%	0.04%	0.00%	

Maximum = 71.4 mph, Minimum = 11.7 mph, Mean = 50.6 mph
 85% Speed = 55.70 mph, 95% Speed = 58.78 mph, Median = 50.83 mph
 10 mph Pace = 46 - 56, Number in Pace = 3890 (71.10%)
 Variance = 28.98, Standard Deviation = 5.38 mph

Speed Report

Job 0003_GI_L1
 Area Maynard, MA
 Location Parker St, south of B St
 Dir Northbound
 Friday, November 18, 2016



Time	Total	Speed Bins(mph)															
		5 10	10 15	15 20	20 25	25 30	30 35	35 40	40 45	45 50	50 55	55 60	60 65	65 70	70 75	75 80	
0000	19	0	0	0	0	0	0	0	1	4	6	5	1	1	0	0	
0100	10	0	0	0	0	0	0	0	0	0	2	4	1	0	2	0	
0200	4	0	0	0	0	1	0	0	0	0	2	0	0	1	0	0	
0300	4	0	0	0	0	0	0	0	0	1	2	0	1	0	0	0	
0400	8	0	0	0	0	0	0	0	0	2	3	0	1	2	0	0	
0500	60	0	0	0	0	1	0	0	3	14	18	16	8	0	0	0	
0600	183	0	0	0	0	0	0	0	9	60	70	31	9	2	2	0	
0700	353	0	0	0	0	0	0	6	13	93	149	72	17	2	1	0	
0800	383	0	0	0	0	0	0	4	18	113	147	75	21	4	1	0	
0900	321	0	0	1	0	0	1	2	8	94	128	70	15	0	0	2	
1000	257	0	0	0	1	0	1	0	21	64	113	44	11	2	0	0	
1100	254	0	0	1	2	3	1	2	9	73	106	42	12	2	0	1	
1200	314	0	0	0	2	1	4	3	24	67	142	59	11	1	0	0	
1300	300	0	0	0	0	1	3	3	19	77	107	77	13	0	0	0	
1400	403	0	1	0	3	0	4	7	32	121	166	62	6	1	0	0	
1500	501	0	0	3	1	7	9	29	53	132	192	65	6	4	0	0	
1600	542	0	0	3	0	0	5	5	82	225	177	42	3	0	0	0	
1700	515	0	0	0	0	0	0	13	71	195	185	48	3	0	0	0	
1800	425	0	0	2	2	1	4	7	33	147	171	54	4	0	0	0	
1900	266	0	0	0	0	0	3	6	28	80	109	38	2	0	0	0	
2000	160	0	0	0	0	1	0	1	10	46	59	35	7	1	0	0	
2100	167	0	0	0	0	0	0	0	14	54	69	21	6	2	1	0	
2200	114	0	0	0	0	0	1	1	2	28	53	25	4	0	0	0	
2300	61	0	0	0	0	0	0	1	4	14	17	21	4	0	0	0	
00-00	5624	0	1	10	11	16	36	91	454	1704	2193	906	166	25	7	3	
	100.00%	0.00%	0.02%	0.18%	0.20%	0.28%	0.64%	1.62%	8.07%	30.30%	38.99%	16.11%	2.95%	0.44%	0.12%	0.05%	

Maximum = 87.1 mph, Minimum = 13.0 mph, Mean = 50.8 mph
 85% Speed = 55.87 mph, 95% Speed = 59.17 mph, Median = 50.95 mph
 10 mph Pace = 46 - 56, Number in Pace = 3972 (70.63%)
 Variance = 31.89, Standard Deviation = 5.65 mph

Speed Report

Job 0003_GI_L1
 Area Maynard, MA
 Location Parker St, south of B St
 Dir Northbound
Saturday, November 19, 2016



Time	Total	Speed Bins(mph)															
		5 10	10 15	15 20	20 25	25 30	30 35	35 40	40 45	45 50	50 55	55 60	60 65	65 70	70 75	75 80	
0000	32	0	0	0	0	0	0	0	0	14	8	8	0	1	0	0	
0100	13	0	0	0	0	0	0	0	0	1	6	4	0	2	0	0	
0200	6	0	0	0	0	0	0	0	1	0	2	3	0	0	0	0	
0300	3	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	
0400	8	0	0	0	0	0	0	1	1	1	3	1	1	0	0	0	
0500	24	0	0	0	0	0	0	0	0	7	8	7	0	2	0	0	
0600	74	0	0	0	0	0	0	0	5	25	21	15	7	1	0	0	
0700	123	0	0	0	0	0	1	0	5	23	47	36	9	2	0	0	
0800	225	0	0	0	0	0	1	0	9	33	95	65	21	0	1	0	
0900	268	0	0	0	0	0	0	1	8	84	106	48	21	0	0	0	
1000	293	0	0	0	0	0	2	8	32	91	100	46	13	1	0	0	
1100	364	0	0	1	1	0	0	0	21	84	155	87	14	0	1	0	
1200	327	1	0	1	0	1	1	1	11	79	127	87	15	3	0	0	
1300	349	0	0	0	2	1	3	3	8	76	129	97	29	1	0	0	
1400	321	0	0	0	1	0	0	1	13	83	141	69	10	2	1	0	
1500	332	0	0	0	0	0	3	0	10	86	132	83	18	0	0	0	
1600	310	1	0	1	0	0	1	10	30	90	114	48	14	1	0	0	
1700	288	0	0	0	0	0	1	7	28	83	125	41	3	0	0	0	
1800	231	0	0	1	0	1	3	6	13	78	80	39	8	2	0	0	
1900	182	0	0	0	0	0	0	2	8	54	80	32	6	0	0	0	
2000	135	0	0	0	0	0	1	0	6	39	61	21	6	0	1	0	
2100	141	0	0	1	0	0	0	0	9	39	63	26	2	1	0	0	
2200	121	0	0	0	0	0	0	0	18	33	46	20	3	1	0	0	
2300	67	0	0	0	0	0	0	1	3	22	26	9	5	1	0	0	
00-00	4237	2	0	5	4	3	17	41	240	1125	1678	892	205	21	4	0	
	100.00%	0.05%	0.00%	0.12%	0.09%	0.07%	0.40%	0.97%	5.66%	26.55%	39.60%	21.05%	4.84%	0.50%	0.09%	0.00%	

Maximum = 73.4 mph, Minimum = 7.7 mph, Mean = 51.9 mph
 85% Speed = 57.00 mph, 95% Speed = 60.29 mph, Median = 52.06 mph
 10 mph Pace = 47 - 57, Number in Pace = 3005 (70.92%)
 Variance = 28.83, Standard Deviation = 5.37 mph

Speed Report

Job 0003_GI_L1
 Area Maynard, MA
 Location Parker St, south of B St
 Dir Southbound
Thursday, November 17, 2016



Time	Total	Speed Bins(mph)															
		5 10	10 15	15 20	20 25	25 30	30 35	35 40	40 45	45 50	50 55	55 60	60 65	65 70	70 75	75 80	
0000	10	0	0	0	0	0	0	0	2	4	0	0	0	0	0	0	
0100	6	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	
0200	4	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	
0300	5	0	0	0	0	0	0	0	0	0	4	1	0	0	0	0	
0400	20	0	0	0	0	0	0	0	4	6	8	1	1	0	0	0	
0500	107	0	0	0	0	0	0	3	21	46	30	6	1	0	0	0	
0600	434	0	0	0	0	0	4	6	134	195	84	10	1	0	0	0	
0700	568	0	0	0	0	2	9	49	156	222	111	16	3	0	0	0	
0800	483	0	0	0	0	0	3	31	151	182	85	25	6	0	0	0	
0900	400	0	0	0	0	1	4	5	70	159	134	24	3	0	0	0	
1000	286	0	0	0	0	0	2	1	45	122	94	19	2	0	1	0	
1100	270	0	0	0	0	1	3	8	41	117	80	17	2	1	0	0	
1200	302	0	0	0	0	2	0	7	42	136	91	19	4	0	1	0	
1300	307	0	0	0	0	6	8	16	45	130	75	24	2	0	1	0	
1400	317	0	0	0	0	0	1	5	49	116	112	28	5	0	1	0	
1500	382	0	2	2	0	2	8	11	70	179	90	18	0	0	0	0	
1600	434	0	1	3	2	1	10	29	117	180	79	11	0	0	1	0	
1700	500	0	0	0	0	0	1	33	221	191	47	7	0	0	0	0	
1800	326	0	0	0	0	0	0	15	93	147	60	11	0	0	0	0	
1900	207	0	0	0	0	0	0	9	55	93	39	10	1	0	0	0	
2000	140	0	0	0	0	0	1	12	32	62	29	3	1	0	0	0	
2100	96	0	1	0	0	0	3	0	15	47	25	5	0	0	0	0	
2200	59	0	0	0	0	0	0	2	13	21	15	6	2	0	0	0	
2300	33	0	0	0	0	0	0	0	5	11	13	3	0	1	0	0	
00-00	5696	0	4	5	2	15	57	244	1381	2368	1313	266	34	2	5	0	
	100.00%	0.00%	0.07%	0.09%	0.04%	0.26%	1.00%	4.28%	24.25%	41.57%	23.05%	4.67%	0.60%	0.04%	0.09%	0.00%	

Maximum = 74.4 mph, Minimum = 11.7 mph, Mean = 47.3 mph
 85% Speed = 52.18 mph, 95% Speed = 55.14 mph, Median = 47.37 mph
 10 mph Pace = 42 - 52, Number in Pace = 4147 (72.81%)
 Variance = 25.73, Standard Deviation = 5.07 mph

Speed Report

Job 0003_GI_L1
 Area Maynard, MA
 Location Parker St, south of B St
 Dir Southbound
 Friday, November 18, 2016



Time	Total	Speed Bins(mph)															
		5 10	10 15	15 20	20 25	25 30	30 35	35 40	40 45	45 50	50 55	55 60	60 65	65 70	70 75	75 80	
0000	17	0	0	0	0	0	0	0	3	8	4	0	1	0	0	1	
0100	4	0	0	0	0	0	0	0	0	1	2	0	1	0	0	0	
0200	6	0	0	0	0	0	0	1	1	0	3	1	0	0	0	0	
0300	6	0	0	0	0	0	0	0	1	1	4	0	0	0	0	0	
0400	23	0	0	0	0	1	0	1	5	7	9	0	0	0	0	0	
0500	108	0	0	0	0	0	0	0	28	44	28	7	1	0	0	0	
0600	405	0	0	0	0	0	0	27	87	191	78	17	3	2	0	0	
0700	546	0	0	2	2	6	8	8	104	258	126	31	1	0	0	0	
0800	448	0	0	0	0	0	5	18	65	189	134	34	2	1	0	0	
0900	391	0	0	0	0	0	0	11	62	132	148	31	6	0	0	1	
1000	335	0	0	0	0	0	3	3	42	164	88	31	4	0	0	0	
1100	303	0	0	0	0	0	1	8	74	100	93	25	2	0	0	0	
1200	308	0	0	0	1	1	4	7	56	102	96	36	5	0	0	0	
1300	314	0	0	1	0	1	2	10	43	106	115	32	3	1	0	0	
1400	331	0	1	2	1	2	8	9	49	142	96	20	1	0	0	0	
1500	427	0	0	1	0	2	9	23	96	180	93	22	1	0	0	0	
1600	403	0	1	0	3	8	6	24	131	162	59	8	1	0	0	0	
1700	444	0	0	1	2	7	11	50	176	134	51	10	1	1	0	0	
1800	341	0	0	0	1	0	2	22	89	148	66	10	2	1	0	0	
1900	211	0	0	0	0	0	1	12	57	98	39	4	0	0	0	0	
2000	134	0	0	0	0	0	0	5	30	69	24	5	0	1	0	0	
2100	139	0	0	0	0	0	0	7	28	60	39	4	0	1	0	0	
2200	99	0	0	1	0	0	0	5	20	40	24	9	0	0	0	0	
2300	41	0	1	0	0	0	1	1	7	16	10	4	0	1	0	0	
00-00	5784	0	3	8	10	28	61	252	1254	2352	1429	341	35	9	0	2	
	100.00%	0.00%	0.05%	0.14%	0.17%	0.48%	1.05%	4.36%	21.68%	40.66%	24.71%	5.90%	0.61%	0.16%	0.00%	0.03%	

Maximum = 77.5 mph, Minimum = 13.4 mph, Mean = 47.6 mph
 85% Speed = 52.75 mph, 95% Speed = 55.80 mph, Median = 47.70 mph
 10 mph Pace = 43 - 53, Number in Pace = 4070 (70.37%)
 Variance = 29.40, Standard Deviation = 5.42 mph

Speed Report

Job 0003_GI_L1
 Area Maynard, MA
 Location Parker St, south of B St
 Dir Southbound
Saturday, November 19, 2016



Time	Total	Speed Bins(mph)															
		5 10	10 15	15 20	20 25	25 30	30 35	35 40	40 45	45 50	50 55	55 60	60 65	65 70	70 75	75 80	
0000	18	0	0	0	0	0	0	0	3	1	9	3	1	0	0	0	
0100	12	0	0	0	0	0	0	0	3	3	1	4	1	0	0	0	
0200	3	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	
0300	4	0	0	0	0	0	0	0	0	0	1	2	1	0	0	0	
0400	12	0	0	0	0	0	0	0	0	1	9	2	0	0	0	0	
0500	29	0	0	0	0	0	0	0	0	6	13	7	3	0	0	0	
0600	103	0	0	0	0	0	0	0	2	13	40	37	8	3	0	0	
0700	162	0	0	0	0	0	0	0	1	19	67	55	19	1	0	0	
0800	259	0	0	0	0	2	0	2	24	103	92	31	4	1	0	0	
0900	302	0	0	0	5	1	1	6	28	125	104	26	6	0	0	0	
1000	303	0	0	0	0	0	0	3	32	124	104	37	3	0	0	0	
1100	396	0	0	0	1	0	1	7	56	148	145	38	0	0	0	0	
1200	363	0	0	0	0	1	2	3	40	153	128	33	2	1	0	0	
1300	383	0	0	0	1	0	0	1	63	170	115	26	5	2	0	0	
1400	359	1	0	0	2	2	1	20	83	144	86	19	0	1	0	0	
1500	321	0	0	0	0	0	2	15	56	137	96	14	1	0	0	0	
1600	316	0	0	0	0	0	1	5	74	156	67	10	3	0	0	0	
1700	267	0	0	0	0	0	1	18	74	109	49	15	1	0	0	0	
1800	208	0	0	0	0	0	0	7	50	104	35	11	1	0	0	0	
1900	145	0	0	1	0	1	0	2	35	54	43	8	1	0	0	0	
2000	105	0	0	0	0	0	1	2	24	47	25	5	1	0	0	0	
2100	83	0	0	0	0	0	1	4	15	46	17	0	0	0	0	0	
2200	83	0	0	0	2	3	0	4	25	36	13	0	0	0	0	0	
2300	64	0	0	0	0	0	1	6	20	17	16	3	1	0	0	0	
00-00	4300	1	0	1	11	10	12	114	743	1814	1245	310	33	5	0	0	
	100.00%	0.02%	0.00%	0.02%	0.26%	0.23%	0.28%	2.65%	17.28%	42.19%	28.95%	7.21%	0.77%	0.12%	0.00%	0.00%	

Maximum = 80.5 mph, Minimum = 9.8 mph, Mean = 48.5 mph
 85% Speed = 53.12 mph, 95% Speed = 56.48 mph, Median = 48.54 mph
 10 mph Pace = 44 - 54, Number in Pace = 3169 (73.70%)
 Variance = 24.80, Standard Deviation = 4.98 mph

Speed Report

Job 0003_GI_L2
 Area Maynard, MA
 Location Great Rd, east of Tiger Dr
 Dir Eastbound
Thursday, November 17, 2016



Time	Total	Speed Bins(mph)															
		5 10	10 15	15 20	20 25	25 30	30 35	35 40	40 45	45 50	50 55	55 60	60 65	65 70	70 75	75 80	
0000	3	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	
0100	2	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	
0200	4	0	0	0	0	0	0	0	0	3	0	1	0	0	0	0	
0300	4	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	
0400	28	0	0	0	0	1	0	1	2	11	10	3	0	0	0	0	
0500	180	0	0	0	0	1	4	17	34	71	39	11	2	1	0	0	
0600	529	17	56	102	71	104	47	45	56	26	4	1	0	0	0	0	
0700	611	6	48	111	134	131	76	55	37	7	4	0	0	2	0	0	
0800	536	7	6	33	36	35	96	115	117	77	11	3	0	0	0	0	
0900	362	0	0	3	7	6	24	33	97	121	59	10	2	0	0	0	
1000	240	0	0	1	7	2	3	17	59	100	44	6	1	0	0	0	
1100	232	0	0	0	0	3	8	30	68	73	42	7	1	0	0	0	
1200	221	0	0	0	0	1	4	16	66	89	34	10	0	1	0	0	
1300	201	0	0	0	0	1	10	35	43	65	38	8	1	0	0	0	
1400	326	1	3	4	9	20	74	108	73	28	5	0	0	0	1	0	
1500	318	0	0	1	5	7	19	72	102	83	24	3	2	0	0	0	
1600	277	0	0	0	0	7	17	49	89	74	38	2	1	0	0	0	
1700	292	0	0	0	1	3	21	63	110	67	20	6	1	0	0	0	
1800	212	0	0	0	1	4	17	30	62	80	14	4	0	0	0	0	
1900	154	0	0	0	0	2	5	20	59	52	13	3	0	0	0	0	
2000	97	0	0	0	0	0	4	8	33	35	15	2	0	0	0	0	
2100	60	0	0	0	0	0	1	3	14	27	13	1	1	0	0	0	
2200	29	0	0	0	0	0	0	2	8	5	10	4	0	0	0	0	
2300	14	0	0	0	0	0	0	0	3	4	3	3	1	0	0	0	
00-00	4932	31	113	255	271	328	430	719	1134	1100	444	89	13	4	1	0	
	100.00%	0.63%	2.29%	5.17%	5.49%	6.65%	8.72%	14.58%	22.99%	22.30%	9.00%	1.80%	0.26%	0.08%	0.02%	0.00%	

Maximum = 74.3 mph, Minimum = 5.3 mph, Mean = 39.0 mph
 85% Speed = 48.99 mph, 95% Speed = 52.68 mph, Median = 41.66 mph
 10 mph Pace = 40 - 50, Number in Pace = 2242 (45.46%)
 Variance = 116.62, Standard Deviation = 10.80 mph

Speed Report

Job 0003_GI_L2
 Area Maynard, MA
 Location Great Rd, east of Tiger Dr
 Dir Eastbound
Friday, November 18, 2016



Time	Total	Speed Bins(mph)															
		5 10	10 15	15 20	20 25	25 30	30 35	35 40	40 45	45 50	50 55	55 60	60 65	65 70	70 75	75 80	
0000	8	0	0	0	0	0	0	0	2	2	3	1	0	0	0	0	
0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
0200	4	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	
0300	6	0	0	0	0	0	0	0	0	1	2	3	0	0	0	0	
0400	29	0	0	0	0	0	0	1	3	10	8	5	2	0	0	0	
0500	155	0	0	2	2	0	12	13	34	41	38	11	0	1	1	0	
0600	488	31	80	69	54	37	35	69	80	26	7	0	0	0	0	0	
0700	634	9	52	111	127	116	98	79	30	10	1	0	0	1	0	0	
0800	498	5	24	18	38	47	90	109	77	62	24	4	0	0	0	0	
0900	356	0	0	0	4	1	22	58	91	110	59	11	0	0	0	0	
1000	245	0	0	0	0	1	3	20	50	99	54	15	3	0	0	0	
1100	211	0	0	0	1	1	3	15	48	87	45	10	1	0	0	0	
1200	235	0	0	1	1	3	5	16	59	85	46	18	1	0	0	0	
1300	228	0	1	3	3	2	10	30	49	75	38	15	2	0	0	0	
1400	312	0	0	0	5	24	64	95	87	30	6	1	0	0	0	0	
1500	357	0	5	9	16	27	35	69	82	81	31	1	1	0	0	0	
1600	265	0	0	0	0	2	20	53	81	79	23	7	0	0	0	0	
1700	291	0	0	0	1	10	22	88	76	71	21	1	1	0	0	0	
1800	215	0	0	0	0	0	0	22	57	88	41	5	2	0	0	0	
1900	118	0	0	0	0	0	1	5	24	51	34	1	2	0	0	0	
2000	84	0	0	0	0	0	1	2	32	34	13	2	0	0	0	0	
2100	55	0	0	0	0	0	0	6	7	22	16	4	0	0	0	0	
2200	45	0	0	0	0	1	0	3	12	16	8	3	2	0	0	0	
2300	15	0	0	0	0	0	1	3	1	3	4	2	1	0	0	0	
00-00	4854	45	162	213	252	272	422	756	982	1084	525	120	18	2	1	0	
	100.00%	0.93%	3.34%	4.39%	5.19%	5.60%	8.69%	15.57%	20.23%	22.33%	10.82%	2.47%	0.37%	0.04%	0.02%	0.00%	

Maximum = 74.9 mph, Minimum = 5.5 mph, Mean = 39.3 mph
 85% Speed = 49.72 mph, 95% Speed = 53.46 mph, Median = 41.66 mph
 10 mph Pace = 40 - 50, Number in Pace = 2075 (42.75%)
 Variance = 125.34, Standard Deviation = 11.20 mph

Speed Report

Job 0003_GI_L2
 Area Maynard, MA
 Location Great Rd, east of Tiger Dr
 Dir Eastbound
Saturday, November 19, 2016



Time	Total	Speed Bins(mph)															
		5 10	10 15	15 20	20 25	25 30	30 35	35 40	40 45	45 50	50 55	55 60	60 65	65 70	70 75	75 80	
0000	17	0	0	0	0	0	0	3	1	6	4	1	1	0	1	0	
0100	5	0	0	0	0	0	0	0	1	2	2	0	0	0	0	0	
0200	6	0	0	0	0	0	1	0	1	2	2	0	0	0	0	0	
0300	6	0	0	0	0	0	1	0	0	3	1	1	0	0	0	0	
0400	8	0	0	0	0	0	0	0	1	2	3	2	0	0	0	0	
0500	35	0	0	0	0	0	0	1	3	13	13	2	2	1	0	0	
0600	85	0	0	0	1	1	3	6	8	27	27	9	2	1	0	0	
0700	126	0	0	0	0	0	2	7	23	41	36	13	4	0	0	0	
0800	189	0	0	0	0	3	2	8	20	71	55	27	3	0	0	0	
0900	228	0	0	2	7	14	3	3	32	92	61	10	3	1	0	0	
1000	226	0	0	0	1	0	4	13	34	97	64	10	3	0	0	0	
1100	271	0	0	0	0	0	9	10	71	102	60	16	3	0	0	0	
1200	275	1	1	1	2	3	6	17	55	94	73	19	3	0	0	0	
1300	221	0	0	0	5	2	3	13	38	90	47	15	7	0	1	0	
1400	248	0	0	1	2	0	1	10	50	90	74	11	8	0	1	0	
1500	241	0	0	0	1	0	6	8	49	99	64	12	2	0	0	0	
1600	257	0	0	0	0	1	10	26	78	89	44	6	2	1	0	0	
1700	204	0	0	0	0	1	4	19	47	94	33	6	0	0	0	0	
1800	154	0	0	0	0	1	0	7	38	61	34	12	1	0	0	0	
1900	89	0	0	0	0	0	2	8	17	44	15	2	1	0	0	0	
2000	68	0	0	0	0	0	2	7	13	25	17	3	1	0	0	0	
2100	74	0	1	1	0	0	0	4	27	28	8	4	0	1	0	0	
2200	67	0	0	0	0	0	1	4	21	27	11	3	0	0	0	0	
2300	57	0	0	0	0	0	0	5	15	22	13	2	0	0	0	0	
00-00	3157	1	2	5	19	26	60	179	643	1221	761	186	46	5	3	0	
	100.00%	0.03%	0.06%	0.16%	0.60%	0.82%	1.90%	5.67%	20.37%	38.68%	24.11%	5.89%	1.46%	0.16%	0.10%	0.00%	

Maximum = 72.9 mph, Minimum = 6.7 mph, Mean = 47.3 mph
 85% Speed = 52.79 mph, 95% Speed = 56.31 mph, Median = 47.65 mph
 10 mph Pace = 43 - 53, Number in Pace = 2123 (67.25%)
 Variance = 38.81, Standard Deviation = 6.23 mph

Speed Report

Job 0003_GI_L2
 Area Maynard, MA
 Location Great Rd, east of Tiger Dr
 Dir Westbound
Thursday, November 17, 2016



Time	Total	Speed Bins(mph)															
		5 10	10 15	15 20	20 25	25 30	30 35	35 40	40 45	45 50	50 55	55 60	60 65	65 70	70 75	75 80	
0000	10	0	0	0	0	0	0	1	5	0	3	1	0	0	0	0	
0100	6	0	0	0	0	1	0	0	2	3	0	0	0	0	0	0	
0200	5	0	0	0	0	0	0	0	2	3	0	0	0	0	0	0	
0300	4	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0	
0400	13	0	0	0	0	0	0	4	3	5	1	0	0	0	0	0	
0500	21	0	0	0	0	0	3	1	5	9	3	0	0	0	0	0	
0600	140	0	1	0	0	3	10	31	50	35	10	0	0	0	0	0	
0700	435	6	15	49	74	60	99	72	45	12	1	0	0	2	0	0	
0800	333	0	1	0	1	19	60	84	96	52	13	7	0	0	0	0	
0900	227	0	0	1	0	0	10	38	69	66	34	8	1	0	0	0	
1000	190	0	1	6	4	3	6	24	63	53	26	4	0	0	0	0	
1100	230	0	0	1	8	8	20	30	64	73	23	3	0	0	0	0	
1200	244	0	0	0	3	7	17	31	77	82	20	4	1	1	1	0	
1300	221	0	0	0	1	2	9	46	73	64	23	3	0	0	0	0	
1400	412	0	1	9	24	50	82	108	94	31	13	0	0	0	0	0	
1500	538	0	0	3	12	20	65	146	161	106	21	4	0	0	0	0	
1600	722	0	0	0	10	27	113	213	222	109	24	3	1	0	0	0	
1700	738	0	0	0	0	35	117	218	232	103	29	4	0	0	0	0	
1800	562	0	0	3	8	53	80	167	133	99	16	3	0	0	0	0	
1900	246	0	0	1	1	3	9	26	86	90	24	5	1	0	0	0	
2000	168	0	0	0	0	0	3	16	50	63	29	3	3	0	0	1	
2100	129	0	0	0	0	1	0	5	48	50	21	4	0	0	0	0	
2200	79	0	0	0	0	0	0	11	20	34	11	2	1	0	0	0	
2300	53	0	0	0	0	0	0	2	14	23	12	2	0	0	0	0	
00-00	5726	6	19	73	146	292	703	1275	1615	1167	357	60	8	3	1	1	
	100.00%	0.10%	0.33%	1.27%	2.55%	5.10%	12.28%	22.27%	28.20%	20.38%	6.23%	1.05%	0.14%	0.05%	0.02%	0.02%	

Maximum = 75.9 mph, Minimum = 5.2 mph, Mean = 40.3 mph
 85% Speed = 47.59 mph, 95% Speed = 51.34 mph, Median = 41.02 mph
 10 mph Pace = 37 - 47, Number in Pace = 3063 (53.49%)
 Variance = 59.82, Standard Deviation = 7.73 mph

Speed Report

Job 0003_GI_L2
 Area Maynard, MA
 Location Great Rd, east of Tiger Dr
 Dir Westbound
Friday, November 18, 2016



Time	Total	Speed Bins(mph)															
		5 10	10 15	15 20	20 25	25 30	30 35	35 40	40 45	45 50	50 55	55 60	60 65	65 70	70 75	75 80	
0000	20	0	0	0	0	0	0	2	4	5	2	5	0	0	0	0	
0100	6	0	0	0	0	1	0	1	0	4	0	0	0	0	0	0	
0200	6	0	0	0	0	0	0	0	0	4	1	1	0	0	0	0	
0300	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	
0400	8	0	0	0	0	0	0	2	3	2	1	0	0	0	0	0	
0500	38	0	0	0	0	0	1	4	12	15	4	2	0	0	0	0	
0600	239	0	1	0	22	1	16	28	66	65	35	3	2	0	0	0	
0700	531	2	11	16	34	60	135	137	104	28	3	0	0	1	0	0	
0800	351	2	1	1	3	7	46	71	89	89	34	6	2	0	0	0	
0900	249	0	0	0	1	4	7	32	88	67	43	7	0	0	0	0	
1000	204	0	0	0	1	1	12	9	52	71	50	7	1	0	0	0	
1100	227	0	0	0	0	0	6	26	62	76	44	11	2	0	0	0	
1200	244	0	0	0	0	1	2	29	81	85	34	12	0	0	0	0	
1300	300	0	0	0	2	5	19	44	96	93	36	5	0	0	0	0	
1400	431	0	3	10	28	68	88	104	83	34	11	2	0	0	0	0	
1500	537	0	0	2	7	22	51	128	167	118	35	5	1	1	0	0	
1600	687	0	0	5	14	39	90	176	228	110	21	4	0	0	0	0	
1700	724	2	0	3	25	56	106	197	224	93	14	3	1	0	0	0	
1800	495	0	0	0	2	18	56	104	168	104	39	3	1	0	0	0	
1900	211	0	0	0	0	1	7	20	69	77	29	7	1	0	0	0	
2000	124	0	0	0	1	0	3	12	34	43	25	5	1	0	0	0	
2100	106	0	0	0	0	0	0	11	26	47	19	3	0	0	0	0	
2200	78	0	0	0	0	0	2	6	23	33	8	6	0	0	0	0	
2300	48	0	0	0	0	0	0	2	15	21	9	1	0	0	0	0	
00-00	5865	6	16	37	140	284	649	1145	1694	1285	497	98	12	2	0	0	
	100.00%	0.10%	0.27%	0.63%	2.39%	4.84%	11.07%	19.52%	28.88%	21.91%	8.47%	1.67%	0.20%	0.03%	0.00%	0.00%	

Maximum = 68.3 mph, Minimum = 5.4 mph, Mean = 41.2 mph
 85% Speed = 48.54 mph, 95% Speed = 52.34 mph, Median = 42.05 mph
 10 mph Pace = 38 - 48, Number in Pace = 3139 (53.52%)
 Variance = 59.06, Standard Deviation = 7.69 mph

Speed Report

Job 0003_GI_L2
 Area Maynard, MA
 Location Great Rd, east of Tiger Dr
 Dir Westbound
Saturday, November 19, 2016



Time	Total	Speed Bins(mph)															
		5 10	10 15	15 20	20 25	25 30	30 35	35 40	40 45	45 50	50 55	55 60	60 65	65 70	70 75	75 80	
0000	38	0	0	0	0	1	0	3	19	12	3	0	0	0	0	0	
0100	14	0	0	0	0	0	0	1	3	5	3	2	0	0	0	0	
0200	9	0	0	0	0	0	0	0	1	4	4	0	0	0	0	0	
0300	4	0	0	0	0	0	0	0	0	1	3	0	0	0	0	0	
0400	3	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	
0500	15	0	0	0	0	0	2	3	7	3	0	0	0	0	0	0	
0600	55	0	0	0	0	2	0	5	12	19	11	6	0	0	0	0	
0700	96	0	0	0	2	0	2	7	20	28	27	10	0	0	0	0	
0800	147	0	0	0	0	1	2	15	35	41	38	13	1	1	0	0	
0900	190	0	0	0	1	0	2	12	42	73	47	12	1	0	0	0	
1000	244	0	0	1	0	1	9	16	62	81	55	16	3	0	0	0	
1100	256	0	1	0	0	7	7	15	61	89	54	20	2	0	0	0	
1200	277	0	0	0	2	0	6	30	71	100	54	12	2	0	0	0	
1300	294	1	0	1	2	1	4	30	69	100	65	16	3	1	1	0	
1400	284	0	0	0	0	3	4	20	82	84	72	17	2	0	0	0	
1500	295	0	0	2	1	0	5	26	88	83	71	17	2	0	0	0	
1600	251	0	0	0	1	0	3	29	77	88	40	13	0	0	0	0	
1700	214	0	0	0	0	1	8	24	76	78	23	4	0	0	0	0	
1800	181	0	0	0	2	0	0	16	53	78	23	9	0	0	0	0	
1900	139	0	0	0	0	0	2	11	36	56	30	4	0	0	0	0	
2000	104	0	0	0	0	0	0	5	29	46	15	8	1	0	0	0	
2100	110	0	0	1	6	2	2	13	34	36	13	2	1	0	0	0	
2200	87	0	0	0	0	1	0	8	27	36	14	1	0	0	0	0	
2300	65	0	0	0	0	0	0	5	22	27	7	4	0	0	0	0	
00-00	3372	1	1	5	17	20	59	294	926	1169	673	186	18	2	1	0	
	100.00%	0.03%	0.03%	0.15%	0.50%	0.59%	1.75%	8.72%	27.46%	34.67%	19.96%	5.52%	0.53%	0.06%	0.03%	0.00%	

Maximum = 71.2 mph, Minimum = 8.0 mph, Mean = 46.3 mph
 85% Speed = 52.06 mph, 95% Speed = 55.48 mph, Median = 46.53 mph
 10 mph Pace = 41 - 51, Number in Pace = 2201 (65.27%)
 Variance = 35.61, Standard Deviation = 5.97 mph

Classification Report

Job # 0003_GL_L1
Area Maynard, MA
Location Parker St. south of B St
Direction Northbound
Thursday, November 17, 2016



Time	Total	Class 1 Motorcycle	Class 2 Passenger Car	Class 3 Vans, Pick up Trucks	Class 4 Bus	Class 5 2 Axle 6 Tires	Class 6 3 Axle Unit	Class 7 4 Axles or more Unit	Class 8 3 or 4 Axle Trailer	Class 9 5 Axle Trailer	Class 10 6 Axle or more Trailer	Class 11 5 Axle or less Multi-Trailer	Class 12 6 Axle Multi-Trailer	Class 13 7 Axle or more Multi-Trailer
0000	13	0	0	11	0	2	0	0	0	0	0	0	0	0
0100	7	1	0	5	0	1	0	0	0	0	0	0	0	0
0200	2	0	0	2	0	0	0	0	0	0	0	0	0	0
0300	3	0	0	3	0	0	0	0	0	0	0	0	0	0
0400	14	0	0	11	1	2	0	0	0	0	0	0	0	0
0500	55	0	3	38	6	8	0	0	0	0	0	0	0	0
0600	197	3	17	133	15	28	1	0	0	0	0	0	0	0
0700	409	3	35	292	22	56	1	0	0	0	0	0	0	0
0800	383	2	25	260	23	72	0	1	0	0	0	0	0	0
0900	346	2	30	236	20	58	0	0	0	0	0	0	0	0
1000	212	1	8	129	22	51	1	0	0	0	0	0	0	0
1100	318	3	14	208	16	71	6	0	0	0	0	0	0	0
1200	323	1	18	229	26	47	0	2	0	0	0	0	0	0
1300	224	0	14	157	17	32	2	1	1	0	0	0	0	0
1400	335	1	16	217	39	57	2	1	1	0	0	0	0	1
1500	437	1	30	291	26	85	1	1	1	1	0	0	0	0
1600	538	0	43	361	37	95	0	0	2	0	0	0	0	0
1700	502	2	40	365	31	64	0	0	0	0	0	0	0	0
1800	433	0	26	327	15	65	0	0	0	0	0	0	0	0
1900	240	0	8	194	10	28	0	0	0	0	0	0	0	0
2000	186	0	4	155	12	15	0	0	0	0	0	0	0	0
2100	159	0	3	125	9	22	0	0	0	0	0	0	0	0
2200	78	0	0	69	2	7	0	0	0	0	0	0	0	0
2300	57	1	0	49	1	5	1	0	0	0	0	0	0	0
00-00	5471	21	334	3867	350	871	15	6	5	1	0	0	0	1
	100.00%	0.38%	6.10%	70.68%	6.40%	15.92%	0.27%	0.11%	0.09%	0.02%	0.00%	0.00%	0.00%	0.02%

Classification Report

Job # 0003_GI_L1
 Area Maynard, MA
 Location Parker St. south of B St
 Direction Northbound
 Friday, November 18, 2016



Time	Total	Class 1 Motorcycle	Class 2 Passenger Car	Class 3 Vans, Pick up Trucks	Class 4 Bus	Class 5 2 Axle 6 Tires	Class 6 3 Axle Unit	Class 7 4 Axles or more Unit	Class 8 3 or 4 Axle Trailer	Class 9 5 Axle Trailer	Class 10 6 Axle or more Trailer	Class 11 5 Axle or less Multi-Trailer	Class 12 6 Axle Multi-Trailer	Class 13 7 Axle or more Multi-Trailer
0000	19	0	0	18	1	0	0	0	0	0	0	0	0	0
0100	10	0	0	9	0	1	0	0	0	0	0	0	0	0
0200	4	0	0	4	0	0	0	0	0	0	0	0	0	0
0300	4	0	0	3	0	1	0	0	0	0	0	0	0	0
0400	8	0	1	6	0	1	0	0	0	0	0	0	0	0
0500	60	1	2	43	5	9	0	0	0	0	0	0	0	0
0600	183	1	16	118	14	33	1	0	0	0	0	0	0	0
0700	353	2	23	248	20	57	3	0	0	0	0	0	0	0
0800	383	0	28	266	18	71	0	0	0	0	0	0	0	0
0900	321	0	30	208	23	60	0	0	0	0	0	0	0	0
1000	257	2	16	163	19	55	0	0	2	0	0	0	0	0
1100	254	2	16	161	18	51	3	2	1	0	0	0	0	0
1200	314	0	25	209	26	51	2	0	1	0	0	0	0	0
1300	300	2	20	181	32	65	0	0	0	0	0	0	0	0
1400	403	2	24	267	31	79	0	0	0	0	0	0	0	0
1500	501	2	29	318	54	96	0	1	1	0	0	0	0	0
1600	542	3	38	374	37	90	0	0	0	0	0	0	0	0
1700	515	1	41	366	24	81	2	0	0	0	0	0	0	0
1800	425	0	36	323	14	52	0	0	0	0	0	0	0	0
1900	266	1	11	199	14	41	0	0	0	0	0	0	0	0
2000	160	0	1	137	5	17	0	0	0	0	0	0	0	0
2100	167	0	4	132	4	27	0	0	0	0	0	0	0	0
2200	114	0	4	94	1	14	1	0	0	0	0	0	0	0
2300	61	0	0	51	3	7	0	0	0	0	0	0	0	0
00-00	5624	19	365	3898	363	959	12	3	5	0	0	0	0	0
	100.00%	0.34%	6.49%	69.31%	6.45%	17.05%	0.21%	0.05%	0.09%	0.00%	0.00%	0.00%	0.00%	0.00%

Classification Report

Job # 0003_GL_L1
Area Maynard, MA
Location Parker St. south of B St
Direction Northbound
Saturday, November 19, 2016



Time	Total	Class 1 Motorcycle	Class 2 Passenger Car	Class 3 Vans, Pick up Trucks	Class 4 Bus	Class 5 2 Axle 6 Tires	Class 6 3 Axle Unit	Class 7 4 Axles or more Unit	Class 8 3 or 4 Axle Trailer	Class 9 5 Axle Trailer	Class 10 6 Axle or more Trailer	Class 11 5 Axle or less Multi-Trailer	Class 12 6 Axle Multi-Trailer	Class 13 7 Axle or more Multi-Trailer
0000	32	1	0	26	2	3	0	0	0	0	0	0	0	0
0100	13	0	0	11	0	2	0	0	0	0	0	0	0	0
0200	6	0	0	5	0	1	0	0	0	0	0	0	0	0
0300	3	0	0	3	0	0	0	0	0	0	0	0	0	0
0400	8	0	0	6	0	2	0	0	0	0	0	0	0	0
0500	24	0	0	14	1	9	0	0	0	0	0	0	0	0
0600	74	0	0	46	7	20	0	0	1	0	0	0	0	0
0700	123	2	6	74	13	27	1	0	0	0	0	0	0	0
0800	225	0	8	152	23	41	1	0	0	0	0	0	0	0
0900	268	3	12	195	17	40	1	0	0	0	0	0	0	0
1000	293	0	16	219	18	38	0	1	1	0	0	0	0	0
1100	364	2	20	268	17	57	0	0	0	0	0	0	0	0
1200	327	3	18	238	11	56	0	0	1	0	0	0	0	0
1300	349	2	24	249	14	60	0	0	0	0	0	0	0	0
1400	321	2	22	228	16	53	0	0	0	0	0	0	0	0
1500	332	1	17	260	8	44	1	0	1	0	0	0	0	0
1600	310	0	14	229	15	51	0	0	1	0	0	0	0	0
1700	288	0	10	221	15	42	0	0	0	0	0	0	0	0
1800	231	0	7	181	5	38	0	0	0	0	0	0	0	0
1900	182	2	4	145	7	23	1	0	0	0	0	0	0	0
2000	135	0	3	109	5	18	0	0	0	0	0	0	0	0
2100	141	0	3	115	2	21	0	0	0	0	0	0	0	0
2200	121	0	2	97	2	20	0	0	0	0	0	0	0	0
2300	67	0	0	57	1	9	0	0	0	0	0	0	0	0
00-00	4237	18	186	3148	199	675	5	1	5	0	0	0	0	0
	100.00%	0.42%	4.39%	74.30%	4.70%	15.93%	0.12%	0.02%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%

Classification Report

Job # 0003_GI_L1
Area Maynard, MA
Location Parker St, south of B St
Direction Southbound
Thursday, November 17, 2016



Time	Total	Class 1 Motorcycle	Class 2 Passenger Car	Class 3 Vans, Pick up Trucks	Class 4 Bus	Class 5 2 Axle 6 Tires	Class 6 3 Axle Unit	Class 7 4 Axles or more Unit	Class 8 3 or 4 Axle Trailer	Class 9 5 Axle Trailer	Class 10 6 Axle or more Trailer	Class 11 5 Axle or less Multi-Trailer	Class 12 6 Axle Multi-Trailer	Class 13 7 Axle or more Multi-Trailer
0000	10	0	0	7	0	2	1	0	0	0	0	0	0	0
0100	6	0	0	4	0	2	0	0	0	0	0	0	0	0
0200	4	0	1	2	0	1	0	0	0	0	0	0	0	0
0300	5	0	1	4	0	0	0	0	0	0	0	0	0	0
0400	20	0	1	15	1	3	0	0	0	0	0	0	0	0
0500	107	1	2	70	6	26	2	0	0	0	0	0	0	0
0600	434	0	19	332	9	72	0	1	0	1	0	0	0	0
0700	568	1	43	428	21	71	0	3	1	0	0	0	0	0
0800	483	0	31	384	9	57	0	0	2	0	0	0	0	0
0900	400	2	37	298	13	47	2	0	0	0	1	0	0	0
1000	286	1	11	228	12	28	2	3	0	1	0	0	0	0
1100	270	0	18	202	11	36	2	0	0	1	0	0	0	0
1200	302	1	23	221	13	40	1	2	0	1	0	0	0	0
1300	307	0	19	242	12	33	1	0	0	0	0	0	0	0
1400	317	0	22	249	12	33	0	1	0	0	0	0	0	0
1500	382	0	34	294	7	43	2	0	1	0	0	0	0	1
1600	434	0	46	326	8	53	1	0	0	0	0	0	0	0
1700	500	1	46	404	13	36	0	0	0	0	0	0	0	0
1800	326	0	29	270	5	22	0	0	0	0	0	0	0	0
1900	207	0	9	186	1	11	0	0	0	0	0	0	0	0
2000	140	0	7	118	1	14	0	0	0	0	0	0	0	0
2100	96	0	2	87	0	7	0	0	0	0	0	0	0	0
2200	59	0	2	54	1	2	0	0	0	0	0	0	0	0
2300	33	0	0	30	1	2	0	0	0	0	0	0	0	0
00-00	5696	7	403	4455	156	641	14	10	4	4	1	0	0	1
	100.00%	0.12%	7.08%	78.21%	2.74%	11.25%	0.25%	0.18%	0.07%	0.07%	0.02%	0.00%	0.00%	0.02%

Classification Report

Job # 0003_GI_L1
Area Maynard, MA
Location Parker St, south of B St
Direction Southbound
Friday, November 18, 2016



Time	Total	Class 1 Motorcycle	Class 2 Passenger Car	Class 3 Vans, Pick up Trucks	Class 4 Bus	Class 5 2 Axle 6 Tires	Class 6 3 Axle Unit	Class 7 4 Axles or more Unit	Class 8 3 or 4 Axle Trailer	Class 9 5 Axle Trailer	Class 10 6 Axle or more Trailer	Class 11 5 Axle or less Multi-Trailer	Class 12 6 Axle Multi-Trailer	Class 13 7 Axle or more Multi-Trailer
0000	17	0	0	16	1	0	0	0	0	0	0	0	0	0
0100	4	0	0	2	1	0	0	0	0	1	0	0	0	0
0200	6	0	0	2	0	4	0	0	0	0	0	0	0	0
0300	6	0	1	5	0	0	0	0	0	0	0	0	0	0
0400	23	0	1	18	0	3	0	0	0	1	0	0	0	0
0500	108	0	0	84	5	18	1	0	0	0	0	0	0	0
0600	405	0	22	287	16	79	1	0	0	0	0	0	0	0
0700	546	0	31	418	17	76	2	0	2	0	0	0	0	0
0800	448	0	33	346	11	54	0	3	0	0	0	0	0	1
0900	391	1	36	281	11	56	4	2	0	0	0	0	0	0
1000	335	1	21	253	9	45	3	2	0	1	0	0	0	0
1100	303	0	16	215	15	55	1	1	0	0	0	0	0	0
1200	308	1	33	219	6	45	2	1	1	0	0	0	0	0
1300	314	2	24	223	8	53	1	2	0	1	0	0	0	0
1400	331	0	31	248	10	41	0	0	0	1	0	0	0	0
1500	427	2	31	325	23	42	3	1	0	0	0	0	0	0
1600	403	0	44	312	5	40	0	0	1	1	0	0	0	0
1700	444	0	53	345	8	37	0	0	0	1	0	0	0	0
1800	341	1	38	275	2	23	2	0	0	0	0	0	0	0
1900	211	0	12	180	3	15	0	0	1	0	0	0	0	0
2000	134	0	4	120	1	8	0	0	0	1	0	0	0	0
2100	139	0	5	124	0	9	0	0	0	1	0	0	0	0
2200	99	0	4	87	2	5	1	0	0	0	0	0	0	0
2300	41	0	0	37	0	4	0	0	0	0	0	0	0	0
00-00	5784	8	440	4422	154	712	21	12	5	9	0	0	0	1
	100.00%	0.14%	7.61%	76.45%	2.66%	12.31%	0.36%	0.21%	0.09%	0.16%	0.00%	0.00%	0.00%	0.02%

Classification Report

Job # 0003_GI_L1
Area Maynard, MA
Location Parker St, south of B St
Direction Southbound
Saturday, November 19, 2016



Time	Total	Class 1 Motorcycle	Class 2 Passenger Car	Class 3 Vans, Pick up Trucks	Class 4 Bus	Class 5 2 Axle 6 Tires	Class 6 3 Axle Unit	Class 7 4 Axles or more Unit	Class 8 3 or 4 Axle Trailer	Class 9 5 Axle Trailer	Class 10 6 Axle or more Trailer	Class 11 5 Axle or less Multi-Trailer	Class 12 6 Axle Multi-Trailer	Class 13 7 Axle or more Multi-Trailer
0000	18	0	0	13	2	2	0	0	0	1	0	0	0	0
0100	12	0	0	9	0	3	0	0	0	0	0	0	0	0
0200	3	0	0	2	0	1	0	0	0	0	0	0	0	0
0300	4	0	0	4	0	0	0	0	0	0	0	0	0	0
0400	12	0	0	10	0	2	0	0	0	0	0	0	0	0
0500	29	0	0	22	1	5	0	0	0	1	0	0	0	0
0600	103	0	0	81	7	15	0	0	0	0	0	0	0	0
0700	162	1	9	117	9	26	0	0	0	0	0	0	0	0
0800	259	1	12	203	10	33	0	0	0	0	0	0	0	0
0900	302	4	18	245	4	29	1	0	1	0	0	0	0	0
1000	303	1	18	249	4	30	0	0	0	1	0	0	0	0
1100	396	2	24	325	7	37	0	0	1	0	0	0	0	0
1200	363	2	30	295	6	29	0	0	0	1	0	0	0	0
1300	383	1	35	311	8	27	1	0	0	0	0	0	0	0
1400	359	2	36	293	4	23	0	0	1	0	0	0	0	0
1500	321	1	21	265	3	31	0	0	0	0	0	0	0	0
1600	316	1	18	271	3	23	0	0	0	0	0	0	0	0
1700	267	1	17	225	4	20	0	0	0	0	0	0	0	0
1800	208	0	9	179	1	19	0	0	0	0	0	0	0	0
1900	145	0	5	128	2	9	1	0	0	0	0	0	0	0
2000	105	0	5	88	1	11	0	0	0	0	0	0	0	0
2100	83	0	7	73	0	3	0	0	0	0	0	0	0	0
2200	83	0	2	77	0	4	0	0	0	0	0	0	0	0
2300	64	0	2	55	1	6	0	0	0	0	0	0	0	0
00-00	4300	17	268	3540	77	388	3	0	3	4	0	0	0	0
	100.00%	0.40%	6.23%	82.33%	1.79%	9.02%	0.07%	0.00%	0.07%	0.09%	0.00%	0.00%	0.00%	0.00%

Classification Report

Job # 0003_GI_L2
Area Maynard, MA
Location Great Rd, east of Tiger Dr
Direction Eastbound
Thursday, November 17, 2016



Time	Total	Class 1 Motorcycle	Class 2 Passenger Car	Class 3 Vans, Pick up Trucks	Class 4 Bus	Class 5 2 Axle 6 Tires	Class 6 3 Axle Unit	Class 7 4 Axles or more Unit	Class 8 3 or 4 Axle Trailer	Class 9 5 Axle Trailer	Class 10 6 Axle or more Trailer	Class 11 5 Axle or less Multi-Trailer	Class 12 6 Axle Multi-Trailer	Class 13 7 Axle or more Multi-Trailer
0000	3	0	0	3	0	0	0	0	0	0	0	0	0	0
0100	2	0	0	1	1	0	0	0	0	0	0	0	0	0
0200	4	0	0	2	1	1	0	0	0	0	0	0	0	0
0300	4	0	0	3	0	1	0	0	0	0	0	0	0	0
0400	28	1	0	19	4	4	0	0	0	0	0	0	0	0
0500	180	1	1	105	24	47	0	2	0	0	0	0	0	0
0600	529	8	122	272	44	80	1	2	0	0	0	0	0	0
0700	611	9	263	246	16	66	5	3	2	0	0	0	0	1
0800	536	3	136	261	40	89	5	1	1	0	0	0	0	0
0900	362	1	39	221	30	67	3	0	1	0	0	0	0	0
1000	240	0	30	137	19	51	0	3	0	0	0	0	0	0
1100	232	1	33	118	17	63	0	0	0	0	0	0	0	0
1200	221	0	26	118	19	56	1	1	0	0	0	0	0	0
1300	201	4	27	104	14	51	0	1	0	0	0	0	0	0
1400	326	2	51	164	19	87	1	1	1	0	0	0	0	0
1500	318	1	78	157	18	62	0	1	1	0	0	0	0	0
1600	277	0	70	133	11	58	5	0	0	0	0	0	0	0
1700	292	0	79	143	17	48	5	0	0	0	0	0	0	0
1800	212	0	66	101	7	36	2	0	0	0	0	0	0	0
1900	154	0	31	90	3	24	6	0	0	0	0	0	0	0
2000	97	0	16	54	5	20	2	0	0	0	0	0	0	0
2100	60	0	12	31	4	10	3	0	0	0	0	0	0	0
2200	29	0	3	23	2	1	0	0	0	0	0	0	0	0
2300	14	0	1	9	0	4	0	0	0	0	0	0	0	0
00-00	4932	31	1084	2515	315	926	39	13	8	0	0	0	0	1
	100.00%	0.63%	21.98%	50.99%	6.39%	18.78%	0.79%	0.26%	0.16%	0.00%	0.00%	0.00%	0.00%	0.02%

Classification Report

Job # 0003_GI_L2
Area Maynard, MA
Location Great Rd, east of Tiger Dr
Direction Eastbound
Friday, November 18, 2016



Time	Total	Class 1 Motorcycle	Class 2 Passenger Car	Class 3 Vans, Pick up Trucks	Class 4 Bus	Class 5 2 Axle 6 Tires	Class 6 3 Axle Unit	Class 7 4 Axles or more Unit	Class 8 3 or 4 Axle Trailer	Class 9 5 Axle Trailer	Class 10 6 Axle or more Trailer	Class 11 5 Axle or less Multi-Trailer	Class 12 6 Axle Multi-Trailer	Class 13 7 Axle or more Multi-Trailer
0000	8	0	0	7	0	1	0	0	0	0	0	0	0	0
0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200	4	0	0	2	2	0	0	0	0	0	0	0	0	0
0300	6	1	1	2	0	2	0	0	0	0	0	0	0	0
0400	29	0	0	15	4	9	1	0	0	0	0	0	0	0
0500	155	0	9	89	22	34	1	0	0	0	0	0	0	0
0600	488	20	250	134	21	34	12	14	0	1	0	0	0	2
0700	634	12	368	166	14	54	8	12	0	0	0	0	0	0
0800	498	6	217	175	11	71	12	5	0	0	0	0	0	1
0900	356	0	90	173	25	59	7	1	0	0	0	0	0	1
1000	245	0	43	124	18	58	1	0	0	0	1	0	0	0
1100	211	1	32	99	17	59	0	2	1	0	0	0	0	0
1200	235	2	34	97	24	77	0	1	0	0	0	0	0	0
1300	228	2	25	115	20	65	0	0	1	0	0	0	0	0
1400	312	0	66	147	32	66	0	0	1	0	0	0	0	0
1500	357	6	98	153	21	79	0	0	0	0	0	0	0	0
1600	265	0	61	133	19	50	2	0	0	0	0	0	0	0
1700	291	0	99	119	17	55	1	0	0	0	0	0	0	0
1800	215	0	69	87	10	48	1	0	0	0	0	0	0	0
1900	118	0	25	63	1	23	0	0	0	0	0	0	0	0
2000	84	0	11	42	8	20	3	0	0	0	0	0	0	0
2100	55	0	3	29	3	19	1	0	0	0	0	0	0	0
2200	45	0	3	27	2	13	0	0	0	0	0	0	0	0
2300	15	0	0	10	1	3	1	0	0	0	0	0	0	0
00-00	4854	50	1504	2008	292	899	57	35	3	1	1	0	0	4
	100.00%	1.03%	30.98%	41.37%	6.02%	18.52%	1.17%	0.72%	0.06%	0.02%	0.02%	0.00%	0.00%	0.08%

Classification Report

Job # 0003_GI_L2
Area Maynard, MA
Location Great Rd, east of Tiger Dr
Direction Eastbound
Saturday, November 19, 2016



Time	Total	Class 1 Motorcycle	Class 2 Passenger Car	Class 3 Vans, Pick up Trucks	Class 4 Bus	Class 5 2 Axle 6 Tires	Class 6 3 Axle Unit	Class 7 4 Axles or more Unit	Class 8 3 or 4 Axle Trailer	Class 9 5 Axle Trailer	Class 10 6 Axle or more Trailer	Class 11 5 Axle or less Multi-Trailer	Class 12 6 Axle Multi-Trailer	Class 13 7 Axle or more Multi-Trailer
0000	17	0	0	14	1	2	0	0	0	0	0	0	0	0
0100	5	0	0	5	0	0	0	0	0	0	0	0	0	0
0200	6	0	0	3	1	2	0	0	0	0	0	0	0	0
0300	6	0	0	3	0	3	0	0	0	0	0	0	0	0
0400	8	0	0	5	2	1	0	0	0	0	0	0	0	0
0500	35	0	0	16	9	10	0	0	0	0	0	0	0	0
0600	85	0	2	48	16	17	0	0	2	0	0	0	0	0
0700	126	0	13	69	17	23	3	0	0	1	0	0	0	0
0800	189	0	25	91	21	45	6	0	0	1	0	0	0	0
0900	228	2	41	123	14	44	2	1	1	0	0	0	0	0
1000	226	0	23	133	10	58	1	0	1	0	0	0	0	0
1100	271	1	39	140	17	74	0	0	0	0	0	0	0	0
1200	275	3	41	142	10	78	0	0	1	0	0	0	0	0
1300	221	5	19	122	10	63	1	0	1	0	0	0	0	0
1400	248	3	36	138	12	59	0	0	0	0	0	0	0	0
1500	241	1	29	144	10	57	0	0	0	0	0	0	0	0
1600	257	0	48	116	14	75	3	0	1	0	0	0	0	0
1700	204	0	39	99	13	51	2	0	0	0	0	0	0	0
1800	154	0	21	84	6	43	0	0	0	0	0	0	0	0
1900	89	0	12	47	4	25	1	0	0	0	0	0	0	0
2000	68	1	10	37	2	16	1	1	0	0	0	0	0	0
2100	74	2	11	33	4	23	1	0	0	0	0	0	0	0
2200	67	0	6	29	5	27	0	0	0	0	0	0	0	0
2300	57	0	2	24	1	28	2	0	0	0	0	0	0	0
00-00	3157	18	417	1665	199	824	23	2	7	2	0	0	0	0
	100.00%	0.57%	13.21%	52.74%	6.30%	26.10%	0.73%	0.06%	0.22%	0.06%	0.00%	0.00%	0.00%	0.00%

Classification Report

Job # 0003_GI_L2
Area Maynard, MA
Location Great Rd, east of Tiger Dr
Direction Westbound
Thursday, November 17, 2016



Time	Total	Class 1 Motorcycle	Class 2 Passenger Car	Class 3 Vans, Pick up Trucks	Class 4 Bus	Class 5 2 Axle 6 Tires	Class 6 3 Axle Unit	Class 7 4 Axles or more Unit	Class 8 3 or 4 Axle Trailer	Class 9 5 Axle Trailer	Class 10 6 Axle or more Trailer	Class 11 5 Axle or less Multi-Trailer	Class 12 6 Axle Multi-Trailer	Class 13 7 Axle or more Multi-Trailer
0000	10	0	0	8	0	2	0	0	0	0	0	0	0	0
0100	6	1	0	2	0	3	0	0	0	0	0	0	0	0
0200	5	0	0	2	1	2	0	0	0	0	0	0	0	0
0300	4	0	0	2	0	2	0	0	0	0	0	0	0	0
0400	13	0	0	7	1	5	0	0	0	0	0	0	0	0
0500	21	0	1	6	7	7	0	0	0	0	0	0	0	0
0600	140	1	65	30	18	26	0	0	0	0	0	0	0	0
0700	435	2	221	112	22	74	1	2	1	0	0	0	0	0
0800	333	0	90	123	21	99	0	0	0	0	0	0	0	0
0900	227	2	22	90	28	85	0	0	0	0	0	0	0	0
1000	190	0	18	77	28	65	0	1	1	0	0	0	0	0
1100	230	2	22	90	35	80	0	1	0	0	0	0	0	0
1200	244	0	20	115	42	66	0	1	0	0	0	0	0	0
1300	221	0	21	94	20	84	0	1	1	0	0	0	0	0
1400	412	2	48	169	53	136	1	1	2	0	0	0	0	0
1500	538	3	53	222	65	192	0	2	1	0	0	0	0	0
1600	722	1	64	345	79	226	4	0	3	0	0	0	0	0
1700	738	1	55	369	49	260	1	0	3	0	0	0	0	0
1800	562	0	52	293	30	185	2	0	0	0	0	0	0	0
1900	246	1	33	104	17	89	2	0	0	0	0	0	0	0
2000	168	0	10	81	12	63	2	0	0	0	0	0	0	0
2100	129	0	5	76	8	40	0	0	0	0	0	0	0	0
2200	79	0	3	40	5	31	0	0	0	0	0	0	0	0
2300	53	0	1	30	5	17	0	0	0	0	0	0	0	0
00-00	5726	16	804	2487	546	1839	13	9	12	0	0	0	0	0
	100.00%	0.28%	14.04%	43.43%	9.54%	32.12%	0.23%	0.16%	0.21%	0.00%	0.00%	0.00%	0.00%	0.00%

Classification Report

Job # 0003_GI_L2
 Area Maynard, MA
 Location Great Rd, east of Tiger Dr
 Direction Westbound
 Friday, November 18, 2016



Time	Total	Class 1 Motorcycle	Class 2 Passenger Car	Class 3 Vans, Pick up Trucks	Class 4 Bus	Class 5 2 Axle 6 Tires	Class 6 3 Axle Unit	Class 7 4 Axles or more Unit	Class 8 3 or 4 Axle Trailer	Class 9 5 Axle Trailer	Class 10 6 Axle or more Trailer	Class 11 5 Axle or less Multi-Trailer	Class 12 6 Axle Multi-Trailer	Class 13 7 Axle or more Multi-Trailer
0000	20	0	0	7	3	10	0	0	0	0	0	0	0	0
0100	6	0	0	3	0	3	0	0	0	0	0	0	0	0
0200	6	0	0	4	0	2	0	0	0	0	0	0	0	0
0300	1	0	1	0	0	0	0	0	0	0	0	0	0	0
0400	8	0	0	5	0	3	0	0	0	0	0	0	0	0
0500	38	1	4	11	10	12	0	0	0	0	0	0	0	0
0600	239	2	178	25	9	25	0	0	0	0	0	0	0	0
0700	531	2	285	109	28	103	2	1	1	0	0	0	0	0
0800	351	1	145	98	17	86	3	0	1	0	0	0	0	0
0900	249	0	51	81	25	86	3	1	2	0	0	0	0	0
1000	204	1	34	68	35	62	1	1	2	0	0	0	0	0
1100	227	0	21	93	30	83	0	0	0	0	0	0	0	0
1200	244	1	19	97	41	84	0	1	1	0	0	0	0	0
1300	300	1	23	98	50	127	0	0	1	0	0	0	0	0
1400	431	3	52	160	65	150	1	0	0	0	0	0	0	0
1500	537	0	63	188	70	216	0	0	0	0	0	0	0	0
1600	687	2	58	315	67	241	0	0	4	0	0	0	0	0
1700	724	2	93	358	46	224	1	0	0	0	0	0	0	0
1800	495	0	59	258	30	145	3	0	0	0	0	0	0	0
1900	211	0	15	99	17	77	2	0	1	0	0	0	0	0
2000	124	0	9	65	9	37	4	0	0	0	0	0	0	0
2100	106	0	5	58	6	37	0	0	0	0	0	0	0	0
2200	78	0	6	38	2	29	3	0	0	0	0	0	0	0
2300	48	0	2	28	5	13	0	0	0	0	0	0	0	0
00-00	5865	16	1123	2266	565	1855	23	4	13	0	0	0	0	0
	100.00%	0.27%	19.15%	38.64%	9.63%	31.63%	0.39%	0.07%	0.22%	0.00%	0.00%	0.00%	0.00%	0.00%

Classification Report

Job # 0003_GI_L2
Area Maynard, MA
Location Great Rd, east of Tiger Dr
Direction Westbound
Saturday, November 19, 2016



Time	Total	Class 1 Motorcycle	Class 2 Passenger Car	Class 3 Vans, Pick up Trucks	Class 4 Bus	Class 5 2 Axle 6 Tires	Class 6 3 Axle Unit	Class 7 4 Axles or more Unit	Class 8 3 or 4 Axle Trailer	Class 9 5 Axle Trailer	Class 10 6 Axle or more Trailer	Class 11 5 Axle or less Multi-Trailer	Class 12 6 Axle Multi-Trailer	Class 13 7 Axle or more Multi-Trailer
0000	38	0	0	24	3	10	1	0	0	0	0	0	0	0
0100	14	0	0	7	1	6	0	0	0	0	0	0	0	0
0200	9	0	0	7	1	1	0	0	0	0	0	0	0	0
0300	4	0	0	3	0	1	0	0	0	0	0	0	0	0
0400	3	0	0	1	0	2	0	0	0	0	0	0	0	0
0500	15	0	0	11	1	3	0	0	0	0	0	0	0	0
0600	55	1	1	27	6	20	0	0	0	0	0	0	0	0
0700	96	1	11	28	12	42	0	0	1	0	0	0	0	1
0800	147	1	19	61	15	49	0	2	0	0	0	0	0	0
0900	190	2	30	68	15	71	0	4	0	0	0	0	0	0
1000	244	1	14	95	20	114	0	0	0	0	0	0	0	0
1100	256	0	33	97	17	104	0	3	2	0	0	0	0	0
1200	277	2	28	115	26	104	0	2	0	0	0	0	0	0
1300	294	3	23	130	21	116	0	0	1	0	0	0	0	0
1400	284	1	24	127	25	107	0	0	0	0	0	0	0	0
1500	295	1	21	125	20	126	0	0	2	0	0	0	0	0
1600	251	1	15	112	22	98	1	0	2	0	0	0	0	0
1700	214	1	22	84	18	86	1	0	1	1	0	0	0	0
1800	181	0	14	67	13	84	1	0	2	0	0	0	0	0
1900	139	0	5	62	13	59	0	0	0	0	0	0	0	0
2000	104	0	2	47	9	46	0	0	0	0	0	0	0	0
2100	110	0	5	52	9	42	1	1	0	0	0	0	0	0
2200	87	0	3	48	5	31	0	0	0	0	0	0	0	0
2300	65	0	2	38	3	22	0	0	0	0	0	0	0	0
00-00	3372	15	272	1436	275	1344	5	12	11	1	0	0	0	1
	100.00%	0.44%	8.07%	42.59%	8.16%	39.86%	0.15%	0.36%	0.33%	0.03%	0.00%	0.00%	0.00%	0.03%

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 1
 Location: Maynard, MA
 Street 1: Brown St/Haynes St
 Street 2: Concord St
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



TOTAL (CARS & TRUCKS)

Start Time	Haynes St Northbound				Brown St Southbound				Concord St Eastbound				Concord St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	6	65	10	0	2	131	7	0	11	34	1	0	5	9	4
7:15 AM	0	9	77	8	0	2	144	9	0	15	31	0	0	6	11	3
7:30 AM	0	11	82	6	0	3	156	10	0	17	35	0	0	7	9	2
7:45 AM	0	8	89	9	0	1	149	7	0	15	37	2	0	6	6	2
8:00 AM	0	5	92	11	0	0	143	5	0	16	36	0	0	7	3	0
8:15 AM	0	6	91	9	0	2	135	7	0	18	32	1	0	9	8	1
8:30 AM	0	5	94	7	0	1	119	8	0	19	28	1	0	12	11	1
8:45 AM	0	5	90	8	0	0	111	6	0	15	29	0	0	11	9	2

Start Time	Haynes St Northbound				Brown St Southbound				Concord St Eastbound				Concord St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	9	93	6	0	2	81	16	0	18	11	0	0	7	15	2
4:15 PM	0	12	99	8	0	3	96	14	0	6	14	1	0	6	17	3
4:30 PM	0	14	114	9	0	2	100	15	0	4	16	2	0	8	20	4
4:45 PM	0	11	110	14	0	1	101	19	0	7	14	1	0	6	21	3
5:00 PM	0	7	114	17	0	3	100	21	0	8	9	0	0	4	24	1
5:15 PM	0	9	111	15	0	2	94	18	0	5	10	2	0	6	24	2
5:30 PM	0	8	114	17	0	2	93	20	0	9	12	0	0	8	27	3
5:45 PM	0	7	109	14	0	1	89	19	0	6	11	0	0	7	25	1

AM PEAK HOUR 7:30 AM to 8:30 AM	Haynes St Northbound				Brown St Southbound				Concord St Eastbound				Concord St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	30	354	35	0	6	583	29	0	66	140	3	0	29	26	5
PHF	0.97				0.91				0.97				0.83			
HV %	0.0%	0.0%	2.8%	0.0%	0.0%	0.0%	1.5%	0.0%	0.0%	0.0%	2.1%	0.0%	0.0%	0.0%	3.8%	0.0%

PM PEAK HOUR 4:45 PM to 5:45 PM	Haynes St Northbound				Brown St Southbound				Concord St Eastbound				Concord St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	35	449	63	0	8	388	78	0	29	45	3	0	24	96	9
PHF	0.98				0.96				0.88				0.85			
HV %	0.0%	0.0%	0.7%	0.0%	0.0%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	0.0%

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 1
 Location: Maynard, MA
 Street 1: Brown St/Haynes St
 Street 2: Concord St
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



TRUCKS

Start Time	Haynes St Northbound				Brown St Southbound				Concord St Eastbound				Concord St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0
7:30 AM	0	0	3	0	0	0	3	0	0	0	2	0	0	0	1	0
7:45 AM	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	3	0	0	0	3	0	0	0	1	0	0	0	0	0
8:15 AM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	1	0	0	0	2	0	0	0	1	0	0	0	0	0
8:45 AM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0

Start Time	Haynes St Northbound				Brown St Southbound				Concord St Eastbound				Concord St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0
4:30 PM	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	2	0	0	0	2	0	0	0	0	0	0	0	1	0
5:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0

AM PEAK HOUR 7:15 AM to 8:15 AM PHF	Haynes St Northbound				Brown St Southbound				Concord St Eastbound				Concord St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	9	0	0	0	9	0	0	0	0	4	0	0	0	1
	0.75				0.75				0.50				0.25			

PM PEAK HOUR 4:15 PM to 5:15 PM PHF	Haynes St Northbound				Brown St Southbound				Concord St Eastbound				Concord St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	3	0	0	0	6	0	0	0	0	1	0	0	0	2
	0.38				0.75				0.25				0.50			

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTM #: Location 1
 Location: Maynard, MA
 Street 1: Brown St/Haynes St
 Street 2: Concord St
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



PEDESTRIANS & BICYCLES

Start Time	Haynes St Northbound				Brown St Southbound				Concord St Eastbound				Concord St Westbound						
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED			
7:00 AM	0	0	0	1		0	0	0	0		0	0	0	0		0	0	0	0
7:15 AM	0	0	0	0		0	0	0	0		1	0	0	0		0	0	0	1
7:30 AM	0	1	0	1		0	0	0	0		0	0	0	0		0	0	1	0
7:45 AM	0	0	0	0		1	0	0	0		0	0	0	0		0	0	0	0
8:00 AM	0	1	0	1		0	1	0	0		0	0	0	0		0	0	0	1
8:15 AM	0	0	0	2		0	1	0	0		0	0	1	0		0	0	0	0
8:30 AM	0	0	1	0		0	0	0	0		0	0	0	0		0	0	0	0
8:45 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0

Start Time	Haynes St Northbound				Brown St Southbound				Concord St Eastbound				Concord St Westbound						
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED			
4:00 PM	0	0	0	1		0	0	0	0		0	0	0	0		0	0	0	1
4:15 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0
4:30 PM	0	1	0	8		0	0	0	0		0	0	1	0		0	1	0	1
4:45 PM	0	0	0	1		0	1	0	0		0	0	0	0		0	0	0	2
5:00 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	1	0	0
5:15 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	1
5:30 PM	0	0	0	1		0	0	0	0		0	0	0	0		0	0	0	0
5:45 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0

AM PEAK HOUR ¹ 7:30 AM to 8:30 AM	Haynes St Northbound				Brown St Southbound				Concord St Eastbound				Concord St Westbound						
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED			
	0	2	0	4		1	2	0	0		0	0	1	0		0	0	1	1

PM PEAK HOUR ¹ 4:45 PM to 5:45 PM	Haynes St Northbound				Brown St Southbound				Concord St Eastbound				Concord St Westbound						
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED			
	0	0	0	2		0	1	0	0		0	0	0	0		0	1	0	3

¹ Peak hours corresponds to vehicular peak hours.

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 1
 Location: Maynard, MA
 Street 1: Brown St/Haynes St
 Street 2: Concord St
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



TOTAL (CARS & TRUCKS)

Start Time	Haynes St Northbound				Brown St Southbound				Concord St Eastbound				Concord St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	6	78	8	0	2	70	7	0	6	15	0	0	8	6	11
11:15 AM	0	7	81	9	0	2	67	15	0	9	23	2	0	7	7	2
11:30 AM	0	6	80	7	0	0	71	12	0	12	17	1	0	8	9	3
11:45 AM	0	5	85	12	0	0	74	9	0	13	15	1	0	6	8	2
12:00 PM	0	6	94	14	0	1	81	12	0	8	14	2	0	5	9	3
12:15 PM	0	8	93	13	0	3	83	11	0	5	13	0	0	7	16	7
12:30 PM	0	10	91	11	0	0	79	14	0	8	14	2	0	8	14	1
12:45 PM	0	9	88	12	0	1	72	16	0	5	12	0	0	7	18	7
1:00 PM	0	7	77	9	0	3	73	13	0	12	14	0	0	9	21	3
1:15 AM	0	8	86	11	0	1	75	16	0	15	15	2	0	6	17	8
1:30 AM	0	4	93	12	0	1	80	12	0	19	13	1	0	7	13	2
1:45 AM	0	7	90	10	0	2	77	6	0	23	12	0	0	8	19	6

SAT PEAK HOUR 1:00 PM to 2:00 PM	Haynes St Northbound				Brown St Southbound				Concord St Eastbound				Concord St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	26	346	42	0	7	305	47	0	69	54	3	0	30	70	19
PHF	0.95				0.97				0.90				0.90			
HV %	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 1
 Location: Maynard, MA
 Street 1: Brown St/Haynes St
 Street 2: Concord St
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



TRUCKS

Start Time	Haynes St Northbound				Brown St Southbound				Concord St Eastbound				Concord St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
11:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
12:30 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
1:00 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0

SAT PEAK HOUR 11:15 AM to 12:15 PM <i>PHF</i>	Haynes St Northbound				Brown St Southbound				Concord St Eastbound				Concord St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	2	1	0	0	3	0	0	0	1	0	0	0	0	0
	0.75				0.75				0.25				0.00			

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTM #: Location 1
 Location: Maynard, MA
 Street 1: Brown St/Haynes St
 Street 2: Concord St
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



PEDESTRIANS & BICYCLES

Start Time	Haynes St Northbound				Brown St Southbound				Concord St Eastbound				Concord St Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
11:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0
12:00 PM	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
12:30 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
1:15 AM	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1
1:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0

SAT PEAK HOUR ¹ 1:00 PM to 2:00 PM	Haynes St Northbound				Brown St Southbound				Concord St Eastbound				Concord St Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	1	0	2	0	0	0	1	0	1	1	0	0	1

¹ Peak hours corresponds to vehicular peak hours.

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 2
 Location: Maynard, MA
 Street 1: Waltham St
 Street 2: Parker St/Powder Mill Rd
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



TOTAL (CARS & TRUCKS)

Start Time	Parker St Northbound				Powder Mill Rd Southbound				Waltham St Eastbound				Waltham St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	38	20	1	0	1	17	23	0	67	63	61	0	4	27	4
7:15 AM	0	45	31	2	0	1	21	26	0	71	65	78	0	2	26	5
7:30 AM	0	58	36	1	0	0	29	29	0	73	66	86	0	2	27	7
7:45 AM	0	61	34	3	0	2	26	35	0	70	67	83	0	4	25	4
8:00 AM	0	60	25	4	0	3	25	41	0	58	68	76	0	5	22	5
8:15 AM	0	59	26	2	0	4	24	39	0	60	58	74	0	3	27	3
8:30 AM	0	58	25	1	0	7	16	40	0	63	46	65	0	1	29	6
8:45 AM	0	55	23	1	0	5	18	38	0	59	49	63	0	2	28	5

Start Time	Parker St Northbound				Powder Mill Rd Southbound				Waltham St Eastbound				Waltham St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	48	32	1	0	1	39	83	0	47	28	51	0	2	63	4
4:15 PM	0	49	31	2	0	4	41	85	0	51	31	50	0	3	61	5
4:30 PM	0	46	29	3	0	4	45	86	0	52	30	53	0	2	53	4
4:45 PM	0	56	30	3	0	3	43	84	0	49	32	61	0	2	54	6
5:00 PM	0	58	29	3	0	4	39	78	0	44	33	65	0	3	56	8
5:15 PM	0	57	31	2	0	2	41	75	0	57	39	60	0	1	55	5
5:30 PM	0	55	28	0	0	0	40	68	0	60	42	57	0	2	50	4
5:45 PM	0	52	27	2	0	1	38	65	0	58	38	55	0	2	51	4

AM PEAK HOUR 7:30 AM to 8:30 AM	Parker St Northbound				Powder Mill Rd Southbound				Waltham St Eastbound				Waltham St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	238	121	10	0	9	104	144	0	261	259	319	0	14	101	19
PHF	0.94				0.93				0.93				0.93			
HV %	0.0%	2.5%	2.5%	0.0%	0.0%	0.0%	1.9%	2.1%	0.0%	1.5%	1.9%	2.2%	0.0%	0.0%	3.0%	0.0%

PM PEAK HOUR 4:30 PM to 5:30 PM	Parker St Northbound				Powder Mill Rd Southbound				Waltham St Eastbound				Waltham St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	217	119	11	0	13	168	323	0	202	134	239	0	8	218	23
PHF	0.96				0.93				0.92				0.93			
HV %	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	0.0%	0.5%	0.0%	0.8%	0.0%	0.0%	1.8%	0.0%

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 2
 Location: Maynard, MA
 Street 1: Waltham St
 Street 2: Parker St/Powder Mill Rd
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



TRUCKS

Start Time	Parker St Northbound				Powder Mill Rd Southbound				Waltham St Eastbound				Waltham St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0
7:15 AM	0	2	1	0	0	0	0	1	0	0	1	1	0	0	1	0
7:30 AM	0	2	2	0	0	0	0	0	0	1	2	2	0	0	0	0
7:45 AM	0	3	0	0	0	0	1	2	0	0	0	1	0	0	2	0
8:00 AM	0	1	1	0	0	0	1	0	0	1	2	2	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	1	0	2	1	2	0	0	1	0
8:30 AM	0	1	2	0	0	0	0	0	0	1	0	3	0	0	2	0
8:45 AM	0	1	0	0	0	0	0	1	0	1	1	1	0	0	1	0

Start Time	Parker St Northbound				Powder Mill Rd Southbound				Waltham St Eastbound				Waltham St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	2	0	1	0	0	0	0	1	0
4:30 PM	0	0	0	0	0	0	0	1	0	1	0	1	0	0	2	0
4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
5:15 PM	0	1	0	0	0	0	0	1	0	0	0	0	0	0	2	0
5:30 PM	0	2	0	0	0	0	0	0	0	2	0	1	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0

AM PEAK HOUR 7:15 AM to 8:15 AM <i>PHF</i>	Parker St Northbound				Powder Mill Rd Southbound				Waltham St Eastbound				Waltham St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	8	4	0	0	0	2	3	0	2	5	6	0	0	3	0
	0.75				0.42				0.65				0.38			

PM PEAK HOUR 5:00 PM to 6:00 PM <i>PHF</i>	Parker St Northbound				Powder Mill Rd Southbound				Waltham St Eastbound				Waltham St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	3	0	0	0	0	0	3	0	3	0	3	0	0	3	0
	0.38				0.75				0.50				0.38			

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTS #: Location 2
 Location: Maynard, MA
 Street 1: Waltham St
 Street 2: Parker St/Powder Mill Rd
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



PEDESTRIANS & BICYCLES

Start Time	Parker St Northbound				Powder Mill Rd Southbound				Waltham St Eastbound				Waltham St Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
8:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	Parker St Northbound				Powder Mill Rd Southbound				Waltham St Eastbound				Waltham St Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	1	0	0	0	0	0	0	0	3	0	0	0	3
4:30 PM	0	0	0	3	0	0	0	3	0	0	0	2	0	0	0	1
4:45 PM	0	0	0	2	0	0	0	1	0	0	0	4	0	0	0	3
5:00 PM	0	0	0	4	0	0	0	2	0	0	0	2	0	0	0	2
5:15 PM	0	0	0	2	0	0	0	1	0	0	0	3	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	1
5:45 PM	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	2

AM PEAK HOUR ¹ 7:30 AM to 8:30 AM	Parker St Northbound				Powder Mill Rd Southbound				Waltham St Eastbound				Waltham St Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	1	0	1	0	0	0	2	0	0	0	1

PM PEAK HOUR ¹ 4:30 PM to 5:30 PM	Parker St Northbound				Powder Mill Rd Southbound				Waltham St Eastbound				Waltham St Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	11	0	0	0	7	0	0	0	11	0	0	0	6

¹ Peak hours corresponds to vehicular peak hours.

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 2
 Location: Maynard, MA
 Street 1: Waltham St
 Street 2: Parker St/Powder Mill Rd
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



TOTAL (CARS & TRUCKS)

Start Time	Parker St Northbound				Powder Mill Rd Southbound				Waltham St Eastbound				Waltham St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	38	19	2	0	5	20	39	0	72	23	31	0	2	29	6
11:15 AM	0	46	18	0	0	6	21	51	0	63	25	32	0	0	27	5
11:30 AM	0	44	20	1	0	5	22	59	0	54	26	30	0	1	26	7
11:45 AM	0	40	18	1	0	7	23	60	0	68	28	39	0	3	31	8
12:00 PM	0	41	24	3	0	8	24	60	0	79	30	46	0	0	25	9
12:15 PM	0	40	29	5	0	6	20	61	0	65	31	44	0	3	19	7
12:30 PM	0	37	25	4	0	5	17	59	0	50	34	41	0	0	33	9
12:45 PM	0	32	23	2	0	4	22	55	0	55	33	39	0	1	40	10
1:00 PM	0	41	24	3	0	3	25	41	0	59	32	38	0	3	36	7
1:15 AM	0	45	26	2	0	5	23	52	0	56	28	37	0	1	35	4
1:30 AM	0	39	22	3	0	4	14	58	0	50	23	39	0	0	31	6
1:45 AM	0	30	18	0	0	5	16	55	0	49	25	37	0	2	29	4

SAT PEAK HOUR 11:45 AM to 12:45 PM <i>PHF</i> <i>HV %</i>	Parker St Northbound				Powder Mill Rd Southbound				Waltham St Eastbound				Waltham St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	158	96	13	0	26	84	240	0	262	123	170	0	6	108	33
	0.90				0.95				0.90				0.88			
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%	0.0%	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 2
 Location: Maynard, MA
 Street 1: Waltham St
 Street 2: Parker St/Powder Mill Rd
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



TRUCKS

Start Time	Parker St Northbound				Powder Mill Rd Southbound				Waltham St Eastbound				Waltham St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0

SAT PEAK HOUR 11:45 AM to 12:45 PM <i>PHF</i>	Parker St Northbound				Powder Mill Rd Southbound				Waltham St Eastbound				Waltham St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	0	0	3	0	4	0	0	0	0	0	0
	0.00				0.75				0.50				0.00			

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTM #: Location 2
 Location: Maynard, MA
 Street 1: Waltham St
 Street 2: Parker St/Powder Mill Rd
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



PEDESTRIANS & BICYCLES

Start Time	Parker St Northbound				Powder Mill Rd Southbound				Waltham St Eastbound				Waltham St Westbound				
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
11:15 AM	0	0	0	1	0	0	0	1	0	1	0	1	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
11:45 AM	0	0	0	2	0	0	0	0	0	0	0	2	0	2	0	2	0
12:00 PM	0	0	0	0	0	0	0	2	0	0	0	3	0	0	0	0	0
12:15 PM	0	0	0	3	0	0	0	0	0	0	0	1	0	2	0	0	0
12:30 PM	0	0	0	2	0	0	0	2	0	0	0	4	0	0	0	1	0
12:45 PM	0	0	0	4	0	0	0	0	1	0	0	2	0	1	0	0	0
1:00 PM	0	0	0	1	0	0	0	1	0	0	0	2	0	0	0	1	0
1:15 AM	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0
1:30 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0
1:45 AM	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0

SAT PEAK HOUR ¹ 11:45 AM to 12:45 PM	Parker St Northbound				Powder Mill Rd Southbound				Waltham St Eastbound				Waltham St Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	7	0	0	0	4	0	0	0	10	0	4	0	3

¹ Peak hours corresponds to vehicular peak hours.

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 3
 Location: Maynard, MA
 Street 1: Walnut St
 Street 2: Parker St
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



TOTAL (CARS & TRUCKS)

Start Time	Parker St Northbound				Parker St Southbound				Walnut St Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	14	70	0	0	0	85	12	0	1	0	30	0	0	0	0
7:15 AM	0	19	79	0	0	0	99	17	0	2	0	35	0	0	0	0
7:30 AM	0	25	87	0	0	0	104	19	0	1	0	41	0	0	0	0
7:45 AM	0	21	83	0	0	0	97	18	0	4	0	37	0	0	0	0
8:00 AM	0	18	79	0	0	0	89	16	0	7	0	20	0	0	0	0
8:15 AM	0	17	82	0	0	0	82	17	0	6	0	26	0	0	0	0
8:30 AM	0	15	85	0	0	0	70	16	0	7	0	28	0	0	0	0
8:45 AM	0	14	80	0	0	0	68	15	0	5	0	27	0	0	0	0

Start Time	Parker St Northbound				Parker St Southbound				Walnut St Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	19	95	0	0	0	67	19	0	3	0	17	0	0	0	0
4:15 PM	0	21	80	0	0	0	76	16	0	4	0	20	0	0	0	0
4:30 PM	0	20	68	0	0	0	81	13	0	5	0	22	0	0	0	0
4:45 PM	0	28	65	0	0	0	80	14	0	7	0	29	0	0	0	0
5:00 PM	0	32	63	0	0	0	82	13	0	9	0	33	0	0	0	0
5:15 PM	0	29	56	0	0	0	78	17	0	7	0	32	0	0	0	0
5:30 PM	0	28	33	0	0	0	75	20	0	3	0	31	0	0	0	0
5:45 PM	0	26	40	0	0	0	72	18	0	4	0	29	0	0	0	0

AM PEAK HOUR 7:15 AM to 8:15 AM	Parker St Northbound				Parker St Southbound				Walnut St Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	83	328	0	0	0	389	70	0	14	0	133	0	0	0	0
PHF	0.92				0.93				0.88				0.00			
HV %	0.0%	1.2%	3.4%	0.0%	0.0%	0.0%	1.8%	1.4%	0.0%	7.1%	0.0%	1.5%	0.0%	0.0%	0.0%	0.0%

PM PEAK HOUR 4:30 PM to 5:30 PM	Parker St Northbound				Parker St Southbound				Walnut St Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	109	252	0	0	0	321	57	0	28	0	116	0	0	0	0
PHF	0.95				0.99				0.86				0.00			
HV %	0.0%	0.9%	1.2%	0.0%	0.0%	0.0%	0.3%	1.8%	0.0%	3.6%	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 3
 Location: Maynard, MA
 Street 1: Walnut St
 Street 2: Parker St
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



TRUCKS

Start Time	Parker St Northbound				Parker St Southbound				Walnut St Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0
7:15 AM	0	0	3	0	0	0	1	0	0	0	0	1	0	0	0	0
7:30 AM	0	1	3	0	0	0	1	1	0	1	0	1	0	0	0	0
7:45 AM	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	2	0	0	0	3	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	1	0	0	0	2	0	0	1	0	0	0	0	0	0
8:30 AM	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0

Start Time	Parker St Northbound				Parker St Southbound				Walnut St Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0
4:30 PM	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0
4:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0
5:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0

AM PEAK HOUR 7:15 AM to 8:15 AM <i>PHF</i>	Parker St Northbound				Parker St Southbound				Walnut St Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	1	11	0	0	0	7	1	0	1	0	2	0	0	0	0
	0.75				0.67				0.38				0.00			

PM PEAK HOUR 4:15 PM to 5:15 PM <i>PHF</i>	Parker St Northbound				Parker St Southbound				Walnut St Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	1	3	0	0	0	1	1	0	2	0	1	0	0	0	0
	1.00				0.50				0.75				0.00			

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 3
 Location: Maynard, MA
 Street 1: Walnut St
 Street 2: Parker St
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



PEDESTRIANS & BICYCLES

Start Time	Parker St Northbound				Parker St Southbound				Walnut St Eastbound				Westbound				
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
7:15 AM	0	0	0	1	0	0	0	0	0	1	0	0	2	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0
8:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
8:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	Parker St Northbound				Parker St Southbound				Walnut St Eastbound				Westbound				
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
4:15 PM	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	0
4:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
5:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0
5:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR ¹ 7:15 AM to 8:15 AM	Parker St Northbound				Parker St Southbound				Walnut St Eastbound				Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	1	0	2	0	1	0	0	1	0	1	3	0	0	0	0

PM PEAK HOUR ¹ 4:30 PM to 5:30 PM	Parker St Northbound				Parker St Southbound				Walnut St Eastbound				Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	2	0	0	0	0	1	0	2	5	0	0	0	0

¹ Peak hours corresponds to vehicular peak hours.

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 3
 Location: Maynard, MA
 Street 1: Walnut St
 Street 2: Parker St
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



TOTAL (CARS & TRUCKS)

Start Time	Parker St Northbound				Parker St Southbound				Walnut St Eastbound			Westbound				
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	18	67	0	0	0	79	8	0	3	0	22	0	0	0	0
11:15 AM	0	22	70	0	0	0	88	9	0	1	0	20	0	0	0	0
11:30 AM	0	28	86	0	0	0	96	12	0	5	0	18	0	0	0	0
11:45 AM	0	24	77	0	0	0	89	15	0	4	0	20	0	0	0	0
12:00 PM	0	25	64	0	0	0	63	14	0	7	0	24	0	0	0	0
12:15 PM	0	20	68	0	0	0	77	11	0	9	0	18	0	0	0	0
12:30 PM	0	17	62	0	0	0	84	12	0	8	0	21	0	0	0	0
12:45 PM	0	18	52	0	0	0	90	13	0	6	0	19	0	0	0	0
1:00 PM	0	23	56	0	0	0	95	8	0	8	0	22	0	0	0	0
1:15 AM	0	19	57	0	0	0	91	9	0	6	0	26	0	0	0	0
1:30 AM	0	12	64	0	0	0	84	8	0	5	0	24	0	0	0	0
1:45 AM	0	10	60	0	0	0	80	7	0	4	0	22	0	0	0	0

SAT PEAK HOUR 11:00 AM to 12:00 PM	Parker St Northbound				Parker St Southbound				Walnut St Eastbound			Westbound				
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	92	300	0	0	0	352	44	0	13	0	80	0	0	0	0
PHF	0.86				0.92				0.93			0.00				
HV %	0.0%	0.0%	1.0%	0.0%	0.0%	0.0%	1.4%	0.0%	0.0%	7.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 3
 Location: Maynard, MA
 Street 1: Walnut St
 Street 2: Parker St
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



TRUCKS

Start Time	Parker St Northbound				Parker St Southbound				Walnut St Eastbound			Westbound				
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0
11:45 AM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	2	0	0	0	1	0	0	1	0	0	0	0	0	0
12:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0

SAT PEAK HOUR 11:15 AM to 12:15 PM <i>PHF</i>	Parker St Northbound				Parker St Southbound				Walnut St Eastbound			Westbound				
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	4	0	0	0	5	0	0	2	0	0	0	0	0	0
	0.50				0.63				0.50			0.00				

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 3
 Location: Maynard, MA
 Street 1: Walnut St
 Street 2: Parker St
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



PEDESTRIANS & BICYCLES

Start Time	Parker St Northbound				Parker St Southbound				Walnut St Eastbound				Westbound				
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
11:15 AM	0	1	0	0	0	2	0	0	0	0	0	0	4	0	0	0	0
11:30 AM	0	0	0	1	0	1	0	0	0	0	0	0	1	0	0	0	0
11:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
12:00 PM	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0
12:15 PM	0	0	0	2	0	1	0	0	0	0	0	0	2	0	0	0	0
12:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	3	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	0
1:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
1:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	3	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
1:45 AM	0	0	0	0	0	4	0	0	0	0	0	0	1	0	0	0	0

SAT PEAK HOUR ¹ 11:00 AM to 12:00 PM	Parker St Northbound				Parker St Southbound				Walnut St Eastbound				Westbound				
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	
	0	2	0	1	0	3	0	0	0	0	0	0	9	0	0	0	0

¹ Peak hours corresponds to vehicular peak hours.

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 4
 Location: Maynard, MA
 Street 1: Main St
 Street 2: Great Rd
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F

BOSTON TRAFFIC DATA

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

TOTAL (CARS & TRUCKS)

Start Time	Driveway Northbound				Main St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	2	0	22	0	52	125	0	0	0	44	2
7:15 AM	0	0	0	0	0	2	0	23	0	47	144	1	0	0	45	2
7:30 AM	0	0	0	0	0	2	0	25	0	42	162	0	0	0	48	4
7:45 AM	0	0	1	0	0	1	0	22	0	58	158	0	0	0	67	2
8:00 AM	0	0	0	0	0	1	0	19	0	62	142	0	0	0	70	1
8:15 AM	0	0	0	0	0	4	0	21	0	69	136	0	0	0	68	4
8:30 AM	0	0	1	0	0	5	0	22	0	72	91	0	0	0	64	9
8:45 AM	0	0	0	0	0	2	0	18	0	68	89	0	0	0	60	3

Start Time	Driveway Northbound				Main St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	1	0	56	0	37	44	0	0	0	143	2
4:15 PM	0	2	1	1	0	4	0	67	0	35	51	0	0	0	155	3
4:30 PM	0	2	0	0	0	7	0	74	0	34	50	1	0	0	166	3
4:45 PM	0	3	0	0	0	4	0	79	0	36	59	0	0	0	167	2
5:00 PM	0	2	1	1	0	5	0	80	0	33	66	0	0	0	169	1
5:15 PM	0	1	0	0	0	2	0	72	0	34	61	1	0	0	158	0
5:30 PM	0	1	0	0	0	1	0	60	0	37	52	0	0	0	152	3
5:45 PM	0	0	0	0	0	0	0	58	0	35	49	1	0	0	147	1

AM PEAK HOUR 7:30 AM to 8:30 AM	Driveway Northbound				Main St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	1	0	0	8	0	87	0	231	598	0	0	0	253	11
PHF	0.25				0.88				0.96				0.92			
HV %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%	0.0%	1.7%	2.0%	0.0%	0.0%	0.0%	0.8%	0.0%

PM PEAK HOUR 4:30 PM to 5:30 PM	Driveway Northbound				Main St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	8	1	1	0	18	0	305	0	137	236	2	0	0	660	6
PHF	0.63				0.95				0.95				0.98			
HV %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.0%	0.7%	1.7%	0.0%	0.0%	0.0%	1.1%	0.0%

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 4
 Location: Maynard, MA
 Street 1: Main St
 Street 2: Great Rd
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



TRUCKS

Start Time	Driveway Northbound				Main St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0
7:30 AM	0	0	0	0	0	0	0	1	0	2	3	0	0	0	1	0
7:45 AM	0	0	0	0	0	0	0	0	0	1	4	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
8:15 AM	0	0	0	0	0	0	0	0	0	1	4	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	2	2	0	0	0	1	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0

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

AM PEAK HOUR 7:30 AM to 8:30 AM PHF	Driveway Northbound				Main St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	0	0	1	0	4	12	0	0	0	2	0
	0.00				0.25				0.80				0.50			

PM PEAK HOUR 4:15 PM to 5:15 PM PHF	Driveway Northbound				Main St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	0	0	2	0	2	4	0	0	0	10	0
	0.00				0.50				0.75				0.63			

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 4
 Location: Maynard, MA
 Street 1: Main St
 Street 2: Great Rd
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



PEDESTRIANS & BICYCLES

Start Time	Driveway Northbound				Main St Southbound				Great Rd Eastbound				Great Rd Westbound				
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	Driveway Northbound				Main St Southbound				Great Rd Eastbound				Great Rd Westbound				
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR ¹ 7:30 AM to 8:30 AM	Driveway Northbound				Main St Southbound				Great Rd Eastbound				Great Rd Westbound				
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	
	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	3

PM PEAK HOUR ¹ 4:30 PM to 5:30 PM	Driveway Northbound				Main St Southbound				Great Rd Eastbound				Great Rd Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	3	0	0	1	0	0	1	0	2

¹ Peak hours corresponds to vehicular peak hours.

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 4
 Location: Maynard, MA
 Street 1: Main St
 Street 2: Great Rd
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



TOTAL (CARS & TRUCKS)

Start Time	Driveway Northbound				Main St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	1	0	0	0	0	0	39	0	37	45	0	0	0	64	5
11:15 AM	0	0	1	1	0	1	0	42	0	35	44	0	0	0	62	6
11:30 AM	0	0	0	0	0	2	0	44	0	43	58	0	0	0	53	4
11:45 AM	0	0	0	1	0	0	0	40	0	49	61	0	0	0	58	3
12:00 PM	0	2	0	0	0	2	0	35	0	45	60	0	0	0	60	2
12:15 PM	0	0	0	1	0	0	0	36	0	40	51	0	0	0	57	4
12:30 PM	0	0	0	0	0	2	1	34	0	41	61	0	0	0	59	6
12:45 PM	0	0	0	0	0	1	0	31	0	39	64	0	0	0	68	5
1:00 PM	0	0	0	0	0	0	0	29	0	38	59	0	0	0	73	6
1:15 AM	0	0	0	0	0	2	0	30	0	41	50	0	0	0	70	4
1:30 AM	0	0	1	0	0	2	1	25	0	45	52	0	0	0	50	3
1:45 AM	0	0	0	0	0	0	0	27	0	49	49	0	0	0	57	5

SAT PEAK HOUR 11:15 AM to 12:15 PM	Driveway Northbound				Main St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	2	1	2	0	5	0	161	0	172	223	0	0	0	233	15
PHF	0.63				0.90				0.90				0.91			
HV %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.1%	0.0%	0.0%	0.0%	3.0%	0.0%

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 4
 Location: Maynard, MA
 Street 1: Main St
 Street 2: Great Rd
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



TRUCKS

Start Time	Driveway Northbound				Main St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0
1:15 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0

SAT PEAK HOUR 11:15 AM to 12:15 PM <i>PHF</i>	Driveway Northbound				Main St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	0	0	0	0	0	7	0	0	0	7	0
	0.00				0.00				0.58				0.58			

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 4
 Location: Maynard, MA
 Street 1: Main St
 Street 2: Great Rd
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



PEDESTRIANS & BICYCLES

Start Time	Driveway Northbound				Main St Southbound				Great Rd Eastbound				Great Rd Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
11:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
1:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SAT PEAK HOUR ¹ 11:15 AM to 12:15 PM	Driveway Northbound				Main St Southbound				Great Rd Eastbound				Great Rd Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0

¹ Peak hours corresponds to vehicular peak hours.

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 5
 Location: Maynard, MA
 Street 1: Sudbury St
 Street 2: Great Rd
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



TOTAL (CARS & TRUCKS)

Start Time	Northbound				Sudbury St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	11	0	1	0	2	119	0	0	0	40	10
7:15 AM	0	0	0	0	0	29	0	2	0	2	130	0	0	0	52	19
7:30 AM	0	0	0	0	0	34	0	1	0	2	145	0	0	0	49	23
7:45 AM	0	0	0	0	0	31	0	1	0	3	133	0	0	0	68	21
8:00 AM	0	0	0	0	0	19	0	0	0	3	121	0	0	0	66	16
8:15 AM	0	0	0	0	0	18	0	5	0	2	115	0	0	0	69	21
8:30 AM	0	0	0	0	0	8	0	9	0	0	107	0	0	0	71	26
8:45 AM	0	0	0	0	0	11	0	3	0	1	117	0	0	0	68	19

Start Time	Northbound				Sudbury St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	16	0	1	0	0	46	0	0	0	153	26
4:15 PM	0	0	0	0	0	17	0	2	0	2	55	0	0	0	161	22
4:30 PM	0	0	0	0	0	18	0	2	0	1	57	0	0	0	163	18
4:45 PM	0	0	0	0	0	16	0	3	0	1	62	0	0	0	175	17
5:00 PM	0	0	0	0	0	13	0	2	0	1	66	0	0	0	180	10
5:15 PM	0	0	0	0	0	15	0	2	0	0	60	0	0	0	177	12
5:30 PM	0	0	0	0	0	18	0	3	0	0	53	0	0	0	168	10
5:45 PM	0	0	0	0	0	17	0	1	0	1	42	0	0	0	165	11

AM PEAK HOUR 7:15 AM to 8:15 AM	Northbound				Sudbury St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	113	0	4	0	10	529	0	0	0	235	79
PHF	0.00				0.84				0.92				0.88			
HV %	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%	2.3%	0.0%	0.0%	0.0%	3.0%	0.0%

PM PEAK HOUR 4:30 PM to 5:30 PM	Northbound				Sudbury St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	62	0	9	0	3	245	0	0	0	695	57
PHF	0.00				0.89				0.93				0.98			
HV %	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%	0.0%	0.0%	0.0%	0.0%	0.8%	0.0%	0.0%	0.0%	0.9%	0.0%

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTM #: Location 5
 Location: Maynard, MA
 Street 1: Sudbury St
 Street 2: Great Rd
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



TRUCKS

Start Time	Northbound				Sudbury St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0
7:30 AM	0	0	0	0	0	1	0	0	0	0	4	0	0	0	2	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0
8:15 AM	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0

Start Time	Northbound				Sudbury St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0
4:30 PM	0	0	0	0	0	1	0	0	0	0	1	0	0	0	3	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0

AM PEAK HOUR 7:15 AM to 8:15 AM PHF	Northbound				Sudbury St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	1	0	0	0	0	0	12	0	0	0	7
	0.00				0.25				0.75				0.88			

PM PEAK HOUR 4:00 PM to 5:00 PM PHF	Northbound				Sudbury St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	1	0	0	0	0	0	3	0	0	0	7
	0.00				0.25				0.75				0.58			

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTM #: Location 5
 Location: Maynard, MA
 Street 1: Sudbury St
 Street 2: Great Rd
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



PEDESTRIANS & BICYCLES

Start Time	Northbound				Sudbury St Southbound				Great Rd Eastbound				Great Rd Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	Northbound				Sudbury St Southbound				Great Rd Eastbound				Great Rd Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0

AM PEAK HOUR ¹ 7:15 AM to 8:15 AM	Northbound				Sudbury St Southbound				Great Rd Eastbound				Great Rd Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	4	0	1	0	0	0	0	0	0

PM PEAK HOUR ¹ 4:30 PM to 5:30 PM	Northbound				Sudbury St Southbound				Great Rd Eastbound				Great Rd Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0

¹ Peak hours corresponds to vehicular peak hours.

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 5
 Location: Maynard, MA
 Street 1: Sudbury St
 Street 2: Great Rd
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



TOTAL (CARS & TRUCKS)

Start Time	Northbound				Sudbury St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	0	0	0	10	0	0	0	0	63	0	0	0	58	12
11:15 AM	0	0	0	0	0	15	0	1	0	1	40	0	0	0	61	9
11:30 AM	0	0	0	0	0	16	0	3	0	2	77	0	0	0	52	14
11:45 AM	0	0	0	0	0	14	0	2	0	2	61	0	0	0	45	16
12:00 PM	0	0	0	0	0	10	0	0	0	0	62	0	0	0	68	12
12:15 PM	0	0	0	0	0	12	0	3	0	2	63	0	0	0	58	9
12:30 PM	0	0	0	0	0	7	0	1	0	1	61	0	0	0	55	11
12:45 PM	0	0	0	0	0	8	0	1	0	3	62	0	0	0	57	9
1:00 PM	0	0	0	0	0	9	0	0	0	2	58	0	0	0	82	8
1:15 AM	0	0	0	0	0	8	0	3	0	3	51	0	0	0	64	6
1:30 AM	0	0	0	0	0	7	0	2	0	4	41	0	0	0	55	8
1:45 AM	0	0	0	0	0	9	0	0	0	2	50	0	0	0	76	10

SAT PEAK HOUR 11:30 AM to 12:30 PM	Northbound				Sudbury St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	52	0	8	0	6	263	0	0	0	223	51
PHF	0.00				0.79				0.85				0.86			
HV %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.5%	0.0%	0.0%	0.0%	1.8%	0.0%

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 5
 Location: Maynard, MA
 Street 1: Sudbury St
 Street 2: Great Rd
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



TRUCKS

Start Time	Northbound				Sudbury St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
1:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0

SAT PEAK HOUR 11:15 AM to 12:15 PM <i>PHF</i>	Northbound				Sudbury St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	0	0	0	0	0	4	0	0	0	6	0
	0.00				0.00				0.50				0.50			

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTM #: Location 5
 Location: Maynard, MA
 Street 1: Sudbury St
 Street 2: Great Rd
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



PEDESTRIANS & BICYCLES

Start Time	Northbound				Sudbury St Southbound				Great Rd Eastbound				Great Rd Westbound						
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED			
11:00 AM	0	0	0	0		1	0	0	1		0	0	0	0		0	0	0	0
11:15 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0
11:30 AM	0	0	0	0		0	0	0	4		0	0	0	0		0	0	0	0
11:45 AM	0	0	0	0		0	0	0	1		0	0	0	0		0	0	0	0
12:00 PM	0	0	0	0		0	0	0	2		0	0	0	0		0	0	0	0
12:15 PM	0	0	0	0		0	0	0	1		0	0	0	0		0	0	0	0
12:30 PM	0	0	0	0		0	0	0	0		0	1	0	0		0	0	0	0
12:45 PM	0	0	0	0		0	0	1	0		0	0	0	0		0	1	0	0
1:00 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	1	0
1:15 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0
1:30 AM	0	0	0	0		0	0	0	0		0	1	0	0		0	0	0	0
1:45 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0

SAT PEAK HOUR ¹ 11:30 AM to 12:30 PM	Northbound				Sudbury St Southbound				Great Rd Eastbound				Great Rd Westbound						
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED			
	0	0	0	0		0	0	0	8		0	0	0	0		0	0	0	0

¹ Peak hours corresponds to vehicular peak hours.

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 6
 Location: Maynard, MA
 Street 1: Thompson St
 Street 2: Great Rd
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



TOTAL (CARS & TRUCKS)

Start Time	Northbound				Thompson St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	8	0	1	0	6	124	0	0	0	47	1
7:15 AM	0	0	0	0	0	12	0	26	0	12	131	0	0	0	77	15
7:30 AM	0	0	0	0	0	14	0	61	0	14	119	0	0	0	69	35
7:45 AM	0	0	0	0	0	11	0	39	0	15	129	0	0	0	91	21
8:00 AM	0	0	0	0	0	5	0	25	0	16	114	0	0	0	93	4
8:15 AM	0	0	0	0	0	6	0	17	0	14	122	0	0	0	82	2
8:30 AM	0	0	0	0	0	5	0	11	0	16	129	0	0	0	77	1
8:45 AM	0	0	0	0	0	5	0	12	0	15	111	0	0	0	73	2

Start Time	Northbound				Thompson St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	3	0	5	0	4	60	0	0	0	108	5
4:15 PM	0	0	0	0	0	4	0	3	0	8	65	0	0	0	118	3
4:30 PM	0	0	0	0	0	2	0	4	0	5	70	0	0	0	109	4
4:45 PM	0	0	0	0	0	4	0	5	0	7	65	0	0	0	139	2
5:00 PM	0	0	0	0	0	3	0	4	0	11	64	0	0	0	139	3
5:15 PM	0	0	0	0	0	3	0	9	0	7	56	0	0	0	178	4
5:30 PM	0	0	0	0	0	7	0	3	0	7	62	0	0	0	160	2
5:45 PM	0	0	0	0	0	4	0	9	0	2	55	0	0	0	155	5

AM PEAK HOUR 7:15 AM to 8:15 AM	Northbound				Thompson St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	42	0	151	0	57	493	0	0	0	330	75
PHF	0.00				0.64				0.95				0.90			
HV %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.6%	0.0%	0.0%	0.0%	1.8%	0.0%

PM PEAK HOUR 5:00 PM to 6:00 PM	Northbound				Thompson St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	17	0	25	0	27	237	0	0	0	632	14
PHF	0.00				0.81				0.88				0.89			
HV %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	0.0%	0.0%	0.0%	0.6%	0.0%

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 6
 Location: Maynard, MA
 Street 1: Thompson St
 Street 2: Great Rd
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



TRUCKS

Start Time	Northbound				Thompson St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	2	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0

Start Time	Northbound				Thompson St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	3	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0

AM PEAK HOUR 7:15 AM to 8:15 AM PHF	Northbound				Thompson St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	0	0	0	0	0	0	13	0	0	0	6
	0.00				0.00				0.65				0.75			

PM PEAK HOUR 4:00 PM to 5:00 PM PHF	Northbound				Thompson St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	7
	0.00				0.00				0.50				0.58			

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTM #: Location 6
 Location: Maynard, MA
 Street 1: Thompson St
 Street 2: Great Rd
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



PEDESTRIANS & BICYCLES

Start Time	Northbound				Thompson St Southbound				Great Rd Eastbound				Great Rd Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:30 AM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0
8:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0

Start Time	Northbound				Thompson St Southbound				Great Rd Eastbound				Great Rd Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
5:00 PM	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR ¹ 7:15 AM to 8:15 AM	Northbound				Thompson St Southbound				Great Rd Eastbound				Great Rd Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	4	0	1	0	0	0	0	1	0

PM PEAK HOUR ¹ 5:00 PM to 6:00 PM	Northbound				Thompson St Southbound				Great Rd Eastbound				Great Rd Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0

¹ Peak hours corresponds to vehicular peak hours.

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 6
 Location: Maynard, MA
 Street 1: Thompson St
 Street 2: Great Rd
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



TOTAL (CARS & TRUCKS)

Start Time	Northbound				Thompson St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	0	0	0	2	0	0	0	7	67	0	0	0	74	1
11:15 AM	0	0	0	0	0	3	0	1	0	8	49	0	0	0	72	0
11:30 AM	0	0	0	0	0	2	0	4	0	9	92	0	0	0	60	2
11:45 AM	0	0	0	0	0	4	0	3	0	5	66	0	0	0	58	0
12:00 PM	0	0	0	0	0	5	0	1	0	4	68	0	0	0	81	1
12:15 PM	0	0	0	0	0	4	0	0	0	4	70	0	0	0	67	3
12:30 PM	0	0	0	0	0	1	0	2	0	2	66	0	0	0	57	0
12:45 PM	0	0	0	0	0	3	0	3	0	3	64	0	0	0	66	1
1:00 PM	0	0	0	0	0	3	0	1	0	2	65	0	0	0	88	2
1:15 AM	0	0	0	0	0	4	0	1	0	2	55	0	0	0	62	2
1:30 AM	0	0	0	0	0	6	0	1	0	2	46	0	0	0	61	3
1:45 AM	0	0	0	0	0	5	0	2	0	3	47	0	0	0	82	1

SAT PEAK HOUR 11:30 AM to 12:30 PM	Northbound				Thompson St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	15	0	8	0	22	296	0	0	0	266	6
PHF	0.00				0.82				0.79				0.83			
HV %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%	0.0%	0.0%	0.0%	1.5%	0.0%

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTM #: Location 6
 Location: Maynard, MA
 Street 1: Thompson St
 Street 2: Great Rd
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



TRUCKS

Start Time	Northbound				Thompson St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
1:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0

SAT PEAK HOUR 11:15 AM to 12:15 PM <i>PHF</i>	Northbound				Thompson St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	0	0	0	0	0	0	0	0	4	0	0	0	6	0
	0.00				0.00				0.50				0.50			

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTM #: Location 6
 Location: Maynard, MA
 Street 1: Thompson St
 Street 2: Great Rd
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



PEDESTRIANS & BICYCLES

Start Time	Northbound				Thompson St Southbound				Great Rd Eastbound				Great Rd Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
11:00 AM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	4	0	0	0	0	0	1	0	0
11:30 AM	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
1:00 PM	0	0	0	0	0	0	0	2	0	2	0	0	0	2	0	0
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM	0	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SAT PEAK HOUR ¹ 11:30 AM to 12:30 PM	Northbound				Thompson St Southbound				Great Rd Eastbound				Great Rd Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	0	0	0	0	0	0	5	0	1	0	0	0	0	0	0

¹ Peak hours corresponds to vehicular peak hours.

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 7
 Location: Maynard, MA
 Street 1: Great Rd
 Street 2: Parker St
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



TOTAL (CARS & TRUCKS)

Start Time	Parker St Northbound				Parker St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	24	65	5	0	10	82	13	0	7	95	26	0	1	25	4
7:15 AM	0	25	69	6	0	8	106	30	0	10	103	41	0	4	61	8
7:30 AM	0	39	80	5	0	8	107	42	0	17	104	43	0	6	56	12
7:45 AM	0	34	82	2	0	9	110	25	0	16	108	41	0	5	61	11
8:00 AM	0	29	74	3	0	6	97	13	0	3	99	39	0	4	60	11
8:15 AM	0	17	69	2	0	9	106	12	0	9	103	35	0	3	63	7
8:30 AM	0	18	77	4	0	11	63	11	0	14	90	30	0	3	44	4
8:45 AM	0	19	71	2	0	8	68	13	0	8	78	28	0	4	34	5

Start Time	Parker St Northbound				Parker St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	37	84	1	0	10	71	16	0	13	45	20	0	5	40	5
4:15 PM	0	41	77	3	0	9	74	17	0	12	49	21	0	3	44	5
4:30 PM	0	42	68	3	0	6	82	20	0	11	52	24	0	4	29	7
4:45 PM	0	47	78	1	0	11	85	23	0	9	51	19	0	3	56	6
5:00 PM	0	48	89	2	0	13	91	16	0	7	54	37	0	2	45	6
5:15 PM	0	45	82	2	0	15	95	11	0	9	47	18	0	4	67	11
5:30 PM	0	43	78	1	0	16	97	14	0	8	53	26	0	1	78	17
5:45 PM	0	49	75	1	0	14	90	15	0	7	35	17	0	2	107	9

AM PEAK HOUR 7:15 AM to 8:15 AM	Parker St Northbound				Parker St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	127	305	16	0	31	420	110	0	46	414	164	0	19	238	42
PHF	0.90				0.89				0.95				0.97			
HV %	0.0%	1.6%	2.6%	0.0%	0.0%	0.0%	1.9%	2.7%	0.0%	0.0%	1.9%	3.0%	0.0%	0.0%	2.1%	0.0%

PM PEAK HOUR 5:00 PM to 6:00 PM	Parker St Northbound				Parker St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	185	324	6	0	58	373	56	0	31	189	98	0	9	297	43
PHF	0.93				0.96				0.81				0.74			
HV %	0.0%	0.5%	0.6%	0.0%	0.0%	0.0%	0.5%	0.0%	0.0%	0.0%	1.1%	0.0%	0.0%	0.0%	0.7%	0.0%

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 7
 Location: Maynard, MA
 Street 1: Great Rd
 Street 2: Parker St
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



TRUCKS

Start Time	Parker St Northbound				Parker St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	1	0	0	0	2	0	0	0	2	1	0	0	0	0
7:15 AM	0	1	3	0	0	0	3	1	0	0	3	1	0	0	1	0
7:30 AM	0	0	3	0	0	0	2	1	0	0	2	2	0	0	2	0
7:45 AM	0	1	2	0	0	0	0	1	0	0	2	0	0	0	1	0
8:00 AM	0	0	0	0	0	0	3	0	0	0	1	2	0	0	1	0
8:15 AM	0	0	1	0	0	0	0	0	0	0	2	0	0	0	2	0
8:30 AM	0	0	0	0	0	0	1	0	0	0	0	2	0	0	1	0
8:45 AM	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0

Start Time	Parker St Northbound				Parker St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	1	0	0	0	1	0	0	0	2	0	0	0	0	0
4:30 PM	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0
5:00 PM	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0
5:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0
5:30 PM	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
5:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0

AM PEAK HOUR 7:15 AM to 8:15 AM <i>PHF</i>	Parker St Northbound				Parker St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	2	8	0	0	0	8	3	0	0	8	5	0	0	5	0
	0.63				0.69				0.81				0.63			

PM PEAK HOUR 4:15 PM to 5:15 PM <i>PHF</i>	Parker St Northbound				Parker St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	1	3	0	0	0	3	0	0	0	5	0	0	0	1	0
	0.50				0.75				0.63				0.25			

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 7
 Location: Maynard, MA
 Street 1: Great Rd
 Street 2: Parker St
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



PEDESTRIANS & BICYCLES

Start Time	Parker St Northbound				Parker St Southbound				Great Rd Eastbound				Great Rd Westbound				
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0

Start Time	Parker St Northbound				Parker St Southbound				Great Rd Eastbound				Great Rd Westbound				
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	
4:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	2	0	1	0	0
4:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR ¹ 7:15 AM to 8:15 AM	Parker St Northbound				Parker St Southbound				Great Rd Eastbound				Great Rd Westbound				
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	
	0	1	0	0	0	0	0	1	0	0	0	1	1	0	0	1	0

PM PEAK HOUR ¹ 5:00 PM to 6:00 PM	Parker St Northbound				Parker St Southbound				Great Rd Eastbound				Great Rd Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0

¹ Peak hours corresponds to vehicular peak hours.

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 7
 Location: Maynard, MA
 Street 1: Great Rd
 Street 2: Parker St
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



TOTAL (CARS & TRUCKS)

Start Time	Parker St Northbound				Parker St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	22	64	2	0	9	68	14	0	3	42	21	0	5	38	11
11:15 AM	0	25	75	3	0	8	72	8	0	7	23	22	0	5	35	9
11:30 AM	0	24	68	3	0	6	77	6	0	14	49	24	0	6	27	14
11:45 AM	0	23	69	2	0	7	75	6	0	11	31	24	0	4	28	16
12:00 PM	0	21	81	1	0	6	72	7	0	6	38	25	0	3	54	15
12:15 PM	0	17	70	3	0	9	70	9	0	9	43	22	0	2	36	14
12:30 PM	0	20	48	4	0	11	67	11	0	11	34	19	0	4	34	13
12:45 PM	0	24	56	4	0	12	71	17	0	12	25	31	0	2	27	11
1:00 PM	0	29	52	2	0	11	75	19	0	8	24	33	0	3	41	9
1:15 AM	0	31	65	0	0	10	52	16	0	7	28	28	0	2	17	5
1:30 AM	0	30	45	5	0	6	88	10	0	4	26	16	0	7	24	7
1:45 AM	0	29	90	2	0	7	69	12	0	5	24	18	0	8	36	6

SAT PEAK HOUR 11:30 AM to 12:30 PM	Parker St Northbound				Parker St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	85	288	9	0	28	294	28	0	40	161	95	0	15	145	59
PHF	0.93				0.98				0.85				0.76			
HV %	0.0%	1.2%	1.7%	0.0%	0.0%	0.0%	1.4%	0.0%	0.0%	0.0%	1.2%	2.1%	0.0%	0.0%	2.1%	0.0%

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 7
 Location: Maynard, MA
 Street 1: Great Rd
 Street 2: Parker St
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



TRUCKS

Start Time	Parker St Northbound				Parker St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	1	1	0	0	0	1	0	0	0	0	1	0	0	0	0
11:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0
11:30 AM	0	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0
11:45 AM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2	0
12:00 PM	0	0	3	0	0	0	2	0	0	0	1	1	0	0	1	0
12:15 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
12:30 PM	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0
12:45 PM	0	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0
1:00 PM	0	1	2	0	0	0	2	0	0	0	0	0	0	0	1	0
1:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
1:30 AM	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	1	0	0	0	2	0	0	0	0	1	0	0	1	0

SAT PEAK HOUR 11:15 AM to 12:15 PM <i>PHF</i>	Parker St Northbound				Parker St Southbound				Great Rd Eastbound				Great Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	2	4	0	0	0	3	0	0	0	2	2	0	0	4	0
	0.50				0.38				0.50				0.50			

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTM #: Location 7
 Location: Maynard, MA
 Street 1: Great Rd
 Street 2: Parker St
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



PEDESTRIANS & BICYCLES

Start Time	Parker St Northbound				Parker St Southbound				Great Rd Eastbound				Great Rd Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
11:00 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
11:15 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	1	0	0	0	0	0	3	0	0	0	3	0	0	0	0
11:45 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0
12:00 PM	0	1	0	0	0	0	0	1	0	0	1	1	0	0	0	0
12:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	1	0	3	0	0	1	0	0	0	0	0
12:45 PM	0	1	0	0	0	0	0	1	0	0	0	2	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	1	0	0	0	3	0	0	0	0
1:15 AM	0	1	0	0	0	0	0	2	0	0	0	2	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0

SAT PEAK HOUR ¹ 11:30 AM to 12:30 PM	Parker St Northbound				Parker St Southbound				Great Rd Eastbound				Great Rd Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	3	0	0	0	1	0	5	0	0	1	4	0	0	0	0

¹ Peak hours corresponds to vehicular peak hours.

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 8
 Location: Maynard, MA
 Street 1: Field St/North St
 Street 2: Parker St
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



TOTAL (CARS & TRUCKS)

Start Time	Parker St Northbound				Parker St Southbound				Field St Eastbound				North St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	90	0	0	0	108	1	0	2	0	0	0	1	0	2
7:15 AM	0	0	95	0	0	2	149	0	0	3	1	0	0	0	0	2
7:30 AM	0	1	118	0	0	2	154	0	0	3	1	0	0	1	0	3
7:45 AM	0	0	110	0	0	4	150	2	0	3	0	0	0	0	0	5
8:00 AM	0	0	106	1	0	0	140	0	0	0	0	1	0	0	1	0
8:15 AM	0	1	87	0	0	0	143	1	0	1	0	0	0	0	0	0
8:30 AM	0	0	96	0	0	1	94	1	0	2	0	1	0	0	0	1
8:45 AM	0	0	90	0	0	0	100	0	0	1	0	0	0	0	0	1

Start Time	Parker St Northbound				Parker St Southbound				Field St Eastbound				North St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	122	0	0	1	95	0	0	0	0	0	0	1	0	0
4:15 PM	0	0	120	0	0	2	95	1	0	0	0	1	0	1	0	1
4:30 PM	0	1	109	1	0	5	103	2	0	1	0	1	0	0	0	3
4:45 PM	0	1	122	2	0	4	101	2	0	2	0	0	0	1	0	2
5:00 PM	0	0	137	1	0	4	125	1	0	0	0	0	0	1	0	2
5:15 PM	0	1	127	1	0	3	113	1	0	1	0	0	0	0	0	1
5:30 PM	0	0	118	0	0	1	123	0	0	1	0	0	0	2	1	3
5:45 PM	0	0	119	0	0	1	106	2	0	2	0	0	0	0	0	4

AM PEAK HOUR 7:15 AM to 8:15 AM	Parker St Northbound				Parker St Southbound				Field St Eastbound				North St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	1	429	1	0	8	593	2	0	9	2	1	0	1	1	10
PHF	0.91				0.97				0.75				0.60			
HV %	0.0%	0.0%	2.3%	0.0%	0.0%	0.0%	2.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

PM PEAK HOUR 4:45 PM to 5:45 PM	Parker St Northbound				Parker St Southbound				Field St Eastbound				North St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	2	504	4	0	12	462	4	0	4	0	0	0	4	1	8
PHF	0.92				0.92				0.50				0.54			
HV %	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 8
 Location: Maynard, MA
 Street 1: Field St/North St
 Street 2: Parker St
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



TRUCKS

Start Time	Parker St Northbound				Parker St Southbound				Field St Eastbound				North St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	3	0	0	0	4	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0

Start Time	Parker St Northbound				Parker St Southbound				Field St Eastbound				North St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR 7:15 AM to 8:15 AM <i>PHF</i>	Parker St Northbound				Parker St Southbound				Field St Eastbound				North St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	10	0	0	0	13	0	0	0	0	0	0	0	0	0
	0.63				0.65				0.00				0.00			

PM PEAK HOUR 4:00 PM to 5:00 PM <i>PHF</i>	Parker St Northbound				Parker St Southbound				Field St Eastbound				North St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	4	0	0	0	3	0	0	0	0	0	0	0	0	0
	0.50				0.75				0.00				0.00			

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTM #: Location 8
 Location: Maynard, MA
 Street 1: Field St/North St
 Street 2: Parker St
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



PEDESTRIANS & BICYCLES

Start Time	Parker St Northbound				Parker St Southbound				Field St Eastbound				North St Westbound				
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0
7:30 AM	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	Parker St Northbound				Parker St Southbound				Field St Eastbound				North St Westbound				
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	1	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
4:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
5:15 PM	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR ¹ 7:15 AM to 8:15 AM	Parker St Northbound				Parker St Southbound				Field St Eastbound				North St Westbound				
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	
	0	2	0	2	0	1	0	0	0	0	0	0	2	0	0	0	1

PM PEAK HOUR ¹ 4:45 PM to 5:45 PM	Parker St Northbound				Parker St Southbound				Field St Eastbound				North St Westbound				
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	
	0	1	0	1	0	3	0	0	0	0	0	0	3	0	0	0	1

¹ Peak hours corresponds to vehicular peak hours.

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 8
 Location: Maynard, MA
 Street 1: Field St/North St
 Street 2: Parker St
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



TOTAL (CARS & TRUCKS)

Start Time	Parker St Northbound				Parker St Southbound				Field St Eastbound				North St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	1	87	0	0	0	92	2	0	1	0	0	0	0	0	0
11:15 AM	0	0	98	1	0	2	93	4	0	2	0	1	0	1	0	3
11:30 AM	0	0	91	0	0	2	102	3	0	3	0	1	0	0	1	1
11:45 AM	0	1	89	0	0	3	98	2	0	1	0	2	0	0	0	4
12:00 PM	0	0	97	0	0	2	94	4	0	1	0	0	0	0	0	5
12:15 PM	0	0	86	0	0	3	89	2	0	3	0	0	0	1	0	1
12:30 PM	0	1	70	0	0	1	88	1	0	0	0	2	0	0	0	2
12:45 PM	0	0	81	1	0	1	100	3	0	2	0	1	0	0	0	1
1:00 PM	0	0	77	0	0	3	107	1	0	2	0	0	0	0	0	4
1:15 AM	0	1	95	0	0	2	78	2	0	1	0	1	0	1	0	0
1:30 AM	0	0	80	0	0	2	109	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	119	0	0	1	92	2	0	1	0	0	0	0	0	1

SAT PEAK HOUR 11:15 AM to 12:15 PM <i>PHF</i> <i>HV %</i>	Parker St Northbound				Parker St Southbound				Field St Eastbound				North St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	1	375	1	0	9	387	13	0	7	0	4	0	1	1	13
	0.95				0.96				0.69				0.75			
	0.0%	0.0%	1.6%	0.0%	0.0%	0.0%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 8
 Location: Maynard, MA
 Street 1: Field St/North St
 Street 2: Parker St
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



TRUCKS

Start Time	Parker St Northbound				Parker St Southbound				Field St Eastbound				North St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
1:30 AM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0

SAT PEAK HOUR 1:00 PM to 2:00 PM <i>PHF</i>	Parker St Northbound				Parker St Southbound				Field St Eastbound				North St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	6	0	0	0	7	0	0	0	0	0	0	0	0	0
	0.50				0.58				0.00				0.00			

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 8
 Location: Maynard, MA
 Street 1: Field St/North St
 Street 2: Parker St
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



PEDESTRIANS & BICYCLES

Start Time	Parker St Northbound				Parker St Southbound				Field St Eastbound				North St Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
11:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0
12:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	1	0	2	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0
1:15 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM	4	0	0	0	0	0	0	0	0	4	0	0	1	0	0	0
1:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0

SAT PEAK HOUR ¹ 11:15 AM to 12:15 PM	Parker St Northbound				Parker St Southbound				Field St Eastbound				North St Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	4	0	1	0	2	0	0	0	0	0	0	1	0	0	0

¹ Peak hours corresponds to vehicular peak hours.

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 9
 Location: Maynard, MA
 Street 1: South St
 Street 2: Parker St
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



TOTAL (CARS & TRUCKS)

Start Time	Parker St Northbound				Parker St Southbound				Driveway Eastbound				South St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	88	0	0	0	109	0	0	0	0	0	0	0	0	2
7:15 AM	0	0	92	0	0	0	149	0	0	0	0	0	0	1	0	3
7:30 AM	0	0	114	0	0	1	154	0	0	0	0	0	0	0	0	5
7:45 AM	0	0	107	1	0	1	149	0	0	0	0	0	0	1	0	3
8:00 AM	0	0	107	0	0	0	141	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	87	0	0	0	142	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	95	1	0	1	94	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	90	0	0	0	100	0	0	0	0	0	0	0	0	0

Start Time	Parker St Northbound				Parker St Southbound				Driveway Eastbound				South St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	122	0	0	0	96	0	0	0	0	0	0	1	0	0
4:15 PM	0	0	119	0	0	1	96	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	110	1	0	2	102	0	0	0	0	0	0	1	0	1
4:45 PM	0	0	123	1	0	1	101	0	0	0	0	0	0	1	0	2
5:00 PM	0	0	136	0	0	0	125	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	128	0	0	2	111	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	116	0	0	1	124	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	119	0	0	1	105	0	0	0	0	0	0	0	0	0

AM PEAK HOUR 7:15 AM to 8:15 AM	Parker St Northbound				Parker St Southbound				Driveway Eastbound				South St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	420	1	0	2	593	0	0	0	0	0	0	2	0	11
PHF	0.92				0.96				0.00				0.65			
HV %	0.0%	0.0%	2.4%	0.0%	0.0%	0.0%	2.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

PM PEAK HOUR 4:45 PM to 5:45 PM	Parker St Northbound				Parker St Southbound				Driveway Eastbound				South St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	503	1	0	4	461	0	0	0	0	0	0	1	0	7
PHF	0.93				0.93				0.00				0.67			
HV %	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 9
 Location: Maynard, MA
 Street 1: South St
 Street 2: Parker St
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



TRUCKS

Start Time	Parker St Northbound				Parker St Southbound				Driveway Eastbound				South St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	3	0	0	0	4	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0

Start Time	Parker St Northbound				Parker St Southbound				Driveway Eastbound				South St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR 7:15 AM to 8:15 AM <i>PHF</i>	Parker St Northbound				Parker St Southbound				Driveway Eastbound				South St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	10	0	0	0	13	0	0	0	0	0	0	0	0	0
	0.63				0.65				0.00				0.00			

PM PEAK HOUR 4:00 PM to 5:00 PM <i>PHF</i>	Parker St Northbound				Parker St Southbound				Driveway Eastbound				South St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	4	0	0	0	3	0	0	0	0	0	0	0	0	0
	0.50				0.75				0.00				0.00			

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 9
 Location: Maynard, MA
 Street 1: South St
 Street 2: Parker St
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



PEDESTRIANS & BICYCLES

Start Time	Parker St Northbound				Parker St Southbound				Driveway Eastbound				South St Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0
7:30 AM	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:15 AM	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	Parker St Northbound				Parker St Southbound				Driveway Eastbound				South St Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0
4:15 PM	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR ¹ 7:15 AM to 8:15 AM	Parker St Northbound				Parker St Southbound				Driveway Eastbound				South St Westbound				
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	
	0	2	0	4	0	1	0	0	0	0	0	0	0	1	0	1	0

PM PEAK HOUR ¹ 4:45 PM to 5:45 PM	Parker St Northbound				Parker St Southbound				Driveway Eastbound				South St Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	1	1	2	0	3	0	0	0	0	0	0	0	0	0	0

¹ Peak hours corresponds to vehicular peak hours.

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 9
 Location: Maynard, MA
 Street 1: South St
 Street 2: Parker St
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



TOTAL (CARS & TRUCKS)

Start Time	Parker St Northbound				Parker St Southbound				Driveway Eastbound				South St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	86	0	0	2	90	0	0	0	0	0	0	0	0	2
11:15 AM	0	0	98	0	0	1	94	0	0	0	0	0	0	0	0	1
11:30 AM	0	0	89	0	0	1	102	0	0	0	0	0	0	0	0	2
11:45 AM	0	0	90	1	0	1	99	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	96	0	0	0	94	0	0	0	0	0	0	0	0	1
12:15 PM	0	0	84	0	0	0	90	0	0	0	0	0	0	0	0	2
12:30 PM	0	0	69	1	0	2	88	0	0	0	0	0	0	0	0	2
12:45 PM	0	0	82	0	0	1	100	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	76	0	0	0	107	0	0	0	0	0	0	0	0	1
1:15 AM	0	0	94	0	0	2	78	0	0	0	0	0	0	0	0	2
1:30 AM	0	0	80	1	0	1	108	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	119	0	0	0	92	0	0	0	0	0	0	0	0	0

SAT PEAK HOUR 11:15 AM to 12:15 PM	Parker St Northbound				Parker St Southbound				Driveway Eastbound				South St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	373	1	0	3	389	0	0	0	0	0	0	0	0	4
PHF	0.95				0.95				0.00				0.50			
HV %	0.0%	0.0%	1.6%	0.0%	0.0%	0.0%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 9
 Location: Maynard, MA
 Street 1: South St
 Street 2: Parker St
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



TRUCKS

Start Time	Parker St Northbound				Parker St Southbound				Driveway Eastbound				South St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
1:30 AM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0

SAT PEAK HOUR 1:00 PM to 2:00 PM <i>PHF</i>	Parker St Northbound				Parker St Southbound				Driveway Eastbound				South St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	6	0	0	0	7	0	0	0	0	0	0	0	0	0
	0.50				0.58				0.00				0.00			

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTM #: Location 9
 Location: Maynard, MA
 Street 1: South St
 Street 2: Parker St
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



PEDESTRIANS & BICYCLES

Start Time	Parker St Northbound				Parker St Southbound				Driveway Eastbound				South St Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
11:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0
11:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0
12:30 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0
1:15 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0

SAT PEAK HOUR ¹ 11:15 AM to 12:15 PM	Parker St Northbound				Parker St Southbound				Driveway Eastbound				South St Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	4	0	0	0	2	0	0	0	0	0	0	1	0	0	0

¹ Peak hours corresponds to vehicular peak hours.

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 10
 Location: Maynard, MA
 Street 1: Old Marlboro Rd
 Street 2: Parker St
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



TOTAL (CARS & TRUCKS)

Start Time	Parker St Northbound				Parker St Southbound				Eastbound				Old Marlboro Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	89	5	0	0	114	0	0	0	0	0	0	3	0	0
7:15 AM	0	0	85	6	0	0	146	0	0	0	0	0	0	3	0	0
7:30 AM	0	0	121	7	0	2	148	0	0	0	0	0	0	4	0	1
7:45 AM	0	0	104	6	0	1	147	0	0	0	0	0	0	3	0	0
8:00 AM	0	0	101	5	0	1	139	0	0	0	0	0	0	2	0	1
8:15 AM	0	0	82	4	0	0	142	0	0	0	0	0	0	1	0	1
8:30 AM	0	0	98	2	0	0	93	0	0	0	0	0	0	2	0	0
8:45 AM	0	0	92	1	0	1	106	0	0	0	0	0	0	0	0	1

Start Time	Parker St Northbound				Parker St Southbound				Eastbound				Old Marlboro Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	123	3	0	1	88	0	0	0	0	0	0	5	0	1
4:15 PM	0	0	128	3	0	2	104	0	0	0	0	0	0	7	0	0
4:30 PM	0	0	101	6	0	2	100	0	0	0	0	0	0	8	0	1
4:45 PM	0	0	124	8	0	1	95	0	0	0	0	0	0	10	0	0
5:00 PM	0	0	122	5	0	1	128	0	0	0	0	0	0	9	0	0
5:15 PM	0	0	123	1	0	1	125	0	0	0	0	0	0	8	0	1
5:30 PM	0	0	117	3	0	0	116	0	0	0	0	0	0	6	0	0
5:45 PM	0	0	117	2	0	1	99	0	0	0	0	0	0	5	0	1

AM PEAK HOUR 7:15 AM to 8:15 AM	Parker St Northbound				Parker St Southbound				Eastbound				Old Marlboro Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	411	24	0	4	580	0	0	0	0	0	0	12	0	2
PHF	0.85				0.97				0.00				0.70			
HV %	0.0%	0.0%	2.4%	0.0%	0.0%	0.0%	2.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

PM PEAK HOUR 4:45 PM to 5:45 PM	Parker St Northbound				Parker St Southbound				Eastbound				Old Marlboro Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	486	17	0	3	464	0	0	0	0	0	0	33	0	1
PHF	0.95				0.91				0.00				0.85			
HV %	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 10
 Location: Maynard, MA
 Street 1: Old Marlboro Rd
 Street 2: Parker St
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



TRUCKS

Start Time	Parker St Northbound				Parker St Southbound				Eastbound				Old Marlboro Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	3	0	0	0	4	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0

Start Time	Parker St Northbound				Parker St Southbound				Eastbound				Old Marlboro Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR 7:15 AM to 8:15 AM <i>PHF</i>	Parker St Northbound				Parker St Southbound				Eastbound				Old Marlboro Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	10	0	0	0	13	0	0	0	0	0	0	0	0	0
	0.63				0.65				0.00				0.00			

PM PEAK HOUR 4:00 PM to 5:00 PM <i>PHF</i>	Parker St Northbound				Parker St Southbound				Eastbound				Old Marlboro Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	4	0	0	0	3	0	0	0	0	0	0	0	0	0
	0.50				0.75				0.00				0.00			

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 10
 Location: Maynard, MA
 Street 1: Old Marlboro Rd
 Street 2: Parker St
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



PEDESTRIANS & BICYCLES

Start Time	Parker St Northbound				Parker St Southbound				Eastbound				Old Marlboro Rd Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
7:30 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	Parker St Northbound				Parker St Southbound				Eastbound				Old Marlboro Rd Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
4:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR ¹ 7:15 AM to 8:15 AM	Parker St Northbound				Parker St Southbound				Eastbound				Old Marlboro Rd Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	2	1	0	0	1	0	0	0	0	0	0	0	1	0	0

PM PEAK HOUR ¹ 4:45 PM to 5:45 PM	Parker St Northbound				Parker St Southbound				Eastbound				Old Marlboro Rd Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	1	0	0	0	3	0	0	0	0	0	0	0	0	1	0

¹ Peak hours corresponds to vehicular peak hours.

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 10
 Location: Maynard, MA
 Street 1: Old Marlboro Rd
 Street 2: Parker St
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



TOTAL (CARS & TRUCKS)

Start Time	Parker St Northbound				Parker St Southbound				Eastbound				Old Marlboro Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	78	2	0	1	88	0	0	0	0	0	0	5	0	2
11:15 AM	0	0	98	3	0	0	101	0	0	0	0	0	0	4	0	3
11:30 AM	0	0	92	3	0	1	100	0	0	0	0	0	0	3	0	1
11:45 AM	0	0	88	4	0	2	103	0	0	0	0	0	0	3	0	2
12:00 PM	0	0	96	2	0	0	89	0	0	0	0	0	0	3	0	2
12:15 PM	0	0	79	3	0	1	85	0	0	0	0	0	0	2	0	1
12:30 PM	0	0	67	1	0	0	89	0	0	0	0	0	0	2	0	1
12:45 PM	0	0	79	3	0	0	99	0	0	0	0	0	0	4	0	2
1:00 PM	0	0	72	2	0	2	102	0	0	0	0	0	0	1	0	2
1:15 AM	0	0	87	2	0	1	76	0	0	0	0	0	0	3	0	1
1:30 AM	0	0	70	3	0	1	109	0	0	0	0	0	0	2	0	3
1:45 AM	0	0	113	1	0	0	92	0	0	0	0	0	0	2	0	1

SAT PEAK HOUR 11:15 AM to 12:15 PM <i>PHF</i> <i>HV %</i>	Parker St Northbound				Parker St Southbound				Eastbound				Old Marlboro Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	374	12	0	3	393	0	0	0	0	0	0	13	0	8
	0.96				0.94				0.00				0.75			
	0.0%	0.0%	1.9%	0.0%	0.0%	0.0%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 10
 Location: Maynard, MA
 Street 1: Old Marlboro Rd
 Street 2: Parker St
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



TRUCKS

Start Time	Parker St Northbound				Parker St Southbound				Eastbound				Old Marlboro Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
1:30 AM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0

SAT PEAK HOUR 1:00 PM to 2:00 PM <i>PHF</i>	Parker St Northbound				Parker St Southbound				Eastbound				Old Marlboro Rd Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	6	0	0	0	8	0	0	0	0	0	0	0	0	0
	0.50				0.67				0.00				0.00			

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 10
 Location: Maynard, MA
 Street 1: Old Marlboro Rd
 Street 2: Parker St
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



PEDESTRIANS & BICYCLES

Start Time	Parker St Northbound				Parker St Southbound				Eastbound				Old Marlboro Rd Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
11:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
12:00 PM	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0
12:15 PM	0	2	0	1	0	2	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	1	0	0
12:45 PM	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0
1:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0
1:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0

SAT PEAK HOUR ¹ 11:15 AM to 12:15 PM	Parker St Northbound				Parker St Southbound				Eastbound				Old Marlboro Rd Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	4	0	1	0	3	0	1	0	0	0	0	0	1	0	0

¹ Peak hours corresponds to vehicular peak hours.

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 11
 Location: Maynard, MA
 Street 1: Vose Hill Rd
 Street 2: Parker St
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



TOTAL (CARS & TRUCKS)

Start Time	Parker St Northbound				Parker St Southbound				Vose Hill Rd Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	87	0	0	0	115	2	0	7	0	0	0	0	0	0
7:15 AM	0	1	84	0	0	0	148	1	0	7	0	1	0	0	0	0
7:30 AM	0	1	119	0	0	0	152	0	0	9	0	0	0	0	0	0
7:45 AM	0	0	102	0	0	0	146	4	0	8	0	0	0	0	0	0
8:00 AM	0	0	100	0	0	0	136	5	0	6	0	0	0	0	0	0
8:15 AM	0	1	78	0	0	0	141	2	0	8	0	0	0	0	0	0
8:30 AM	0	0	97	0	0	0	94	1	0	3	0	1	0	0	0	0
8:45 AM	0	0	88	0	0	0	103	3	0	5	0	0	0	0	0	0

Start Time	Parker St Northbound				Parker St Southbound				Vose Hill Rd Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	1	125	0	0	0	91	2	0	1	0	0	0	0	0	0
4:15 PM	0	2	129	0	0	0	107	4	0	2	0	1	0	0	0	0
4:30 PM	0	0	106	0	0	0	102	6	0	1	0	0	0	0	0	0
4:45 PM	0	0	130	0	0	0	102	3	0	2	0	1	0	0	0	0
5:00 PM	0	2	127	0	0	0	131	6	0	0	0	0	0	0	0	0
5:15 PM	0	2	121	0	0	0	128	5	0	3	0	0	0	0	0	0
5:30 PM	0	2	116	0	0	0	118	4	0	4	0	2	0	0	0	0
5:45 PM	0	0	118	0	0	0	102	2	0	1	0	0	0	0	0	0

AM PEAK HOUR 7:15 AM to 8:15 AM	Parker St Northbound				Parker St Southbound				Vose Hill Rd Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	2	405	0	0	0	582	10	0	30	0	1	0	0	0	0
PHF	0.85				0.97				0.86				0.00			
HV %	0.0%	0.0%	2.2%	0.0%	0.0%	0.0%	2.2%	0.0%	0.0%	3.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

PM PEAK HOUR 4:45 PM to 5:45 PM	Parker St Northbound				Parker St Southbound				Vose Hill Rd Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	6	494	0	0	0	479	18	0	9	0	3	0	0	0	0
PHF	0.96				0.91				0.50				0.00			
HV %	0.0%	33.3%	0.2%	0.0%	0.0%	0.0%	0.6%	0.0%	0.0%	11.1%	0.0%	33.3%	0.0%	0.0%	0.0%	0.0%

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 11
 Location: Maynard, MA
 Street 1: Vose Hill Rd
 Street 2: Parker St
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



TRUCKS

Start Time	Parker St Northbound				Parker St Southbound				Vose Hill Rd Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	3	0	0	0	4	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	1	0	0	0	0	0	0	0	0	3	0	0	0	0
8:30 AM	0	1	0	0	0	0	3	0	0	1	0	0	0	0	0	0
8:45 AM	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0

Start Time	Parker St Northbound				Parker St Southbound				Vose Hill Rd Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	1	0	0	0	1	0	0	1	0	2	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
5:00 PM	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0	0
5:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0
5:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR 7:15 AM to 8:15 AM PHF	Parker St Northbound				Parker St Southbound				Vose Hill Rd Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	9	0	0	0	13	0	0	1	0	0	0	0	0	0
	0.56				0.65				0.25				0.00			

PM PEAK HOUR 4:00 PM to 5:00 PM PHF	Parker St Northbound				Parker St Southbound				Vose Hill Rd Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	2	2	0	0	0	3	0	0	2	0	2	0	0	0	0
	0.50				0.75				0.33				0.00			

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 11
 Location: Maynard, MA
 Street 1: Vose Hill Rd
 Street 2: Parker St
 Count Date: 11/17/2016
 Day of Week: Thursday
 Weather: Clear, 50 F



PEDESTRIANS & BICYCLES

Start Time	Parker St Northbound				Parker St Southbound				Vose Hill Rd Eastbound				Westbound				
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
7:30 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0
8:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	Parker St Northbound				Parker St Southbound				Vose Hill Rd Eastbound				Westbound				
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0
4:30 PM	1	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0
4:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
5:15 PM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0

AM PEAK HOUR ¹ 7:15 AM to 8:15 AM	Parker St Northbound				Parker St Southbound				Vose Hill Rd Eastbound				Westbound				
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	
	0	3	0	0	0	1	1	0	0	0	0	0	3	0	0	0	0

PM PEAK HOUR ¹ 4:45 PM to 5:45 PM	Parker St Northbound				Parker St Southbound				Vose Hill Rd Eastbound				Westbound				
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	
	0	1	0	0	0	2	1	0	0	0	0	0	1	0	0	0	0

¹ Peak hours corresponds to vehicular peak hours.

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 11
 Location: Maynard, MA
 Street 1: Vose Hill Rd
 Street 2: Parker St
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



TOTAL (CARS & TRUCKS)

Start Time	Parker St Northbound				Parker St Southbound				Vose Hill Rd Eastbound			Westbound				
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	2	77	0	0	0	90	3	0	3	0	2	0	0	0	0
11:15 AM	0	2	97	0	0	0	101	4	0	4	0	2	0	0	0	0
11:30 AM	0	1	90	0	0	0	100	3	0	5	0	3	0	0	0	0
11:45 AM	0	1	88	0	0	0	102	4	0	4	0	1	0	0	0	0
12:00 PM	0	2	97	0	0	0	89	3	0	1	0	3	0	0	0	0
12:15 PM	0	3	79	0	0	0	85	2	0	3	0	1	0	0	0	0
12:30 PM	0	1	63	0	0	0	87	4	0	5	0	1	0	0	0	0
12:45 PM	0	3	78	0	0	0	100	3	0	4	0	2	0	0	0	0
1:00 PM	0	1	72	0	0	0	99	4	0	2	0	2	0	0	0	0
1:15 AM	0	2	86	0	0	0	76	3	0	3	0	1	0	0	0	0
1:30 AM	0	2	72	0	0	0	109	2	0	1	0	1	0	0	0	0
1:45 AM	0	1	112	0	0	0	92	2	0	2	0	2	0	0	0	0

SAT PEAK HOUR 11:15 AM to 12:15 PM <i>PHF</i> <i>HV %</i>	Parker St Northbound				Parker St Southbound				Vose Hill Rd Eastbound			Westbound				
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	6	372	0	0	0	392	14	0	14	0	9	0	0	0	0
	0.95				0.96				0.72			0.00				
	0.0%	0.0%	1.9%	0.0%	0.0%	0.0%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 11
 Location: Maynard, MA
 Street 1: Vose Hill Rd
 Street 2: Parker St
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



TRUCKS

Start Time	Parker St Northbound				Parker St Southbound				Vose Hill Rd Eastbound			Westbound				
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
11:00 AM	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
1:30 AM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0

SAT PEAK HOUR 1:00 PM to 2:00 PM <i>PHF</i>	Parker St Northbound				Parker St Southbound				Vose Hill Rd Eastbound			Westbound				
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	0	6	0	0	0	8	0	0	0	0	0	0	0	0	0
	0.50				0.67				0.00			0.00				

Client: J. Sobel, P.E., PTOE
 Project #: 0003_GI
 BTD #: Location 11
 Location: Maynard, MA
 Street 1: Vose Hill Rd
 Street 2: Parker St
 Count Date: 11/19/2016
 Day of Week: Saturday
 Weather: Clear, 59 F



PEDESTRIANS & BICYCLES

Start Time	Parker St Northbound				Parker St Southbound				Vose Hill Rd Eastbound				Westbound				
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	
11:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	2	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	2	0	0	0	2	0	0	0	0	0	0	1	0	0	0	0
12:30 PM	0	1	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0
12:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
1:15 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
1:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SAT PEAK HOUR ¹ 11:15 AM to 12:15 PM	Parker St Northbound				Parker St Southbound				Vose Hill Rd Eastbound				Westbound			
	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED	Left	Thru	Right	PED
	0	3	0	0	0	2	0	0	1	0	0	1	0	0	0	0

¹ Peak hours corresponds to vehicular peak hours.

***APPENDIX B – MASSDOT SEASONAL ADJUSTMENT
FACTORS AND HISTORICAL GROWTH***



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 Civil and Structural Engineers
 239 Littleton Road, Suite 3
 WESTFORD, MA 01886

JOB 16071 TIAS 129 Parker Street Maynard
 SHEET NO. 1 OF 1
 CALCULATED BY JF DATE 1/5/2017
 CHECKED BY JS DATE 1/5/2017
 DESCRIPTION Annual Traffic Growth and Seasonal Data

15104 TIAS 129 Parker Street Maynard

Annual Growth Rate

A	MassDOT continuous count, location ID 4172 - Route 2, West of Route 27, Acton		
	year	2010	2015
	Daily traffic volume	36,938	38,524
	Average Annual Growth Rate		0.86%

B	MassDOT continuous count, location ID 307- Route 9, West of Route 135, Westborough		
	year	2008	2015
	Daily traffic volume	48,288	51,474
	Average Annual Growth Rate		0.94%

C	MassDOT continuous count, location ID 403 - Route 2, East of Concord Rotary, Concord		
	year	2007	2015
	Daily traffic volume	44,474	43,202
			-0.36%

D	MassDOT continuous count, location ID 4950 - Route 2, West of Route 126, Concord		
	year	2011	2015
	Daily traffic volume	45,743	46,889
			0.63%

Seasonal Adjustment Factor

A	Route 2													
	MassDOT continuous count, location ID 4172 - West of Route 27, Acton													
	Month	January	February	March	April	May	June	July	August	September	October	November	December	Average
	Average Total Daily Traffic 2015	36,648	35,306	37,789	39,494	41,243	41,064	37,745	37,997	39,503	40,132	38,159	37,524	38,550
Seasonal Adjustment Factor	0.9507	0.9158	0.9803	1.0245	1.0698	1.0652	0.9791	0.9856	1.0247	1.0410	0.9898	0.9734	-	

B	Route 9													
	MassDOT continuous count, location ID 307- West of Route 135, Westborough													
	Month	January	February	March	April	May	June	July	August	September	October	November	December	Average
	Average Total Daily Traffic, 11/2015 - 10/2016	46,892	47,380	50,505	51,071	51,952	53,602	49,123	50,959	50,276	49,113	49,670	50,207	50,063
Seasonal Adjustment Factor	0.9367	0.9464	1.0088	1.0201	1.0377	1.0707	0.9812	1.0179	1.0043	0.9810	0.9922	1.0029	-	

C	Route 2													
	MassDOT continuous count, location ID 403 - East of Concord Rotary, Concord													
	Month	January	February	March	April	May	June	July	August	September	October	November	December	Average
	Average Total Daily Traffic, 2013	41,885	38,845	41,520	43,138	44,501	44,259	42,378	43,216	43,864	45,281	42,411	41,606	42,742
Seasonal Adjustment Factor	0.9799	0.9088	0.9714	1.0093	1.0412	1.0355	0.9915	1.0111	1.0263	1.0594	0.9923	0.9734	-	

D	Route 2													
	MassDOT continuous count, location ID 4950 - West of Route 126, Concord													
	Month	January	February	March	April	May	June	July	August	September	October	November	December	Average
	Average Total Daily Traffic, 2013	45,899	44,623	44,332	45,680	46,688	46,696	44,521	45,510	46,744	47,831	45,165	43,425	45,593
Seasonal Adjustment Factor	1.0067	0.9787	0.9723	1.0019	1.0240	1.0242	0.9765	0.9982	1.0252	1.0491	0.9906	0.9525	-	

APPENDIX C – CRASH RATE CALCULATIONS

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Maynard COUNT DATE : Nov-16

DISTRICT : 3 UNSIGNALIZED : SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Parker Street (Route 27) / Powder Mill Road (Route 62)

MINOR STREET(S) : Waltham Street

**INTERSECTION
 DIAGRAM
 (Label Approaches)**



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (AM/PM) :	604	248	355	482		1,689

" K " FACTOR : **0.089** INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME : **18,978**

TOTAL # OF CRASHES : 24 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (A) : **4.80**

CRASH RATE CALCULATION : **0.69** RATE = $\frac{(A * 1,000,000)}{(V * 365)}$

Comments : MassDOT District 3 average crash rate at signalized intersections is 0.90/MEV.

Project Title & Date: _____



APPENDIX D – TRIP GENERATION CALCULATIONS



TRIP GENERATION WORKSHEET

LAND USE: *Apartment*
 LAND USE CODE: 220 Independent Variable---Dwelling Units

PROJECT NAME:
 PROJECT #: Number of Units: 180

WEEKDAY

RATES:	Total Trip Ends			Directional Dist.		Number of Studies
	Average	Low	High	Enter	Exit	
DAILY	6.65	1.27	12.50	50%	50%	88
AM PEAK	0.51	0.10	1.02	20%	80%	78
PM PEAK	0.62	0.10	1.64	65%	35%	90
PK GEN AM	0.55	0.10	1.08	29%	71%	83
PK GEN PM	0.67	0.10	1.64	61%	39%	85

BY AVERAGE			
Total	Enter	Exit	
DAILY	1197	599	599
AM PEAK	92	18	74
PM PEAK	112	73	39
PK GEN AM	99	29	70
PK GEN PM	121	74	47

BY REGRESSION				
Total	Enter	Exit	R ²	
DAILY	1214	607	607	0.87
AM PEAK	92	18	74	0.83
PM PEAK	117	76	41	0.77
PK GEN AM	100	29	71	0.82
PK GEN PM	123	75	48	0.80

SATURDAY

RATES:	Total Trip Ends			Directional Dist.		Number of Studies
	Average	Low	High	Enter	Exit	
DAILY	6.39	2.84	8.40	50%	50%	16
PEAK HR	0.52	0.26	1.05	-	-	14

BY AVERAGE			
Total	Enter	Exit	
DAILY	1150	575	575
PEAK HR	94	-	-

BY REGRESSION				
Total	Enter	Exit	R ²	
DAILY	1157	579	579	0.85
PEAK HR	93	-	-	0.56

SUNDAY

RATES:	Total Trip Ends			Directional Dist.		Number of Studies
	Average	Low	High	Enter	Exit	
DAILY	5.86	3.21	7.53	50%	50%	14
PEAK HR	0.51	0.26	1.43	-	-	13

BY AVERAGE			
Total	Enter	Exit	
DAILY	1055	528	528
PEAK HR	92	-	-

BY REGRESSION				
Total	Enter	Exit	R ²	
DAILY	1054	527	527	0.82
PEAK HR	*** Not Given ***			

TRIP GENERATION WORKSHEET

LAND USE: *Senior Adult Housing - Attached*
 LAND USE CODE: 252 Independent Variable---Dwelling Units
 PROJECT NAME: Maynard
 PROJECT #: xx Number of Units: 143

WEEKDAY

RATES:	Total Trip Ends			Directional Dist.		Number of Studies
	Average	Low	High	Enter	Exit	
DAILY	3.44	2.59	4.79	50%	50%	5
AM PEAK	0.20	0.06	0.27	34%	66%	10
PM PEAK	0.25	0.08	0.43	54%	46%	10
PK GEN AM	0.39	0.19	0.64	46%	54%	8
PK GEN PM	0.35	0.24	0.53	55%	45%	7

	BY AVERAGE		
	Total	Enter	Exit
DAILY	492	246	246
AM PEAK	29	10	19
PM PEAK	36	19	17
PK GEN AM	56	26	30
PK GEN PM	50	28	23

	BY REGRESSION			R ²
	Total	Enter	Exit	
DAILY	447	224	224	0.81
AM PEAK	28	10	18	0.98
PM PEAK	36	19	17	0.96
PK GEN AM	48	22	26	0.70
PK GEN PM	45	25	20	0.82

SATURDAY

RATES:	Total Trip Ends			Directional Dist.		Number of Studies
	Average	Low	High	Enter	Exit	
DAILY	2.61	1.84	4.07	50%	50%	5
PEAK HR	0.31	0.23	0.43	57%	43%	6

	BY AVERAGE		
	Total	Enter	Exit
DAILY	373	187	187
PEAK HR	44	25	19

	BY REGRESSION			R ²
	Total	Enter	Exit	
DAILY	325	163	163	0.67
PEAK HR	45	26	19	0.97

SUNDAY

RATES:	Total Trip Ends			Directional Dist.		Number of Studies
	Average	Low	High	Enter	Exit	
DAILY	2.84	2.20	4.25	50%	50%	5
PEAK HR	0.41	0.27	0.55	NOT GIVEN	NOT GIVEN	5

	BY AVERAGE		
	Total	Enter	Exit
DAILY	406	203	203
PEAK HR	59	#VALUE!	#VALUE!

	BY REGRESSION			R ²
	Total	Enter	Exit	
DAILY	353	177	177	0.75
PEAK HR	66	#VALUE!	#VALUE!	0.63

TRIP GENERATION WORKSHEET

LAND USE: *Health/Fitness Club*
 LAND USE CODE: 492 Independent Variable---Trips per 1000 SF GLA
 PROJECT NAME: Walpole Residence Current Proposal
 PROJECT # : 15114
 Gross Leasable Area (KSF): 20.0

WEEKDAY

RATES:	Total Trip Ends			Directional Dist.		Number of Studies
	Average	Low	High	Enter	Exit	
DAILY	32.93			50%	50%	1
AM PEAK HOUR	1.41	0.30	2.00	50%	50%	6
PM PEAK HOUR	3.71	2.35	4.30	57%	43%	6
AM GEN PEAK HOUR	1.43	0.30	2.67	47%	53%	4
PM GEN PEAK HOUR	4.06	3.27	4.30	51%	49%	3

TRIPS:

	BY AVERAGE		
	Total	Enter	Exit
DAILY	659	330	330
AM PEAK	28	14	14
PM PEAK	74	42	32
AM GEN PEAK HOUR	29	14	15
PM GEN PEAK HOUR	81	41	40

	BY REGRESSION			R ²
	Total	Enter	Exit	
DAILY	-	-	-	-
AM PEAK	-	-	-	-
PM PEAK	-	-	-	-
AM GEN PEAK HOUR	-	-	-	-
PM GEN PEAK HOUR	-	-	-	-

SATURDAY

RATES:	Total Trip Ends			Directional Dist.		Number of Studies
	Average	Low	High	Enter	Exit	
DAILY	20.87			50%	50%	1
GEN PEAK HR	2.78	2.60	2.87	45%	55%	2

TRIPS:

	BY AVERAGE		
	Total	Enter	Exit
DAILY	417	209	209
PEAK HR	56	25	31

	BY REGRESSION			R ²
	Total	Enter	Exit	
DAILY	-	-	-	-
PEAK HR	-	-	-	-

SUNDAY

RATES:	Total Trip Ends			Directional Dist.		Number of Studies
	Average	Low	High	Enter	Exit	
DAILY	26.73			50%	50%	1
PEAK HR	2.47			50%	50%	1

TRIPS:

	BY AVERAGE		
	Total	Enter	Exit
DAILY	535	268	268
PEAK HR	49	25	25

	BY REGRESSION			R ²
	Total	Enter	Exit	
DAILY	-	-	-	-
PEAK HR	-	-	-	-

TRIP GENERATION WORKSHEET

LAND USE: *General Office Building*
 LAND USE CODE: 710 Independent Variable---1000 SF GFA
 PROJECT NAME: No-Build West Bridgewater
 PROJECT #: 13016.002 Gross Floor Area (KSF): 30.3

WEEKDAY

RATES:	Total Trip Ends			Directional Dist.		Number of Studies
	Average	Low	High	Enter	Exit	
DAILY	11.03	3.58	28.80	50%	50%	79
AM PEAK HR	1.56	0.60	5.98	88%	12%	218
PM PEAK HR	1.49	0.49	6.39	17%	83%	236

TRIPS:

	BY AVERAGE			BY REGRESSION			
	Total	Enter	Exit	Total	Enter	Exit	R ²
DAILY	334	167	167	530	265	265	0.81
AM PEAK	47	41	6	74	65	9	0.83
PM PEAK	45	8	37	112	19	93	0.82

SATURDAY

RATES:	Total Trip Ends			Directional Dist.		Number of Studies
	Average	Low	High	Enter	Exit	
DAILY	2.46	0.59	14.67	50%	50%	18
GEN PEAK HR	0.43	0.16	1.77	54%	46%	11

TRIPS:

	BY AVERAGE			BY REGRESSION			
	Total	Enter	Exit	Total	Enter	Exit	R ²
DAILY	75	38	38	93	47	47	0.64
PEAK HR	13	7	6	n/a	n/a	n/a	n/a

SUNDAY

RATES:	Total Trip Ends			Directional Dist.		Number of Studies
	Average	Low	High	Enter	Exit	
DAILY	1.05	0.19	7.33	50%	50%	18
GEN PEAK HR	0.16	0.06	1.37	58%	42%	11

	BY AVERAGE			BY REGRESSION			
	Total	Enter	Exit	Total	Enter	Exit	R ²
DAILY	32	16	16	n/a	n/a	n/a	n/a
PEAK HR	5	3	2	n/a	n/a	n/a	n/a

TRIP GENERATION WORKSHEET

LAND USE: *Shopping Center*
 LAND USE CODE: 820 Independent Variable---Trips per 1000 SF GLA
 PROJECT NAME: Maynard Current Proposal
 PROJECT # : Gross Leasable Area (KSF): 240.5

WEEKDAY

RATES:	Total Trip Ends			Directional Dist.		Number of Studies
	Average	Low	High	Enter	Exit	
DAILY	42.70	12.50	270.89	50%	50%	302
AM PEAK HOUR	0.96	0.10	9.05	62%	38%	104
PM PEAK HOUR	3.71	0.68	29.27	48%	52%	426

TRIPS:

	BY AVERAGE		
	Total	Enter	Exit
DAILY	10269	5135	5135
AM PEAK	231	143	88
PM PEAK	892	428	464

	BY REGRESSION			
	Total	Enter	Exit	R ²
DAILY	12013	6007	6007	0.79
AM PEAK	266	165	101	0.56
PM PEAK	1079	518	561	0.81

SATURDAY

RATES:	Total Trip Ends			Directional Dist.		Number of Studies
	Average	Low	High	Enter	Exit	
DAILY	49.97	16.70	227.50	50%	50%	123
GEN PEAK HR	4.82	1.46	18.32	52%	48%	128

TRIPS:

	BY AVERAGE		
	Total	Enter	Exit
DAILY	12017	6009	6009
PEAK HR	1159	603	556

	BY REGRESSION			
	Total	Enter	Exit	R ²
DAILY	16060	8030	8030	0.82
PEAK HR	1546	804	742	0.83

SUNDAY

RATES:	Total Trip Ends			Directional Dist.		Number of Studies
	Average	Low	High	Enter	Exit	
DAILY	25.24	4.15	148.15	50%	50%	77
PEAK HR	3.12	0.39	12.40	49%	51%	39

TRIPS:

	BY AVERAGE		
	Total	Enter	Exit
DAILY	6070	3035	3035
PEAK HR	750	368	383

	BY REGRESSION			
	Total	Enter	Exit	R ²
DAILY	7973	3987	3987	0.52
PEAK HR	<---- NOT GIVEN ---->			

SOURCE: Trip Generation, 9th Edition, Institute of Transportation Engineers, 2012.

Weekday (use)

Scenario: 129 Parker Street, Maynard
Time Period: Weekday Daily
Analyst: JG
Date: 1/29/2016

Internal Trip Capture Calculations

LAND USE A - RETAIL

ITE LUC:	820; 492		
Size:	260.49		
	Total	Internal	External
Enter	6351	312	6039
Exit	6351	301	6050
Total	12673	613	12089
%	100%	5%	95%



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A to B		B to A	
Retail	% Demand Trips 11% 699	Retail	% Demand Trips 9% 572
	Balanced 262		Balanced 301
Retail	% Demand Trips 33% 262	Retail	% Demand Trips 38% 301

A to C		C to A	
Retail	% Demand Trips 3% 191	Retail	% Demand Trips 22% 1397
	Balanced 40		Balanced 11
Retail	% Demand Trips 15% 40	Retail	% Demand Trips 4% 11

LAND USE B - RESIDENTIAL

ITE LUC:	220;252		
Size:	318 units		
	Total	Internal	External
Enter	793	267	526
Exit	793	301	492
Total	1586	568	1018
%	100%	36%	64%

LAND USE C - Office

ITE LUC:	710		
Size:	30.3 kSF		
	Total	Internal	External
Enter	265		
Exit	265		
Total	530		
%			

B to C		C to B	
Retail	% Demand Trips 0% 0	Retail	% Demand Trips 2% 5
	Balanced 0		Balanced 5
Retail	% Demand Trips 0% 0	Retail	% Demand Trips 3% 24

	Enter	Exit	Total
Retail	312	301	613
Residential	267	301	568
Office	40	16	56

	Net External Trips for Multi-Use Development			
	Land Use A	Land Use B	Land Use C	Total
Enter	6039	526	0	6565
Exit	6050	492	0	6541
Total	12089	1018	0	13106
Single-Use Trip Gen Est.	12673	1586	530	14789
Internal Capture Rate				11.38%

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	129 Parker Street	Organization:	Green International Affiliates
Project Location:	Maynard	Performed By:	JG
Scenario Description:	AM Peak Hour	Date:	1/29/2016
Analysis Year:	2022	Checked By:	
Analysis Period:	AM Street Peak Hour	Date:	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office	710	30		74	65	9
Retail	820; 492	261	ksf	295	180	115
Restaurant				0		
Cinema/Entertainment				0		
Residential	220; 252	322	units	120	28	92
Hotel				0		
All Other Land Uses ²				0		
Total				489	273	216

Table 2-A: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses ²						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		3	0	0	0	0
Retail	3		0	0	1	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	1	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	489	273	216
Internal Capture Percentage	4%	4%	5%
External Vehicle-Trips ³	469	263	206
External Transit-Trips ⁴	0	0	0
External Non-Motorized Trips ⁴	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	8%	33%
Retail	2%	3%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	4%	3%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

³Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

⁴Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	129 Parker Street
Analysis Period:	AM Street Peak Hour

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	65	65	1.00	9	9
Retail	1.00	180	180	1.00	115	115
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	28	28	1.00	92	92
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		3	6	0	0	0
Retail	33		15	0	16	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	1	18	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		58	0	0	0	0
Retail	3		0	0	1	0
Restaurant	9	14		0	1	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	31	0	0		0
Hotel	2	7	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	5	60	65	60	0	0
Retail	4	176	180	176	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	1	27	28	27	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	3	6	9	6	0	0
Retail	4	111	115	111	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	3	89	92	89	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A
²Person-Trips
³Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator
*Indicates computation that has been rounded to the nearest whole number.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	129 Parker Street	Organization:	Green International Affiliates
Project Location:	Maynard	Performed By:	JG
Scenario Description:	PM Peak Hour	Date:	1/29/2016
Analysis Year:	2022	Checked By:	
Analysis Period:	PM Street Peak Hour	Date:	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office	710	30		112	19	93
Retail	820; 492	261	ksf	1,155	561	594
Restaurant				0		
Cinema/Entertainment				0		
Residential	220; 252	322	units	153	95	58
Hotel				0		
All Other Land Uses ²						
Total				1420	675	745

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses ²						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1000			1100	
Retail					1300	
Restaurant						
Cinema/Entertainment						
Residential		1300				
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		14	0	0	2	0
Retail	6		0	0	44	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	16	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	1,420	675	745
Internal Capture Percentage	12%	12%	11%
External Vehicle-Trips ³	1,252	591	661
External Transit-Trips ⁴	0	0	0
External Non-Motorized Trips ⁴	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	42%	17%
Retail	5%	8%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	48%	31%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

³Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

⁴Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	129 Parker Street
Analysis Period:	PM Street Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	19	19	1.00	93	93
Retail	1.00	561	561	1.00	594	594
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	95	95	1.00	58	58
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		14	4	0	2	0
Retail	12		172	24	130	30
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	16	12	0		2
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		34	0	0	4	0
Retail	6		0	0	44	0
Restaurant	6	281		0	15	0
Cinema/Entertainment	1	22	0		4	0
Residential	11	38	0	0		0
Hotel	0	11	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	8	11	19	11	0	0
Retail	30	531	561	531	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	46	49	95	49	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	16	77	93	77	0	0
Retail	50	544	594	544	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	18	40	58	40	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

²Person-Trips

³Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

Saturday (based on Weekday)

Scenario: 129 Parker Street, Maynard
Time Period: Saturday Daily Total
Analyst: JG
Date: 1/29/2016

Internal Trip Capture Calculations

LAND USE A - RETAIL

ITE LUC: 820; 492			
Size: 261.1 kSF			
	Total	Internal	External
Enter	8258	286	7972
Exit	8258	253	8005
Total	16516	539	15977
%	100%	3%	97%



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 WESTFORD, MA 01886

A to B		B to A	
Retail	% Demand Trips 11% 908	Retail	% Demand Trips 9% 743
Balanced		Balanced	
247		285	
Retail	% Demand Trips 33% 247	Retail	% Demand Trips 38% 285

A to C		C to A	
Retail	% Demand Trips 3% 248	Retail	% Demand Trips 22% 1817
Balanced		Balanced	
6		2	
Retail	% Demand Trips 15% 6	Retail	% Demand Trips 4% 2

LAND USE B - RESIDENTIAL

ITE LUC: 220;252			
Size: 318 units			
	Total	Internal	External
Enter	749	248	501
Exit	749	285	464
Total	1498	533	965
%	100%	36%	64%

LAND USE C - Office

ITE LUC: 710			
Size: 30.3 kSF			
	Total	Internal	External
Enter	38		38
Exit	38	2	36
Total	76	2	74

B to C		C to B	
Retail	% Demand Trips 0% 0	Retail	% Demand Trips 2% 1
Balanced		Balanced	
0		1	
Retail	% Demand Trips 0% 0	Retail	% Demand Trips 3% 22

	Enter	Exit	Total
Retail*	286	253	539
Residential	248	285	533
Office	6	2	8

Net External Trips for Multi-Use Development				
	Land Use A	Land Use B	Land Use C	Total
Enter	7972	501	38	8511
Exit	8005	464	36	8505
Total	15977	965	74	17016
Single-Use Trip Gen Est.	16516	1498	76	18090
Internal Capture Rate				5.94%

* The number of daily internal capture trips for cinema and retail calculated here via the method described in the ITE Handbook results in only a few more trips than the number of internal capture trips per Saturday peak hour as calculated via methodology adapting NCHRP Report 684. Hence, a factor based on the number of weekday daily internal trips to peak (PM) hourly internal trips was used to calculate the total number of internal trips for cinema and retail combined for Saturday, which results in a greater figure than that calculated on this sheet.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	129 Parker Street	Organization:	Green International Affiliates
Project Location:	Maynard	Performed By:	JG
Scenario Description:	Saturday Peak Hour	Date:	1/29/2016
Analysis Year:	2022	Checked By:	
Analysis Period:	Saturday (based on wkday PM) Peak Hour	Date:	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)						
Land Use	Development Data (For Information Only)			Estimated Vehicle-Trips		
	ITE LUCs ¹	Quantity	Units	Total	Entering	Exiting
Office	710	30		13	7	6
Retail	820; 492	261	ksf	1606	831	775
Restaurant				0		
Cinema/Entertainment				0		
Residential	252;220	318	houses; units	136	71	65
Hotel				0		
All Other Land Uses ²				0		
Total				1755	909	846

Table 2-P: Mode Split and Vehicle Occupancy Estimates						
Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses ²						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1000			1100	
Retail					1300	
Restaurant						
Cinema/Entertainment						
Residential		1300				
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1	0	0	0	0
Retail	2		0	0	33	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	3	18	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary			
	Total	Entering	Exiting
All Person-Trips	1,755	909	846
Internal Capture Percentage	6%	6%	7%
External Vehicle-Trips ³	1,641	852	789
External Transit-Trips ⁴	0	0	0
External Non-Motorized Trips ⁴	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use		
Land Use	Entering Trips	Exiting Trips
Office	71%	17%
Retail	2%	5%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	46%	32%
Hotel	N/A	N/A

¹Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

³Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

⁴Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	129 Parker Street
Analysis Period:	Saturday (based on wkday PM) Peak Hour

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends						
Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	7	7	1.00	6	6
Retail	1.00	831	831	1.00	775	775
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	71	71	1.00	65	65
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1	0	0	0	0
Retail	16		225	31	169	39
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	3	18	14	0		2
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)						
Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		51	0	0	3	0
Retail	2		0	0	33	0
Restaurant	2	416		0	11	0
Cinema/Entertainment	0	33	0		3	0
Residential	4	56	0	0		0
Hotel	0	17	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)						
Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	5	2	7	2	0	0
Retail	19	812	831	812	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	33	38	71	38	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)						
Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles ¹	Transit ²	Non-Motorized ²
Office	1	5	6	5	0	0
Retail	35	740	775	740	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	21	44	65	44	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses ³	0	0	0	0	0	0

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

²Person-Trips

³Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

129 Parker Street
 Maynard, MA

	ITE Pass-by / Diverted trips *	Parker St Vol. (based on 2016 ATR)	Route 117 Vol. (based on 2016 ATR)	Total Combined Volume On Route 117 and Parker Street	ITE Pass-by/Diverted Trips, % of Adjacent Street Traffic	Pass-by / Diverted Trip Limits (15% of adjacent street traffic)	Delta	Effective Pass-by Rate
Weekday								
AM	98	974	1,130	2,104	4.66%	n/a	n/a	34.0%
PM	366	1,001	1,016	2,017	18.15%	303	-63	29.9%
Daily	4,100	11,288	10,689	21,977	18.66%	3,297	-803	30.3%
Saturday								
Midday Peak	404	778	538	1,316	30.7%	197	-207	12.0%
Daily	4,154	8,537	6,529	15,066	27.6%	2,260	-1,894	13.2%

* Pass-by rate of 34% during Weekday, and 26% during Saturday based on ITE Trip Generation Handbook



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***APPENDIX E – SIGNAL WARRANT ANALYSIS
CALCULATIONS***

Green International Affiliates, Inc.

Maynard Commons - 129 Parker Street
 Parker Street (Route 27) at Primary Site Drive
 Traffic Counts from November 2016

2016 Existing Traffic Volumes

	Condition A Thresholds	Condition B Thresholds
Vehicles per hour on major street (total of both approaches)	600	900
Vehicles per hour on higher-volume minor-street approach (one direction only)	200	100

Thresholds are based on 2+ lane minor street and 2+ lane major street at 100% since speeds are <40 mph and population>10,000

	Parker Street (Route 27)		Primary Site Drive	Parker Street (Route 27)	Primary Site Drive		condition A met?	condition B met?
	NB approach	SB Approach Through Movement	Exiting Percentages of Shopping Center Traffic*	Total of Both Approaches	EB Approach (from ITE)*	Adjusted EB Approach		
12:00 AM to 01:00 AM	38	18	0.4%	56	27	20	no	no
01:00 AM to 02:00 AM	19	12	0.4%	31	27	20	no	no
02:00 AM to 03:00 AM	12	3	0.4%	15	27	20	no	no
03:00 AM to 04:00 AM	9	4	0.4%	13	27	20	no	no
04:00 AM to 05:00 AM	14	12	0.4%	26	27	20	no	no
05:00 AM to 06:00 AM	30	29	0.4%	59	27	20	no	no
06:00 AM to 07:00 AM	79	103	0.2%	182	16	12	no	no
07:00 AM to 08:00 AM	144	162	0.4%	306	31	23	no	no
08:00 AM to 09:00 AM	288	259	1.0%	547	78	57	no	no
09:00 AM to 10:00 AM	396	302	2.2%	698	171	125	no	no
10:00 AM to 11:00 AM	493	303	4.8%	796	373	272	yes	no
11:00 AM to 12:00 PM	616	396	7.5%	1,012	582	424	yes	yes
12:00 PM to 01:00 PM	602	363	9.3%	965	722	527	yes	yes
01:00 PM to 02:00 PM	631	383	10.3%	1,014	800	583	yes	yes
02:00 PM to 03:00 PM	596	359	11.8%	955	916	668	yes	yes
03:00 PM to 04:00 PM	581	321	12.5%	902	971	708	yes	yes
04:00 PM to 05:00 PM	515	316	12.5%	831	971	708	yes	no
05:00 PM to 06:00 PM	411	267	11.3%	678	878	640	yes	no
06:00 PM to 07:00 PM	308	208	6.7%	516	520	379	no	no
07:00 PM to 08:00 PM	245	145	2.9%	390	225	164	no	no
08:00 PM to 09:00 PM	177	105	2.2%	282	171	125	no	no
09:00 PM to 10:00 PM	188	83	1.6%	271	124	90	no	no
10:00 PM to 11:00 PM	127	83	0.4%	210	27	20	no	no
11:00 PM to 12:00 AM	73	64	0.4%	137	27	20	no	no
Number of Hours in which Condition is met							8	5
Warrant 1 satisfied?							yes	

*Percentages derived from ITE Trip Generation Manual, 9th Edition, LUC 820 Page 1558

	Exiting Trips - Shopping Center	Percentage Exiting	Exiting Trips
Saturday Daily	7,766	100%	7,766
Saturday Midday Peak Hour	708	100%	708

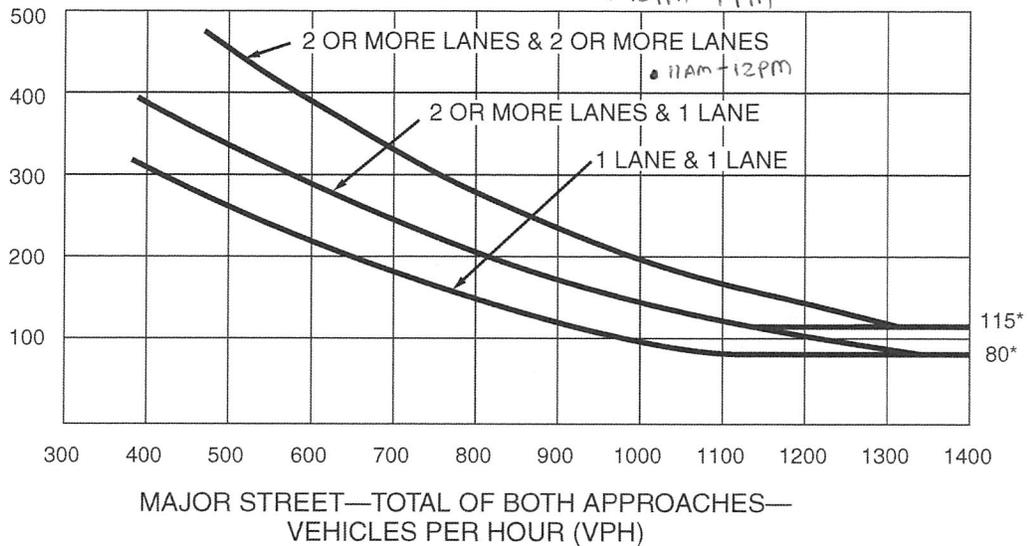
Adjustment Factor = 708/(7,766*12.5%)

0.72933299

Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume (Saturday)

*Parker Street
(Route 27)*

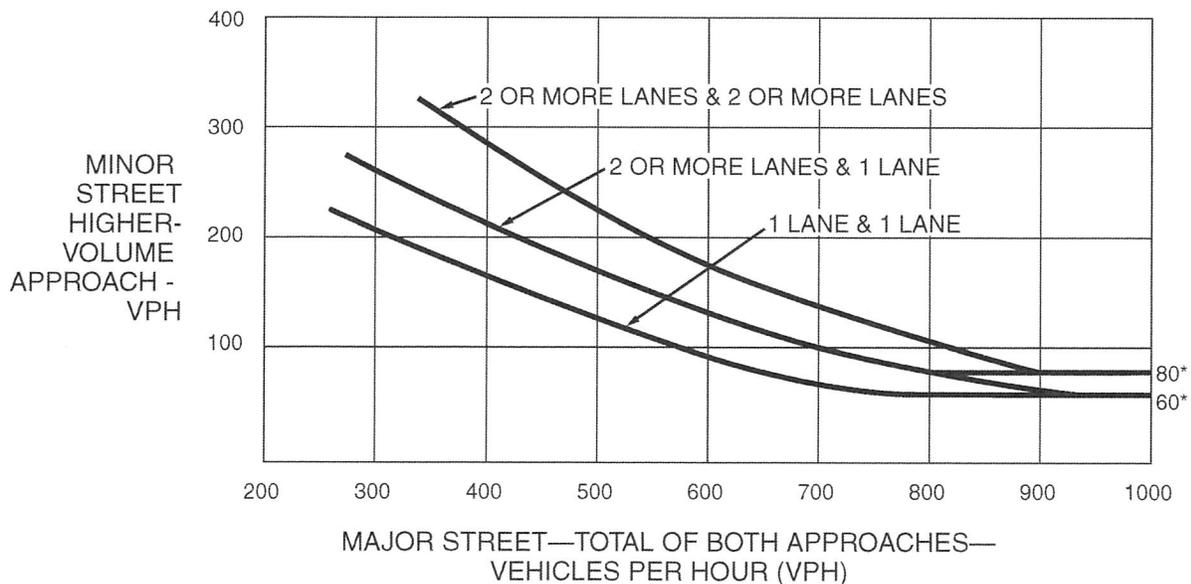
MINOR STREET HIGHER-VOLUME APPROACH - VPH



Primary Site Driveway
 *Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

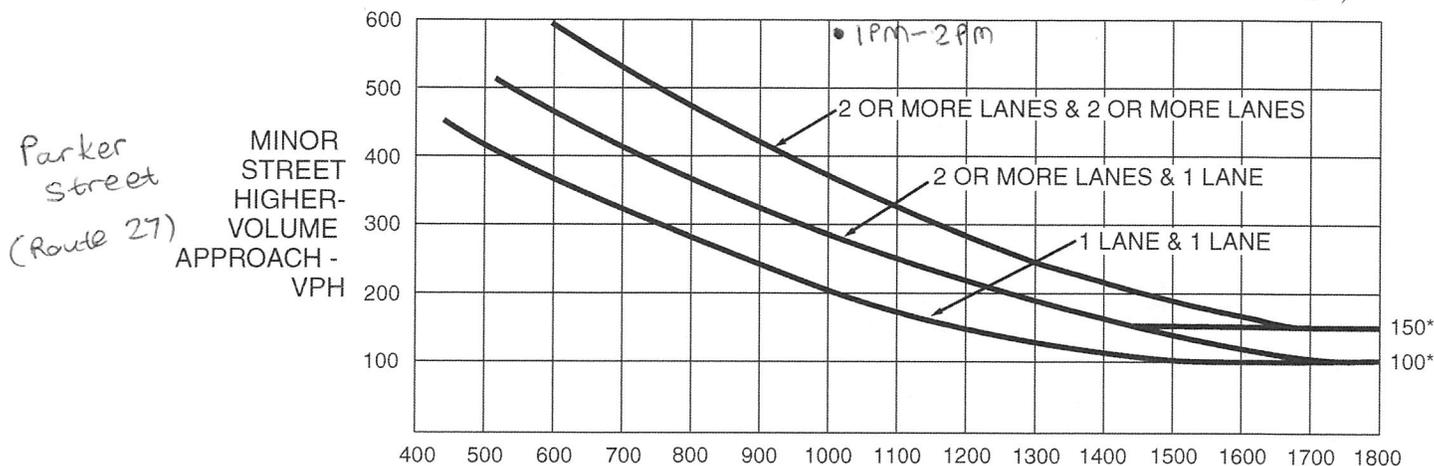
Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-3. Warrant 3, Peak Hour (Saturday)



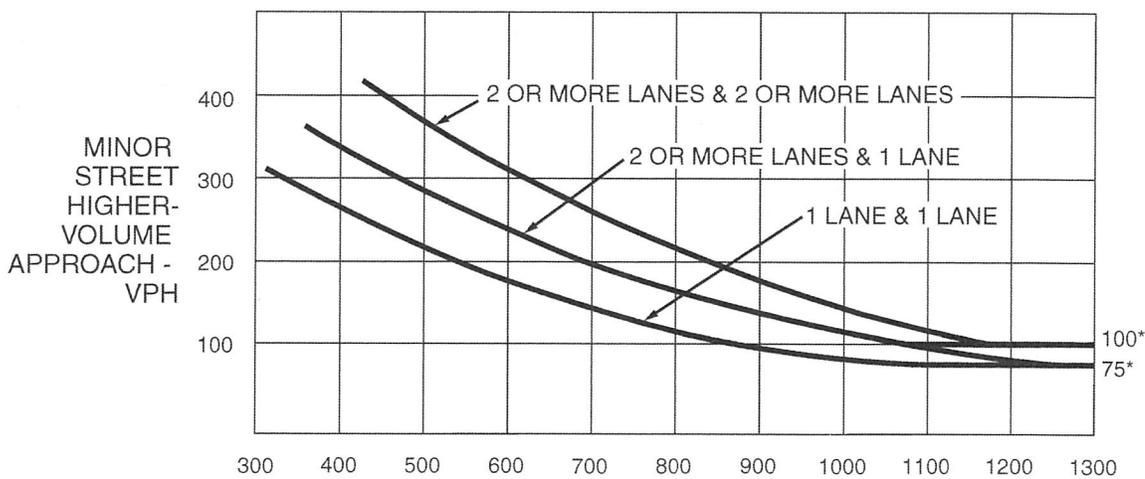
MAJOR STREET—TOTAL OF BOTH APPROACHES— VEHICLES PER HOUR (VPH)

Primary site driveway

*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



MAJOR STREET—TOTAL OF BOTH APPROACHES— VEHICLES PER HOUR (VPH)

*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

***APPENDIX F – INTERSECTION CAPACITY ANALYSIS
WORKSHEETS***

2016 EXISTING CONDITIONS

Synchro 9: HCM 2010 TWSC
 3: Parker Street & Field Street/North Street

129 Parker Street
 2016 Existing Weekday AM Peak Hour

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	2	1	1	1	10	1	433	1	8	599	2
Future Vol, veh/h	9	2	1	1	1	10	1	433	1	8	599	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	2	2	2	2	2	2
Mvmt Flow	10	2	1	1	1	11	1	466	1	9	644	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1136	1131	645	1132	1131	466	646	0	0	467	0	0
Stage 1	662	662	-	468	468	-	-	-	-	-	-	-
Stage 2	474	469	-	664	663	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	181	205	476	182	205	601	939	-	-	1094	-	-
Stage 1	454	462	-	579	565	-	-	-	-	-	-	-
Stage 2	575	564	-	453	462	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	175	202	476	178	202	601	939	-	-	1094	-	-
Mov Cap-2 Maneuver	175	202	-	178	202	-	-	-	-	-	-	-
Stage 1	454	456	-	578	564	-	-	-	-	-	-	-
Stage 2	563	563	-	444	456	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	25.4	13.4	0	0.1
HCM LOS	D	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	939	-	-	189	441	1094	-
HCM Lane V/C Ratio	0.001	-	-	0.068	0.029	0.008	-
HCM Control Delay (s)	8.8	0	-	25.4	13.4	8.3	0
HCM Lane LOS	A	A	-	D	B	A	A
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-

Intersection												
Int Delay, s/veh	0.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	2	0	11	0	424	1	2	599	0
Future Vol, veh/h	0	0	0	2	0	11	0	424	1	2	599	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	2	2	2	2	2	2
Mvmt Flow	0	0	0	2	0	12	0	451	1	2	637	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1098	1093	637	1093	1093	452	637	0	0	452	0	0
Stage 1	641	641	-	452	452	-	-	-	-	-	-	-
Stage 2	457	452	-	641	641	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	192	216	481	193	216	612	947	-	-	1109	-	-
Stage 1	466	473	-	591	574	-	-	-	-	-	-	-
Stage 2	587	574	-	466	473	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	188	215	481	193	215	612	947	-	-	1109	-	-
Mov Cap-2 Maneuver	188	215	-	193	215	-	-	-	-	-	-	-
Stage 1	466	472	-	591	574	-	-	-	-	-	-	-
Stage 2	576	574	-	465	472	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	13.1	0	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	947	-	-	-	459	1109	-
HCM Lane V/C Ratio	-	-	-	-	0.03	0.002	-
HCM Control Delay (s)	0	-	-	0	13.1	8.3	0
HCM Lane LOS	A	-	-	A	B	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-

Intersection

Int Delay, s/veh 0.3

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	415	24	4	586	12	2
Future Vol, veh/h	415	24	4	586	12	2
Conflicting Peds, #/hr	0	0	0	0	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	0	0
Mvmt Flow	456	26	4	644	13	2

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	482
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1081
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1080
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0.1	19.4
HCM LOS			C

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1080	-	266
HCM Lane V/C Ratio	-	-	0.004	-	0.058
HCM Control Delay (s)	-	-	8.3	0	19.4
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0	-	0.2

Intersection

Int Delay, s/veh 0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	30	1	2	409	588	10
Future Vol, veh/h	30	1	2	409	588	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	2	2	2	2
Mvmt Flow	33	1	2	445	639	11

Major/Minor	Minor2	Major1		Major2
Conflicting Flow All	1094	645	650	0
Stage 1	645	-	-	-
Stage 2	449	-	-	-
Critical Hdwy	6.43	6.23	4.12	-
Critical Hdwy Stg 1	5.43	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-
Follow-up Hdwy	3.527	3.327	2.218	-
Pot Cap-1 Maneuver	236	470	936	-
Stage 1	520	-	-	-
Stage 2	641	-	-	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	235	470	936	-
Mov Cap-2 Maneuver	235	-	-	-
Stage 1	520	-	-	-
Stage 2	639	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.5	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	936	-	239	-	-
HCM Lane V/C Ratio	0.002	-	0.141	-	-
HCM Control Delay (s)	8.9	0	22.5	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.5	-	-

Intersection

Int Delay, s/veh 3.6

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↖	↗		↘	
Traffic Vol, veh/h	58	498	333	76	42	153
Future Vol, veh/h	58	498	333	76	42	153
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	63	541	362	83	46	166

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	445	0	1070
Stage 1	-	-	403
Stage 2	-	-	667
Critical Hdwy	4.12	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.218	-	3.5
Pot Cap-1 Maneuver	1115	-	247
Stage 1	-	-	679
Stage 2	-	-	514
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1115	-	227
Mov Cap-2 Maneuver	-	-	227
Stage 1	-	-	679
Stage 2	-	-	472

Approach	EB	WB	SW
HCM Control Delay, s	0.9	0	19.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBRSWLn1
Capacity (veh/h)	1115	-	-	465
HCM Lane V/C Ratio	0.057	-	-	0.456
HCM Control Delay (s)	8.4	0	-	19.1
HCM Lane LOS	A	A	-	C
HCM 95th %tile Q(veh)	0.2	-	-	2.3

Intersection

Int Delay, s/veh 2.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↗		↖	↘
Traffic Vol, veh/h	10	534	237	80	114	4
Future Vol, veh/h	10	534	237	80	114	4
Conflicting Peds, #/hr	1	0	0	1	4	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	37
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	1	1
Mvmt Flow	11	568	252	85	121	4

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	338	0	889
Stage 1	-	-	296
Stage 2	-	-	593
Critical Hdwy	4.12	-	6.41
Critical Hdwy Stg 1	-	-	5.41
Critical Hdwy Stg 2	-	-	5.41
Follow-up Hdwy	2.218	-	3.509
Pot Cap-1 Maneuver	1221	-	315
Stage 1	-	-	757
Stage 2	-	-	554
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1221	-	310
Mov Cap-2 Maneuver	-	-	310
Stage 1	-	-	756
Stage 2	-	-	546

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	23.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1221	-	-	-	310	745
HCM Lane V/C Ratio	0.009	-	-	-	0.391	0.006
HCM Control Delay (s)	8	0	-	-	23.9	9.9
HCM Lane LOS	A	A	-	-	C	A
HCM 95th %tile Q(veh)	0	-	-	-	1.8	0

Intersection

Int Delay, s/veh 2.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			Y	Y	
Traffic Vol, veh/h	14	134	84	331	393	71
Future Vol, veh/h	14	134	84	331	393	71
Conflicting Peds, #/hr	0	0	4	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	3	3	2	2
Mvmt Flow	15	146	91	360	427	77

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	1012	470	508	0	0
Stage 1	470	-	-	-	-
Stage 2	542	-	-	-	-
Critical Hdwy	6.42	6.22	4.13	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.227	-	-
Pot Cap-1 Maneuver	265	594	1052	-	-
Stage 1	629	-	-	-	-
Stage 2	583	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	234	591	1052	-	-
Mov Cap-2 Maneuver	234	-	-	-	-
Stage 1	626	-	-	-	-
Stage 2	518	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.1	1.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1052	-	516	-	-
HCM Lane V/C Ratio	0.087	-	0.312	-	-
HCM Control Delay (s)	8.7	0	15.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.3	-	1.3	-	-

Synchro 9: HCM 2010 TWSC
 38: Concord Street & Haynes Street/Brown Street

129 Parker Street
 2016 Existing Weekday AM Peak Hour

Intersection												
Int Delay, s/veh	29.8											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	30	358	35	6	589	29	67	141	3	29	26	5
Future Vol, veh/h	30	358	35	6	589	29	67	141	3	29	26	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	1	1	1	1	1	1	2	2	2
Mvmt Flow	31	369	36	6	607	30	69	145	3	30	27	5

Major/Minor	Major1			Major2			Minor2			Minor1		
Conflicting Flow All	637	0	0	405	0	0	1100	1102	624	1160	1098	387
Stage 1	-	-	-	-	-	-	635	635	-	449	449	-
Stage 2	-	-	-	-	-	-	465	467	-	711	649	-
Critical Hdwy	4.12	-	-	4.11	-	-	7.11	6.51	6.21	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.209	-	-	3.509	4.009	3.309	3.518	4.018	3.318
Pot Cap-1 Maneuver	947	-	-	1159	-	-	190	213	487	172	213	661
Stage 1	-	-	-	-	-	-	468	474	-	589	572	-
Stage 2	-	-	-	-	-	-	580	563	-	424	466	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	945	-	-	1159	-	-	163	202	486	68	202	661
Mov Cap-2 Maneuver	-	-	-	-	-	-	163	202	-	68	202	-
Stage 1	-	-	-	-	-	-	448	470	-	564	547	-
Stage 2	-	-	-	-	-	-	524	539	-	288	462	-

Approach	NB	SB	NE	SW
HCM Control Delay, s	0.6	0.1	163	77
HCM LOS			F	F

Minor Lane/Major Mvmt	NELn1	NBL	NBT	NBR	SBL	SBT	SBRSWLn1
Capacity (veh/h)	189	945	-	-	1159	-	-
HCM Lane V/C Ratio	1.151	0.033	-	-	0.005	-	-
HCM Control Delay (s)	163	8.9	0	-	8.1	0	-
HCM Lane LOS	F	A	A	-	A	A	-
HCM 95th %tile Q(veh)	11	0.1	-	-	0	-	-

Synchro 9: Lanes, Volumes, Timings
1: Parker Street & Great Road

129 Parker Street
2016 Existing Weekday AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	418	166	19	240	42	128	308	16	31	424	111
Future Volume (vph)	46	418	166	19	240	42	128	308	16	31	424	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	11	11	12	12	9	12	13	10	12	16
Storage Length (ft)	80		45	90		0	95		80	80		75
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	30			40			45			40		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98						0.98			0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1652	1863	1531	1711	1863	1583	1593	1863	1636	1652	1863	1794
Flt Permitted	0.311			0.503			0.144			0.561		
Satd. Flow (perm)	541	1863	1494	906	1863	1583	241	1863	1603	975	1863	1758
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			67			124			124			124
Link Speed (mph)		20			20			20			30	
Link Distance (ft)		545			401			975			570	
Travel Time (s)		18.6			13.7			33.2			13.0	
Confl. Peds. (#/hr)			1									1
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	49	449	178	20	258	45	138	331	17	33	456	119
Shared Lane Traffic (%)												
Lane Group Flow (vph)	49	449	178	20	258	45	138	331	17	33	456	119
Turn Type	pm+pt	NA	pm+ov	Perm	NA	Free	pm+pt	NA	Free	Perm	NA	Free
Protected Phases	5	2	7		6		7	4			8	
Permitted Phases	2		2	6		Free	4		Free	8		Free
Detector Phase	5	2	7	6	6		7	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	24.0	10.0	10.0	10.0		10.0	22.0		22.0	22.0	
Total Split (s)	30.0	70.0	30.0	40.0	40.0		30.0	80.0		50.0	50.0	
Total Split (%)	20.0%	46.7%	20.0%	26.7%	26.7%		20.0%	53.3%		33.3%	33.3%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead		Lead	Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	Max	Max	Max	Max	Max		Max	Max		Max	Max	
Act Effct Green (s)	65.0	65.0	90.0	35.0	35.0	150.0	75.0	75.0	150.0	45.0	45.0	150.0
Actuated g/C Ratio	0.43	0.43	0.60	0.23	0.23	1.00	0.50	0.50	1.00	0.30	0.30	1.00
v/c Ratio	0.12	0.56	0.19	0.09	0.59	0.03	0.40	0.36	0.01	0.11	0.82	0.07
Control Delay	25.7	35.0	7.5	46.7	57.7	0.0	24.2	24.2	0.0	39.5	61.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.7	35.0	7.5	46.7	57.7	0.0	24.2	24.2	0.0	39.5	61.8	0.1
LOS	C	D	A	D	E	A	C	C	A	D	E	A

Synchro 9: Lanes, Volumes, Timings
 1: Parker Street & Great Road

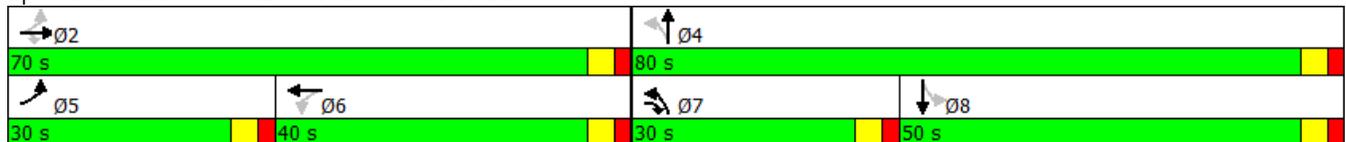
129 Parker Street
 2016 Existing Weekday AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		27.1			49.0			23.4			48.5	
Approach LOS		C			D			C			D	
Queue Length 50th (ft)	28	324	41	15	227	0	72	193	0	23	415	0
Queue Length 95th (ft)	55	437	74	40	324	0	116	268	0	53	#567	0
Internal Link Dist (ft)		465			321			895			490	
Turn Bay Length (ft)	80		45	90			95		80	80		75
Base Capacity (vph)	419	807	929	211	434	1583	345	931	1603	292	558	1758
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.56	0.19	0.09	0.59	0.03	0.40	0.36	0.01	0.11	0.82	0.07

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Natural Cycle: 60
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 35.8
 Intersection LOS: D
 Intersection Capacity Utilization 72.2%
 ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Parker Street & Great Road



Synchro 9: Lanes, Volumes, Timings
 26: Parking Lot/Main Street & Great Road

129 Parker Street
 2016 Existing Weekday AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	211	612	1	0	232	9	0	0	1	6	0	90
Future Volume (vph)	211	612	1	0	232	9	0	0	1	6	0	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	10	12	16	16	12	9	12	9	9	11
Storage Length (ft)	112		0	0		31	0		0	95		95
Storage Lanes	1		0	0		1	0		0	1		0
Taper Length (ft)	160			25			25			60		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00				0.98						
Frt						0.850		0.865				0.850
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	1739	0	0	2132	1812	0	1479	0	1608	0	1546
Flt Permitted	0.950									0.950		
Satd. Flow (perm)	1770	1739	0	0	2132	1774	0	1479	0	1608	0	1546
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						105		440				97
Link Speed (mph)		35			35			15			35	
Link Distance (ft)		456			740			116			420	
Travel Time (s)		8.9			14.4			5.3			8.2	
Confl. Peds. (#/hr)						2						1
Confl. Bikes (#/hr)			1									1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Adj. Flow (vph)	227	658	1	0	249	10	0	0	1	6	0	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	227	659	0	0	249	10	0	1	0	6	0	97
Turn Type	Prot	NA			NA	Free		NA		Prot		pt+ov
Protected Phases	4	1 4			1		2	2		3		3 4
Permitted Phases						Free				3		
Detector Phase	4	1 4			1		2	2		3		3 4
Switch Phase												
Minimum Initial (s)	10.0				8.0		5.0	5.0		8.0		
Minimum Split (s)	26.0				12.0		9.0	9.0		20.0		
Total Split (s)	49.0				54.0		12.0	12.0		20.0		
Total Split (%)	36.3%				40.0%		8.9%	8.9%		14.8%		
Yellow Time (s)	3.0				3.0		3.0	3.0		3.0		
All-Red Time (s)	1.0				1.0		1.0	1.0		1.0		
Lost Time Adjust (s)	0.0				0.0			0.0		0.0		
Total Lost Time (s)	4.0				4.0			4.0		4.0		
Lead/Lag	Lag				Lead		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes						Yes	Yes		Yes		
Recall Mode	None				None		None	None		None		
Act Effct Green (s)	20.3	42.1			15.6	55.2		5.8		9.2		29.3
Actuated g/C Ratio	0.37	0.76			0.28	1.00		0.11		0.17		0.53
v/c Ratio	0.35	0.50			0.41	0.01		0.00		0.02		0.11
Control Delay	16.3	5.7			22.0	0.0		0.0		30.0		2.5
Queue Delay	0.0	0.0			0.0	0.0		0.0		0.0		0.0
Total Delay	16.3	5.7			22.0	0.0		0.0		30.0		2.5

Synchro 9: Lanes, Volumes, Timings
 26: Parking Lot/Main Street & Great Road

129 Parker Street
 2016 Existing Weekday AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	B	A			C	A		A		C		A
Approach Delay		8.4			21.1						4.1	
Approach LOS		A			C						A	
Queue Length 50th (ft)	52	74			65	0		0		2		0
Queue Length 95th (ft)	139	213			183	0		0		15		21
Internal Link Dist (ft)		376			660			36			340	
Turn Bay Length (ft)	112					31				95		95
Base Capacity (vph)	1430	1739			1853	1774		613		537		1433
Starvation Cap Reductn	0	0			0	0		0		0		0
Spillback Cap Reductn	0	0			0	0		0		0		0
Storage Cap Reductn	0	0			0	0		0		0		0
Reduced v/c Ratio	0.16	0.38			0.13	0.01		0.00		0.01		0.07

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 55.2
 Natural Cycle: 70
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.50
 Intersection Signal Delay: 10.7
 Intersection Capacity Utilization 44.2%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 26: Parking Lot/Main Street & Great Road

Ø1	Ø2	Ø3	Ø4
54 s	12 s	20 s	49 s

Synchro 9: Lanes, Volumes, Timings
 29: Parker Street/Powder Mill Road & Waltham Street

129 Parker Street
 2016 Existing Weekday AM Peak Hour

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	264	262	322	14	102	19	240	122	10	9	105	145
Future Volume (vph)	264	262	322	14	102	19	240	122	10	9	105	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	15	12	9	9	12	12	11	11
Grade (%)		3%			-4%			-6%			0%	
Storage Length (ft)	0		90	0		0	60		0	0		105
Storage Lanes	0		1	0		0	0		0	0		1
Taper Length (ft)	25			25			60			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98		1.00							0.98
Frt			0.850		0.981			0.996				0.850
Flt Protected		0.976			0.995			0.969			0.996	
Satd. Flow (prot)	0	1910	1560	0	2033	0	0	1667	0	0	1793	1531
Flt Permitted		0.642			0.931			0.595			0.963	
Satd. Flow (perm)	0	1256	1524	0	1903	0	0	1023	0	0	1734	1493
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			175		8			2				149
Link Speed (mph)		25			25			30			25	
Link Distance (ft)		445			628			1101			523	
Travel Time (s)		12.1			17.1			25.0			14.3	
Confl. Peds. (#/hr)			2			1						1
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	272	270	332	14	105	20	247	126	10	9	108	149
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	542	332	0	139	0	0	383	0	0	117	149
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	1	6			2		7	4			8	
Permitted Phases	6		6	2			4			8		8
Total Split (s)	18.0	39.0	39.0	21.0	21.0		13.0	34.0		21.0	21.0	21.0
Total Lost Time (s)		4.0	4.0		4.0			4.0			4.0	4.0
Act Effct Green (s)		35.0	35.0		17.0			30.0			17.0	17.0
Actuated g/C Ratio		0.48	0.48		0.23			0.41			0.23	0.23
v/c Ratio		0.75	0.40		0.31			0.77			0.29	0.32
Control Delay		21.9	7.2		24.1			29.4			25.4	6.6
Queue Delay		1.7	0.0		0.0			0.0			0.0	0.0
Total Delay		23.7	7.2		24.1			29.4			25.4	6.6
LOS		C	A		C			C			C	A
Approach Delay		17.4			24.1			29.4			14.9	
Approach LOS		B			C			C			B	
Queue Length 50th (ft)		168	39		49			127			44	0
Queue Length 95th (ft)		#264	92		96			#245			87	42
Internal Link Dist (ft)		365			548			1021			443	
Turn Bay Length (ft)			90									105
Base Capacity (vph)		727	821		449			500			403	461
Starvation Cap Reductn		75	0		0			0			0	0
Spillback Cap Reductn		0	0		0			0			0	0
Storage Cap Reductn		0	0		0			0			0	0

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Total Split (s)	20.0
Total Lost Time (s)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	

Synchro 9: Lanes, Volumes, Timings
 29: Parker Street/Powder Mill Road & Waltham Street

129 Parker Street
 2016 Existing Weekday AM Peak Hour



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Reduced v/c Ratio		0.83	0.40		0.31			0.77			0.29	0.32

Intersection Summary

Area Type: Other
 Cycle Length: 93
 Actuated Cycle Length: 73
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 20.3 Intersection LOS: C
 Intersection Capacity Utilization 77.9% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 29: Parker Street/Powder Mill Road & Waltham Street

Ø1 18 s	Ø2 21 s	Ø4 34 s	Ø9 20 s
Ø6 39 s	Ø7 13 s	Ø8 21 s	

Lane Group	Ø9
Reduced v/c Ratio	
Intersection Summary	

Synchro 9: HCM 2010 TWSC
 3: Parker Street & Field Street/North Street

129 Parker Street
 2016 Existing Weekday PM Peak Hour

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	0	0	4	1	8	2	509	4	12	467	4
Future Vol, veh/h	4	0	0	4	1	8	2	509	4	12	467	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	1	1	1
Mvmt Flow	4	0	0	4	1	9	2	547	4	13	502	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1089	1086	504	1084	1086	549	506	0	0	552	0	0
Stage 1	530	530	-	554	554	-	-	-	-	-	-	-
Stage 2	559	556	-	530	532	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.209	-	-
Pot Cap-1 Maneuver	195	218	572	196	218	539	1069	-	-	1023	-	-
Stage 1	536	530	-	520	517	-	-	-	-	-	-	-
Stage 2	517	516	-	536	529	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	188	213	572	193	213	539	1069	-	-	1023	-	-
Mov Cap-2 Maneuver	188	213	-	193	213	-	-	-	-	-	-	-
Stage 1	534	520	-	518	515	-	-	-	-	-	-	-
Stage 2	506	514	-	526	519	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	24.6	16.6	0	0.2
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1069	-	-	188	323	1023	-
HCM Lane V/C Ratio	0.002	-	-	0.023	0.043	0.013	-
HCM Control Delay (s)	8.4	0	-	24.6	16.6	8.6	0
HCM Lane LOS	A	A	-	C	C	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-

Intersection

Int Delay, s/veh 0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	1	0	7	0	508	1	4	466	0
Future Vol, veh/h	0	0	0	1	0	7	0	508	1	4	466	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	1	1	1
Mvmt Flow	0	0	0	1	0	8	0	546	1	4	501	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1061	1057	501	1057	1057	547	501	0	0	547	0	0
Stage 1	510	510	-	547	547	-	-	-	-	-	-	-
Stage 2	551	547	-	510	510	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.209	-	-
Pot Cap-1 Maneuver	203	227	574	205	227	541	1074	-	-	1027	-	-
Stage 1	550	541	-	525	521	-	-	-	-	-	-	-
Stage 2	522	521	-	550	541	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	199	226	574	204	226	541	1074	-	-	1027	-	-
Mov Cap-2 Maneuver	199	226	-	204	226	-	-	-	-	-	-	-
Stage 1	550	538	-	525	521	-	-	-	-	-	-	-
Stage 2	515	521	-	547	538	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	13.2	0	0.1
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1074	-	-	- 448	1027	-	-
HCM Lane V/C Ratio	-	-	-	- 0.019	0.004	-	-
HCM Control Delay (s)	0	-	-	0 13.2	8.5	0	-
HCM Lane LOS	A	-	-	A B	A A	-	-
HCM 95th %tile Q(veh)	0	-	-	- 0.1	0	-	-

Intersection

Int Delay, s/veh 0.7

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	491	17	3	469	33	1
Future Vol, veh/h	491	17	3	469	33	1
Conflicting Peds, #/hr	0	0	0	0	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	1	0	0
Mvmt Flow	517	18	3	494	35	1

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	535	0	1027	527
Stage 1	-	-	-	-	526	-
Stage 2	-	-	-	-	501	-
Critical Hdwy	-	-	4.11	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.209	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1038	-	262	555
Stage 1	-	-	-	-	597	-
Stage 2	-	-	-	-	613	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1037	-	261	554
Mov Cap-2 Maneuver	-	-	-	-	261	-
Stage 1	-	-	-	-	597	-
Stage 2	-	-	-	-	610	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0.1	20.4
HCM LOS			C

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1037	-	269
HCM Lane V/C Ratio	-	-	0.003	-	0.133
HCM Control Delay (s)	-	-	8.5	0	20.4
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0	-	0.5

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			+	+	
Traffic Vol, veh/h	9	3	6	499	484	18
Future Vol, veh/h	9	3	6	499	484	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	17	17	1	1	1	1
Mvmt Flow	9	3	6	525	509	19

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1057	519	528 0
Stage 1	519	-	- -
Stage 2	538	-	- -
Critical Hdwy	6.57	6.37	4.11 -
Critical Hdwy Stg 1	5.57	-	- -
Critical Hdwy Stg 2	5.57	-	- -
Follow-up Hdwy	3.653	3.453	2.209 -
Pot Cap-1 Maneuver	233	528	1044 -
Stage 1	568	-	- -
Stage 2	556	-	- -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	231	528	1044 -
Mov Cap-2 Maneuver	231	-	- -
Stage 1	568	-	- -
Stage 2	552	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	19	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1044	-	269	-	-
HCM Lane V/C Ratio	0.006	-	0.047	-	-
HCM Control Delay (s)	8.5	0	19	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection

Int Delay, s/veh 1

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↖	↗		↙	↘
Traffic Vol, veh/h	32	249	622	11	17	21
Future Vol, veh/h	32	249	622	11	17	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	0	0	0	0
Mvmt Flow	35	271	676	12	18	23

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	688	0	682
Stage 1	-	-	682
Stage 2	-	-	340
Critical Hdwy	4.11	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.209	-	3.5
Pot Cap-1 Maneuver	911	-	453
Stage 1	-	-	506
Stage 2	-	-	725
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	911	-	453
Mov Cap-2 Maneuver	-	-	252
Stage 1	-	-	506
Stage 2	-	-	692

Approach	EB	WB	SW
HCM Control Delay, s	1	0	17.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBRSWLn1
Capacity (veh/h)	911	-	-	334
HCM Lane V/C Ratio	0.038	-	-	0.124
HCM Control Delay (s)	9.1	0	-	17.3
HCM Lane LOS	A	A	-	C
HCM 95th %tile Q(veh)	0.1	-	-	0.4

Intersection

Int Delay, s/veh 1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↘	↙
Traffic Vol, veh/h	2	243	707	49	63	10
Future Vol, veh/h	2	243	707	49	63	10
Conflicting Peds, #/hr	1	0	0	1	4	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	37
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	0	0	0	0
Mvmt Flow	2	251	729	51	65	10

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	780	0	755
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.11	-	6.2
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.209	-	3.3
Pot Cap-1 Maneuver	842	-	412
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	842	-	412
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	21.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	842	-	-	-	266	412
HCM Lane V/C Ratio	0.002	-	-	-	0.244	0.025
HCM Control Delay (s)	9.3	0	-	-	22.9	14
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0	-	-	-	0.9	0.1

Intersection

Int Delay, s/veh 3.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			Y	Y	
Traffic Vol, veh/h	26	126	118	219	318	65
Future Vol, veh/h	26	126	118	219	318	65
Conflicting Peds, #/hr	0	0	4	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	28	135	127	235	342	70

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	870	381	416	0	0
Stage 1	381	-	-	-	-
Stage 2	489	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-
Pot Cap-1 Maneuver	323	668	1148	-	-
Stage 1	693	-	-	-	-
Stage 2	619	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	279	665	1148	-	-
Mov Cap-2 Maneuver	279	-	-	-	-
Stage 1	690	-	-	-	-
Stage 2	538	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.6	3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1148	-	538	-	-
HCM Lane V/C Ratio	0.111	-	0.304	-	-
HCM Control Delay (s)	8.5	0	14.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.4	-	1.3	-	-

Intersection

Int Delay, s/veh 8.1

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	35	453	64	8	392	79	29	45	3	24	97	9
Future Vol, veh/h	35	453	64	8	392	79	29	45	3	24	97	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	1	1	1
Mvmt Flow	36	462	65	8	400	81	30	46	3	24	99	9

Major/Minor	Major1			Major2			Minor2			Minor1		
Conflicting Flow All	481	0	0	528	0	0	1077	1056	442	1049	1063	495
Stage 1	-	-	-	-	-	-	457	457	-	566	566	-
Stage 2	-	-	-	-	-	-	620	599	-	483	497	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.1	6.5	6.2	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.5	4	3.3	3.509	4.009	3.309
Pot Cap-1 Maneuver	1087	-	-	1044	-	-	198	227	620	206	224	577
Stage 1	-	-	-	-	-	-	587	571	-	511	509	-
Stage 2	-	-	-	-	-	-	479	494	-	567	546	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1085	-	-	1044	-	-	118	214	619	164	211	577
Mov Cap-2 Maneuver	-	-	-	-	-	-	118	214	-	164	211	-
Stage 1	-	-	-	-	-	-	559	565	-	487	485	-
Stage 2	-	-	-	-	-	-	358	471	-	512	540	-

Approach	NB	SB	NE	SW
HCM Control Delay, s	0.5	0.1	44.4	48.1
HCM LOS			E	E

Minor Lane/Major Mvmt	NELn1	NBL	NBT	NBR	SBL	SBT	SBRSWLn1
Capacity (veh/h)	167	1085	-	-	1044	-	-
HCM Lane V/C Ratio	0.47	0.033	-	-	0.008	-	-
HCM Control Delay (s)	44.4	8.4	0	-	8.5	0	-
HCM Lane LOS	E	A	A	-	A	A	-
HCM 95th %tile Q(veh)	2.2	0.1	-	-	0	-	-

Synchro 9: Lanes, Volumes, Timings
1: Parker Street & Great Road

129 Parker Street
2016 Existing Weekday PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	207	101	10	248	40	185	330	6	56	372	65
Future Volume (vph)	33	207	101	10	248	40	185	330	6	56	372	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	11	11	12	12	9	12	13	10	12	16
Storage Length (ft)	80		45	90		0	95		80	80		75
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	30			40			45			40		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97						0.98			0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1668	1881	1546	1728	1881	1599	1624	1900	1669	1668	1881	1812
Flt Permitted	0.306			0.622			0.220			0.553		
Satd. Flow (perm)	537	1881	1503	1131	1881	1599	376	1900	1635	971	1881	1775
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82			124			124			124
Link Speed (mph)		20			20			20			30	
Link Distance (ft)		545			401			975			570	
Travel Time (s)		18.6			13.7			33.2			13.0	
Confl. Peds. (#/hr)			2									1
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Adj. Flow (vph)	35	218	106	11	261	42	195	347	6	59	392	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	35	218	106	11	261	42	195	347	6	59	392	68
Turn Type	pm+pt	NA	pm+ov	Perm	NA	Free	pm+pt	NA	Free	Perm	NA	Free
Protected Phases	5	2	7		6		7	4			8	
Permitted Phases	2		2	6		Free	4		Free	8		Free
Detector Phase	5	2	7	6	6		7	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	24.0	10.0	10.0	10.0		10.0	22.0		22.0	22.0	
Total Split (s)	30.0	70.0	30.0	40.0	40.0		30.0	80.0		50.0	50.0	
Total Split (%)	20.0%	46.7%	20.0%	26.7%	26.7%		20.0%	53.3%		33.3%	33.3%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead		Lead	Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	Max	Max	Max	Max	Max		Max	Max		Max	Max	
Act Effct Green (s)	65.0	65.0	90.0	35.0	35.0	150.0	75.0	75.0	150.0	45.0	45.0	150.0
Actuated g/C Ratio	0.43	0.43	0.60	0.23	0.23	1.00	0.50	0.50	1.00	0.30	0.30	1.00
v/c Ratio	0.08	0.27	0.11	0.04	0.60	0.03	0.49	0.37	0.00	0.20	0.70	0.04
Control Delay	25.2	28.4	3.5	45.3	57.7	0.0	25.9	24.3	0.0	41.5	54.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.2	28.4	3.5	45.3	57.7	0.0	25.9	24.3	0.0	41.5	54.1	0.0

Synchro 9: Lanes, Volumes, Timings
 1: Parker Street & Great Road

129 Parker Street
 2016 Existing Weekday PM Peak Hour

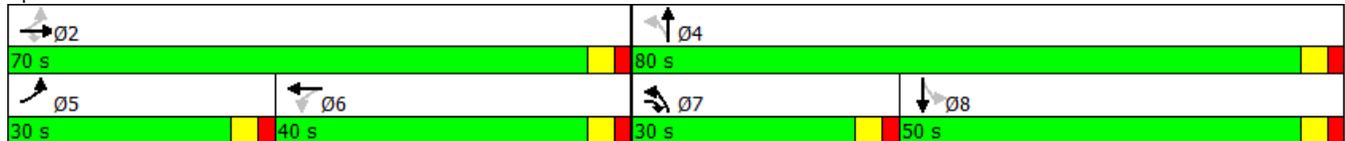
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	C	C	A	D	E	A	C	C	A	D	D	A
Approach Delay		20.7			49.6			24.6			45.6	
Approach LOS		C			D			C			D	
Queue Length 50th (ft)	20	135	8	8	229	0	106	204	0	43	340	0
Queue Length 95th (ft)	43	198	32	27	328	0	160	280	0	84	464	0
Internal Link Dist (ft)		465			321			895			490	
Turn Bay Length (ft)	80		45	90			95		80	80		75
Base Capacity (vph)	421	815	941	263	438	1599	396	950	1635	291	564	1775
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.27	0.11	0.04	0.60	0.03	0.49	0.37	0.00	0.20	0.70	0.04

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Natural Cycle: 60
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.70
 Intersection Signal Delay: 34.6
 Intersection Capacity Utilization 66.5%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 1: Parker Street & Great Road



Synchro 9: Lanes, Volumes, Timings
 26: Parking Lot/Main Street & Great Road

129 Parker Street
 2016 Existing Weekday PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	240	1	0	652	6	7	1	1	12	0	294
Future Volume (vph)	141	240	1	0	652	6	7	1	1	12	0	294
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	10	12	16	16	12	9	12	9	9	11
Storage Length (ft)	112		0	0		31	0		0	95		95
Storage Lanes	1		0	0		1	0		0	1		0
Taper Length (ft)	160			25			25			60		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						0.98						
Frt		0.999				0.850		0.985				0.850
Flt Protected	0.950							0.963		0.950		
Satd. Flow (prot)	1787	1754	0	0	2132	1812	0	1622	0	1608	0	1546
Flt Permitted	0.950							0.963		0.950		
Satd. Flow (perm)	1787	1754	0	0	2132	1774	0	1622	0	1608	0	1546
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						106		1				208
Link Speed (mph)		35			35			15			35	
Link Distance (ft)		456			740			116			420	
Travel Time (s)		8.9			14.4			5.3			8.2	
Confl. Peds. (#/hr)						1						4
Confl. Bikes (#/hr)						2						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Adj. Flow (vph)	150	255	1	0	694	6	7	1	1	13	0	313
Shared Lane Traffic (%)												
Lane Group Flow (vph)	150	256	0	0	694	6	0	9	0	13	0	313
Turn Type	Prot	NA			NA	Free	Split	NA		Prot		pt+ov
Protected Phases	4	1 4			1		2	2		3		3 4
Permitted Phases						Free				3		
Detector Phase	4	1 4			1		2	2		3		3 4
Switch Phase												
Minimum Initial (s)	10.0				8.0		5.0	5.0		8.0		
Minimum Split (s)	26.0				12.0		9.0	9.0		15.0		
Total Split (s)	49.0				54.0		12.0	12.0		19.0		
Total Split (%)	36.6%				40.3%		9.0%	9.0%		14.2%		
Yellow Time (s)	3.0				3.0		3.0	3.0		3.0		
All-Red Time (s)	1.0				1.0		1.0	1.0		1.0		
Lost Time Adjust (s)	0.0				0.0			0.0		0.0		
Total Lost Time (s)	4.0				4.0			4.0		4.0		
Lead/Lag	Lag				Lead		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes						Yes	Yes		Yes		
Recall Mode	None				None		None	None		None		
Act Effect Green (s)	15.1	50.8			31.4	71.2		5.7		10.3		29.8
Actuated g/C Ratio	0.21	0.71			0.44	1.00		0.08		0.14		0.42
v/c Ratio	0.40	0.20			0.74	0.00		0.07		0.06		0.41
Control Delay	31.7	4.2			22.9	0.0		40.4		35.2		8.4
Queue Delay	0.0	0.0			0.0	0.0		0.0		0.0		0.0
Total Delay	31.7	4.2			22.9	0.0		40.4		35.2		8.4

Synchro 9: Lanes, Volumes, Timings
 26: Parking Lot/Main Street & Great Road

129 Parker Street
 2016 Existing Weekday PM Peak Hour

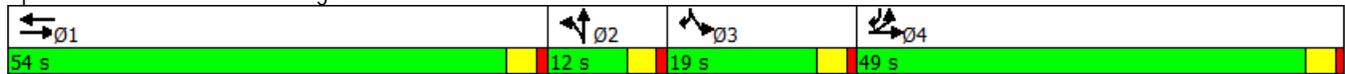
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	C	A			C	A		D		D		A
Approach Delay		14.4			22.8			40.4			9.5	
Approach LOS		B			C			D			A	
Queue Length 50th (ft)	51	22			207	0		3		5		25
Queue Length 95th (ft)	156	88			529	0		22		27		122
Internal Link Dist (ft)		376			660			36			340	
Turn Bay Length (ft)	112					31				95		95
Base Capacity (vph)	1226	1618			1611	1774		198		368		1343
Starvation Cap Reductn	0	0			0	0		0		0		0
Spillback Cap Reductn	0	0			0	0		0		0		0
Storage Cap Reductn	0	0			0	0		0		0		0
Reduced v/c Ratio	0.12	0.16			0.43	0.00		0.05		0.04		0.23

Intersection Summary

Area Type: Other
 Cycle Length: 134
 Actuated Cycle Length: 71.2
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 17.5
 Intersection Capacity Utilization 67.1%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 26: Parking Lot/Main Street & Great Road



Synchro 9: Lanes, Volumes, Timings
 29: Parker Street/Powder Mill Road & Waltham Street

129 Parker Street
 2016 Existing Weekday PM Peak Hour

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	212	147	245	8	217	23	228	119	8	9	165	308
Future Volume (vph)	212	147	245	8	217	23	228	119	8	9	165	308
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	15	12	9	9	12	12	11	11
Grade (%)		3%			-4%			-6%			0%	
Storage Length (ft)	0		90	0		0	60		0	0		105
Storage Lanes	0		1	0		0	0		0	0		1
Taper Length (ft)	25			25			60			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00			1.00				0.97
Frt			0.850		0.988			0.997				0.850
Flt Protected		0.971			0.998			0.969			0.997	
Satd. Flow (prot)	0	1919	1575	0	2074	0	0	1684	0	0	1831	1561
Flt Permitted		0.374			0.985			0.469			0.976	
Satd. Flow (perm)	0	739	1521	0	2047	0	0	815	0	0	1793	1509
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			195		5			1				314
Link Speed (mph)		25			25			30			25	
Link Distance (ft)		445			628			1101			523	
Travel Time (s)		12.1			17.1			25.0			14.3	
Confl. Peds. (#/hr)			11			6			8			5
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%
Adj. Flow (vph)	216	150	250	8	221	23	233	121	8	9	168	314
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	366	250	0	252	0	0	362	0	0	177	314
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	1	6			2		7	4			8	
Permitted Phases	6		6	2			4			8		8
Detector Phase	1	6	6	2	2		7	4		8	8	8
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	15.0	15.0		7.0	15.0		15.0	15.0	15.0
Minimum Split (s)	7.0	19.0	19.0	19.0	19.0		11.0	19.0		19.0	19.0	19.0
Total Split (s)	18.0	39.0	39.0	21.0	21.0		13.0	34.0		21.0	21.0	21.0
Total Split (%)	19.4%	41.9%	41.9%	22.6%	22.6%		14.0%	36.6%		22.6%	22.6%	22.6%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0			0.0			0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0			4.0			4.0	4.0
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max		Max	Max		Max	Max	Max
Act Effct Green (s)		35.5	35.5		17.2			30.4			17.2	17.2
Actuated g/C Ratio		0.44	0.44		0.21			0.38			0.21	0.21
v/c Ratio		0.69	0.32		0.57			0.90			0.46	0.55
Control Delay		26.8	6.4		36.0			51.8			34.8	8.3
Queue Delay		0.0	0.0		0.0			0.0			0.0	0.0
Total Delay		26.8	6.4		36.0			51.8			34.8	8.3

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	22%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	

Synchro 9: Lanes, Volumes, Timings
 29: Parker Street/Powder Mill Road & Waltham Street

129 Parker Street
 2016 Existing Weekday PM Peak Hour

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
LOS		C	A		D			D			C	A
Approach Delay		18.5			36.0			51.8			17.9	
Approach LOS		B			D			D			B	
Queue Length 50th (ft)		101	13		98			118			68	0
Queue Length 95th (ft)		#288	73		219			#408			163	73
Internal Link Dist (ft)		365			548			1021			443	
Turn Bay Length (ft)			90									105
Base Capacity (vph)		530	776		439			404			381	568
Starvation Cap Reductn		0	0		0			0			0	0
Spillback Cap Reductn		0	0		0			0			0	0
Storage Cap Reductn		0	0		0			0			0	0
Reduced v/c Ratio		0.69	0.32		0.57			0.90			0.46	0.55

Intersection Summary

Area Type: Other
 Cycle Length: 93
 Actuated Cycle Length: 81
 Natural Cycle: 90
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 27.9 Intersection LOS: C
 Intersection Capacity Utilization 78.0% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 29: Parker Street/Powder Mill Road & Waltham Street

01	02	04	09
18 s	21 s	34 s	20 s
06	07	08	
39 s	13 s	21 s	

Lane Group	Ø9
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Synchro 9: HCM 2010 TWSC
 3: Parker Street & Field Street/North Street

129 Parker Street
 2016 Existing Saturday Midday Peak Hour

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	0	4	1	1	13	1	379	1	9	391	13
Future Vol, veh/h	7	0	4	1	1	13	1	379	1	9	391	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	0	0	0	0	0	0	2	2	2	1	1	1
Mvmt Flow	7	0	4	1	1	13	1	383	1	9	395	13

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	812	806	402	807	811	383	408	0	0	384	0	0
Stage 1	420	420	-	385	385	-	-	-	-	-	-	-
Stage 2	392	386	-	422	426	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.12	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.218	-	-	2.209	-	-
Pot Cap-1 Maneuver	300	318	653	302	316	669	1151	-	-	1180	-	-
Stage 1	615	593	-	642	614	-	-	-	-	-	-	-
Stage 2	637	614	-	613	589	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	291	315	653	298	313	669	1151	-	-	1180	-	-
Mov Cap-2 Maneuver	291	315	-	298	313	-	-	-	-	-	-	-
Stage 1	614	587	-	641	613	-	-	-	-	-	-	-
Stage 2	623	613	-	603	583	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.2	11.4	0	0.2
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1151	-	-	364	577	1180	-
HCM Lane V/C Ratio	0.001	-	-	0.031	0.026	0.008	-
HCM Control Delay (s)	8.1	0	-	15.2	11.4	8.1	0
HCM Lane LOS	A	A	-	C	B	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-

Synchro 9: HCM 2010 TWSC
 4: Parker Street & Small Site Drive/South Street

129 Parker Street
 2016 Existing Saturday Midday Peak Hour

Intersection

Int Delay, s/veh 0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	0	0	4	0	377	1	3	393	0
Future Vol, veh/h	0	0	0	0	0	4	0	377	1	3	393	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	0	0	0	0	0	0	2	2	2	1	1	1
Mvmt Flow	0	0	0	0	0	4	0	381	1	3	397	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	786	785	397	784	784	381	397	0	0	382	0	0
Stage 1	403	403	-	381	381	-	-	-	-	-	-	-
Stage 2	383	382	-	403	403	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.12	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.218	-	-	2.209	-	-
Pot Cap-1 Maneuver	312	327	657	313	327	671	1162	-	-	1182	-	-
Stage 1	628	603	-	645	617	-	-	-	-	-	-	-
Stage 2	644	616	-	628	603	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	309	326	657	312	326	671	1162	-	-	1182	-	-
Mov Cap-2 Maneuver	309	326	-	312	326	-	-	-	-	-	-	-
Stage 1	628	601	-	645	617	-	-	-	-	-	-	-
Stage 2	640	616	-	626	601	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	10.4	0	0.1
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1162	-	-	- 671	1182	-	-
HCM Lane V/C Ratio	-	-	-	- 0.006	0.003	-	-
HCM Control Delay (s)	0	-	-	0 10.4	8.1	0	-
HCM Lane LOS	A	-	-	A B	A A	-	-
HCM 95th %tile Q(veh)	0	-	-	- 0	0	-	-

Intersection

Int Delay, s/veh 0.4

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	378	12	3	397	13	8
Future Vol, veh/h	378	12	3	397	13	8
Conflicting Peds, #/hr	0	0	0	0	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	394	13	3	414	14	8

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	406
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.11
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.209
Pot Cap-1 Maneuver	-	-	1158
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1157
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0.1	11.7
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1157	-	559
HCM Lane V/C Ratio	-	-	0.003	-	0.039
HCM Control Delay (s)	-	-	8.1	0	11.7
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0	-	0.1

Intersection

Int Delay, s/veh 0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			+	+	
Traffic Vol, veh/h	14	9	6	376	396	14
Future Vol, veh/h	14	9	6	376	396	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	2	2	1	1
Mvmt Flow	15	9	6	392	413	15

Major/Minor	Minor2	Major1		Major2
Conflicting Flow All	824	420	427	0
Stage 1	420	-	-	-
Stage 2	404	-	-	-
Critical Hdwy	6.4	6.2	4.12	-
Critical Hdwy Stg 1	5.4	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-
Pot Cap-1 Maneuver	346	638	1132	-
Stage 1	667	-	-	-
Stage 2	679	-	-	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	344	638	1132	-
Mov Cap-2 Maneuver	344	-	-	-
Stage 1	667	-	-	-
Stage 2	674	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1132	-	420	-	-
HCM Lane V/C Ratio	0.006	-	0.057	-	-
HCM Control Delay (s)	8.2	0	14.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↖	↗		↙	↘
Traffic Vol, veh/h	26	217	274	3	14	9
Future Vol, veh/h	26	217	274	3	14	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	1	1	2	2	0	0
Mvmt Flow	30	247	311	3	16	10

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	315	0	619
Stage 1	-	-	313
Stage 2	-	-	306
Critical Hdwy	4.11	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.209	-	3.5
Pot Cap-1 Maneuver	1251	-	455
Stage 1	-	-	746
Stage 2	-	-	751
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1251	-	442
Mov Cap-2 Maneuver	-	-	442
Stage 1	-	-	746
Stage 2	-	-	730

Approach	EB	WB	SW
HCM Control Delay, s	0.9	0	12.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBRSWLn1
Capacity (veh/h)	1251	-	-	523
HCM Lane V/C Ratio	0.024	-	-	0.05
HCM Control Delay (s)	7.9	0	-	12.2
HCM Lane LOS	A	A	-	B
HCM 95th %tile Q(veh)	0.1	-	-	0.2

Intersection

Int Delay, s/veh 1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Traffic Vol, veh/h	5	242	228	52	56	6
Future Vol, veh/h	5	242	228	52	56	6
Conflicting Peds, #/hr	1	0	0	1	4	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	37
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	0	0
Mvmt Flow	6	272	256	58	63	7

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	316	0	286
Stage 1	-	-	286
Stage 2	-	-	287
Critical Hdwy	4.12	-	6.2
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.218	-	3.3
Pot Cap-1 Maneuver	1244	-	758
Stage 1	-	-	767
Stage 2	-	-	766
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1244	-	757
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	766
Stage 2	-	-	761

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	13.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1244	-	-	-	480	757
HCM Lane V/C Ratio	0.005	-	-	-	0.131	0.009
HCM Control Delay (s)	7.9	0	-	-	13.6	9.8
HCM Lane LOS	A	A	-	-	B	A
HCM 95th %tile Q(veh)	0	-	-	-	0.4	0

Intersection

Int Delay, s/veh 2.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			Y	Y	
Traffic Vol, veh/h	17	83	100	300	339	51
Future Vol, veh/h	17	83	100	300	339	51
Conflicting Peds, #/hr	0	0	4	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	1	1	1	1
Mvmt Flow	19	92	111	333	377	57

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	965	409	437	0	0
Stage 1	409	-	-	-	-
Stage 2	556	-	-	-	-
Critical Hdwy	6.42	6.22	4.11	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.209	-	-
Pot Cap-1 Maneuver	283	642	1128	-	-
Stage 1	671	-	-	-	-
Stage 2	574	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	246	639	1128	-	-
Mov Cap-2 Maneuver	246	-	-	-	-
Stage 1	668	-	-	-	-
Stage 2	502	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.2	2.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1128	-	503	-	-
HCM Lane V/C Ratio	0.099	-	0.221	-	-
HCM Control Delay (s)	8.5	0	14.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.8	-	-

Intersection												
Int Delay, s/veh	7.1											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	26	349	42	7	308	47	70	55	3	30	71	19
Future Vol, veh/h	26	349	42	7	308	47	70	55	3	30	71	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	1	1	1	0	0	0
Mvmt Flow	27	356	43	7	314	48	71	56	3	31	72	19
Major/Minor	Major1			Major2			Minor2			Minor1		
Conflicting Flow All	362	0	0	399	0	0	830	805	340	815	808	378
Stage 1	-	-	-	-	-	-	353	353	-	431	431	-
Stage 2	-	-	-	-	-	-	477	452	-	384	377	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.11	6.51	6.21	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.509	4.009	3.309	3.5	4	3.3
Pot Cap-1 Maneuver	1208	-	-	1171	-	-	290	317	705	298	317	673
Stage 1	-	-	-	-	-	-	666	633	-	607	586	-
Stage 2	-	-	-	-	-	-	571	572	-	643	619	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1206	-	-	1171	-	-	224	305	704	247	305	673
Mov Cap-2 Maneuver	-	-	-	-	-	-	224	305	-	247	305	-
Stage 1	-	-	-	-	-	-	647	628	-	589	569	-
Stage 2	-	-	-	-	-	-	470	555	-	577	614	-
Approach	NB			SB			NE			SW		
HCM Control Delay, s	0.5			0.2			32.6			23.6		
HCM LOS							D			C		
Minor Lane/Major Mvmt	NELn1	NBL	NBT	NBR	SBL	SBT	SBR	SWLn1	NELn1	NBL	NBT	NBR
Capacity (veh/h)	257	1206	-	-	1171	-	-	314	257	1206	-	-
HCM Lane V/C Ratio	0.508	0.022	-	-	0.006	-	-	0.39	0.508	0.022	-	-
HCM Control Delay (s)	32.6	8.1	0	-	8.1	0	-	23.6	32.6	8.1	0	-
HCM Lane LOS	D	A	A	-	A	A	-	C	D	A	A	-
HCM 95th %tile Q(veh)	2.7	0.1	-	-	0	-	-	1.8	2.7	0.1	-	-

Synchro 9: Lanes, Volumes, Timings
1: Parker Street & Great Road

129 Parker Street
2016 Existing Saturday Midday Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	142	96	18	145	55	94	296	9	27	299	27
Future Volume (vph)	38	142	96	18	145	55	94	296	9	27	299	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	11	11	12	12	9	12	13	10	12	16
Storage Length (ft)	80		45	90		0	95		80	80		75
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	30			40			45			40		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.96						0.98			0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1652	1863	1531	1711	1863	1583	1593	1863	1636	1668	1881	1812
Flt Permitted	0.482			0.661			0.312			0.569		
Satd. Flow (perm)	838	1863	1476	1190	1863	1583	523	1863	1602	999	1881	1770
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			102			124			124			124
Link Speed (mph)		20			20			20			30	
Link Distance (ft)		545			401			975			570	
Travel Time (s)		18.6			13.7			33.2			13.0	
Confl. Peds. (#/hr)			4									5
Confl. Bikes (#/hr)									3			2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Adj. Flow (vph)	40	151	102	19	154	59	100	315	10	29	318	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	151	102	19	154	59	100	315	10	29	318	29
Turn Type	pm+pt	NA	pm+ov	Perm	NA	Free	pm+pt	NA	Free	Perm	NA	Free
Protected Phases	5	2	7		6		7	4			8	
Permitted Phases	2		2	6		Free	4		Free	8		Free
Detector Phase	5	2	7	6	6		7	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	24.0	22.0	10.0	10.0		22.0	22.0		23.0	23.0	
Total Split (s)	30.0	70.0	30.0	40.0	40.0		30.0	80.0		50.0	50.0	
Total Split (%)	20.0%	46.7%	20.0%	26.7%	26.7%		20.0%	53.3%		33.3%	33.3%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead		Lead	Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	Max	Max	Max	Max	Max		Max	Max		Max	Max	
Act Effct Green (s)	65.0	65.0	90.0	35.0	35.0	150.0	75.0	75.0	150.0	45.0	45.0	150.0
Actuated g/C Ratio	0.43	0.43	0.60	0.23	0.23	1.00	0.50	0.50	1.00	0.30	0.30	1.00
v/c Ratio	0.08	0.19	0.11	0.07	0.35	0.04	0.23	0.34	0.01	0.10	0.56	0.02
Control Delay	25.3	27.0	2.1	45.8	50.9	0.0	21.5	23.9	0.0	39.1	48.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.3	27.0	2.1	45.8	50.9	0.0	21.5	23.9	0.0	39.1	48.9	0.0

Synchro 9: Lanes, Volumes, Timings
 1: Parker Street & Great Road

129 Parker Street
 2016 Existing Saturday Midday Peak Hour

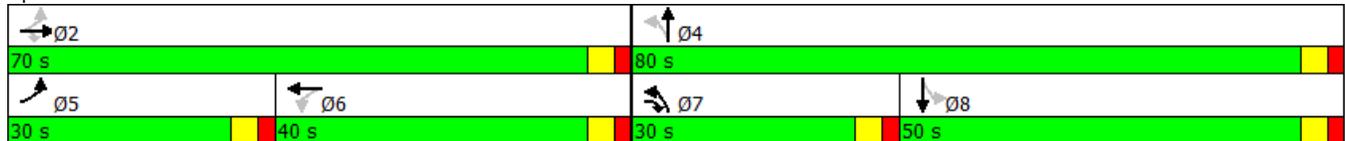
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	C	C	A	D	D	A	C	C	A	D	D	A
Approach Delay		18.1			37.5			22.7			44.4	
Approach LOS		B			D			C			D	
Queue Length 50th (ft)	23	90	0	15	127	0	51	182	0	21	263	0
Queue Length 95th (ft)	47	140	22	39	198	0	87	253	0	48	367	0
Internal Link Dist (ft)		465			321			895			490	
Turn Bay Length (ft)	80		45	90			95		80	80		75
Base Capacity (vph)	498	807	935	277	434	1583	439	931	1602	299	564	1770
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.19	0.11	0.07	0.35	0.04	0.23	0.34	0.01	0.10	0.56	0.02

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Natural Cycle: 70
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.56
 Intersection Signal Delay: 30.4
 Intersection Capacity Utilization 57.6%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 1: Parker Street & Great Road



Synchro 9: Lanes, Volumes, Timings
 26: Parking Lot/Main Street & Great Road

129 Parker Street
 2016 Existing Saturday Midday Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	225	0	0	235	15	2	1	2	5	0	163
Future Volume (vph)	174	225	0	0	235	15	2	1	2	5	0	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	10	12	16	16	12	9	12	9	9	11
Storage Length (ft)	112		0	0		31	0		0	95		95
Storage Lanes	1		0	0		1	0		0	1		0
Taper Length (ft)	160			25			25			60		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt						0.850		0.946				0.850
Flt Protected	0.950							0.980		0.950		
Satd. Flow (prot)	1770	1739	0	0	2091	1777	0	1585	0	1624	0	1561
Flt Permitted	0.950							0.980		0.950		
Satd. Flow (perm)	1770	1739	0	0	2091	1777	0	1585	0	1624	0	1561
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						101		2				170
Link Speed (mph)		35			35			15			35	
Link Distance (ft)		456			740			116			420	
Travel Time (s)		8.9			14.4			5.3			8.2	
Confl. Peds. (#/hr)												1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	181	234	0	0	245	16	2	1	2	5	0	170
Shared Lane Traffic (%)												
Lane Group Flow (vph)	181	234	0	0	245	16	0	5	0	5	0	170
Turn Type	Prot	NA			NA	Free	Split	NA		Prot		pt+ov
Protected Phases	4	1 4			1		2	2		3		3 4
Permitted Phases						Free				3		
Detector Phase	4	1 4			1		2	2		3		3 4
Switch Phase												
Minimum Initial (s)	10.0				8.0		5.0	5.0		8.0		
Minimum Split (s)	14.0				12.0		9.0	9.0		26.0		
Total Split (s)	49.0				54.0		12.0	12.0		26.0		
Total Split (%)	34.8%				38.3%		8.5%	8.5%		18.4%		
Yellow Time (s)	3.0				3.0		3.0	3.0		3.0		
All-Red Time (s)	1.0				1.0		1.0	1.0		1.0		
Lost Time Adjust (s)	0.0				0.0		0.0	0.0		0.0		
Total Lost Time (s)	4.0				4.0		4.0	4.0		4.0		
Lead/Lag	Lag				Lead		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes						Yes	Yes		Yes		
Recall Mode	None				None		None	None		None		
Act Effect Green (s)	13.3	30.1			12.4	50.3		5.5		10.4		28.0
Actuated g/C Ratio	0.26	0.60			0.25	1.00		0.11		0.21		0.56
v/c Ratio	0.39	0.23			0.47	0.01		0.03		0.01		0.18
Control Delay	20.8	6.6			21.7	0.0		26.0		20.2		2.1
Queue Delay	0.0	0.0			0.0	0.0		0.0		0.0		0.0
Total Delay	20.8	6.6			21.7	0.0		26.0		20.2		2.1
LOS	C	A			C	A		C		C		A

Synchro 9: Lanes, Volumes, Timings
 26: Parking Lot/Main Street & Great Road

129 Parker Street
 2016 Existing Saturday Midday Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		12.8			20.4			26.0			2.6	
Approach LOS		B			C			C			A	
Queue Length 50th (ft)	35	19			48	0		1		1		0
Queue Length 95th (ft)	142	104			184	0		13		11		26
Internal Link Dist (ft)		376			660			36			340	
Turn Bay Length (ft)	112					31				95		95
Base Capacity (vph)	1587	1697			1918	1777		277		775		1514
Starvation Cap Reductn	0	0			0	0		0		0		0
Spillback Cap Reductn	0	0			0	0		0		0		0
Storage Cap Reductn	0	0			0	0		0		0		0
Reduced v/c Ratio	0.11	0.14			0.13	0.01		0.02		0.01		0.11

Intersection Summary

Area Type:	Other
Cycle Length:	141
Actuated Cycle Length:	50.3
Natural Cycle:	65
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.47
Intersection Signal Delay:	13.1
Intersection Capacity Utilization	37.0%
Analysis Period (min)	15
Intersection LOS:	B
ICU Level of Service	A

Splits and Phases: 26: Parking Lot/Main Street & Great Road

Ø1	Ø2	Ø3	Ø4
54 s	12 s	26 s	49 s

Synchro 9: Lanes, Volumes, Timings
 29: Parker Street/Powder Mill Road & Waltham Street

129 Parker Street
 2016 Existing Saturday Midday Peak Hour

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	265	124	172	6	109	33	160	97	13	26	85	242
Future Volume (vph)	265	124	172	6	109	33	160	97	13	26	85	242
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	15	12	9	9	12	12	11	11
Grade (%)		3%			-4%			-6%			0%	
Storage Length (ft)	0		90	0		0	60		0	0		105
Storage Lanes	0		1	0		0	0		0	0		1
Taper Length (ft)	25			25			60			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		0.99			1.00				0.97
Frt			0.850		0.970			0.993				0.850
Flt Protected		0.967			0.998			0.971			0.988	
Satd. Flow (prot)	0	1911	1575	0	2047	0	0	1696	0	0	1797	1546
Flt Permitted		0.502			0.982			0.592			0.880	
Satd. Flow (perm)	0	992	1523	0	2014	0	0	1034	0	0	1600	1498
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			126		14			3				257
Link Speed (mph)		25			25			30			25	
Link Distance (ft)		445			628			1101			523	
Travel Time (s)		12.1			17.1			25.0			14.3	
Confl. Peds. (#/hr)			10			3			7			4
Confl. Bikes (#/hr)						4						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	0%	0%	0%	1%	1%	1%
Adj. Flow (vph)	282	132	183	6	116	35	170	103	14	28	90	257
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	414	183	0	157	0	0	287	0	0	118	257
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	1	6			2		7	4			8	
Permitted Phases	6		6	2			4			8		8
Detector Phase	1	6	6	2	2		7	4		8	8	8
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	15.0	15.0		7.0	15.0		15.0	15.0	15.0
Minimum Split (s)	7.0	19.0	19.0	19.0	19.0		11.0	19.0		19.0	19.0	19.0
Total Split (s)	18.0	39.0	39.0	21.0	21.0		13.0	34.0		21.0	21.0	21.0
Total Split (%)	19.4%	41.9%	41.9%	22.6%	22.6%		14.0%	36.6%		22.6%	22.6%	22.6%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0			0.0			0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0			4.0			4.0	4.0
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max		Max	Max		Max	Max	Max
Act Effect Green (s)		35.5	35.5		17.2			30.4			17.2	17.2
Actuated g/C Ratio		0.44	0.44		0.21			0.38			0.21	0.21
v/c Ratio		0.70	0.25		0.36			0.62			0.35	0.49
Control Delay		26.8	7.5		29.7			28.7			33.2	8.2
Queue Delay		1.2	0.0		0.0			0.0			0.0	0.0

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	22%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Synchro 9: Lanes, Volumes, Timings
 29: Parker Street/Powder Mill Road & Waltham Street

129 Parker Street
 2016 Existing Saturday Midday Peak Hour

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Total Delay		28.0	7.5		29.7			28.7			33.2	8.2
LOS		C	A		C			C			C	A
Approach Delay		21.7			29.7			28.7			16.1	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)		118	13		53			88			44	0
Queue Length 95th (ft)		#326	66		135			#228			115	65
Internal Link Dist (ft)		365			548			1021			443	
Turn Bay Length (ft)			90									105
Base Capacity (vph)		595	737		439			464			340	521
Starvation Cap Reductn		58	0		0			0			0	0
Spillback Cap Reductn		0	0		0			0			0	0
Storage Cap Reductn		0	0		0			0			0	0
Reduced v/c Ratio		0.77	0.25		0.36			0.62			0.35	0.49

Intersection Summary

Area Type: Other
 Cycle Length: 93
 Actuated Cycle Length: 81
 Natural Cycle: 90
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.70
 Intersection Signal Delay: 22.5
 Intersection LOS: C
 Intersection Capacity Utilization 65.1%
 ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 29: Parker Street/Powder Mill Road & Waltham Street

Ø1	Ø2	Ø4	Ø9
18 s	21 s	34 s	20 s
Ø6	Ø7	Ø8	
39 s	13 s	21 s	

Lane Group	Ø9
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

2023 NO-BUILD CONDITIONS

Synchro 9: HCM 2010 TWSC
 3: Parker Street & Field Street/North Street

129 Parker Street
 2023 No Build Weekday AM Peak Hour

Intersection												
Int Delay, s/veh	0.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	2	1	1	1	11	1	464	1	9	642	2
Future Vol, veh/h	10	2	1	1	1	11	1	464	1	9	642	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	2	2	2	2	2	2
Mvmt Flow	11	2	1	1	1	12	1	499	1	10	690	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1219	1213	691	1214	1214	499	692	0	0	500	0	0
Stage 1	711	711	-	502	502	-	-	-	-	-	-	-
Stage 2	508	502	-	712	712	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	159	183	448	160	183	576	903	-	-	1064	-	-
Stage 1	427	439	-	555	545	-	-	-	-	-	-	-
Stage 2	551	545	-	427	439	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	153	180	448	156	180	576	903	-	-	1064	-	-
Mov Cap-2 Maneuver	153	180	-	156	180	-	-	-	-	-	-	-
Stage 1	426	432	-	554	544	-	-	-	-	-	-	-
Stage 2	538	544	-	417	432	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	28.8	13.9	0	0.1
HCM LOS	D	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	903	-	-	165	419	1064	-
HCM Lane V/C Ratio	0.001	-	-	0.085	0.033	0.009	-
HCM Control Delay (s)	9	0	-	28.8	13.9	8.4	0
HCM Lane LOS	A	A	-	D	B	A	A
HCM 95th %tile Q(veh)	0	-	-	0.3	0.1	0	-

Synchro 9: HCM 2010 TWSC
 4: Parker Street & Small Site Drive/South Street

129 Parker Street
 2023 No Build Weekday AM Peak Hour

Intersection

Int Delay, s/veh 0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	2	0	12	0	455	1	2	642	0
Future Vol, veh/h	0	0	0	2	0	12	0	455	1	2	642	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	2	2	2	2	2	2
Mvmt Flow	0	0	0	2	0	13	0	484	1	2	683	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1178	1172	683	1172	1172	485	683	0	0	485	0	0
Stage 1	687	687	-	485	485	-	-	-	-	-	-	-
Stage 2	491	485	-	687	687	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	169	194	453	171	194	586	910	-	-	1078	-	-
Stage 1	440	450	-	567	555	-	-	-	-	-	-	-
Stage 2	563	555	-	440	450	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	165	193	453	171	193	586	910	-	-	1078	-	-
Mov Cap-2 Maneuver	165	193	-	171	193	-	-	-	-	-	-	-
Stage 1	440	449	-	567	555	-	-	-	-	-	-	-
Stage 2	551	555	-	439	449	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	13.6	0	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	910	-	-	-	435	1078	-
HCM Lane V/C Ratio	-	-	-	-	0.034	0.002	-
HCM Control Delay (s)	0	-	-	0	13.6	8.3	0
HCM Lane LOS	A	-	-	A	B	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-

Intersection

Int Delay, s/veh 0.3

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↻			↻	↻	
Traffic Vol, veh/h	445	26	4	628	13	2
Future Vol, veh/h	445	26	4	628	13	2
Conflicting Peds, #/hr	0	0	0	0	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	0	0
Mvmt Flow	489	29	4	690	14	2

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	518
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1048
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1047
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0.1	21.3
HCM LOS			C

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1047	-	237
HCM Lane V/C Ratio	-	-	0.004	-	0.07
HCM Control Delay (s)	-	-	8.5	0	21.3
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0	-	0.2

Intersection

Int Delay, s/veh 0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			4	4	
Traffic Vol, veh/h	32	1	2	439	630	11
Future Vol, veh/h	32	1	2	439	630	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	2	2	2	2
Mvmt Flow	35	1	2	477	685	12

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1173	691	697 0
Stage 1	691	-	- -
Stage 2	482	-	- -
Critical Hdwy	6.43	6.23	4.12 -
Critical Hdwy Stg 1	5.43	-	- -
Critical Hdwy Stg 2	5.43	-	- -
Follow-up Hdwy	3.527	3.327	2.218 -
Pot Cap-1 Maneuver	211	443	899 -
Stage 1	495	-	- -
Stage 2	619	-	- -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	210	443	899 -
Mov Cap-2 Maneuver	210	-	- -
Stage 1	495	-	- -
Stage 2	617	-	- -

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	899	-	213	-	-
HCM Lane V/C Ratio	0.002	-	0.168	-	-
HCM Control Delay (s)	9	0	25.3	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

Intersection

Int Delay, s/veh 4.2

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↖	↗		↘	
Traffic Vol, veh/h	62	534	357	81	45	164
Future Vol, veh/h	62	534	357	81	45	164
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	67	580	388	88	49	178

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	476	0	1147
Stage 1	-	-	432
Stage 2	-	-	715
Critical Hdwy	4.12	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.218	-	3.5
Pot Cap-1 Maneuver	1086	-	222
Stage 1	-	-	659
Stage 2	-	-	488
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1086	-	202
Mov Cap-2 Maneuver	-	-	202
Stage 1	-	-	659
Stage 2	-	-	444

Approach	EB	WB	SW
HCM Control Delay, s	0.9	0	22.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBRSWLn1
Capacity (veh/h)	1086	-	-	432
HCM Lane V/C Ratio	0.062	-	-	0.526
HCM Control Delay (s)	8.5	0	-	22.2
HCM Lane LOS	A	A	-	C
HCM 95th %tile Q(veh)	0.2	-	-	3

Intersection

Int Delay, s/veh 4.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Traffic Vol, veh/h	11	573	254	86	122	4
Future Vol, veh/h	11	573	254	86	122	4
Conflicting Peds, #/hr	1	0	0	1	4	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	37
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	1	1
Mvmt Flow	12	610	270	91	130	4

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	363	0	954
Stage 1	-	-	317
Stage 2	-	-	637
Critical Hdwy	4.12	-	7.11
Critical Hdwy Stg 1	-	-	6.11
Critical Hdwy Stg 2	-	-	6.11
Follow-up Hdwy	2.218	-	3.509
Pot Cap-1 Maneuver	1196	-	239
Stage 1	-	-	696
Stage 2	-	-	467
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1196	-	235
Mov Cap-2 Maneuver	-	-	235
Stage 1	-	-	685
Stage 2	-	-	458

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	36.8
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1196	-	-	-	235	725
HCM Lane V/C Ratio	0.01	-	-	-	0.552	0.006
HCM Control Delay (s)	8	0	-	-	37.7	10
HCM Lane LOS	A	A	-	-	E	B
HCM 95th %tile Q(veh)	0	-	-	-	3	0

Intersection

Int Delay, s/veh 3.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			4	4	
Traffic Vol, veh/h	15	144	90	355	421	76
Future Vol, veh/h	15	144	90	355	421	76
Conflicting Peds, #/hr	0	0	4	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	3	3	2	2
Mvmt Flow	16	157	98	386	458	83

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	1085	503	544	0	0
Stage 1	503	-	-	-	-
Stage 2	582	-	-	-	-
Critical Hdwy	6.42	6.22	4.13	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.227	-	-
Pot Cap-1 Maneuver	240	569	1020	-	-
Stage 1	607	-	-	-	-
Stage 2	559	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	209	566	1020	-	-
Mov Cap-2 Maneuver	209	-	-	-	-
Stage 1	604	-	-	-	-
Stage 2	488	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.4	1.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1020	-	487	-	-
HCM Lane V/C Ratio	0.096	-	0.355	-	-
HCM Control Delay (s)	8.9	0	16.4	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.3	-	1.6	-	-

Intersection												
Int Delay, s/veh	51.7											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	32	384	38	6	631	31	72	151	3	31	28	5
Future Vol, veh/h	32	384	38	6	631	31	72	151	3	31	28	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	1	1	1	1	1	1	2	2	2
Mvmt Flow	33	396	39	6	651	32	74	156	3	32	29	5

Major/Minor	Major1			Major2			Minor2			Minor1		
Conflicting Flow All	682	0	0	435	0	0	1177	1180	668	1241	1176	415
Stage 1	-	-	-	-	-	-	679	679	-	481	481	-
Stage 2	-	-	-	-	-	-	498	501	-	760	695	-
Critical Hdwy	4.12	-	-	4.11	-	-	7.11	6.51	6.21	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.209	-	-	3.509	4.009	3.309	3.518	4.018	3.318
Pot Cap-1 Maneuver	911	-	-	1130	-	-	169	191	460	152	191	637
Stage 1	-	-	-	-	-	-	443	453	-	566	554	-
Stage 2	-	-	-	-	-	-	556	544	-	398	444	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	909	-	-	1130	-	-	141	180	459	39	180	637
Mov Cap-2 Maneuver	-	-	-	-	-	-	141	180	-	39	180	-
Stage 1	-	-	-	-	-	-	422	449	-	539	527	-
Stage 2	-	-	-	-	-	-	496	518	-	255	440	-

Approach	NB	SB	NE	SW
HCM Control Delay, s	0.6	0.1	261.9	209.6
HCM LOS			F	F

Minor Lane/Major Mvmt	NELn1	NBL	NBT	NBR	SBL	SBT	SBRSWLn1
Capacity (veh/h)	167	909	-	-	1130	-	67
HCM Lane V/C Ratio	1.395	0.036	-	-	0.005	-	0.985
HCM Control Delay (s)	261.9	9.1	0	-	8.2	0	209.6
HCM Lane LOS	F	A	A	-	A	A	F
HCM 95th %tile Q(veh)	14.3	0.1	-	-	0	-	4.9

Synchro 9: Lanes, Volumes, Timings
1: Parker Street & Great Road

129 Parker Street
2023 No Build Weekday AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	448	178	20	257	45	137	330	17	33	455	119
Future Volume (vph)	49	448	178	20	257	45	137	330	17	33	455	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	11	11	12	12	9	12	13	10	12	16
Storage Length (ft)	80		45	90		0	95		80	80		75
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	30			40			45			40		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98						0.98			0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1652	1863	1531	1711	1863	1583	1593	1863	1636	1652	1863	1794
Flt Permitted	0.283			0.488			0.105			0.549		
Satd. Flow (perm)	492	1863	1494	879	1863	1583	176	1863	1603	954	1863	1758
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			67			124			124			124
Link Speed (mph)		20			20			20			30	
Link Distance (ft)		545			401			975			570	
Travel Time (s)		18.6			13.7			33.2			13.0	
Confl. Peds. (#/hr)			1									1
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	53	482	191	22	276	48	147	355	18	35	489	128
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	482	191	22	276	48	147	355	18	35	489	128
Turn Type	pm+pt	NA	pm+ov	Perm	NA	Free	pm+pt	NA	Free	Perm	NA	Free
Protected Phases	5	2	7		6		7	4			8	
Permitted Phases	2		2	6		Free	4		Free	8		Free
Detector Phase	5	2	7	6	6		7	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	24.0	10.0	10.0	10.0		10.0	22.0		22.0	22.0	
Total Split (s)	30.0	70.0	30.0	40.0	40.0		30.0	80.0		50.0	50.0	
Total Split (%)	20.0%	46.7%	20.0%	26.7%	26.7%		20.0%	53.3%		33.3%	33.3%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead		Lead	Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	Max	Max	Max	Max	Max		Max	Max		Max	Max	
Act Effct Green (s)	65.0	65.0	90.0	35.0	35.0	150.0	75.0	75.0	150.0	45.0	45.0	150.0
Actuated g/C Ratio	0.43	0.43	0.60	0.23	0.23	1.00	0.50	0.50	1.00	0.30	0.30	1.00
v/c Ratio	0.13	0.60	0.21	0.11	0.64	0.03	0.45	0.38	0.01	0.12	0.88	0.07
Control Delay	25.8	36.3	7.9	47.0	59.4	0.0	28.0	24.7	0.0	39.8	67.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.8	36.3	7.9	47.0	59.4	0.0	28.0	24.7	0.0	39.8	67.6	0.1
LOS	C	D	A	D	E	A	C	C	A	D	E	A

Synchro 9: Lanes, Volumes, Timings
 1: Parker Street & Great Road

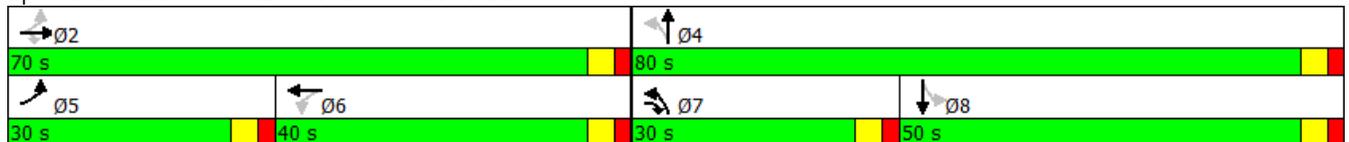
129 Parker Street
 2023 No Build Weekday AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		28.1			50.4			24.8			52.8	
Approach LOS		C			D			C			D	
Queue Length 50th (ft)	30	357	46	17	245	0	78	210	0	25	456	0
Queue Length 95th (ft)	59	477	81	44	348	0	141	290	0	56	#650	0
Internal Link Dist (ft)		465			321			895			490	
Turn Bay Length (ft)	80		45	90			95		80	80		75
Base Capacity (vph)	406	807	929	205	434	1583	324	931	1603	286	558	1758
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.60	0.21	0.11	0.64	0.03	0.45	0.38	0.01	0.12	0.88	0.07

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Natural Cycle: 60
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 37.9
 Intersection Capacity Utilization 75.9%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Parker Street & Great Road



Synchro 9: Lanes, Volumes, Timings
 26: Parking Lot/Main Street & Great Road

129 Parker Street
 2023 No Build Weekday AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	226	656	1	0	249	10	0	0	1	6	0	96
Future Volume (vph)	226	656	1	0	249	10	0	0	1	6	0	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	10	12	16	16	12	9	12	9	9	11
Storage Length (ft)	112		0	0		31	0		0	95		95
Storage Lanes	1		0	0		1	0		0	1		0
Taper Length (ft)	160			25			25			60		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00				0.98						
Frt						0.850		0.865				0.850
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	1739	0	0	2132	1812	0	1479	0	1608	0	1546
Flt Permitted	0.950									0.950		
Satd. Flow (perm)	1770	1739	0	0	2132	1774	0	1479	0	1608	0	1546
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						105		415				103
Link Speed (mph)		35			35			15			35	
Link Distance (ft)		456			740			116			420	
Travel Time (s)		8.9			14.4			5.3			8.2	
Confl. Peds. (#/hr)						2						1
Confl. Bikes (#/hr)			1									1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Adj. Flow (vph)	243	705	1	0	268	11	0	0	1	6	0	103
Shared Lane Traffic (%)												
Lane Group Flow (vph)	243	706	0	0	268	11	0	1	0	6	0	103
Turn Type	Prot	NA			NA	Free		NA		Prot		pt+ov
Protected Phases	4	1 4			1		2	2		3		3 4
Permitted Phases						Free				3		
Detector Phase	4	1 4			1		2	2		3		3 4
Switch Phase												
Minimum Initial (s)	10.0				8.0		5.0	5.0		8.0		
Minimum Split (s)	26.0				12.0		9.0	9.0		20.0		
Total Split (s)	49.0				54.0		12.0	12.0		20.0		
Total Split (%)	36.3%				40.0%		8.9%	8.9%		14.8%		
Yellow Time (s)	3.0				3.0		3.0	3.0		3.0		
All-Red Time (s)	1.0				1.0		1.0	1.0		1.0		
Lost Time Adjust (s)	0.0				0.0			0.0		0.0		
Total Lost Time (s)	4.0				4.0			4.0		4.0		
Lead/Lag	Lag				Lead		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes						Yes	Yes		Yes		
Recall Mode	None				None		None	None		None		
Act Effct Green (s)	22.0	45.8			17.5	58.9		5.8		9.2		31.0
Actuated g/C Ratio	0.37	0.78			0.30	1.00		0.10		0.16		0.53
v/c Ratio	0.37	0.52			0.42	0.01		0.00		0.02		0.12
Control Delay	17.0	5.7			22.6	0.0		0.0		32.5		2.5
Queue Delay	0.0	0.0			0.0	0.0		0.0		0.0		0.0
Total Delay	17.0	5.7			22.6	0.0		0.0		32.5		2.5

Synchro 9: Lanes, Volumes, Timings
 26: Parking Lot/Main Street & Great Road

129 Parker Street
 2023 No Build Weekday AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	B	A			C	A		A		C		A
Approach Delay		8.6			21.7						4.1	
Approach LOS		A			C						A	
Queue Length 50th (ft)	59	83			73	0		0		2		0
Queue Length 95th (ft)	155	234			208	0		0		16		22
Internal Link Dist (ft)		376			660			36			340	
Turn Bay Length (ft)	112					31				95		95
Base Capacity (vph)	1366	1736			1781	1774		581		503		1402
Starvation Cap Reductn	0	0			0	0		0		0		0
Spillback Cap Reductn	0	0			0	0		0		0		0
Storage Cap Reductn	0	0			0	0		0		0		0
Reduced v/c Ratio	0.18	0.41			0.15	0.01		0.00		0.01		0.07

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 58.9
 Natural Cycle: 70
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.52
 Intersection Signal Delay: 10.9
 Intersection Capacity Utilization 46.5%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 26: Parking Lot/Main Street & Great Road

Ø1	Ø2	Ø3	Ø4
54 s	12 s	20 s	49 s

Synchro 9: Lanes, Volumes, Timings
 29: Parker Street/Powder Mill Road & Waltham Street

129 Parker Street
 2023 No Build Weekday AM Peak Hour

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	283	281	345	15	109	20	257	131	11	10	113	155
Future Volume (vph)	283	281	345	15	109	20	257	131	11	10	113	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	15	12	9	9	12	12	11	11
Grade (%)		3%			-4%			-6%			0%	
Storage Length (ft)	0		90	0		0	60		0	0		105
Storage Lanes	0		1	0		0	0		0	0		1
Taper Length (ft)	25			25			60			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98		1.00							0.98
Frt			0.850		0.981			0.996				0.850
Flt Protected		0.976			0.995			0.969			0.996	
Satd. Flow (prot)	0	1910	1560	0	2033	0	0	1667	0	0	1793	1531
Flt Permitted		0.628			0.925			0.584			0.959	
Satd. Flow (perm)	0	1229	1524	0	1890	0	0	1004	0	0	1727	1493
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			175		8			2				160
Link Speed (mph)		25			25			30			25	
Link Distance (ft)		445			628			1101			523	
Travel Time (s)		12.1			17.1			25.0			14.3	
Confl. Peds. (#/hr)			2			1						1
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	292	290	356	15	112	21	265	135	11	10	116	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	582	356	0	148	0	0	411	0	0	126	160
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	1	6			2		7	4			8	
Permitted Phases	6		6	2			4			8		8
Detector Phase	1	6	6	2	2		7	4		8	8	8
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	15.0	15.0		7.0	15.0		15.0	15.0	15.0
Minimum Split (s)	7.0	19.0	19.0	19.0	19.0		11.0	19.0		19.0	19.0	19.0
Total Split (s)	18.0	39.0	39.0	21.0	21.0		13.0	34.0		21.0	21.0	21.0
Total Split (%)	19.4%	41.9%	41.9%	22.6%	22.6%		14.0%	36.6%		22.6%	22.6%	22.6%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0			0.0			0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0			4.0			4.0	4.0
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max		Max	Max		Max	Max	Max
Act Effct Green (s)		35.0	35.0		17.0			30.0			17.0	17.0
Actuated g/C Ratio		0.48	0.48		0.23			0.41			0.23	0.23
v/c Ratio		0.81	0.43		0.33			0.83			0.31	0.34
Control Delay		25.8	7.9		24.5			34.7			25.8	6.6
Queue Delay		3.0	0.1		0.0			0.0			0.0	0.0
Total Delay		28.8	8.0		24.5			34.7			25.8	6.6

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	22%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	

Synchro 9: Lanes, Volumes, Timings
 29: Parker Street/Powder Mill Road & Waltham Street

129 Parker Street
 2023 No Build Weekday AM Peak Hour

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
LOS		C	A		C			C			C	A
Approach Delay		20.9			24.5			34.7			15.1	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)		186	46		53			140			47	0
Queue Length 95th (ft)		#330	104		101			#295			92	43
Internal Link Dist (ft)		365			548			1021			443	
Turn Bay Length (ft)			90									105
Base Capacity (vph)		719	821		446			495			402	470
Starvation Cap Reductn		67	28		0			0			0	0
Spillback Cap Reductn		0	0		0			0			0	0
Storage Cap Reductn		0	0		0			0			0	0
Reduced v/c Ratio		0.89	0.45		0.33			0.83			0.31	0.34

Intersection Summary

Area Type: Other
 Cycle Length: 93
 Actuated Cycle Length: 73
 Natural Cycle: 130
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 23.4 Intersection LOS: C
 Intersection Capacity Utilization 81.4% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 29: Parker Street/Powder Mill Road & Waltham Street

01	02	04	09
18 s	21 s	34 s	20 s
06	07	08	
39 s	13 s	21 s	

Lane Group	Ø9
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Synchro 9: HCM 2010 TWSC
 3: Parker Street & Field Street/North Street

129 Parker Street
 2023 No Build Weekday PM Peak Hour

Intersection

Int Delay, s/veh 0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	0	0	4	1	9	2	546	4	13	501	4
Future Vol, veh/h	4	0	0	4	1	9	2	546	4	13	501	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	1	1	1
Mvmt Flow	4	0	0	4	1	10	2	587	4	14	539	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1168	1165	541	1163	1165	589	543	0	0	591	0	0
Stage 1	569	569	-	594	594	-	-	-	-	-	-	-
Stage 2	599	596	-	569	571	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.209	-	-
Pot Cap-1 Maneuver	172	196	545	173	196	512	1036	-	-	990	-	-
Stage 1	511	509	-	495	496	-	-	-	-	-	-	-
Stage 2	492	495	-	511	508	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	165	192	545	170	192	512	1036	-	-	990	-	-
Mov Cap-2 Maneuver	165	192	-	170	192	-	-	-	-	-	-	-
Stage 1	509	499	-	494	495	-	-	-	-	-	-	-
Stage 2	480	494	-	501	498	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	27.4	17.5	0	0.2
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1036	-	-	165	302	990	-
HCM Lane V/C Ratio	0.002	-	-	0.026	0.05	0.014	-
HCM Control Delay (s)	8.5	0	-	27.4	17.5	8.7	0
HCM Lane LOS	A	A	-	D	C	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0	-

Intersection

Int Delay, s/veh 0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	1	0	8	0	545	1	4	500	0
Future Vol, veh/h	0	0	0	1	0	8	0	545	1	4	500	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	1	1	1
Mvmt Flow	0	0	0	1	0	9	0	586	1	4	538	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1137	1133	538	1133	1133	587	538	0	0	587	0	0
Stage 1	546	546	-	587	587	-	-	-	-	-	-	-
Stage 2	591	587	-	546	546	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.209	-	-
Pot Cap-1 Maneuver	181	205	547	182	205	513	1040	-	-	993	-	-
Stage 1	526	521	-	499	500	-	-	-	-	-	-	-
Stage 2	497	500	-	526	521	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	177	204	547	181	204	513	1040	-	-	993	-	-
Mov Cap-2 Maneuver	177	204	-	181	204	-	-	-	-	-	-	-
Stage 1	526	518	-	499	500	-	-	-	-	-	-	-
Stage 2	489	500	-	523	518	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	13.6	0	0.1
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1040	-	-	-	426	993	-
HCM Lane V/C Ratio	-	-	-	-	0.023	0.004	-
HCM Control Delay (s)	0	-	-	0	13.6	8.6	0
HCM Lane LOS	A	-	-	A	B	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-

Intersection

Int Delay, s/veh 0.8

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	526	18	3	503	35	1
Future Vol, veh/h	526	18	3	503	35	1
Conflicting Peds, #/hr	0	0	0	0	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	1	0	0
Mvmt Flow	554	19	3	529	37	1

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	573
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.11
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.209
Pot Cap-1 Maneuver	-	-	1005
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1004
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0.1	22.5
HCM LOS			C

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1004	-	243
HCM Lane V/C Ratio	-	-	0.003	-	0.156
HCM Control Delay (s)	-	-	8.6	0	22.5
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0	-	0.5

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			4	4	
Traffic Vol, veh/h	10	3	6	535	519	19
Future Vol, veh/h	10	3	6	535	519	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	17	17	1	1	1	1
Mvmt Flow	11	3	6	563	546	20

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1132	556	566 0
Stage 1	556	-	- -
Stage 2	576	-	- -
Critical Hdwy	6.57	6.37	4.11 -
Critical Hdwy Stg 1	5.57	-	- -
Critical Hdwy Stg 2	5.57	-	- -
Follow-up Hdwy	3.653	3.453	2.209 -
Pot Cap-1 Maneuver	210	503	1011 -
Stage 1	546	-	- -
Stage 2	534	-	- -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	208	503	1011 -
Mov Cap-2 Maneuver	208	-	- -
Stage 1	546	-	- -
Stage 2	529	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	20.8	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1011	-	241	-	-
HCM Lane V/C Ratio	0.006	-	0.057	-	-
HCM Control Delay (s)	8.6	0	20.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection

Int Delay, s/veh 1.1

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	34	267	667	12	18	23
Future Vol, veh/h	34	267	667	12	18	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	0	0	0	0
Mvmt Flow	37	290	725	13	20	25

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	738	0	1096
Stage 1	-	-	732
Stage 2	-	-	364
Critical Hdwy	4.11	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.209	-	3.5
Pot Cap-1 Maneuver	873	-	238
Stage 1	-	-	480
Stage 2	-	-	707
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	873	-	226
Mov Cap-2 Maneuver	-	-	226
Stage 1	-	-	480
Stage 2	-	-	671

Approach	EB	WB	SW
HCM Control Delay, s	1.1	0	18.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBRSWLn1
Capacity (veh/h)	873	-	-	306
HCM Lane V/C Ratio	0.042	-	-	0.146
HCM Control Delay (s)	9.3	0	-	18.8
HCM Lane LOS	A	A	-	C
HCM 95th %tile Q(veh)	0.1	-	-	0.5

Intersection

Int Delay, s/veh 2.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↘	↙
Traffic Vol, veh/h	2	261	758	53	68	11
Future Vol, veh/h	2	261	758	53	68	11
Conflicting Peds, #/hr	1	0	0	1	4	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	37
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	0	0	0	0
Mvmt Flow	2	269	781	55	70	11

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	837	0	1087
Stage 1	-	-	810
Stage 2	-	-	277
Critical Hdwy	4.11	-	7.1
Critical Hdwy Stg 1	-	-	6.1
Critical Hdwy Stg 2	-	-	6.1
Follow-up Hdwy	2.209	-	3.5
Pot Cap-1 Maneuver	801	-	195
Stage 1	-	-	377
Stage 2	-	-	734
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	801	-	194
Mov Cap-2 Maneuver	-	-	194
Stage 1	-	-	375
Stage 2	-	-	729

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	31.1
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	801	-	-	-	194	383
HCM Lane V/C Ratio	0.003	-	-	-	0.361	0.03
HCM Control Delay (s)	9.5	0	-	-	33.7	14.7
HCM Lane LOS	A	A	-	-	D	B
HCM 95th %tile Q(veh)	0	-	-	-	1.5	0.1

Intersection

Int Delay, s/veh 3.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	28	135	127	235	341	70
Future Vol, veh/h	28	135	127	235	341	70
Conflicting Peds, #/hr	0	0	4	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	30	145	137	253	367	75

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	934	408	446	0	0
Stage 1	408	-	-	-	-
Stage 2	526	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-
Pot Cap-1 Maneuver	296	645	1120	-	-
Stage 1	673	-	-	-	-
Stage 2	595	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	252	642	1120	-	-
Mov Cap-2 Maneuver	252	-	-	-	-
Stage 1	670	-	-	-	-
Stage 2	508	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.8	3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1120	-	507	-	-
HCM Lane V/C Ratio	0.122	-	0.346	-	-
HCM Control Delay (s)	8.7	0	15.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.4	-	1.5	-	-

Intersection

Int Delay, s/veh 11.9

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	38	486	69	9	420	85	31	48	3	26	104	10
Future Vol, veh/h	38	486	69	9	420	85	31	48	3	26	104	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	1	1	1
Mvmt Flow	39	496	70	9	429	87	32	49	3	27	106	10

Major/Minor	Major1	Major2	Minor2	Minor1								
Conflicting Flow All	515	0	0	566	0	0	1157	1134	474	1127	1143	531
Stage 1	-	-	-	-	-	-	490	490	-	609	609	-
Stage 2	-	-	-	-	-	-	667	644	-	518	534	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.1	6.5	6.2	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.5	4	3.3	3.509	4.009	3.309
Pot Cap-1 Maneuver	1056	-	-	1011	-	-	175	204	595	183	201	550
Stage 1	-	-	-	-	-	-	564	552	-	484	487	-
Stage 2	-	-	-	-	-	-	451	471	-	542	526	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1054	-	-	1011	-	-	90	190	594	138	187	550
Mov Cap-2 Maneuver	-	-	-	-	-	-	90	190	-	138	187	-
Stage 1	-	-	-	-	-	-	533	545	-	457	460	-
Stage 2	-	-	-	-	-	-	322	445	-	483	519	-

Approach	NB	SB	NE	SW
HCM Control Delay, s	0.5	0.2	66.7	71
HCM LOS			F	F

Minor Lane/Major Mvmt	NELn1	NBL	NBT	NBR	SBL	SBT	SBR	SWLn1
Capacity (veh/h)	136	1054	-	-	1011	-	-	184
HCM Lane V/C Ratio	0.615	0.037	-	-	0.009	-	-	0.776
HCM Control Delay (s)	66.7	8.5	0	-	8.6	0	-	71
HCM Lane LOS	F	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	3.2	0.1	-	-	0	-	-	5.2

Synchro 9: Lanes, Volumes, Timings
1: Parker Street & Great Road

129 Parker Street
2023 No Build Weekday PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	222	108	11	266	43	198	354	6	60	399	70
Future Volume (vph)	35	222	108	11	266	43	198	354	6	60	399	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	11	11	12	12	9	12	13	10	12	16
Storage Length (ft)	80		45	90		0	95		80	80		75
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	30			40			45			40		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97						0.98			0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1668	1881	1546	1728	1881	1599	1624	1900	1669	1668	1881	1812
Flt Permitted	0.276			0.613			0.187			0.540		
Satd. Flow (perm)	485	1881	1503	1115	1881	1599	320	1900	1635	948	1881	1775
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82			124			124			124
Link Speed (mph)		20			20			20			30	
Link Distance (ft)		545			401			975			570	
Travel Time (s)		18.6			13.7			33.2			13.0	
Confl. Peds. (#/hr)			2									1
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Adj. Flow (vph)	37	234	114	12	280	45	208	373	6	63	420	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	234	114	12	280	45	208	373	6	63	420	74
Turn Type	pm+pt	NA	pm+ov	Perm	NA	Free	pm+pt	NA	Free	Perm	NA	Free
Protected Phases	5	2	7		6		7	4			8	
Permitted Phases	2		2	6		Free	4		Free	8		Free
Detector Phase	5	2	7	6	6		7	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	24.0	10.0	10.0	10.0		10.0	22.0		22.0	22.0	
Total Split (s)	30.0	70.0	30.0	40.0	40.0		30.0	80.0		50.0	50.0	
Total Split (%)	20.0%	46.7%	20.0%	26.7%	26.7%		20.0%	53.3%		33.3%	33.3%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead		Lead	Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	Max	Max	Max	Max	Max		Max	Max		Max	Max	
Act Effct Green (s)	65.0	65.0	90.0	35.0	35.0	150.0	75.0	75.0	150.0	45.0	45.0	150.0
Actuated g/C Ratio	0.43	0.43	0.60	0.23	0.23	1.00	0.50	0.50	1.00	0.30	0.30	1.00
v/c Ratio	0.09	0.29	0.12	0.05	0.64	0.03	0.55	0.39	0.00	0.22	0.74	0.04
Control Delay	25.3	28.7	3.9	45.5	59.5	0.0	27.5	24.9	0.0	42.0	56.7	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.3	28.7	3.9	45.5	59.5	0.0	27.5	24.9	0.0	42.0	56.7	0.0

Synchro 9: Lanes, Volumes, Timings
 1: Parker Street & Great Road

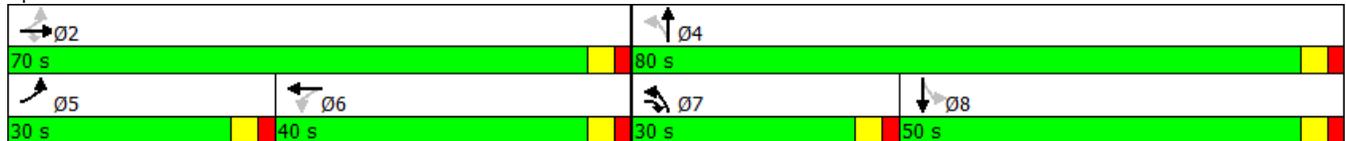
129 Parker Street
 2023 No Build Weekday PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	C	C	A	D	E	A	C	C	A	D	E	A
Approach Delay		21.1			51.0			25.6			47.5	
Approach LOS		C			D			C			D	
Queue Length 50th (ft)	21	147	11	9	249	0	114	223	0	46	372	0
Queue Length 95th (ft)	44	212	36	28	353	0	171	304	0	89	503	0
Internal Link Dist (ft)		465			321			895			490	
Turn Bay Length (ft)	80		45	90			95		80	80		75
Base Capacity (vph)	407	815	941	260	438	1599	377	950	1635	284	564	1775
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.29	0.12	0.05	0.64	0.03	0.55	0.39	0.00	0.22	0.74	0.04

Intersection Summary

Area Type:	Other
Cycle Length:	150
Actuated Cycle Length:	150
Natural Cycle:	60
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.74
Intersection Signal Delay:	35.8
Intersection LOS:	D
Intersection Capacity Utilization	68.6%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 1: Parker Street & Great Road



Synchro 9: Lanes, Volumes, Timings
 26: Parking Lot/Main Street & Great Road

129 Parker Street
 2023 No Build Weekday PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	257	1	0	699	6	8	1	1	13	0	315
Future Volume (vph)	151	257	1	0	699	6	8	1	1	13	0	315
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	10	12	16	16	12	9	12	9	9	11
Storage Length (ft)	112		0	0		31	0		0	95		95
Storage Lanes	1		0	0		1	0		0	1		0
Taper Length (ft)	160			25			25			60		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						0.98						
Frt		0.999				0.850		0.988				0.850
Flt Protected	0.950							0.961		0.950		
Satd. Flow (prot)	1787	1754	0	0	2132	1812	0	1624	0	1608	0	1546
Flt Permitted	0.950							0.961		0.950		
Satd. Flow (perm)	1787	1754	0	0	2132	1774	0	1624	0	1608	0	1546
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						106		1				189
Link Speed (mph)		35			35			15			35	
Link Distance (ft)		456			740			116			420	
Travel Time (s)		8.9			14.4			5.3			8.2	
Confl. Peds. (#/hr)						1						4
Confl. Bikes (#/hr)						2						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Adj. Flow (vph)	161	273	1	0	744	6	9	1	1	14	0	335
Shared Lane Traffic (%)												
Lane Group Flow (vph)	161	274	0	0	744	6	0	11	0	14	0	335
Turn Type	Prot	NA			NA	Free	Split	NA		Prot		pt+ov
Protected Phases	4	1 4			1		2	2		3		3 4
Permitted Phases						Free				3		
Detector Phase	4	1 4			1		2	2		3		3 4
Switch Phase												
Minimum Initial (s)	10.0				8.0		5.0	5.0		8.0		
Minimum Split (s)	26.0				12.0		9.0	9.0		15.0		
Total Split (s)	49.0				54.0		12.0	12.0		19.0		
Total Split (%)	36.6%				40.3%		9.0%	9.0%		14.2%		
Yellow Time (s)	3.0				3.0		3.0	3.0		3.0		
All-Red Time (s)	1.0				1.0		1.0	1.0		1.0		
Lost Time Adjust (s)	0.0				0.0			0.0		0.0		
Total Lost Time (s)	4.0				4.0			4.0		4.0		
Lead/Lag	Lag				Lead		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes						Yes	Yes		Yes		
Recall Mode	None				None		None	None		None		
Act Effect Green (s)	15.9	58.4			38.2	80.0		5.7		11.5		31.7
Actuated g/C Ratio	0.20	0.73			0.48	1.00		0.07		0.14		0.40
v/c Ratio	0.45	0.21			0.73	0.00		0.09		0.06		0.46
Control Delay	36.4	4.4			23.3	0.0		45.0		38.2		11.3
Queue Delay	0.0	0.0			0.0	0.0		0.0		0.0		0.0
Total Delay	36.4	4.4			23.3	0.0		45.0		38.2		11.3

Synchro 9: Lanes, Volumes, Timings
 26: Parking Lot/Main Street & Great Road

129 Parker Street
 2023 No Build Weekday PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	D	A			C	A		D		D		B
Approach Delay		16.2			23.1			45.0			12.4	
Approach LOS		B			C			D			B	
Queue Length 50th (ft)	67	29			254	0		5		6		44
Queue Length 95th (ft)	166	95			598	0		26		28		153
Internal Link Dist (ft)		376			660			36			340	
Turn Bay Length (ft)	112					31				95		95
Base Capacity (vph)	1080	1534			1431	1774		175		323		1259
Starvation Cap Reductn	0	0			0	0		0		0		0
Spillback Cap Reductn	0	0			0	0		0		0		0
Storage Cap Reductn	0	0			0	0		0		0		0
Reduced v/c Ratio	0.15	0.18			0.52	0.00		0.06		0.04		0.27

Intersection Summary

Area Type: Other
 Cycle Length: 134
 Actuated Cycle Length: 80
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 18.9
 Intersection Capacity Utilization 70.9%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 26: Parking Lot/Main Street & Great Road

Ø1	Ø2	Ø3	Ø4
54 s	12 s	19 s	49 s

Synchro 9: Lanes, Volumes, Timings
 29: Parker Street/Powder Mill Road & Waltham Street

129 Parker Street
 2023 No Build Weekday PM Peak Hour

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	227	158	263	9	233	25	244	128	9	10	177	330
Future Volume (vph)	227	158	263	9	233	25	244	128	9	10	177	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	15	12	9	9	12	12	11	11
Grade (%)		3%			-4%			-6%			0%	
Storage Length (ft)	0		90	0		0	60		0	0		105
Storage Lanes	0		1	0		0	0		0	0		1
Taper Length (ft)	25			25			60			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00			1.00				0.97
Frt			0.850		0.987			0.997				0.850
Flt Protected		0.971			0.998			0.969			0.997	
Satd. Flow (prot)	0	1919	1575	0	2072	0	0	1683	0	0	1831	1561
Flt Permitted		0.344			0.983			0.444			0.973	
Satd. Flow (perm)	0	680	1521	0	2041	0	0	771	0	0	1787	1509
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			195		5			1				337
Link Speed (mph)		25			25			30			25	
Link Distance (ft)		445			628			1101			523	
Travel Time (s)		12.1			17.1			25.0			14.3	
Confl. Peds. (#/hr)			11			6			8			5
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%
Adj. Flow (vph)	232	161	268	9	238	26	249	131	9	10	181	337
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	393	268	0	273	0	0	389	0	0	191	337
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	1	6			2		7	4			8	
Permitted Phases	6		6	2			4			8		8
Detector Phase	1	6	6	2	2		7	4		8	8	8
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	15.0	15.0		7.0	15.0		15.0	15.0	15.0
Minimum Split (s)	7.0	19.0	19.0	19.0	19.0		11.0	19.0		19.0	19.0	19.0
Total Split (s)	18.0	39.0	39.0	21.0	21.0		13.0	34.0		21.0	21.0	21.0
Total Split (%)	19.4%	41.9%	41.9%	22.6%	22.6%		14.0%	36.6%		22.6%	22.6%	22.6%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0			0.0			0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0			4.0			4.0	4.0
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max		Max	Max		Max	Max	Max
Act Effct Green (s)		35.5	35.5		17.2			30.4			17.2	17.2
Actuated g/C Ratio		0.44	0.44		0.21			0.38			0.21	0.21
v/c Ratio		0.76	0.35		0.62			0.99			0.50	0.58
Control Delay		31.1	7.1		37.8			71.4			35.7	8.4
Queue Delay		0.0	0.0		0.0			0.0			0.0	0.0
Total Delay		31.1	7.1		37.8			71.4			35.7	8.4

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	22%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	

Synchro 9: Lanes, Volumes, Timings
 29: Parker Street/Powder Mill Road & Waltham Street

129 Parker Street
 2023 No Build Weekday PM Peak Hour

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
LOS		C	A		D			E			D	A
Approach Delay		21.4			37.8			71.4			18.3	
Approach LOS		C			D			E			B	
Queue Length 50th (ft)		110	17		107			130			74	0
Queue Length 95th (ft)		#291	85		#257			#454			175	76
Internal Link Dist (ft)		365			548			1021			443	
Turn Bay Length (ft)			90									105
Base Capacity (vph)		515	776		438			392			380	586
Starvation Cap Reductn		0	0		0			0			0	0
Spillback Cap Reductn		0	0		0			0			0	0
Storage Cap Reductn		0	0		0			0			0	0
Reduced v/c Ratio		0.76	0.35		0.62			0.99			0.50	0.58

Intersection Summary

Area Type: Other
 Cycle Length: 93
 Actuated Cycle Length: 81
 Natural Cycle: 110
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay: 33.4 Intersection LOS: C
 Intersection Capacity Utilization 81.9% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 29: Parker Street/Powder Mill Road & Waltham Street

Ø1	Ø2	Ø4	Ø9
18 s	21 s	34 s	20 s
Ø6	Ø7	Ø8	
39 s	13 s	21 s	

Lane Group	Ø9
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Synchro 9: HCM 2010 TWSC
 3: Parker Street & Field Street/North Street

129 Parker Street
 2023 No Build Saturday Midday Peak Hour

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	0	4	1	1	14	1	406	1	10	419	14
Future Vol, veh/h	8	0	4	1	1	14	1	406	1	10	419	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	0	0	0	0	0	0	2	2	2	1	1	1
Mvmt Flow	8	0	4	1	1	14	1	410	1	10	423	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	871	864	430	866	871	411	437	0	0	411	0	0
Stage 1	451	451	-	413	413	-	-	-	-	-	-	-
Stage 2	420	413	-	453	458	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.12	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.218	-	-	2.209	-	-
Pot Cap-1 Maneuver	274	294	629	276	291	645	1123	-	-	1153	-	-
Stage 1	592	574	-	620	597	-	-	-	-	-	-	-
Stage 2	615	597	-	590	570	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	265	290	629	272	288	645	1123	-	-	1153	-	-
Mov Cap-2 Maneuver	265	290	-	272	288	-	-	-	-	-	-	-
Stage 1	591	568	-	619	596	-	-	-	-	-	-	-
Stage 2	600	596	-	580	564	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.4	11.7	0	0.2
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1123	-	-	328	555	1153	-
HCM Lane V/C Ratio	0.001	-	-	0.037	0.029	0.009	-
HCM Control Delay (s)	8.2	0	-	16.4	11.7	8.2	0
HCM Lane LOS	A	A	-	C	B	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-

Synchro 9: HCM 2010 TWSC
 4: Parker Street & Small Site Drive/South Street

129 Parker Street
 2023 No Build Saturday Midday Peak Hour

Intersection

Int Delay, s/veh 0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	0	0	4	0	404	1	3	421	0
Future Vol, veh/h	0	0	0	0	0	4	0	404	1	3	421	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	0	0	0	0	0	0	2	2	2	1	1	1
Mvmt Flow	0	0	0	0	0	4	0	408	1	3	425	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	842	840	425	840	840	409	425	0	0	409	0	0
Stage 1	431	431	-	409	409	-	-	-	-	-	-	-
Stage 2	411	409	-	431	431	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.12	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.218	-	-	2.209	-	-
Pot Cap-1 Maneuver	286	304	634	287	304	647	1134	-	-	1155	-	-
Stage 1	607	586	-	623	600	-	-	-	-	-	-	-
Stage 2	622	600	-	607	586	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	284	303	634	286	303	647	1134	-	-	1155	-	-
Mov Cap-2 Maneuver	284	303	-	286	303	-	-	-	-	-	-	-
Stage 1	607	584	-	623	600	-	-	-	-	-	-	-
Stage 2	618	600	-	605	584	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	10.6	0	0.1
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1134	-	-	- 647	1155	-	-
HCM Lane V/C Ratio	-	-	-	- 0.006	0.003	-	-
HCM Control Delay (s)	0	-	-	0 10.6	8.1	0	-
HCM Lane LOS	A	-	-	A B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	- 0	0	-	-

Intersection

Int Delay, s/veh 0.4

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	405	13	3	426	14	9
Future Vol, veh/h	405	13	3	426	14	9
Conflicting Peds, #/hr	0	0	0	0	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	422	14	3	444	15	9

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	435
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.11
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.209
Pot Cap-1 Maneuver	-	-	1130
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1129
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0.1	12.2
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1129	-	522
HCM Lane V/C Ratio	-	-	0.003	-	0.046
HCM Control Delay (s)	-	-	8.2	0	12.2
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0	-	0.1

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			4	4	
Traffic Vol, veh/h	15	10	6	403	425	15
Future Vol, veh/h	15	10	6	403	425	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	2	2	1	1
Mvmt Flow	16	10	6	420	443	16

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	883	451	458	0	0
Stage 1	451	-	-	-	-
Stage 2	432	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-
Pot Cap-1 Maneuver	319	613	1103	-	-
Stage 1	646	-	-	-	-
Stage 2	659	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	317	613	1103	-	-
Mov Cap-2 Maneuver	317	-	-	-	-
Stage 1	646	-	-	-	-
Stage 2	654	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.8	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1103	-	393	-	-
HCM Lane V/C Ratio	0.006	-	0.066	-	-
HCM Control Delay (s)	8.3	0	14.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↖	↗		↘	
Traffic Vol, veh/h	28	233	294	3	15	10
Future Vol, veh/h	28	233	294	3	15	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	1	1	2	2	0	0
Mvmt Flow	32	265	334	3	17	11

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	338	0	664
Stage 1	-	-	336
Stage 2	-	-	328
Critical Hdwy	4.11	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.209	-	3.5
Pot Cap-1 Maneuver	1227	-	429
Stage 1	-	-	728
Stage 2	-	-	734
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1227	-	416
Mov Cap-2 Maneuver	-	-	416
Stage 1	-	-	728
Stage 2	-	-	711

Approach	EB	WB	SW
HCM Control Delay, s	0.9	0	12.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBRSWLn1
Capacity (veh/h)	1227	-	-	499
HCM Lane V/C Ratio	0.026	-	-	0.057
HCM Control Delay (s)	8	0	-	12.7
HCM Lane LOS	A	A	-	B
HCM 95th %tile Q(veh)	0.1	-	-	0.2

Intersection

Int Delay, s/veh 1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↘	↙
Traffic Vol, veh/h	5	259	244	56	60	6
Future Vol, veh/h	5	259	244	56	60	6
Conflicting Peds, #/hr	1	0	0	1	4	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	37
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	0	0
Mvmt Flow	6	291	274	63	67	7

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	338	0	613
Stage 1	-	-	307
Stage 2	-	-	306
Critical Hdwy	4.12	-	7.1
Critical Hdwy Stg 1	-	-	6.1
Critical Hdwy Stg 2	-	-	6.1
Follow-up Hdwy	2.218	-	3.5
Pot Cap-1 Maneuver	1221	-	408
Stage 1	-	-	707
Stage 2	-	-	708
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1221	-	404
Mov Cap-2 Maneuver	-	-	404
Stage 1	-	-	702
Stage 2	-	-	701

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	15.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1221	-	-	-	404	737
HCM Lane V/C Ratio	0.005	-	-	-	0.167	0.009
HCM Control Delay (s)	8	0	-	-	15.7	9.9
HCM Lane LOS	A	A	-	-	C	A
HCM 95th %tile Q(veh)	0	-	-	-	0.6	0

Intersection

Int Delay, s/veh 2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			4	4	
Traffic Vol, veh/h	18	89	107	322	363	55
Future Vol, veh/h	18	89	107	322	363	55
Conflicting Peds, #/hr	0	0	4	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	1	1	1	1
Mvmt Flow	20	99	119	358	403	61

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1034	438	468	0	-	0
Stage 1	438	-	-	-	-	-
Stage 2	596	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.11	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.209	-	-	-
Pot Cap-1 Maneuver	257	619	1099	-	-	-
Stage 1	651	-	-	-	-	-
Stage 2	550	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	220	616	1099	-	-	-
Mov Cap-2 Maneuver	220	-	-	-	-	-
Stage 1	648	-	-	-	-	-
Stage 2	473	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.1	2.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1099	-	473	-	-
HCM Lane V/C Ratio	0.108	-	0.251	-	-
HCM Control Delay (s)	8.7	0	15.1	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.4	-	1	-	-

Intersection

Int Delay, s/veh 8.8

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	28	374	45	8	330	50	75	59	3	32	76	20
Future Vol, veh/h	28	374	45	8	330	50	75	59	3	32	76	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	1	1	1	0	0	0	1	1	1	1	1	1
Mvmt Flow	29	382	46	8	337	51	77	60	3	33	78	20

Major/Minor	Major1			Major2			Minor2			Minor1		
Conflicting Flow All	388	0	0	428	0	0	890	864	364	874	866	405
Stage 1	-	-	-	-	-	-	379	379	-	462	462	-
Stage 2	-	-	-	-	-	-	511	485	-	412	404	-
Critical Hdwy	4.11	-	-	4.1	-	-	7.11	6.51	6.21	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	2.2	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	1176	-	-	1142	-	-	265	293	683	271	292	648
Stage 1	-	-	-	-	-	-	645	616	-	582	566	-
Stage 2	-	-	-	-	-	-	547	553	-	619	601	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1174	-	-	1142	-	-	196	281	682	218	280	648
Mov Cap-2 Maneuver	-	-	-	-	-	-	196	281	-	218	280	-
Stage 1	-	-	-	-	-	-	624	610	-	563	547	-
Stage 2	-	-	-	-	-	-	440	535	-	549	596	-

Approach	NB			SB			NE			SW
HCM Control Delay, s	0.5			0.2			42.6			27.9
HCM LOS							E			D

Minor Lane/Major Mvmt	NELn1	NBL	NBT	NBR	SBL	SBT	SBRSWLn1
Capacity (veh/h)	229	1174	-	-	1142	-	-
HCM Lane V/C Ratio	0.61	0.024	-	-	0.007	-	-
HCM Control Delay (s)	42.6	8.1	0	-	8.2	0	-
HCM Lane LOS	E	A	A	-	A	A	-
HCM 95th %tile Q(veh)	3.6	0.1	-	-	0	-	-

Synchro 9: Lanes, Volumes, Timings
1: Parker Street & Great Road

129 Parker Street
2023 No Build Saturday Midday Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	152	103	19	155	59	101	317	10	29	321	29
Future Volume (vph)	41	152	103	19	155	59	101	317	10	29	321	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	11	11	12	12	9	12	13	10	12	16
Storage Length (ft)	80		45	90		0	95		80	80		75
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	30			40			45			40		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.96						0.98			0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1652	1863	1531	1711	1863	1583	1593	1863	1636	1668	1881	1812
Flt Permitted	0.463			0.654			0.283			0.558		
Satd. Flow (perm)	805	1863	1476	1178	1863	1583	474	1863	1602	980	1881	1770
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			110			124			124			124
Link Speed (mph)		20			20			20			30	
Link Distance (ft)		545			401			975			570	
Travel Time (s)		18.6			13.7			33.2			13.0	
Confl. Peds. (#/hr)			4									5
Confl. Bikes (#/hr)									3			2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Adj. Flow (vph)	44	162	110	20	165	63	107	337	11	31	341	31
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	162	110	20	165	63	107	337	11	31	341	31
Turn Type	pm+pt	NA	pm+ov	Perm	NA	Free	pm+pt	NA	Free	Perm	NA	Free
Protected Phases	5	2	7		6		7	4			8	
Permitted Phases	2		2	6		Free	4		Free	8		Free
Detector Phase	5	2	7	6	6		7	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	24.0	10.0	10.0	10.0		10.0	22.0		22.0	22.0	
Total Split (s)	30.0	70.0	30.0	40.0	40.0		30.0	80.0		50.0	50.0	
Total Split (%)	20.0%	46.7%	20.0%	26.7%	26.7%		20.0%	53.3%		33.3%	33.3%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead		Lead	Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	Max	Max	Max	Max	Max		Max	Max		Max	Max	
Act Effct Green (s)	65.0	65.0	90.0	35.0	35.0	150.0	75.0	75.0	150.0	45.0	45.0	150.0
Actuated g/C Ratio	0.43	0.43	0.60	0.23	0.23	1.00	0.50	0.50	1.00	0.30	0.30	1.00
v/c Ratio	0.09	0.20	0.12	0.07	0.38	0.04	0.25	0.36	0.01	0.11	0.60	0.02
Control Delay	25.4	27.2	2.0	45.9	51.4	0.1	21.8	24.3	0.0	39.3	50.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.4	27.2	2.0	45.9	51.4	0.1	21.8	24.3	0.0	39.3	50.3	0.0

Synchro 9: Lanes, Volumes, Timings
 1: Parker Street & Great Road

129 Parker Street
 2023 No Build Saturday Midday Peak Hour

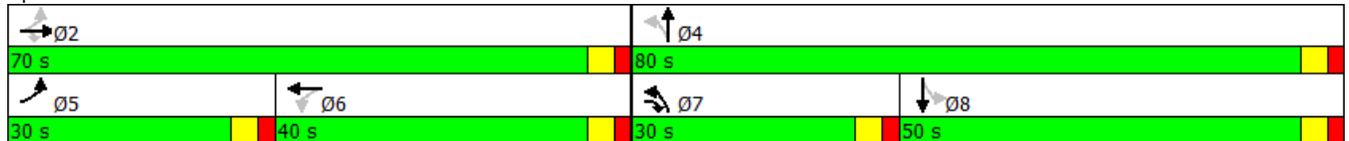
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	C	C	A	D	D	A	C	C	A	D	D	A
Approach Delay		18.2			37.9			23.1			45.6	
Approach LOS		B			D			C			D	
Queue Length 50th (ft)	25	97	0	15	137	0	55	197	0	22	286	0
Queue Length 95th (ft)	50	150	23	40	211	0	92	274	0	50	396	0
Internal Link Dist (ft)		465			321			895			490	
Turn Bay Length (ft)	80		45	90			95		80	80		75
Base Capacity (vph)	490	807	938	274	434	1583	423	931	1602	294	564	1770
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.20	0.12	0.07	0.38	0.04	0.25	0.36	0.01	0.11	0.60	0.02

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Natural Cycle: 60
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.60
 Intersection Signal Delay: 31.0
 Intersection Capacity Utilization 59.2%
 Analysis Period (min) 15

Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 1: Parker Street & Great Road



Synchro 9: Lanes, Volumes, Timings
 26: Parking Lot/Main Street & Great Road

129 Parker Street
 2023 No Build Saturday Midday Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	187	241	0	0	252	16	2	1	2	5	0	175
Future Volume (vph)	187	241	0	0	252	16	2	1	2	5	0	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	10	12	16	16	12	9	12	9	9	11
Storage Length (ft)	112		0	0		31	0		0	95		95
Storage Lanes	1		0	0		1	0		0	1		0
Taper Length (ft)	160			25			25			60		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt						0.850		0.946				0.850
Flt Protected	0.950							0.980		0.950		
Satd. Flow (prot)	1770	1739	0	0	2091	1777	0	1585	0	1624	0	1561
Flt Permitted	0.950							0.980		0.950		
Satd. Flow (perm)	1770	1739	0	0	2091	1777	0	1585	0	1624	0	1561
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						101		2				182
Link Speed (mph)		35			35			15			35	
Link Distance (ft)		456			740			116			420	
Travel Time (s)		8.9			14.4			5.3			8.2	
Confl. Peds. (#/hr)												1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	195	251	0	0	263	17	2	1	2	5	0	182
Shared Lane Traffic (%)												
Lane Group Flow (vph)	195	251	0	0	263	17	0	5	0	5	0	182
Turn Type	Prot	NA			NA	Free	Split	NA		Prot		pt+ov
Protected Phases	4	1 4			1		2	2		3		3 4
Permitted Phases						Free				3		
Detector Phase	4	1 4			1		2	2		3		3 4
Switch Phase												
Minimum Initial (s)	10.0				8.0		5.0	5.0		8.0		
Minimum Split (s)	14.0				12.0		9.0	9.0		26.0		
Total Split (s)	49.0				54.0		12.0	12.0		26.0		
Total Split (%)	34.8%				38.3%		8.5%	8.5%		18.4%		
Yellow Time (s)	3.0				3.0		3.0	3.0		3.0		
All-Red Time (s)	1.0				1.0		1.0	1.0		1.0		
Lost Time Adjust (s)	0.0				0.0		0.0	0.0		0.0		
Total Lost Time (s)	4.0				4.0		4.0	4.0		4.0		
Lead/Lag	Lag				Lead		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes						Yes	Yes		Yes		
Recall Mode	None				None		None	None		None		
Act Effect Green (s)	13.8	31.7			13.5	52.0		5.5		10.4		28.6
Actuated g/C Ratio	0.27	0.61			0.26	1.00		0.11		0.20		0.55
v/c Ratio	0.41	0.24			0.49	0.01		0.03		0.02		0.19
Control Delay	21.7	6.4			21.8	0.0		27.0		21.4		2.1
Queue Delay	0.0	0.0			0.0	0.0		0.0		0.0		0.0
Total Delay	21.7	6.4			21.8	0.0		27.0		21.4		2.1
LOS	C	A			C	A		C		C		A

Synchro 9: Lanes, Volumes, Timings
 26: Parking Lot/Main Street & Great Road

129 Parker Street
 2023 No Build Saturday Midday Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		13.1			20.5			27.0			2.7	
Approach LOS		B			C			C			A	
Queue Length 50th (ft)	40	20			54	0		1		1		0
Queue Length 95th (ft)	157	111			200	0		13		11		28
Internal Link Dist (ft)		376			660			36			340	
Turn Bay Length (ft)	112					31				95		95
Base Capacity (vph)	1570	1689			1907	1777		269		754		1504
Starvation Cap Reductn	0	0			0	0		0		0		0
Spillback Cap Reductn	0	0			0	0		0		0		0
Storage Cap Reductn	0	0			0	0		0		0		0
Reduced v/c Ratio	0.12	0.15			0.14	0.01		0.02		0.01		0.12

Intersection Summary

Area Type:	Other
Cycle Length:	141
Actuated Cycle Length:	52
Natural Cycle:	65
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.49
Intersection Signal Delay:	13.3
Intersection Capacity Utilization	38.6%
Analysis Period (min)	15
Intersection LOS:	B
ICU Level of Service	A

Splits and Phases: 26: Parking Lot/Main Street & Great Road

Ø1	Ø2	Ø3	Ø4
54 s	12 s	26 s	49 s

Synchro 9: Lanes, Volumes, Timings
 29: Parker Street/Powder Mill Road & Waltham Street

129 Parker Street
 2023 No Build Saturday Midday Peak Hour

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	284	133	184	6	117	35	172	104	14	28	91	259
Future Volume (vph)	284	133	184	6	117	35	172	104	14	28	91	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	15	12	9	9	12	12	11	11
Grade (%)		3%			-4%			-6%			0%	
Storage Length (ft)	0		90	0		0	60		0	0		105
Storage Lanes	0		1	0		0	0		0	0		1
Taper Length (ft)	25			25			60			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		0.99			1.00				0.97
Frt			0.850		0.970			0.993				0.850
Flt Protected		0.967			0.998			0.971			0.988	
Satd. Flow (prot)	0	1911	1575	0	2047	0	0	1696	0	0	1797	1546
Flt Permitted		0.483			0.982			0.574			0.873	
Satd. Flow (perm)	0	955	1523	0	2014	0	0	1002	0	0	1588	1498
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			126		13			3				276
Link Speed (mph)		25			25			30			25	
Link Distance (ft)		445			628			1101			523	
Travel Time (s)		12.1			17.1			25.0			14.3	
Confl. Peds. (#/hr)			10			3			7			4
Confl. Bikes (#/hr)						4						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	0%	0%	0%	1%	1%	1%
Adj. Flow (vph)	302	141	196	6	124	37	183	111	15	30	97	276
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	443	196	0	167	0	0	309	0	0	127	276
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	1	6			2		7	4			8	
Permitted Phases	6		6	2			4			8		8
Detector Phase	1	6	6	2	2		7	4		8	8	8
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	15.0	15.0		7.0	15.0		15.0	15.0	15.0
Minimum Split (s)	7.0	19.0	19.0	19.0	19.0		11.0	19.0		19.0	19.0	19.0
Total Split (s)	18.0	39.0	39.0	21.0	21.0		13.0	34.0		21.0	21.0	21.0
Total Split (%)	19.4%	41.9%	41.9%	22.6%	22.6%		14.0%	36.6%		22.6%	22.6%	22.6%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0			0.0			0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0			4.0			4.0	4.0
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max		Max	Max		Max	Max	Max
Act Effct Green (s)		35.5	35.5		17.2			30.4			17.2	17.2
Actuated g/C Ratio		0.44	0.44		0.21			0.38			0.21	0.21
v/c Ratio		0.76	0.27		0.38			0.68			0.38	0.51
Control Delay		30.0	8.1		30.3			31.3			33.8	8.2
Queue Delay		1.8	0.0		0.0			0.0			0.0	0.0

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	22%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Synchro 9: Lanes, Volumes, Timings
 29: Parker Street/Powder Mill Road & Waltham Street

129 Parker Street
 2023 No Build Saturday Midday Peak Hour

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Total Delay		31.7	8.1		30.3			31.3			33.8	8.2
LOS		C	A		C			C			C	A
Approach Delay		24.5			30.3			31.3			16.3	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)		128	16		58			96			48	0
Queue Length 95th (ft)		#384	74		143			#275			123	67
Internal Link Dist (ft)		365			548			1021			443	
Turn Bay Length (ft)			90									105
Base Capacity (vph)		586	737		438			456			337	536
Starvation Cap Reductn		50	0		0			0			0	0
Spillback Cap Reductn		0	0		0			0			0	0
Storage Cap Reductn		0	0		0			0			0	0
Reduced v/c Ratio		0.83	0.27		0.38			0.68			0.38	0.51

Intersection Summary

Area Type: Other
 Cycle Length: 93
 Actuated Cycle Length: 81
 Natural Cycle: 90
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 24.3
 Intersection Capacity Utilization 67.8%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 29: Parker Street/Powder Mill Road & Waltham Street

Ø1	Ø2	Ø4	Ø9
18 s	21 s	34 s	20 s
Ø6	Ø7	Ø8	
39 s	13 s	21 s	

Lane Group	Ø9
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

2023 BUILD CONDITIONS

Intersection

Int Delay, s/veh 0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	2	1	1	1	11	1	597	1	9	815	2
Future Vol, veh/h	10	2	1	1	1	11	1	597	1	9	815	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	2	2	2	2	2	2
Mvmt Flow	11	2	1	1	1	12	1	642	1	10	876	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1548	1542	877	1543	1543	642	878	0	0	643	0	0
Stage 1	897	897	-	645	645	-	-	-	-	-	-	-
Stage 2	651	645	-	898	898	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	94	116	351	95	116	478	769	-	-	942	-	-
Stage 1	337	361	-	464	471	-	-	-	-	-	-	-
Stage 2	461	471	-	337	361	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	89	113	351	92	113	478	769	-	-	942	-	-
Mov Cap-2 Maneuver	89	113	-	92	113	-	-	-	-	-	-	-
Stage 1	336	353	-	463	470	-	-	-	-	-	-	-
Stage 2	448	470	-	327	353	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	47.8	17.4	0	0.1
HCM LOS	E	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	769	-	-	98	304	942	-
HCM Lane V/C Ratio	0.001	-	-	0.143	0.046	0.01	-
HCM Control Delay (s)	9.7	0	-	47.8	17.4	8.9	0
HCM Lane LOS	A	A	-	E	C	A	A
HCM 95th %tile Q(veh)	0	-	-	0.5	0.1	0	-

Intersection

Int Delay, s/veh 0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	2	0	12	0	588	1	2	754	61
Future Vol, veh/h	0	0	0	2	0	12	0	588	1	2	754	61
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	2	2	2	2	2	2
Mvmt Flow	0	0	0	2	0	13	0	626	1	2	802	65

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1471	1466	835	1465	1497	626	867	0	0	627	0	0
Stage 1	839	839	-	626	626	-	-	-	-	-	-	-
Stage 2	632	627	-	839	871	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	106	129	371	107	124	488	777	-	-	955	-	-
Stage 1	363	384	-	475	480	-	-	-	-	-	-	-
Stage 2	472	479	-	363	371	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	103	128	371	107	124	488	777	-	-	955	-	-
Mov Cap-2 Maneuver	103	128	-	107	124	-	-	-	-	-	-	-
Stage 1	363	382	-	475	480	-	-	-	-	-	-	-
Stage 2	460	479	-	362	370	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	16.7	0	0
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	777	-	-	- 323	955	-	-
HCM Lane V/C Ratio	-	-	-	- 0.046	0.002	-	-
HCM Control Delay (s)	0	-	-	0 16.7	8.8	0	-
HCM Lane LOS	A	-	-	A C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	- 0.1	0	-	-

Intersection

Int Delay, s/veh 0.4

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	505	26	4	673	13	2
Future Vol, veh/h	505	26	4	673	13	2
Conflicting Peds, #/hr	0	0	0	0	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	0	0
Mvmt Flow	555	29	4	740	14	2

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	584
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	991
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	990
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0.1	24.5
HCM LOS			C

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	990	-	201
HCM Lane V/C Ratio	-	-	0.004	-	0.082
HCM Control Delay (s)	-	-	8.7	0	24.5
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0	-	0.3

Intersection

Int Delay, s/veh 0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘			↗	↗	
Traffic Vol, veh/h	32	1	2	499	675	11
Future Vol, veh/h	32	1	2	499	675	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	2	2	2	2
Mvmt Flow	35	1	2	542	734	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1287	740	746	0	-	0
Stage 1	740	-	-	-	-	-
Stage 2	547	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.12	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.218	-	-	-
Pot Cap-1 Maneuver	180	415	862	-	-	-
Stage 1	470	-	-	-	-	-
Stage 2	578	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	179	415	862	-	-	-
Mov Cap-2 Maneuver	179	-	-	-	-	-
Stage 1	470	-	-	-	-	-
Stage 2	576	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	29.6	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	862	-	182	-	-
HCM Lane V/C Ratio	0.003	-	0.197	-	-
HCM Control Delay (s)	9.2	0	29.6	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-

Intersection

Int Delay, s/veh 4.3

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	62	568	382	81	45	164
Future Vol, veh/h	62	568	382	81	45	164
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	67	617	415	88	49	178

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	503	0	1211
Stage 1	-	-	459
Stage 2	-	-	752
Critical Hdwy	4.12	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.218	-	3.5
Pot Cap-1 Maneuver	1061	-	203
Stage 1	-	-	641
Stage 2	-	-	469
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1061	-	184
Mov Cap-2 Maneuver	-	-	184
Stage 1	-	-	641
Stage 2	-	-	424

Approach	EB	WB	SW
HCM Control Delay, s	0.8	0	24.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBRSWLn1
Capacity (veh/h)	1061	-	-	406
HCM Lane V/C Ratio	0.064	-	-	0.56
HCM Control Delay (s)	8.6	0	-	24.6
HCM Lane LOS	A	A	-	C
HCM 95th %tile Q(veh)	0.2	-	-	3.3

Intersection

Int Delay, s/veh 3.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Traffic Vol, veh/h	11	607	279	86	122	4
Future Vol, veh/h	11	607	279	86	122	4
Conflicting Peds, #/hr	1	0	0	1	4	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	37
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	1	1
Mvmt Flow	12	646	297	91	130	4

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	389	0	1017
Stage 1	-	-	344
Stage 2	-	-	673
Critical Hdwy	4.12	-	6.41
Critical Hdwy Stg 1	-	-	5.41
Critical Hdwy Stg 2	-	-	5.41
Follow-up Hdwy	2.218	-	3.509
Pot Cap-1 Maneuver	1170	-	264
Stage 1	-	-	720
Stage 2	-	-	509
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1170	-	259
Mov Cap-2 Maneuver	-	-	259
Stage 1	-	-	719
Stage 2	-	-	500

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	31.4
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1170	-	-	-	259	700
HCM Lane V/C Ratio	0.01	-	-	-	0.501	0.006
HCM Control Delay (s)	8.1	0	-	-	32.1	10.2
HCM Lane LOS	A	A	-	-	D	B
HCM 95th %tile Q(veh)	0	-	-	-	2.6	0

Intersection

Int Delay, s/veh 3.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			4	4	
Traffic Vol, veh/h	15	144	90	423	515	76
Future Vol, veh/h	15	144	90	423	515	76
Conflicting Peds, #/hr	0	0	4	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	3	3	2	2
Mvmt Flow	16	157	98	460	560	83

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1260	605	646 0
Stage 1	605	-	- -
Stage 2	655	-	- -
Critical Hdwy	6.42	6.22	4.13 -
Critical Hdwy Stg 1	5.42	-	- -
Critical Hdwy Stg 2	5.42	-	- -
Follow-up Hdwy	3.518	3.318	2.227 -
Pot Cap-1 Maneuver	188	498	935 -
Stage 1	545	-	- -
Stage 2	517	-	- -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	160	496	935 -
Mov Cap-2 Maneuver	160	-	- -
Stage 1	542	-	- -
Stage 2	442	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	19.8	1.6	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	935	-	414	-	-
HCM Lane V/C Ratio	0.105	-	0.417	-	-
HCM Control Delay (s)	9.3	0	19.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.3	-	2	-	-

Intersection												
Int Delay, s/veh	120											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	32	423	38	6	682	31	72	151	3	31	28	5
Future Vol, veh/h	32	423	38	6	682	31	72	151	3	31	28	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	2	2	2	1	1	1	1	1	1	2	2	2
Mvmt Flow	33	436	39	6	703	32	74	156	3	32	29	5

Major/Minor	Major1			Major2			Minor2			Minor1		
Conflicting Flow All	735	0	0	475	0	0	1270	1272	721	1335	1269	456
Stage 1	-	-	-	-	-	-	731	731	-	522	522	-
Stage 2	-	-	-	-	-	-	539	541	-	813	747	-
Critical Hdwy	4.12	-	-	4.11	-	-	7.11	6.51	6.21	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.209	-	-	3.509	4.009	3.309	3.518	4.018	3.318
Pot Cap-1 Maneuver	870	-	-	1092	-	-	146	168	429	131	168	604
Stage 1	-	-	-	-	-	-	415	429	-	538	531	-
Stage 2	-	-	-	-	-	-	528	522	-	372	420	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	868	-	-	1092	-	-	119	158	428	~ 10	158	604
Mov Cap-2 Maneuver	-	-	-	-	-	-	119	158	-	~ 10	158	-
Stage 1	-	-	-	-	-	-	393	425	-	510	503	-
Stage 2	-	-	-	-	-	-	468	495	-	231	416	-

Approach	NB	SB	NE	SW
HCM Control Delay, s	0.6	0.1	\$ 362.8	\$ 1529
HCM LOS			F	F

Minor Lane/Major Mvmt	NELn1	NBL	NBT	NBR	SBL	SBT	SBR	SWLn1
Capacity (veh/h)	144	868	-	-	1092	-	-	19
HCM Lane V/C Ratio	1.618	0.038	-	-	0.006	-	-	3.473
HCM Control Delay (s)	\$ 362.8	9.3	0	-	8.3	0	-	\$ 1529
HCM Lane LOS	F	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	16.4	0.1	-	-	0	-	-	8.7

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Synchro 9: Lanes, Volumes, Timings
52: Parker Street & Primary Site Drive

129 Parker Street
2023 Build Weekday AM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	148	59	75	440	628	126
Future Volume (vph)	148	59	75	440	628	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	25		50			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98				0.98
Fr		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.293			
Satd. Flow (perm)	1770	1544	546	1863	1863	1550
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		64				
Link Speed (mph)	30			35	35	
Link Distance (ft)	449			80	216	
Travel Time (s)	10.2			1.6	4.2	
Confl. Peds. (#/hr)		2				2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	161	64	82	478	683	137
Shared Lane Traffic (%)						
Lane Group Flow (vph)	161	64	82	478	683	137
Turn Type	Prot	Perm	Perm	NA	NA	pm+ov
Protected Phases	4			2	6	4
Permitted Phases		4	2			6
Detector Phase	4	4	2	2	6	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	10.0	10.0	10.0	5.0
Minimum Split (s)	14.0	14.0	20.0	20.0	20.0	14.0
Total Split (s)	18.0	18.0	42.0	42.0	42.0	18.0
Total Split (%)	30.0%	30.0%	70.0%	70.0%	70.0%	30.0%
Yellow Time (s)	3.0	3.0	3.5	3.5	3.5	3.0
All-Red Time (s)	3.0	3.0	1.0	1.0	1.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.5	4.5	4.5	6.0
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	None	None	None	None
Act Effect Green (s)	9.8	9.8	24.2	24.2	24.2	27.0
Actuated g/C Ratio	0.25	0.25	0.63	0.63	0.63	0.70
v/c Ratio	0.36	0.15	0.24	0.41	0.59	0.13
Control Delay	18.7	6.8	7.8	7.2	9.4	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.7	6.8	7.8	7.2	9.4	1.1
LOS	B	A	A	A	A	A
Approach Delay	15.4			7.3	8.0	
Approach LOS	B			A	A	

Synchro 9: Lanes, Volumes, Timings
 52: Parker Street & Primary Site Drive

129 Parker Street
 2023 Build Weekday AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	30	0	9	60	100	0
Queue Length 95th (ft)	94	25	31	126	210	0
Internal Link Dist (ft)	369			1	136	
Turn Bay Length (ft)			100			100
Base Capacity (vph)	667	622	481	1643	1643	1215
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.10	0.17	0.29	0.42	0.11

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	38.6
Natural Cycle:	40
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.59
Intersection Signal Delay:	8.8
Intersection Capacity Utilization	62.1%
Analysis Period (min)	15
	Intersection LOS: A
	ICU Level of Service B

Splits and Phases: 52: Parker Street & Primary Site Drive

02 42 s	04 18 s
06 42 s	

Synchro 9: Lanes, Volumes, Timings
1: Parker Street & Great Road

129 Parker Street
2023 Build Weekday AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	436	224	53	249	45	170	398	49	33	549	119
Future Volume (vph)	49	436	224	53	249	45	170	398	49	33	549	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	11	11	12	12	9	12	13	10	12	16
Storage Length (ft)	80		45	90		0	95		80	80		75
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	30			40			45			40		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98						0.98			0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1652	1863	1531	1711	1863	1583	1593	1863	1636	1652	1863	1794
Flt Permitted	0.295			0.494			0.080			0.513		
Satd. Flow (perm)	513	1863	1494	890	1863	1583	134	1863	1603	892	1863	1758
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			79			124			124			124
Link Speed (mph)		20			20			20			30	
Link Distance (ft)		545			401			975			570	
Travel Time (s)		18.6			13.7			33.2			13.0	
Confl. Peds. (#/hr)			1									1
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	53	469	241	57	268	48	183	428	53	35	590	128
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	469	241	57	268	48	183	428	53	35	590	128
Turn Type	pm+pt	NA	pm+ov	Perm	NA	Free	pm+pt	NA	Free	Perm	NA	Free
Protected Phases	5	2	7		6		7	4			8	
Permitted Phases	2		2	6		Free	4		Free	8		Free
Detector Phase	5	2	7	6	6		7	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	24.0	10.0	10.0	10.0		10.0	22.0		22.0	22.0	
Total Split (s)	30.0	70.0	30.0	40.0	40.0		30.0	80.0		50.0	50.0	
Total Split (%)	20.0%	46.7%	20.0%	26.7%	26.7%		20.0%	53.3%		33.3%	33.3%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead		Lead	Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	Max	Max	Max	Max	Max		Max	Max		Max	Max	
Act Effct Green (s)	65.0	65.0	90.0	35.0	35.0	150.0	75.0	75.0	150.0	45.0	45.0	150.0
Actuated g/C Ratio	0.43	0.43	0.60	0.23	0.23	1.00	0.50	0.50	1.00	0.30	0.30	1.00
v/c Ratio	0.13	0.58	0.26	0.28	0.62	0.03	0.59	0.46	0.03	0.13	1.06	0.07
Control Delay	25.8	35.8	8.6	51.5	58.6	0.0	41.2	26.4	0.0	40.1	103.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.8	35.8	8.6	51.5	58.6	0.0	41.2	26.4	0.0	40.1	103.7	0.1
LOS	C	D	A	D	E	A	D	C	A	D	F	A

Synchro 9: Lanes, Volumes, Timings
 1: Parker Street & Great Road

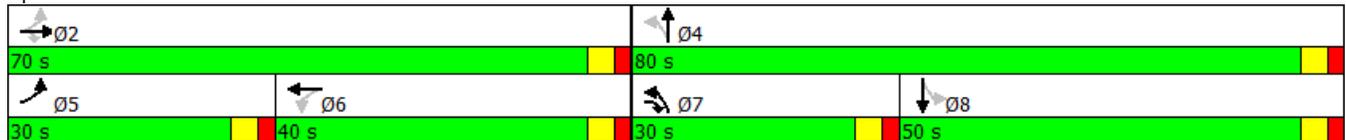
129 Parker Street
 2023 Build Weekday AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		26.5			50.0			28.4			83.1	
Approach LOS		C			D			C			F	
Queue Length 50th (ft)	30	344	62	46	237	0	118	266	0	25	~630	0
Queue Length 95th (ft)	59	462	104	91	338	0	205	361	0	56	#867	0
Internal Link Dist (ft)		465			321			895			490	
Turn Bay Length (ft)	80		45	90			95		80	80		75
Base Capacity (vph)	412	807	934	207	434	1583	310	931	1603	267	558	1758
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.58	0.26	0.28	0.62	0.03	0.59	0.46	0.03	0.13	1.06	0.07

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Natural Cycle: 65
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.06
 Intersection Signal Delay: 47.1
 Intersection LOS: D
 Intersection Capacity Utilization 82.1%
 ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Parker Street & Great Road



Synchro 9: Lanes, Volumes, Timings
 26: Parking Lot/Main Street & Great Road

129 Parker Street
 2023 Build Weekday AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	226	690	1	0	274	10	0	0	1	6	0	96
Future Volume (vph)	226	690	1	0	274	10	0	0	1	6	0	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	10	12	16	16	12	9	12	9	9	11
Storage Length (ft)	112		0	0		31	0		0	95		95
Storage Lanes	1		0	0		1	0		0	1		0
Taper Length (ft)	160			25			25			60		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00				0.98						
Frt						0.850		0.865				0.850
Flt Protected	0.950									0.950		
Satd. Flow (prot)	1770	1739	0	0	2132	1812	0	1479	0	1608	0	1546
Flt Permitted	0.950									0.950		
Satd. Flow (perm)	1770	1739	0	0	2132	1774	0	1479	0	1608	0	1546
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						105		398				103
Link Speed (mph)		35			35			15				35
Link Distance (ft)		456			740			116				420
Travel Time (s)		8.9			14.4			5.3				8.2
Confl. Peds. (#/hr)						2						1
Confl. Bikes (#/hr)			1									1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Adj. Flow (vph)	243	742	1	0	295	11	0	0	1	6	0	103
Shared Lane Traffic (%)												
Lane Group Flow (vph)	243	743	0	0	295	11	0	1	0	6	0	103
Turn Type	Prot	NA			NA	Free		NA		Prot		pt+ov
Protected Phases	4	1 4			1		2	2		3		3 4
Permitted Phases						Free				3		
Detector Phase	4	1 4			1		2	2		3		3 4
Switch Phase												
Minimum Initial (s)	10.0				8.0		5.0	5.0		8.0		
Minimum Split (s)	26.0				12.0		9.0	9.0		20.0		
Total Split (s)	49.0				54.0		12.0	12.0		20.0		
Total Split (%)	36.3%				40.0%		8.9%	8.9%		14.8%		
Yellow Time (s)	3.0				3.0		3.0	3.0		3.0		
All-Red Time (s)	1.0				1.0		1.0	1.0		1.0		
Lost Time Adjust (s)	0.0				0.0			0.0		0.0		
Total Lost Time (s)	4.0				4.0			4.0		4.0		
Lead/Lag	Lag				Lead		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes						Yes	Yes		Yes		
Recall Mode	None				None		None	None		None		
Act Effct Green (s)	23.4	48.5			18.7	61.6		5.8		9.3		32.4
Actuated g/C Ratio	0.38	0.79			0.30	1.00		0.09		0.15		0.53
v/c Ratio	0.36	0.54			0.46	0.01		0.00		0.02		0.12
Control Delay	17.2	5.7			23.7	0.0		0.0		34.7		2.6
Queue Delay	0.0	0.0			0.0	0.0		0.0		0.0		0.0
Total Delay	17.2	5.7			23.7	0.0		0.0		34.7		2.6

Synchro 9: Lanes, Volumes, Timings
 26: Parking Lot/Main Street & Great Road

129 Parker Street
 2023 Build Weekday AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	B	A			C	A		A		C		A
Approach Delay		8.5			22.8						4.3	
Approach LOS		A			C						A	
Queue Length 50th (ft)	61	91			87	0		0		2		0
Queue Length 95th (ft)	161	253			237	0		0		16		23
Internal Link Dist (ft)		376			660			36			340	
Turn Bay Length (ft)	112					31				95		95
Base Capacity (vph)	1325	1720			1725	1774		561		487		1370
Starvation Cap Reductn	0	0			0	0		0		0		0
Spillback Cap Reductn	0	0			0	0		0		0		0
Storage Cap Reductn	0	0			0	0		0		0		0
Reduced v/c Ratio	0.18	0.43			0.17	0.01		0.00		0.01		0.08

Intersection Summary

Area Type: Other
 Cycle Length: 135
 Actuated Cycle Length: 61.6
 Natural Cycle: 70
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.54
 Intersection Signal Delay: 11.3
 Intersection Capacity Utilization 48.3%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 26: Parking Lot/Main Street & Great Road

Ø1	Ø2	Ø3	Ø4
54 s	12 s	20 s	49 s

Synchro 9: Lanes, Volumes, Timings
 29: Parker Street/Powder Mill Road & Waltham Street

129 Parker Street
 2023 Build Weekday AM Peak Hour

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	283	281	392	18	109	20	299	159	13	10	151	155
Future Volume (vph)	283	281	392	18	109	20	299	159	13	10	151	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	15	12	9	9	12	12	11	11
Grade (%)		3%			-4%			-6%			0%	
Storage Length (ft)	0		90	0		0	60		0	0		105
Storage Lanes	0		1	0		0	0		0	0		1
Taper Length (ft)	25			25			60			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98		1.00							0.98
Frt			0.850		0.981			0.996				0.850
Flt Protected		0.976			0.994			0.969			0.997	
Satd. Flow (prot)	0	1910	1560	0	2032	0	0	1667	0	0	1795	1531
Flt Permitted		0.628			0.904			0.519			0.964	
Satd. Flow (perm)	0	1229	1524	0	1848	0	0	893	0	0	1736	1493
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			198		8			2				160
Link Speed (mph)		25			25			30			25	
Link Distance (ft)		445			628			1101			523	
Travel Time (s)		12.1			17.1			25.0			14.3	
Confl. Peds. (#/hr)			2			1						1
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	292	290	404	19	112	21	308	164	13	10	156	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	582	404	0	152	0	0	485	0	0	166	160
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	1	6			2		7	4			8	
Permitted Phases	6		6	2			4			8		8
Detector Phase	1	6	6	2	2		7	4		8	8	8
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	15.0	15.0		7.0	15.0		15.0	15.0	15.0
Minimum Split (s)	7.0	19.0	19.0	19.0	19.0		11.0	19.0		19.0	19.0	19.0
Total Split (s)	18.0	39.0	39.0	21.0	21.0		13.0	34.0		21.0	21.0	21.0
Total Split (%)	19.4%	41.9%	41.9%	22.6%	22.6%		14.0%	36.6%		22.6%	22.6%	22.6%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0			0.0			0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0			4.0			4.0	4.0
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max		Max	Max		Max	Max	Max
Act Effct Green (s)		35.0	35.0		17.0			30.0			17.0	17.0
Actuated g/C Ratio		0.48	0.48		0.23			0.41			0.23	0.23
v/c Ratio		0.81	0.48		0.35			1.05			0.41	0.34
Control Delay		25.8	8.5		24.8			77.9			27.4	6.6
Queue Delay		3.0	0.1		0.0			0.0			0.0	0.0
Total Delay		28.8	8.5		24.8			77.9			27.4	6.6

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	22%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	

Synchro 9: Lanes, Volumes, Timings
 29: Parker Street/Powder Mill Road & Waltham Street

129 Parker Street
 2023 Build Weekday AM Peak Hour

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
LOS		C	A		C			E			C	A
Approach Delay		20.5			24.8			77.9			17.2	
Approach LOS		C			C			E			B	
Queue Length 50th (ft)		186	53		54			~190			64	0
Queue Length 95th (ft)		#330	120		104			#420			118	43
Internal Link Dist (ft)		365			548			1021			443	
Turn Bay Length (ft)			90									105
Base Capacity (vph)		719	833		436			463			404	470
Starvation Cap Reductn		67	27		0			0			0	0
Spillback Cap Reductn		0	0		0			0			0	0
Storage Cap Reductn		0	0		0			0			0	0
Reduced v/c Ratio		0.89	0.50		0.35			1.05			0.41	0.34

Intersection Summary

Area Type: Other
 Cycle Length: 93
 Actuated Cycle Length: 73
 Natural Cycle: 140
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.05
 Intersection Signal Delay: 34.6 Intersection LOS: C
 Intersection Capacity Utilization 94.5% ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 29: Parker Street/Powder Mill Road & Waltham Street

Ø1 18 s	Ø2 21 s	Ø4 34 s	Ø9 20 s
Ø6 39 s	Ø7 13 s	Ø8 21 s	

Lane Group	Ø9
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Synchro 9: HCM 2010 TWSC
 3: Parker Street & Field Street/North Street

129 Parker Street
 2023 Build Weekday PM Peak Hour

Intersection

Int Delay, s/veh 0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	0	0	4	1	9	2	961	4	13	863	4
Future Vol, veh/h	4	0	0	4	1	9	2	961	4	13	863	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	1	1	1
Mvmt Flow	4	0	0	4	1	10	2	1033	4	14	928	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2003	2000	930	1998	2000	1035	932	0	0	1038	0	0
Stage 1	958	958	-	1040	1040	-	-	-	-	-	-	-
Stage 2	1045	1042	-	958	960	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.209	-	-
Pot Cap-1 Maneuver	45	61	327	45	61	284	743	-	-	674	-	-
Stage 1	312	338	-	281	310	-	-	-	-	-	-	-
Stage 2	279	309	-	312	338	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	41	58	327	43	58	284	743	-	-	674	-	-
Mov Cap-2 Maneuver	41	58	-	43	58	-	-	-	-	-	-	-
Stage 1	310	323	-	279	308	-	-	-	-	-	-	-
Stage 2	267	307	-	299	323	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	102.8	47.8	0	0.2
HCM LOS	F	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	743	-	-	41	99	674	-
HCM Lane V/C Ratio	0.003	-	-	0.105	0.152	0.021	-
HCM Control Delay (s)	9.9	0	-	102.8	47.8	10.5	0
HCM Lane LOS	A	A	-	F	E	B	A
HCM 95th %tile Q(veh)	0	-	-	0.3	0.5	0.1	-

Intersection

Int Delay, s/veh 0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	1	0	8	0	960	1	4	774	88
Future Vol, veh/h	0	0	0	1	0	8	0	960	1	4	774	88
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	1	1	1
Mvmt Flow	0	0	0	1	0	9	0	1032	1	4	832	95

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1925	1921	880	1921	1968	1033	927	0	0	1033	0	0
Stage 1	888	888	-	1033	1033	-	-	-	-	-	-	-
Stage 2	1037	1033	-	888	935	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.209	-	-
Pot Cap-1 Maneuver	51	68	349	51	63	285	746	-	-	677	-	-
Stage 1	341	365	-	283	312	-	-	-	-	-	-	-
Stage 2	282	312	-	341	347	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	49	67	349	51	62	285	746	-	-	677	-	-
Mov Cap-2 Maneuver	49	67	-	51	62	-	-	-	-	-	-	-
Stage 1	341	361	-	283	312	-	-	-	-	-	-	-
Stage 2	273	312	-	337	343	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	25.1	0	0
HCM LOS	A	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	746	-	-	-	189	677	-
HCM Lane V/C Ratio	-	-	-	-	0.051	0.006	-
HCM Control Delay (s)	0	-	-	0	25.1	10.4	0
HCM Lane LOS	A	-	-	A	D	B	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2	0	-

Intersection

Int Delay, s/veh 0.9

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	654	18	3	648	35	1
Future Vol, veh/h	654	18	3	648	35	1
Conflicting Peds, #/hr	0	0	0	0	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	1	0	0
Mvmt Flow	688	19	3	682	37	1

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	707
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.11
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.209
Pot Cap-1 Maneuver	-	-	896
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	895
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0	33.7
HCM LOS			D

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	895	-	163
HCM Lane V/C Ratio	-	-	0.004	-	0.232
HCM Control Delay (s)	-	-	9	0	33.7
HCM Lane LOS	-	-	A	A	D
HCM 95th %tile Q(veh)	-	-	0	-	0.9

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			4	4	
Traffic Vol, veh/h	10	3	6	663	664	19
Future Vol, veh/h	10	3	6	663	664	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	17	17	1	1	1	1
Mvmt Flow	11	3	6	698	699	20

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1420	709	719 0
Stage 1	709	-	- -
Stage 2	711	-	- -
Critical Hdwy	6.57	6.37	4.11 -
Critical Hdwy Stg 1	5.57	-	- -
Critical Hdwy Stg 2	5.57	-	- -
Follow-up Hdwy	3.653	3.453	2.209 -
Pot Cap-1 Maneuver	139	410	887 -
Stage 1	461	-	- -
Stage 2	460	-	- -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	137	410	887 -
Mov Cap-2 Maneuver	137	-	- -
Stage 1	461	-	- -
Stage 2	455	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	29.3	0.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	887	-	162	-	-
HCM Lane V/C Ratio	0.007	-	0.084	-	-
HCM Control Delay (s)	9.1	0	29.3	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection

Int Delay, s/veh 1.1

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↖	↗		↘	
Traffic Vol, veh/h	34	339	750	12	18	23
Future Vol, veh/h	34	339	750	12	18	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	0	0	0	0
Mvmt Flow	37	368	815	13	20	25

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	828	0	1264
Stage 1	-	-	822
Stage 2	-	-	442
Critical Hdwy	4.11	-	6.4
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.209	-	3.5
Pot Cap-1 Maneuver	808	-	189
Stage 1	-	-	435
Stage 2	-	-	652
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	808	-	178
Mov Cap-2 Maneuver	-	-	178
Stage 1	-	-	435
Stage 2	-	-	614

Approach	EB	WB	SW
HCM Control Delay, s	0.9	0	22.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBRSWLn1
Capacity (veh/h)	808	-	-	253
HCM Lane V/C Ratio	0.046	-	-	0.176
HCM Control Delay (s)	9.7	0	-	22.2
HCM Lane LOS	A	A	-	C
HCM 95th %tile Q(veh)	0.1	-	-	0.6

Intersection

Int Delay, s/veh 1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↔		↕	↕
Traffic Vol, veh/h	2	333	841	53	68	11
Future Vol, veh/h	2	333	841	53	68	11
Conflicting Peds, #/hr	1	0	0	1	4	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	37
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	1	1	0	0	0	0
Mvmt Flow	2	343	867	55	70	11

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	923	0	895
Stage 1	-	-	895
Stage 2	-	-	351
Critical Hdwy	4.11	-	6.2
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.209	-	3.3
Pot Cap-1 Maneuver	744	-	342
Stage 1	-	-	402
Stage 2	-	-	717
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	744	-	342
Mov Cap-2 Maneuver	-	-	193
Stage 1	-	-	402
Stage 2	-	-	714

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	31.4
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	744	-	-	-	193	342
HCM Lane V/C Ratio	0.003	-	-	-	0.363	0.033
HCM Control Delay (s)	9.9	0	-	-	33.9	15.9
HCM Lane LOS	A	A	-	-	D	C
HCM 95th %tile Q(veh)	0	-	-	-	1.6	0.1

Intersection

Int Delay, s/veh 4.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	28	135	127	449	520	70
Future Vol, veh/h	28	135	127	449	520	70
Conflicting Peds, #/hr	0	0	4	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	30	145	137	483	559	75

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1357	601	638	0	-	0
Stage 1	601	-	-	-	-	-
Stage 2	756	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	165	502	951	-	-	-
Stage 1	549	-	-	-	-	-
Stage 2	466	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	131	500	951	-	-	-
Mov Cap-2 Maneuver	131	-	-	-	-	-
Stage 1	546	-	-	-	-	-
Stage 2	372	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	26.7	2.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	951	-	337	-	-
HCM Lane V/C Ratio	0.144	-	0.52	-	-
HCM Control Delay (s)	9.4	0	26.7	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0.5	-	2.8	-	-

Intersection												
Int Delay, s/veh	36.5											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	38	619	69	9	543	85	31	48	3	26	104	10
Future Vol, veh/h	38	619	69	9	543	85	31	48	3	26	104	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	1	1	1	1	1	1	0	0	0	1	1	1
Mvmt Flow	39	632	70	9	554	87	32	49	3	27	106	10

Major/Minor	Major1			Major2			Minor2			Minor1		
Conflicting Flow All	641	0	0	702	0	0	1419	1396	599	1388	1403	667
Stage 1	-	-	-	-	-	-	616	616	-	744	744	-
Stage 2	-	-	-	-	-	-	803	780	-	644	659	-
Critical Hdwy	4.11	-	-	4.11	-	-	7.1	6.5	6.2	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.5	4	3.3	3.509	4.009	3.309
Pot Cap-1 Maneuver	948	-	-	900	-	-	115	142	505	121	140	461
Stage 1	-	-	-	-	-	-	481	485	-	408	423	-
Stage 2	-	-	-	-	-	-	380	409	-	463	462	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	946	-	-	900	-	-	33	130	504	80	128	461
Mov Cap-2 Maneuver	-	-	-	-	-	-	33	130	-	80	128	-
Stage 1	-	-	-	-	-	-	448	477	-	380	394	-
Stage 2	-	-	-	-	-	-	253	381	-	406	455	-

Approach	NB	SB	NE	SW
HCM Control Delay, s	0.5	0.1	\$ 345.3	207.5
HCM LOS			F	F

Minor Lane/Major Mvmt	NELn1	NBL	NBT	NBR	SBL	SBT	SBRSWLn1
Capacity (veh/h)	62	946	-	-	900	-	- 121
HCM Lane V/C Ratio	1.35	0.041	-	-	0.01	-	- 1.181
HCM Control Delay (s)	\$ 345.3	9	0	-	9	0	- 207.5
HCM Lane LOS	F	A	A	-	A	A	- F
HCM 95th %tile Q(veh)	7.1	0.1	-	-	0	-	- 8.8

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Synchro 9: Lanes, Volumes, Timings
52: Parker Street & Primary Site Drive

129 Parker Street
2023 Build Weekday PM Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	460	191	173	500	454	320
Future Volume (vph)	460	191	173	500	454	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	25		50			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98				0.98
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.176			
Satd. Flow (perm)	1770	1548	328	1863	1863	1549
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		176				281
Link Speed (mph)	30			35	35	
Link Distance (ft)	449			80	216	
Travel Time (s)	10.2			1.6	4.2	
Confl. Peds. (#/hr)		2				2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	500	208	188	543	493	348
Shared Lane Traffic (%)						
Lane Group Flow (vph)	500	208	188	543	493	348
Turn Type	Prot	pm+ov	pm+pt	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4	2			6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0	5.0
Minimum Split (s)	13.0	11.0	11.0	24.0	24.0	13.0
Total Split (s)	23.0	11.0	11.0	37.0	26.0	23.0
Total Split (%)	38.3%	18.3%	18.3%	61.7%	43.3%	38.3%
Yellow Time (s)	3.0	3.0	3.0	3.5	3.5	3.0
All-Red Time (s)	3.0	2.0	2.0	1.0	1.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	5.0	5.0	4.5	4.5	6.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Recall Mode	None	None	None	None	None	None
Act Effect Green (s)	17.1	24.1	29.2	29.7	18.6	34.2
Actuated g/C Ratio	0.30	0.42	0.51	0.52	0.32	0.60
v/c Ratio	0.95	0.28	0.59	0.56	0.81	0.33
Control Delay	53.1	3.5	15.8	12.0	30.1	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.1	3.5	15.8	12.0	30.1	1.7
LOS	D	A	B	B	C	A
Approach Delay	38.5			13.0	18.3	
Approach LOS	D			B	B	

Synchro 9: Lanes, Volumes, Timings
 52: Parker Street & Primary Site Drive

129 Parker Street
 2023 Build Weekday PM Peak Hour

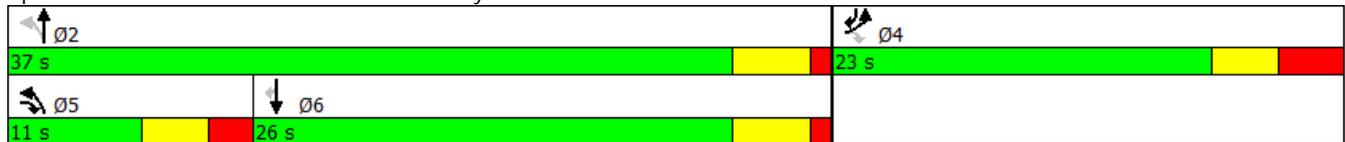


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	176	6	32	115	152	5
Queue Length 95th (ft)	#355	35	#65	190	#284	22
Internal Link Dist (ft)	369			1	136	
Turn Bay Length (ft)			100			100
Base Capacity (vph)	527	756	318	1061	702	1047
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.28	0.59	0.51	0.70	0.33

Intersection Summary

Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 57.3
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 22.9
 Intersection Capacity Utilization 71.9%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 52: Parker Street & Primary Site Drive



Synchro 9: Lanes, Volumes, Timings
1: Parker Street & Great Road

129 Parker Street
2023 Build Weekday PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	186	216	86	242	43	305	568	100	60	578	70
Future Volume (vph)	35	186	216	86	242	43	305	568	100	60	578	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	11	11	12	12	9	12	13	10	12	16
Storage Length (ft)	80		45	90		0	95		80	80		75
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	30			40			45			40		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97						0.98			0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1668	1881	1546	1728	1881	1599	1624	1900	1669	1668	1881	1812
Flt Permitted	0.316			0.634			0.080			0.416		
Satd. Flow (perm)	555	1881	1503	1153	1881	1599	137	1900	1635	730	1881	1775
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			72			124			124			124
Link Speed (mph)		20			20			20				30
Link Distance (ft)		545			401			975				570
Travel Time (s)		18.6			13.7			33.2				13.0
Confl. Peds. (#/hr)			2									1
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Adj. Flow (vph)	37	196	227	91	255	45	321	598	105	63	608	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	196	227	91	255	45	321	598	105	63	608	74
Turn Type	pm+pt	NA	pm+ov	Perm	NA	Free	pm+pt	NA	Free	Perm	NA	Free
Protected Phases	5	2	7		6		7	4			8	
Permitted Phases	2		2	6		Free	4		Free	8		Free
Detector Phase	5	2	7	6	6		7	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	24.0	10.0	10.0	10.0		10.0	22.0		22.0	22.0	
Total Split (s)	30.0	70.0	30.0	40.0	40.0		30.0	80.0		50.0	50.0	
Total Split (%)	20.0%	46.7%	20.0%	26.7%	26.7%		20.0%	53.3%		33.3%	33.3%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead		Lead	Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	Max	Max	Max	Max	Max		Max	Max		Max	Max	
Act Effct Green (s)	65.0	65.0	90.0	35.0	35.0	150.0	75.0	75.0	150.0	45.0	45.0	150.0
Actuated g/C Ratio	0.43	0.43	0.60	0.23	0.23	1.00	0.50	0.50	1.00	0.30	0.30	1.00
v/c Ratio	0.09	0.24	0.24	0.34	0.58	0.03	1.02	0.63	0.06	0.29	1.08	0.04
Control Delay	25.3	27.9	8.6	52.1	57.2	0.0	99.5	31.1	0.1	44.7	109.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.3	27.9	8.6	52.1	57.2	0.0	99.5	31.1	0.1	44.7	109.4	0.0

Synchro 9: Lanes, Volumes, Timings
 1: Parker Street & Great Road

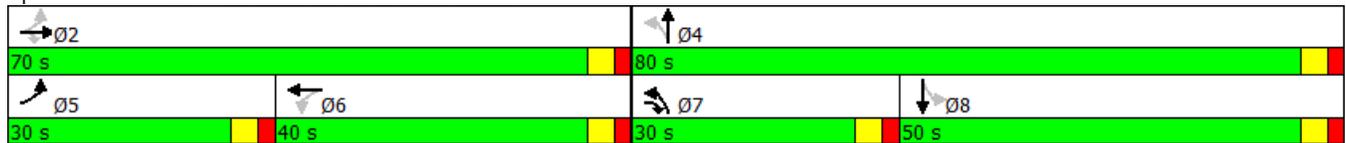
129 Parker Street
 2023 Build Weekday PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	C	C	A	D	E	A	F	C	A	D	F	A
Approach Delay		18.2			49.4			49.3			93.1	
Approach LOS		B			D			D			F	
Queue Length 50th (ft)	21	120	59	75	223	0	-278	418	0	47	-661	0
Queue Length 95th (ft)	44	179	99	132	321	0	#484	551	0	93	#900	0
Internal Link Dist (ft)		465			321			895			490	
Turn Bay Length (ft)	80		45	90			95		80	80		75
Base Capacity (vph)	426	815	937	269	438	1599	316	950	1635	219	564	1775
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.24	0.24	0.34	0.58	0.03	1.02	0.63	0.06	0.29	1.08	0.04

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Natural Cycle: 80
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.08
 Intersection Signal Delay: 56.3
 Intersection LOS: E
 Intersection Capacity Utilization 84.6%
 ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Parker Street & Great Road



Synchro 9: Lanes, Volumes, Timings
 26: Parking Lot/Main Street & Great Road

129 Parker Street
 2023 Build Weekday PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	329	1	0	782	6	8	1	1	13	0	315
Future Volume (vph)	151	329	1	0	782	6	8	1	1	13	0	315
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	10	12	16	16	12	9	12	9	9	11
Storage Length (ft)	112		0	0		31	0		0	95		95
Storage Lanes	1		0	0		1	0		0	1		0
Taper Length (ft)	160			25			25			60		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						0.98						
Fr						0.850		0.988				0.850
Flt Protected	0.950							0.961		0.950		
Satd. Flow (prot)	1787	1756	0	0	2132	1812	0	1624	0	1608	0	1546
Flt Permitted	0.950							0.961		0.950		
Satd. Flow (perm)	1787	1756	0	0	2132	1774	0	1624	0	1608	0	1546
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						106		1				171
Link Speed (mph)		35			35			15			35	
Link Distance (ft)		456			740			116			420	
Travel Time (s)		8.9			14.4			5.3			8.2	
Confl. Peds. (#/hr)						1						4
Confl. Bikes (#/hr)						2						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Adj. Flow (vph)	161	350	1	0	832	6	9	1	1	14	0	335
Shared Lane Traffic (%)												
Lane Group Flow (vph)	161	351	0	0	832	6	0	11	0	14	0	335
Turn Type	Prot	NA			NA	Free	Split	NA		Prot		pt+ov
Protected Phases	4	1 4			1		2	2		3		3 4
Permitted Phases						Free				3		
Detector Phase	4	1 4			1		2	2		3		3 4
Switch Phase												
Minimum Initial (s)	10.0				8.0		5.0	5.0		8.0		
Minimum Split (s)	26.0				12.0		9.0	9.0		15.0		
Total Split (s)	49.0				54.0		12.0	12.0		19.0		
Total Split (%)	36.6%				40.3%		9.0%	9.0%		14.2%		
Yellow Time (s)	3.0				3.0		3.0	3.0		3.0		
All-Red Time (s)	1.0				1.0		1.0	1.0		1.0		
Lost Time Adjust (s)	0.0				0.0			0.0		0.0		
Total Lost Time (s)	4.0				4.0			4.0		4.0		
Lead/Lag	Lag				Lead		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes						Yes	Yes		Yes		
Recall Mode	None				None		None	None		None		
Act Effect Green (s)	16.6	71.2			50.6	93.4		5.5		12.3		32.9
Actuated g/C Ratio	0.18	0.76			0.54	1.00		0.06		0.13		0.35
v/c Ratio	0.51	0.26			0.72	0.00		0.12		0.07		0.51
Control Delay	41.3	4.5			23.3	0.0		47.4		39.6		13.9
Queue Delay	0.0	0.0			0.0	0.0		0.0		0.0		0.0
Total Delay	41.3	4.5			23.3	0.0		47.4		39.6		13.9

Synchro 9: Lanes, Volumes, Timings
 26: Parking Lot/Main Street & Great Road

129 Parker Street
 2023 Build Weekday PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	D	A			C	A		D		D		B
Approach Delay		16.1			23.1			47.4			14.9	
Approach LOS		B			C			D			B	
Queue Length 50th (ft)	85	47			337	0		6		7		67
Queue Length 95th (ft)	166	124			#778	0		26		29		165
Internal Link Dist (ft)		376			660			36			340	
Turn Bay Length (ft)	112					31				95		95
Base Capacity (vph)	872	1341			1157	1774		141		261		1076
Starvation Cap Reductn	0	0			0	0		0		0		0
Spillback Cap Reductn	0	0			0	0		0		0		0
Storage Cap Reductn	0	0			0	0		0		0		0
Reduced v/c Ratio	0.18	0.26			0.72	0.00		0.08		0.05		0.31

Intersection Summary

Area Type: Other
 Cycle Length: 134
 Actuated Cycle Length: 93.4
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.72
 Intersection Signal Delay: 19.5 Intersection LOS: B
 Intersection Capacity Utilization 75.3% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 26: Parking Lot/Main Street & Great Road

Ø1	Ø2	Ø3	Ø4
54 s	12 s	19 s	49 s

Synchro 9: Lanes, Volumes, Timings
 29: Parker Street/Powder Mill Road & Waltham Street

129 Parker Street
 2023 Build Weekday PM Peak Hour

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	227	158	389	11	233	25	380	206	13	10	232	330
Future Volume (vph)	227	158	389	11	233	25	380	206	13	10	232	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	15	12	9	9	12	12	11	11
Grade (%)		3%			-4%			-6%			0%	
Storage Length (ft)	0		90	0		0	60		0	0		105
Storage Lanes	0		1	0		0	0		0	0		1
Taper Length (ft)	25			25			60			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00			1.00				0.97
Frt			0.850		0.987			0.997				0.850
Flt Protected		0.971			0.998			0.969			0.998	
Satd. Flow (prot)	0	1919	1575	0	2072	0	0	1684	0	0	1833	1561
Flt Permitted		0.344			0.978			0.344			0.969	
Satd. Flow (perm)	0	680	1521	0	2030	0	0	598	0	0	1780	1509
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			288		5			1				336
Link Speed (mph)		25			25			30			25	
Link Distance (ft)		445			628			1101			523	
Travel Time (s)		12.1			17.1			25.0			14.3	
Confl. Peds. (#/hr)			11			6			8			5
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%
Adj. Flow (vph)	232	161	397	11	238	26	388	210	13	10	237	337
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	393	397	0	275	0	0	611	0	0	247	337
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	1	6			2		7	4			8	
Permitted Phases	6		6	2			4			8		8
Detector Phase	1	6	6	2	2		7	4		8	8	8
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	15.0	15.0		7.0	15.0		15.0	15.0	15.0
Minimum Split (s)	7.0	19.0	19.0	19.0	19.0		11.0	19.0		19.0	19.0	19.0
Total Split (s)	18.0	39.0	39.0	21.0	21.0		13.0	34.0		21.0	21.0	21.0
Total Split (%)	19.4%	41.9%	41.9%	22.6%	22.6%		14.0%	36.6%		22.6%	22.6%	22.6%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0			0.0			0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0			4.0			4.0	4.0
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max		Max	Max		Max	Max	Max
Act Effct Green (s)		35.5	35.5		17.2			30.4			17.2	17.2
Actuated g/C Ratio		0.44	0.44		0.21			0.38			0.21	0.21
v/c Ratio		0.76	0.48		0.63			1.76			0.65	0.58
Control Delay		31.1	7.8		38.2			374.9			41.0	8.4
Queue Delay		0.0	0.1		0.0			0.0			0.0	0.0
Total Delay		31.1	7.9		38.2			374.9			41.0	8.4

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	22%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	

Synchro 9: Lanes, Volumes, Timings
 29: Parker Street/Powder Mill Road & Waltham Street

129 Parker Street
 2023 Build Weekday PM Peak Hour

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
LOS		C	A		D			F			D	A
Approach Delay		19.4			38.2			374.9			22.2	
Approach LOS		B			D			F			C	
Queue Length 50th (ft)		110	26		108			-410			100	0
Queue Length 95th (ft)		#291	123		#262			#790			#253	77
Internal Link Dist (ft)		365			548			1021			443	
Turn Bay Length (ft)			90									105
Base Capacity (vph)		515	828		436			347			378	585
Starvation Cap Reductn		0	26		0			0			0	0
Spillback Cap Reductn		0	0		0			0			0	0
Storage Cap Reductn		0	0		0			0			0	0
Reduced v/c Ratio		0.76	0.50		0.63			1.76			0.65	0.58

Intersection Summary

Area Type: Other
 Cycle Length: 93
 Actuated Cycle Length: 81
 Natural Cycle: 150
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.76
 Intersection Signal Delay: 118.5
 Intersection LOS: F
 Intersection Capacity Utilization 94.1%
 ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 29: Parker Street/Powder Mill Road & Waltham Street

Ø1 18 s	Ø2 21 s	Ø4 34 s	Ø9 20 s
Ø6 39 s	Ø7 13 s	Ø8 21 s	

Lane Group	Ø9
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Intersection

Int Delay, s/veh 0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	0	4	1	1	14	1	929	1	10	985	14
Future Vol, veh/h	8	0	4	1	1	14	1	929	1	10	985	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	0	0	0	0	0	0	2	2	2	1	1	1
Mvmt Flow	8	0	4	1	1	14	1	938	1	10	995	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1970	1963	1002	1965	1970	939	1009	0	0	939	0	0
Stage 1	1022	1022	-	941	941	-	-	-	-	-	-	-
Stage 2	948	941	-	1024	1029	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.12	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.218	-	-	2.209	-	-
Pot Cap-1 Maneuver	47	64	297	48	63	323	687	-	-	734	-	-
Stage 1	287	316	-	319	345	-	-	-	-	-	-	-
Stage 2	316	345	-	286	314	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	43	62	297	46	61	323	687	-	-	734	-	-
Mov Cap-2 Maneuver	43	62	-	46	61	-	-	-	-	-	-	-
Stage 1	286	306	-	318	344	-	-	-	-	-	-	-
Stage 2	300	344	-	273	304	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	79.6	25	0	0.1
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	687	-	-	60	196	734	-
HCM Lane V/C Ratio	0.001	-	-	0.202	0.082	0.014	-
HCM Control Delay (s)	10.2	0	-	79.6	25	10	0
HCM Lane LOS	B	A	-	F	D	A	A
HCM 95th %tile Q(veh)	0	-	-	0.7	0.3	0	-

Intersection

Int Delay, s/veh 0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	0	0	4	0	927	1	3	865	122
Future Vol, veh/h	0	0	0	0	0	4	0	927	1	3	865	122
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	99	99	99	99	99	99	99	99	99	99	99	99
Heavy Vehicles, %	0	0	0	0	0	0	2	2	2	1	1	1
Mvmt Flow	0	0	0	0	0	4	0	936	1	3	874	123

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1880	1878	935	1878	1940	937	997	0	0	937	0	0
Stage 1	941	941	-	937	937	-	-	-	-	-	-	-
Stage 2	939	937	-	941	1003	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.12	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.218	-	-	2.209	-	-
Pot Cap-1 Maneuver	55	72	325	55	66	324	694	-	-	735	-	-
Stage 1	319	345	-	320	346	-	-	-	-	-	-	-
Stage 2	320	346	-	319	322	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	54	71	325	55	65	324	694	-	-	735	-	-
Mov Cap-2 Maneuver	54	71	-	55	65	-	-	-	-	-	-	-
Stage 1	319	342	-	320	346	-	-	-	-	-	-	-
Stage 2	316	346	-	316	319	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	16.3	0	0
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	694	-	-	-	324	735	-
HCM Lane V/C Ratio	-	-	-	-	0.012	0.004	-
HCM Control Delay (s)	0	-	-	0	16.3	9.9	0
HCM Lane LOS	A	-	-	A	C	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0	0	-

Intersection

Int Delay, s/veh 0.3

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Vol, veh/h	630	13	3	631	14	9
Future Vol, veh/h	630	13	3	631	14	9
Conflicting Peds, #/hr	0	0	0	0	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	1	1	0	0
Mvmt Flow	656	14	3	657	15	9

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	670
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.11
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.209
Pot Cap-1 Maneuver	-	-	925
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	924
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0	18.9
HCM LOS			C

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	924	-	283
HCM Lane V/C Ratio	-	-	0.003	-	0.085
HCM Control Delay (s)	-	-	8.9	0	18.9
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0	-	0.3

Intersection

Int Delay, s/veh 0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			Y	Y	
Traffic Vol, veh/h	15	10	6	628	630	15
Future Vol, veh/h	15	10	6	628	630	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	2	2	1	1
Mvmt Flow	16	10	6	654	656	16

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1331	664	672 0
Stage 1	664	-	- -
Stage 2	667	-	- -
Critical Hdwy	6.4	6.2	4.12 -
Critical Hdwy Stg 1	5.4	-	- -
Critical Hdwy Stg 2	5.4	-	- -
Follow-up Hdwy	3.5	3.3	2.218 -
Pot Cap-1 Maneuver	172	464	919 -
Stage 1	516	-	- -
Stage 2	514	-	- -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	170	464	919 -
Mov Cap-2 Maneuver	170	-	- -
Stage 1	516	-	- -
Stage 2	509	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	22.8	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	919	-	228	-	-
HCM Lane V/C Ratio	0.007	-	0.114	-	-
HCM Control Delay (s)	8.9	0	22.8	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Intersection

Int Delay, s/veh 0.8

Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	28	360	411	3	15	10
Future Vol, veh/h	28	360	411	3	15	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	1	1	2	2	0	0
Mvmt Flow	32	409	467	3	17	11

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	470	0	469
Stage 1	-	-	469
Stage 2	-	-	473
Critical Hdwy	4.11	-	6.2
Critical Hdwy Stg 1	-	-	5.4
Critical Hdwy Stg 2	-	-	5.4
Follow-up Hdwy	2.209	-	3.3
Pot Cap-1 Maneuver	1097	-	598
Stage 1	-	-	634
Stage 2	-	-	631
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1097	-	598
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	634
Stage 2	-	-	607

Approach	EB	WB	SW
HCM Control Delay, s	0.6	0	15.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBRSWLn1
Capacity (veh/h)	1097	-	-	359
HCM Lane V/C Ratio	0.029	-	-	0.079
HCM Control Delay (s)	8.4	0	-	15.9
HCM Lane LOS	A	A	-	C
HCM 95th %tile Q(veh)	0.1	-	-	0.3

Intersection

Int Delay, s/veh 1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	↔
Traffic Vol, veh/h	5	386	361	56	60	6
Future Vol, veh/h	5	386	361	56	60	6
Conflicting Peds, #/hr	1	0	0	1	4	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	37
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	0	0
Mvmt Flow	6	434	406	63	67	7

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	470	0	438
Stage 1	-	-	438
Stage 2	-	-	449
Critical Hdwy	4.12	-	6.2
Critical Hdwy Stg 1	-	-	6.1
Critical Hdwy Stg 2	-	-	6.1
Follow-up Hdwy	2.218	-	3.3
Pot Cap-1 Maneuver	1092	-	623
Stage 1	-	-	601
Stage 2	-	-	593
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1092	-	622
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	596
Stage 2	-	-	587

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	22.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1092	-	-	-	264	622
HCM Lane V/C Ratio	0.005	-	-	-	0.255	0.011
HCM Control Delay (s)	8.3	0	-	-	23.2	10.9
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0	-	-	-	1	0

Intersection

Int Delay, s/veh 3.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			4	4	
Traffic Vol, veh/h	18	89	107	606	672	55
Future Vol, veh/h	18	89	107	606	672	55
Conflicting Peds, #/hr	0	0	4	0	0	3
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	1	1	1	1
Mvmt Flow	20	99	119	673	747	61

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1692	781	812 0
Stage 1	781	-	- -
Stage 2	911	-	- -
Critical Hdwy	6.42	6.22	4.11 -
Critical Hdwy Stg 1	5.42	-	- -
Critical Hdwy Stg 2	5.42	-	- -
Follow-up Hdwy	3.518	3.318	2.209 -
Pot Cap-1 Maneuver	102	395	819 -
Stage 1	451	-	- -
Stage 2	392	-	- -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	78	393	819 -
Mov Cap-2 Maneuver	78	-	- -
Stage 1	449	-	- -
Stage 2	300	-	- -

Approach	EB	NB	SB
HCM Control Delay, s	35.3	1.5	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	819	-	234	-	-
HCM Lane V/C Ratio	0.145	-	0.508	-	-
HCM Control Delay (s)	10.1	0	35.3	-	-
HCM Lane LOS	B	A	E	-	-
HCM 95th %tile Q(veh)	0.5	-	2.6	-	-

Intersection												
Int Delay, s/veh	38.5											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	28	576	45	8	552	50	75	59	3	32	76	20
Future Vol, veh/h	28	576	45	8	552	50	75	59	3	32	76	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	2	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	1	1	1	0	0	0	1	1	1	1	1	1
Mvmt Flow	29	588	46	8	563	51	77	60	3	33	78	20

Major/Minor	Major1			Major2			Minor2			Minor1		
Conflicting Flow All	614	0	0	634	0	0	1322	1296	591	1307	1299	611
Stage 1	-	-	-	-	-	-	605	605	-	668	668	-
Stage 2	-	-	-	-	-	-	717	691	-	639	631	-
Critical Hdwy	4.11	-	-	4.1	-	-	7.11	6.51	6.21	7.11	6.51	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.11	5.51	-
Follow-up Hdwy	2.209	-	-	2.2	-	-	3.509	4.009	3.309	3.509	4.009	3.309
Pot Cap-1 Maneuver	970	-	-	959	-	-	134	163	509	137	162	496
Stage 1	-	-	-	-	-	-	486	489	-	449	458	-
Stage 2	-	-	-	-	-	-	422	447	-	466	476	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	968	-	-	959	-	-	~ 74	153	508	90	152	496
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 74	153	-	90	152	-
Stage 1	-	-	-	-	-	-	463	483	-	428	436	-
Stage 2	-	-	-	-	-	-	317	426	-	399	470	-

Approach	NB	SB	NE	SW
HCM Control Delay, s	0.4	0.1	\$ 318.8	114.3
HCM LOS			F	F

Minor Lane/Major Mvmt	NELn1	NBL	NBT	NBR	SBL	SBT	SBR	SWLn1
Capacity (veh/h)	98	968	-	-	959	-	-	143
HCM Lane V/C Ratio	1.426	0.03	-	-	0.009	-	-	0.913
HCM Control Delay (s)	\$ 318.8	8.8	0	-	8.8	0	-	114.3
HCM Lane LOS	F	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	10.3	0.1	-	-	0	-	-	6.3

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Synchro 9: Lanes, Volumes, Timings
52: Parker Street & Primary Site Drive

129 Parker Street
2023 Build Saturday Midday Peak Hour

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	552	235	254	375	391	474
Future Volume (vph)	552	235	254	375	391	474
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			100
Storage Lanes	1	1	1			1
Taper Length (ft)	25		50			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98				0.98
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1770	1583	1770	1863	1863	1583
Flt Permitted	0.950		0.196			
Satd. Flow (perm)	1770	1548	365	1863	1863	1549
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		183				130
Link Speed (mph)	30			35	35	
Link Distance (ft)	449			80	216	
Travel Time (s)	10.2			1.6	4.2	
Confl. Peds. (#/hr)		2				2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	600	255	276	408	425	515
Shared Lane Traffic (%)						
Lane Group Flow (vph)	600	255	276	408	425	515
Turn Type	Prot	pm+ov	pm+pt	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4	2			6
Detector Phase	4	5	5	2	6	4
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0	5.0
Minimum Split (s)	13.0	11.0	11.0	20.0	20.0	13.0
Total Split (s)	29.0	11.0	11.0	36.0	25.0	29.0
Total Split (%)	44.6%	16.9%	16.9%	55.4%	38.5%	44.6%
Yellow Time (s)	3.0	3.0	3.0	3.5	3.5	3.0
All-Red Time (s)	3.0	2.0	2.0	1.0	1.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	5.0	5.0	4.5	4.5	6.0
Lead/Lag		Lead	Lead		Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	
Recall Mode	None	None	None	None	None	None
Act Effect Green (s)	22.6	29.7	28.3	28.8	17.8	38.9
Actuated g/C Ratio	0.36	0.48	0.46	0.46	0.29	0.63
v/c Ratio	0.93	0.30	0.91	0.47	0.80	0.50
Control Delay	44.4	3.7	50.6	13.5	33.0	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.4	3.7	50.6	13.5	33.0	4.5
LOS	D	A	D	B	C	A
Approach Delay	32.3			28.5	17.4	
Approach LOS	C			C	B	

Synchro 9: Lanes, Volumes, Timings
 52: Parker Street & Primary Site Drive

129 Parker Street
 2023 Build Saturday Midday Peak Hour

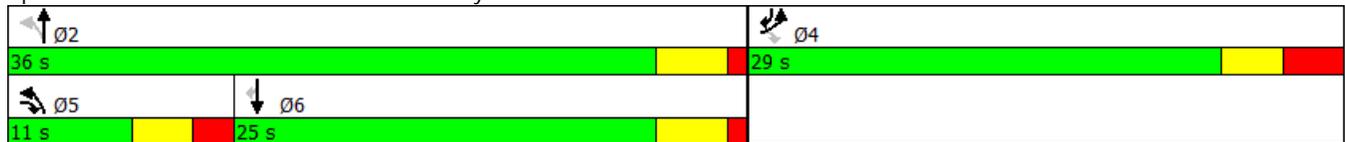


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	222	12	64	100	147	39
Queue Length 95th (ft)	#421	43	#174	165	#267	72
Internal Link Dist (ft)	369			1	136	
Turn Bay Length (ft)			100			100
Base Capacity (vph)	659	839	303	950	618	1043
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.30	0.91	0.43	0.69	0.49

Intersection Summary

Area Type: Other
 Cycle Length: 65
 Actuated Cycle Length: 62
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 25.6
 Intersection Capacity Utilization 78.1%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service D
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 52: Parker Street & Primary Site Drive



Synchro 9: Lanes, Volumes, Timings
 1: Parker Street & Great Road

129 Parker Street
 2023 Build Saturday Midday Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	128	254	125	140	59	233	601	117	29	630	29
Future Volume (vph)	41	128	254	125	140	59	233	601	117	29	630	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	11	11	12	12	9	12	13	10	12	16
Storage Length (ft)	80		45	90		0	95		80	80		75
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	30			40			45			40		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.96						0.98			0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1652	1863	1531	1711	1863	1583	1593	1863	1636	1668	1881	1812
Flt Permitted	0.490			0.670			0.080			0.363		
Satd. Flow (perm)	852	1863	1476	1206	1863	1583	134	1863	1602	637	1881	1770
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			52			124			124			124
Link Speed (mph)		20			20			20			30	
Link Distance (ft)		545			401			975			570	
Travel Time (s)		18.6			13.7			33.2			13.0	
Confl. Peds. (#/hr)			4									5
Confl. Bikes (#/hr)									3			2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Adj. Flow (vph)	44	136	270	133	149	63	248	639	124	31	670	31
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	136	270	133	149	63	248	639	124	31	670	31
Turn Type	pm+pt	NA	pm+ov	Perm	NA	Free	pm+pt	NA	Free	Perm	NA	Free
Protected Phases	5	2	7		6		7	4			8	
Permitted Phases	2		2	6		Free	4		Free	8		Free
Detector Phase	5	2	7	6	6		7	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	24.0	10.0	10.0	10.0		10.0	22.0		22.0	22.0	
Total Split (s)	30.0	70.0	30.0	40.0	40.0		30.0	80.0		50.0	50.0	
Total Split (%)	20.0%	46.7%	20.0%	26.7%	26.7%		20.0%	53.3%		33.3%	33.3%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead		Lead	Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	Max	Max	Max	Max	Max		Max	Max		Max	Max	
Act Effct Green (s)	65.0	65.0	90.0	35.0	35.0	150.0	75.0	75.0	150.0	45.0	45.0	150.0
Actuated g/C Ratio	0.43	0.43	0.60	0.23	0.23	1.00	0.50	0.50	1.00	0.30	0.30	1.00
v/c Ratio	0.09	0.17	0.30	0.47	0.34	0.04	0.80	0.69	0.08	0.16	1.19	0.02
Control Delay	25.4	26.7	10.7	56.1	50.6	0.1	59.5	33.3	0.1	41.6	146.4	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.4	26.7	10.7	56.1	50.6	0.1	59.5	33.3	0.1	41.6	146.4	0.0

Synchro 9: Lanes, Volumes, Timings
 1: Parker Street & Great Road

129 Parker Street
 2023 Build Saturday Midday Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	C	C	B	E	D	A	E	C	A	D	F	A
Approach Delay		17.0			43.5			35.7			135.8	
Approach LOS		B			D			D			F	
Queue Length 50th (ft)	25	80	88	113	123	0	188	466	0	22	-787	0
Queue Length 95th (ft)	50	128	135	185	191	0	#325	614	0	52	#1032	0
Internal Link Dist (ft)		465			321			895			490	
Turn Bay Length (ft)	80		45	90			95		80	80		75
Base Capacity (vph)	502	807	915	281	434	1583	310	931	1602	191	564	1770
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.17	0.30	0.47	0.34	0.04	0.80	0.69	0.08	0.16	1.19	0.02

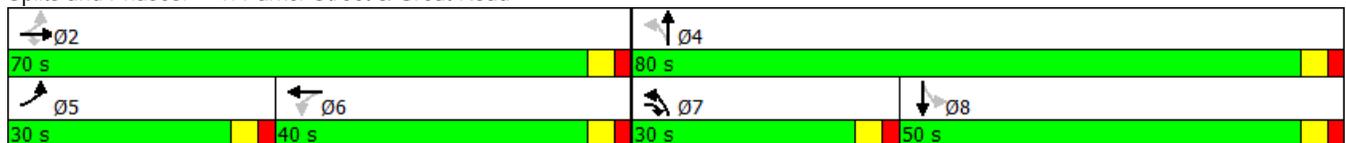
Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 150
 Natural Cycle: 80
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.19
 Intersection Signal Delay: 62.3
 Intersection Capacity Utilization 85.5%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service E

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

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

Splits and Phases: 1: Parker Street & Great Road



Synchro 9: Lanes, Volumes, Timings
 26: Parking Lot/Main Street & Great Road

129 Parker Street
 2023 Build Saturday Midday Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	187	368	0	0	369	16	2	1	2	5	0	175
Future Volume (vph)	187	368	0	0	369	16	2	1	2	5	0	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	10	10	12	16	16	12	9	12	9	9	11
Storage Length (ft)	112		0	0		31	0		0	95		95
Storage Lanes	1		0	0		1	0		0	1		0
Taper Length (ft)	160			25			25			60		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt						0.850		0.946				0.850
Flt Protected	0.950							0.980		0.950		
Satd. Flow (prot)	1770	1739	0	0	2091	1777	0	1585	0	1624	0	1561
Flt Permitted	0.950							0.980		0.950		
Satd. Flow (perm)	1770	1739	0	0	2091	1777	0	1585	0	1624	0	1561
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						101		2				182
Link Speed (mph)		35			35			15			35	
Link Distance (ft)		456			740			116			420	
Travel Time (s)		8.9			14.4			5.3			8.2	
Confl. Peds. (#/hr)												1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	195	383	0	0	384	17	2	1	2	5	0	182
Shared Lane Traffic (%)												
Lane Group Flow (vph)	195	383	0	0	384	17	0	5	0	5	0	182
Turn Type	Prot	NA			NA	Free	Split	NA		Prot		pt+ov
Protected Phases	4	1 4			1		2	2		3		3 4
Permitted Phases						Free				3		
Detector Phase	4	1 4			1		2	2		3		3 4
Switch Phase												
Minimum Initial (s)	10.0				8.0		5.0	5.0		8.0		
Minimum Split (s)	14.0				12.0		9.0	9.0		26.0		
Total Split (s)	49.0				54.0		12.0	12.0		26.0		
Total Split (%)	34.8%				38.3%		8.5%	8.5%		18.4%		
Yellow Time (s)	3.0				3.0		3.0	3.0		3.0		
All-Red Time (s)	1.0				1.0		1.0	1.0		1.0		
Lost Time Adjust (s)	0.0				0.0		0.0	0.0		0.0		
Total Lost Time (s)	4.0				4.0		4.0	4.0		4.0		
Lead/Lag	Lag				Lead		Lag	Lag		Lead		
Lead-Lag Optimize?	Yes						Yes	Yes		Yes		
Recall Mode	None				None		None	None		None		
Act Effect Green (s)	15.5	38.9			18.9	59.4		5.6		10.5		30.5
Actuated g/C Ratio	0.26	0.65			0.32	1.00		0.09		0.18		0.51
v/c Ratio	0.42	0.34			0.58	0.01		0.03		0.02		0.20
Control Delay	24.6	6.3			22.5	0.0		31.8		27.0		2.7
Queue Delay	0.0	0.0			0.0	0.0		0.0		0.0		0.0
Total Delay	24.6	6.3			22.5	0.0		31.8		27.0		2.7
LOS	C	A			C	A		C		C		A

Synchro 9: Lanes, Volumes, Timings
 26: Parking Lot/Main Street & Great Road

129 Parker Street
 2023 Build Saturday Midday Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		12.5			21.6			31.8			3.3	
Approach LOS		B			C			C			A	
Queue Length 50th (ft)	47	34			91	0		1		1		0
Queue Length 95th (ft)	177	171			303	0		14		13		34
Internal Link Dist (ft)		376			660			36			340	
Turn Bay Length (ft)	112					31				95		95
Base Capacity (vph)	1454	1661			1816	1777		238		668		1473
Starvation Cap Reductn	0	0			0	0		0		0		0
Spillback Cap Reductn	0	0			0	0		0		0		0
Storage Cap Reductn	0	0			0	0		0		0		0
Reduced v/c Ratio	0.13	0.23			0.21	0.01		0.02		0.01		0.12

Intersection Summary

Area Type:	Other
Cycle Length:	141
Actuated Cycle Length:	59.4
Natural Cycle:	65
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.58
Intersection Signal Delay:	14.2
Intersection Capacity Utilization	44.8%
Analysis Period (min)	15
Intersection LOS:	B
ICU Level of Service	A

Splits and Phases: 26: Parking Lot/Main Street & Great Road

Ø1	Ø2	Ø3	Ø4
54 s	12 s	26 s	49 s

Synchro 9: Lanes, Volumes, Timings
 29: Parker Street/Powder Mill Road & Waltham Street

129 Parker Street
 2023 Build Saturday Midday Peak Hour

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	284	133	406	7	117	35	374	185	15	28	178	259
Future Volume (vph)	284	133	406	7	117	35	374	185	15	28	178	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	15	12	9	9	12	12	11	11
Grade (%)		3%			-4%			-6%			0%	
Storage Length (ft)	0		90	0		0	60		0	0		105
Storage Lanes	0		1	0		0	0		0	0		1
Taper Length (ft)	25			25			60			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		0.99			1.00				0.97
Frt			0.850		0.970			0.996				0.850
Flt Protected		0.967			0.998			0.968			0.993	
Satd. Flow (prot)	0	1911	1575	0	2047	0	0	1697	0	0	1806	1546
Flt Permitted		0.483			0.978			0.391			0.882	
Satd. Flow (perm)	0	955	1523	0	2006	0	0	685	0	0	1604	1498
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			278		13			2				276
Link Speed (mph)		25			25			30			25	
Link Distance (ft)		445			628			1101			523	
Travel Time (s)		12.1			17.1			25.0			14.3	
Confl. Peds. (#/hr)			10			3			7			4
Confl. Bikes (#/hr)						4						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	0%	0%	0%	1%	1%	1%
Adj. Flow (vph)	302	141	432	7	124	37	398	197	16	30	189	276
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	443	432	0	168	0	0	611	0	0	219	276
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	1	6			2		7	4			8	
Permitted Phases	6		6	2			4			8		8
Detector Phase	1	6	6	2	2		7	4		8	8	8
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	15.0	15.0		7.0	15.0		15.0	15.0	15.0
Minimum Split (s)	7.0	19.0	19.0	19.0	19.0		11.0	19.0		19.0	19.0	19.0
Total Split (s)	18.0	39.0	39.0	21.0	21.0		13.0	34.0		21.0	21.0	21.0
Total Split (%)	19.4%	41.9%	41.9%	22.6%	22.6%		14.0%	36.6%		22.6%	22.6%	22.6%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0			0.0			0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0			4.0			4.0	4.0
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max		Max	Max		Max	Max	Max
Act Effct Green (s)		35.5	35.5		17.2			30.4			17.2	17.2
Actuated g/C Ratio		0.44	0.44		0.21			0.38			0.21	0.21
v/c Ratio		0.76	0.52		0.38			1.64			0.64	0.51
Control Delay		30.0	9.5		30.4			322.8			41.6	8.2
Queue Delay		1.8	0.1		0.0			0.0			0.0	0.0

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	22%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Synchro 9: Lanes, Volumes, Timings
 29: Parker Street/Powder Mill Road & Waltham Street

129 Parker Street
 2023 Build Saturday Midday Peak Hour

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Total Delay		31.7	9.6		30.4			322.8			41.6	8.2
LOS		C	A		C			F			D	A
Approach Delay		20.8			30.4			322.8			23.0	
Approach LOS		C			C			F			C	
Queue Length 50th (ft)		128	38		58			-396			88	0
Queue Length 95th (ft)		#384	158		145			#776			#231	67
Internal Link Dist (ft)		365			548			1021			443	
Turn Bay Length (ft)			90									105
Base Capacity (vph)		586	823		437			372			341	536
Starvation Cap Reductn		50	25		0			0			0	0
Spillback Cap Reductn		0	0		0			0			0	0
Storage Cap Reductn		0	0		0			0			0	0
Reduced v/c Ratio		0.83	0.54		0.38			1.64			0.64	0.51

Intersection Summary

Area Type: Other
 Cycle Length: 93
 Actuated Cycle Length: 81
 Natural Cycle: 150
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.64
 Intersection Signal Delay: 107.9
 Intersection Capacity Utilization 92.4%
 Analysis Period (min) 15
 Intersection LOS: F
 ICU Level of Service F

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

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

Splits and Phases: 29: Parker Street/Powder Mill Road & Waltham Street

Ø1 18 s	Ø2 21 s	Ø4 34 s	Ø9 20 s
Ø6 39 s	Ø7 13 s	Ø8 21 s	

Lane Group	Ø9
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	



2023 BUILD WITH MITIGATION CONDITIONS



Synchro 9: Lanes, Volumes, Timings
1: Parker Street & Great Road

129 Parker Street
2023 Build with Mitigation Weekday AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	436	224	53	249	45	170	398	49	33	549	119
Future Volume (vph)	49	436	224	53	249	45	170	398	49	33	549	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	11	11	12	12	9	12	13	10	12	16
Storage Length (ft)	80		45	90		0	95		80	80		75
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	30			40			45			40		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98						0.98			0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1652	1863	1531	1711	1863	1583	1593	1863	1636	1652	1863	1794
Flt Permitted	0.304			0.448			0.161			0.513		
Satd. Flow (perm)	529	1863	1498	807	1863	1583	270	1863	1603	892	1863	1758
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			104			309			309			309
Link Speed (mph)		20			20			20			30	
Link Distance (ft)		545			401			975			570	
Travel Time (s)		18.6			13.7			33.2			13.0	
Confl. Peds. (#/hr)			1									1
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	53	469	241	57	268	48	183	428	53	35	590	128
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	469	241	57	268	48	183	428	53	35	590	128
Turn Type	pm+pt	NA	pm+ov	Perm	NA	Free	pm+pt	NA	Free	Perm	NA	Free
Protected Phases	5	2	7		6		7	4			8	
Permitted Phases	2		2	6		Free	4		Free	8		Free
Detector Phase	5	2	7	6	6		7	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	24.0	10.0	10.0	10.0		10.0	22.0		22.0	22.0	
Total Split (s)	10.0	25.0	10.0	15.0	15.0		10.0	35.0		25.0	25.0	
Total Split (%)	16.7%	41.7%	16.7%	25.0%	25.0%		16.7%	58.3%		41.7%	41.7%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead		Lead	Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	None	None	None	None	None		None	None		None	None	
Act Effct Green (s)	17.8	17.8	22.8	12.1	12.1	57.6	29.8	29.8	57.6	19.7	19.7	57.6
Actuated g/C Ratio	0.31	0.31	0.40	0.21	0.21	1.00	0.52	0.52	1.00	0.34	0.34	1.00
v/c Ratio	0.20	0.81	0.37	0.34	0.69	0.03	0.72	0.44	0.03	0.11	0.92	0.07
Control Delay	15.9	31.6	7.0	28.5	36.2	0.0	28.7	11.1	0.0	15.2	43.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.9	31.6	7.0	28.5	36.2	0.0	28.7	11.1	0.0	15.2	43.6	0.1
LOS	B	C	A	C	D	A	C	B	A	B	D	A

Synchro 9: Lanes, Volumes, Timings
 1: Parker Street & Great Road

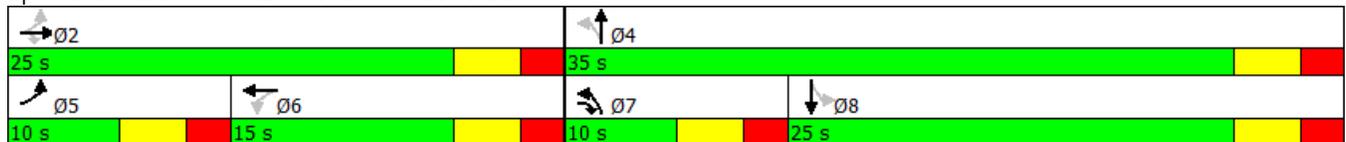
129 Parker Street
 2023 Build with Mitigation Weekday AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		22.8			30.3			15.1			34.9	
Approach LOS		C			C			B			C	
Queue Length 50th (ft)	13	148	25	19	96	0	35	93	0	9	204	0
Queue Length 95th (ft)	34	#281	60	#53	#213	0	#98	156	0	26	#389	0
Internal Link Dist (ft)		465			321			895			490	
Turn Bay Length (ft)	80		45	90			95		80	80		75
Base Capacity (vph)	261	649	659	168	389	1583	254	973	1603	310	649	1758
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.72	0.37	0.34	0.69	0.03	0.72	0.44	0.03	0.11	0.91	0.07

Intersection Summary

Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 57.6
 Natural Cycle: 65
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 25.4
 Intersection LOS: C
 Intersection Capacity Utilization 82.1%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Parker Street & Great Road



Synchro 9: Lanes, Volumes, Timings
 29: Parker Street/Powder Mill Road & Waltham Street

129 Parker Street
 2023 Build with Mitigation Weekday AM Peak Hour

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	283	281	396	17	109	20	296	158	13	10	154	155
Future Volume (vph)	283	281	396	17	109	20	296	158	13	10	154	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	15	12	9	9	12	12	11	11
Grade (%)		3%			-4%			-6%			0%	
Storage Length (ft)	0		90	0		0	60		0	0		105
Storage Lanes	0		1	0		0	0		0	0		1
Taper Length (ft)	25			25			60			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98		1.00							0.97
Frt			0.850		0.981			0.996				0.850
Flt Protected		0.976			0.994			0.969			0.997	
Satd. Flow (prot)	0	1910	1560	0	2031	0	0	1667	0	0	1795	1531
Flt Permitted		0.775			0.926			0.703			0.973	
Satd. Flow (perm)	0	1517	1524	0	1893	0	0	1209	0	0	1752	1488
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			187		7			2				160
Link Speed (mph)		25			25			30			25	
Link Distance (ft)		445			628			1101			523	
Travel Time (s)		12.1			17.1			25.0			14.3	
Confl. Peds. (#/hr)			2			1						1
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	292	290	408	18	112	21	305	163	13	10	159	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	582	408	0	151	0	0	481	0	0	169	160
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	1	6			2		7	4			8	
Permitted Phases	6		6	2			4			8		8
Detector Phase	1	6	6	2	2		7	4		8	8	8
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.0	19.0	19.0	15.0	15.0		11.0	19.0		9.0	9.0	9.0
Total Split (s)	18.0	38.0	38.0	20.0	20.0		23.0	38.0		15.0	15.0	15.0
Total Split (%)	18.8%	39.6%	39.6%	20.8%	20.8%		24.0%	39.6%		15.6%	15.6%	15.6%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0			0.0			0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0			4.0			4.0	4.0
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	None	None	None	None	None		None	None		None	None	None
Act Effect Green (s)		34.0	34.0		34.0			34.0			34.0	34.0
Actuated g/C Ratio		0.45	0.45		0.45			0.45			0.45	0.45
v/c Ratio		0.86	0.52		0.18			0.89			0.22	0.21
Control Delay		34.0	10.5		12.7			41.0			13.8	3.1
Queue Delay		0.4	0.0		0.0			0.0			0.0	0.0
Total Delay		34.4	10.6		12.7			41.0			13.8	3.1

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	21%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	

Synchro 9: Lanes, Volumes, Timings
 29: Parker Street/Powder Mill Road & Waltham Street

129 Parker Street
 2023 Build with Mitigation Weekday AM Peak Hour

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
LOS		C	B		B			D			B	A
Approach Delay		24.6			12.7			41.0			8.6	
Approach LOS		C			B			D			A	
Queue Length 50th (ft)		236	65		39			199			47	0
Queue Length 95th (ft)		#431	142		74			#388			85	31
Internal Link Dist (ft)		365			548			1021			443	
Turn Bay Length (ft)			90									105
Base Capacity (vph)		678	785		850			541			783	754
Starvation Cap Reductn		8	12		0			0			0	0
Spillback Cap Reductn		0	0		0			0			0	0
Storage Cap Reductn		0	0		0			0			0	0
Reduced v/c Ratio		0.87	0.53		0.18			0.89			0.22	0.21

Intersection Summary

Area Type: Other
 Cycle Length: 96
 Actuated Cycle Length: 76
 Natural Cycle: 120
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 25.0 Intersection LOS: C
 Intersection Capacity Utilization 85.8% ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 29: Parker Street/Powder Mill Road & Waltham Street

01	02	04	09
18 s	20 s	38 s	20 s
06	07	08	
38 s	23 s	15 s	

Lane Group	Ø9
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Synchro 9: Lanes, Volumes, Timings
1: Parker Street & Great Road

129 Parker Street
2023 Build with Mitigation Weekday PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	186	216	86	242	43	305	568	100	60	578	70
Future Volume (vph)	35	186	216	86	242	43	305	568	100	60	578	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	11	11	12	12	9	12	13	10	12	16
Storage Length (ft)	80		45	90		0	95		80	80		75
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	30			40			45			40		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98						0.98			0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1668	1881	1546	1728	1881	1599	1624	1900	1669	1668	1881	1812
Flt Permitted	0.232			0.634			0.125			0.439		
Satd. Flow (perm)	407	1881	1508	1153	1881	1599	214	1900	1635	771	1881	1775
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			99			232			232			232
Link Speed (mph)		20			20			20			30	
Link Distance (ft)		545			401			975			570	
Travel Time (s)		18.6			13.7			33.2			13.0	
Confl. Peds. (#/hr)			2									1
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Adj. Flow (vph)	37	196	227	91	255	45	321	598	105	63	608	74
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	196	227	91	255	45	321	598	105	63	608	74
Turn Type	pm+pt	NA	pm+ov	Perm	NA	Free	pm+pt	NA	Free	Perm	NA	Free
Protected Phases	5	2	7		6		7	4			8	
Permitted Phases	2		2	6		Free	4		Free	8		Free
Detector Phase	5	2	7	6	6		7	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	24.0	10.0	10.0	10.0		10.0	22.0		22.0	22.0	
Total Split (s)	10.0	28.0	20.0	18.0	18.0		20.0	52.0		32.0	32.0	
Total Split (%)	12.5%	35.0%	25.0%	22.5%	22.5%		25.0%	65.0%		40.0%	40.0%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead		Lead	Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	Max	Max	Max	Max	Max		Max	Max		Max	Max	
Act Effct Green (s)	23.0	23.0	38.0	13.0	13.0	80.0	47.0	47.0	80.0	27.0	27.0	80.0
Actuated g/C Ratio	0.29	0.29	0.48	0.16	0.16	1.00	0.59	0.59	1.00	0.34	0.34	1.00
v/c Ratio	0.19	0.36	0.29	0.49	0.84	0.03	0.82	0.54	0.06	0.24	0.96	0.04
Control Delay	23.3	25.1	6.7	40.3	57.5	0.0	36.3	12.2	0.1	22.3	55.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.3	25.1	6.7	40.3	57.5	0.0	36.3	12.2	0.1	22.3	55.1	0.0

Synchro 9: Lanes, Volumes, Timings
 1: Parker Street & Great Road

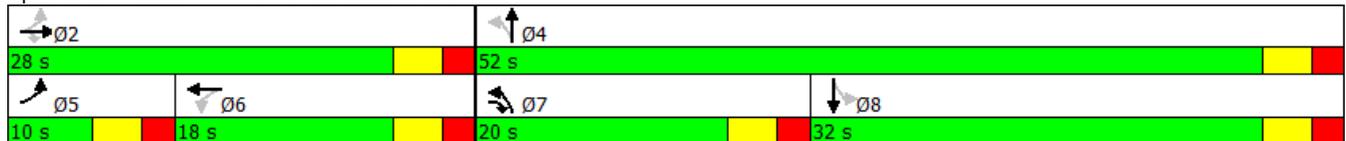
129 Parker Street
 2023 Build with Mitigation Weekday PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	C	C	A	D	E	A	D	B	A	C	E	A
Approach Delay		15.8			46.9			18.5			46.9	
Approach LOS		B			D			B			D	
Queue Length 50th (ft)	13	78	30	42	125	0	105	164	0	22	294	0
Queue Length 95th (ft)	35	134	66	88	#248	0	#242	249	0	54	#501	0
Internal Link Dist (ft)		465			321			895			490	
Turn Bay Length (ft)	80		45	90			95		80	80		75
Base Capacity (vph)	195	540	775	187	305	1599	390	1116	1635	260	634	1775
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.36	0.29	0.49	0.84	0.03	0.82	0.54	0.06	0.24	0.96	0.04

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Natural Cycle: 80
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 30.3
 Intersection LOS: C
 Intersection Capacity Utilization 84.6%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Parker Street & Great Road



Synchro 9: Lanes, Volumes, Timings
 29: Parker Street/Powder Mill Road & Waltham Street

129 Parker Street
 2023 Build with Mitigation Weekday PM Peak Hour

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	227	158	386	9	233	25	377	206	12	10	233	330
Future Volume (vph)	227	158	386	9	233	25	377	206	12	10	233	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	15	12	9	9	12	12	11	11
Grade (%)		3%			-4%			-6%			0%	
Storage Length (ft)	0		90	0		0	60		0	0		105
Storage Lanes	0		1	0		0	0		0	0		1
Taper Length (ft)	25			25			60			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.96		1.00			1.00				0.97
Frt			0.850		0.987			0.997				0.850
Flt Protected		0.971			0.998			0.969			0.998	
Satd. Flow (prot)	0	1919	1575	0	2071	0	0	1684	0	0	1833	1561
Flt Permitted		0.213			0.982			0.301			0.969	
Satd. Flow (perm)	0	421	1519	0	2038	0	0	523	0	0	1780	1519
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			169		3			1				262
Link Speed (mph)		25			25			30			25	
Link Distance (ft)		445			628			1101			523	
Travel Time (s)		12.1			17.1			25.0			14.3	
Confl. Peds. (#/hr)			11			6			8			5
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	0%	0%	0%
Adj. Flow (vph)	232	161	394	9	238	26	385	210	12	10	238	337
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	393	394	0	273	0	0	607	0	0	248	337
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	pm+ov
Protected Phases	1	6			2		7	4			8	1
Permitted Phases	6		6	2			4			8		8
Detector Phase	1	6	6	2	2		7	4		8	8	1
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	15.0	15.0		15.0	15.0		11.0	11.0	3.0
Minimum Split (s)	7.0	19.0	19.0	19.0	19.0		19.0	19.0		15.0	15.0	7.0
Total Split (s)	28.0	56.0	56.0	28.0	28.0		41.0	74.0		33.0	33.0	28.0
Total Split (%)	18.7%	37.3%	37.3%	18.7%	18.7%		27.3%	49.3%		22.0%	22.0%	18.7%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0			0.0			0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0			4.0			4.0	4.0
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	Max	Max	Max	None	None		Max	Max		None	None	Max
Act Effct Green (s)		52.3	52.3		24.1			70.3			29.1	53.3
Actuated g/C Ratio		0.37	0.37		0.17			0.50			0.20	0.38
v/c Ratio		0.96	0.59		0.78			1.08			0.68	0.46
Control Delay		74.4	25.1		73.5			90.5			64.2	7.5
Queue Delay		1.3	1.7		0.0			0.0			0.0	0.0
Total Delay		75.6	26.8		73.5			90.5			64.2	7.5

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	13%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	

Synchro 9: Lanes, Volumes, Timings
 29: Parker Street/Powder Mill Road & Waltham Street

129 Parker Street
 2023 Build with Mitigation Weekday PM Peak Hour

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
LOS		E	C		E			F			E	A
Approach Delay		51.2			73.5			90.5			31.5	
Approach LOS		D			E			F			C	
Queue Length 50th (ft)		~324	185		260			~574			230	37
Queue Length 95th (ft)		#540	304		#405			#817			333	98
Internal Link Dist (ft)		365			548			1021			443	
Turn Bay Length (ft)			90									105
Base Capacity (vph)		409	666		348			563			365	740
Starvation Cap Reductn		3	135		0			0			0	0
Spillback Cap Reductn		0	0		0			0			0	0
Storage Cap Reductn		0	0		0			0			0	0
Reduced v/c Ratio		0.97	0.74		0.78			1.08			0.68	0.46

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 142
 Natural Cycle: 150
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.08
 Intersection Signal Delay: 59.4
 Intersection Capacity Utilization 93.8%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service F

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

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

Splits and Phases: 29: Parker Street/Powder Mill Road & Waltham Street

01	02	04	09
28 s	28 s	74 s	20 s
06	07	08	
56 s	41 s	33 s	

Lane Group	Ø9
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Synchro 9: Lanes, Volumes, Timings
1: Parker Street & Great Road

129 Parker Street
2023 Build with Mitigation Saturday Midday Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	41	128	254	125	140	59	233	601	117	29	630	29
Future Volume (vph)	41	128	254	125	140	59	233	601	117	29	630	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	11	11	12	12	9	12	13	10	12	16
Storage Length (ft)	80		45	90		0	95		80	80		75
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	30			40			45			40		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97						0.98			0.98
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1652	1863	1531	1711	1863	1583	1593	1863	1636	1668	1881	1812
Flt Permitted	0.437			0.670			0.118			0.422		
Satd. Flow (perm)	760	1863	1487	1206	1863	1583	198	1863	1602	741	1881	1770
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			132			232			232			232
Link Speed (mph)		20			20			20			30	
Link Distance (ft)		545			401			975			570	
Travel Time (s)		18.6			13.7			33.2			13.0	
Confl. Peds. (#/hr)			4									5
Confl. Bikes (#/hr)									3			2
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Adj. Flow (vph)	44	136	270	133	149	63	248	639	124	31	670	31
Shared Lane Traffic (%)												
Lane Group Flow (vph)	44	136	270	133	149	63	248	639	124	31	670	31
Turn Type	pm+pt	NA	pm+ov	Perm	NA	Free	pm+pt	NA	Free	Perm	NA	Free
Protected Phases	5	2	7		6		7	4			8	
Permitted Phases	2		2	6		Free	4		Free	8		Free
Detector Phase	5	2	7	6	6		7	4		8	8	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	10.0	24.0	10.0	10.0	10.0		10.0	22.0		22.0	22.0	
Total Split (s)	10.0	27.0	14.0	17.0	17.0		14.0	53.0		39.0	39.0	
Total Split (%)	12.5%	33.8%	17.5%	21.3%	21.3%		17.5%	66.3%		48.8%	48.8%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead		Lead	Lag	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes			Yes	Yes							
Recall Mode	None	None	None	None	None		None	None		None	None	
Act Effct Green (s)	16.4	16.4	25.7	11.1	11.1	70.0	43.2	43.2	70.0	28.7	28.7	70.0
Actuated g/C Ratio	0.23	0.23	0.37	0.16	0.16	1.00	0.62	0.62	1.00	0.41	0.41	1.00
v/c Ratio	0.18	0.31	0.42	0.70	0.50	0.04	0.81	0.56	0.08	0.10	0.87	0.02
Control Delay	23.5	24.9	9.6	52.8	36.6	0.1	37.5	11.0	0.1	14.9	33.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.5	24.9	9.6	52.8	36.6	0.1	37.5	11.0	0.1	14.9	33.6	0.0

Synchro 9: Lanes, Volumes, Timings
 1: Parker Street & Great Road

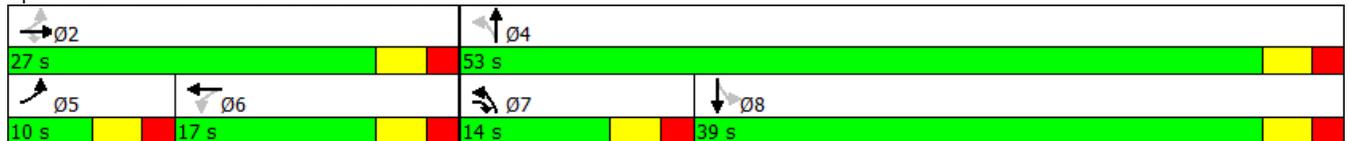
129 Parker Street
 2023 Build with Mitigation Saturday Midday Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	C	C	A	D	D	A	D	B	A	B	C	A
Approach Delay		15.6			36.2			16.1			31.4	
Approach LOS		B			D			B			C	
Queue Length 50th (ft)	16	53	40	64	70	0	69	176	0	9	289	0
Queue Length 95th (ft)	41	99	91	#152	128	0	#205	268	0	26	#486	0
Internal Link Dist (ft)		465			321			895			490	
Turn Bay Length (ft)	80		45	90			95		80	80		75
Base Capacity (vph)	243	608	636	214	332	1583	308	1328	1602	373	950	1770
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.22	0.42	0.62	0.45	0.04	0.81	0.48	0.08	0.08	0.71	0.02

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 70
 Natural Cycle: 80
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 23.2 Intersection LOS: C
 Intersection Capacity Utilization 77.5% ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Parker Street & Great Road



Synchro 9: Lanes, Volumes, Timings
 29: Parker Street/Powder Mill Road & Waltham Street

129 Parker Street
 2023 Build with Mitigation Saturday Midday Peak Hour

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	284	133	406	6	117	35	374	185	15	28	178	259
Future Volume (vph)	284	133	406	6	117	35	374	185	15	28	178	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	15	12	9	9	12	12	11	11
Grade (%)		3%			-4%			-6%			0%	
Storage Length (ft)	0		90	0		0	60		0	0		105
Storage Lanes	0		1	0		0	0		0	0		1
Taper Length (ft)	25			25			60			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		0.99			1.00				0.97
Frt			0.850		0.970			0.996				0.850
Flt Protected		0.967			0.998			0.968			0.993	
Satd. Flow (prot)	0	1911	1575	0	2045	0	0	1697	0	0	1806	1546
Flt Permitted		0.353			0.981			0.298			0.863	
Satd. Flow (perm)	0	698	1522	0	2011	0	0	522	0	0	1569	1497
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			166		8			1				189
Link Speed (mph)		25			25			30			25	
Link Distance (ft)		445			628			1101			523	
Travel Time (s)		12.1			17.1			25.0			14.3	
Confl. Peds. (#/hr)			10			3			7			4
Confl. Bikes (#/hr)						4						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	0%	0%	0%	1%	1%	1%
Adj. Flow (vph)	302	141	432	6	124	37	398	197	16	30	189	276
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	443	432	0	167	0	0	611	0	0	219	276
Turn Type	pm+pt	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	1	6			2		7	4			8	
Permitted Phases	6		6	2			4			8		8
Detector Phase	1	6	6	2	2		7	4		8	8	8
Switch Phase												
Minimum Initial (s)	3.0	15.0	15.0	15.0	15.0		7.0	15.0		11.0	11.0	11.0
Minimum Split (s)	7.0	19.0	19.0	19.0	19.0		11.0	19.0		15.0	15.0	15.0
Total Split (s)	31.0	57.0	57.0	26.0	26.0		44.0	73.0		29.0	29.0	29.0
Total Split (%)	20.7%	38.0%	38.0%	17.3%	17.3%		29.3%	48.7%		19.3%	19.3%	19.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)		0.0	0.0		0.0			0.0			0.0	0.0
Total Lost Time (s)		4.0	4.0		4.0			4.0			4.0	4.0
Lead/Lag	Lead			Lag	Lag		Lead			Lag	Lag	Lag
Lead-Lag Optimize?	Yes			Yes	Yes		Yes			Yes	Yes	Yes
Recall Mode	Max	Max	Max	None	None		Max	Max		None	None	None
Act Effect Green (s)		53.3	53.3		22.1			69.3			25.1	25.1
Actuated g/C Ratio		0.38	0.38		0.16			0.49			0.18	0.18
v/c Ratio		0.90	0.64		0.52			1.04			0.79	0.66
Control Delay		60.7	27.8		60.7			79.6			77.9	26.7
Queue Delay		11.1	2.6		0.0			0.0			0.0	0.0

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	13%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	None
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	

Synchro 9: Lanes, Volumes, Timings
 29: Parker Street/Powder Mill Road & Waltham Street

129 Parker Street
 2023 Build with Mitigation Saturday Midday Peak Hour

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Total Delay		71.8	30.5		60.7			79.6			77.9	26.7
LOS		E	C		E			E			E	C
Approach Delay		51.4			60.7			79.6			49.3	
Approach LOS		D			E			E			D	
Queue Length 50th (ft)		365	225		147			-573			210	79
Queue Length 95th (ft)		#522	354		227			#816			#351	187
Internal Link Dist (ft)		365			548			1021			443	
Turn Bay Length (ft)			90									105
Base Capacity (vph)		493	674		319			587			277	420
Starvation Cap Reductn		42	139		0			0			0	0
Spillback Cap Reductn		0	0		0			0			0	0
Storage Cap Reductn		0	0		0			0			0	0
Reduced v/c Ratio		0.98	0.81		0.52			1.04			0.79	0.66

Intersection Summary

Area Type: Other
 Cycle Length: 150
 Actuated Cycle Length: 142
 Natural Cycle: 150
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.04
 Intersection Signal Delay: 59.7
 Intersection Capacity Utilization 90.8%
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 29: Parker Street/Powder Mill Road & Waltham Street

01	02	04	09
31 s	26 s	73 s	20 s
06	07	08	
57 s	44 s	29 s	

Lane Group	Ø9
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	



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