Associates Traffic, Transportation & Civil Engineering
Ali R. Khorasani, P.E. P.O. Box 804, Spencer, MA 0156, Tel: (508) 560-4041

# *Traffic Impact Study*

**For**

**Proposed**
**Restaurant**
**Located at**
**79 Pullman Street**
**Worcester, Massachusetts**


**April 2024**

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# 1
# INTRODUCTION

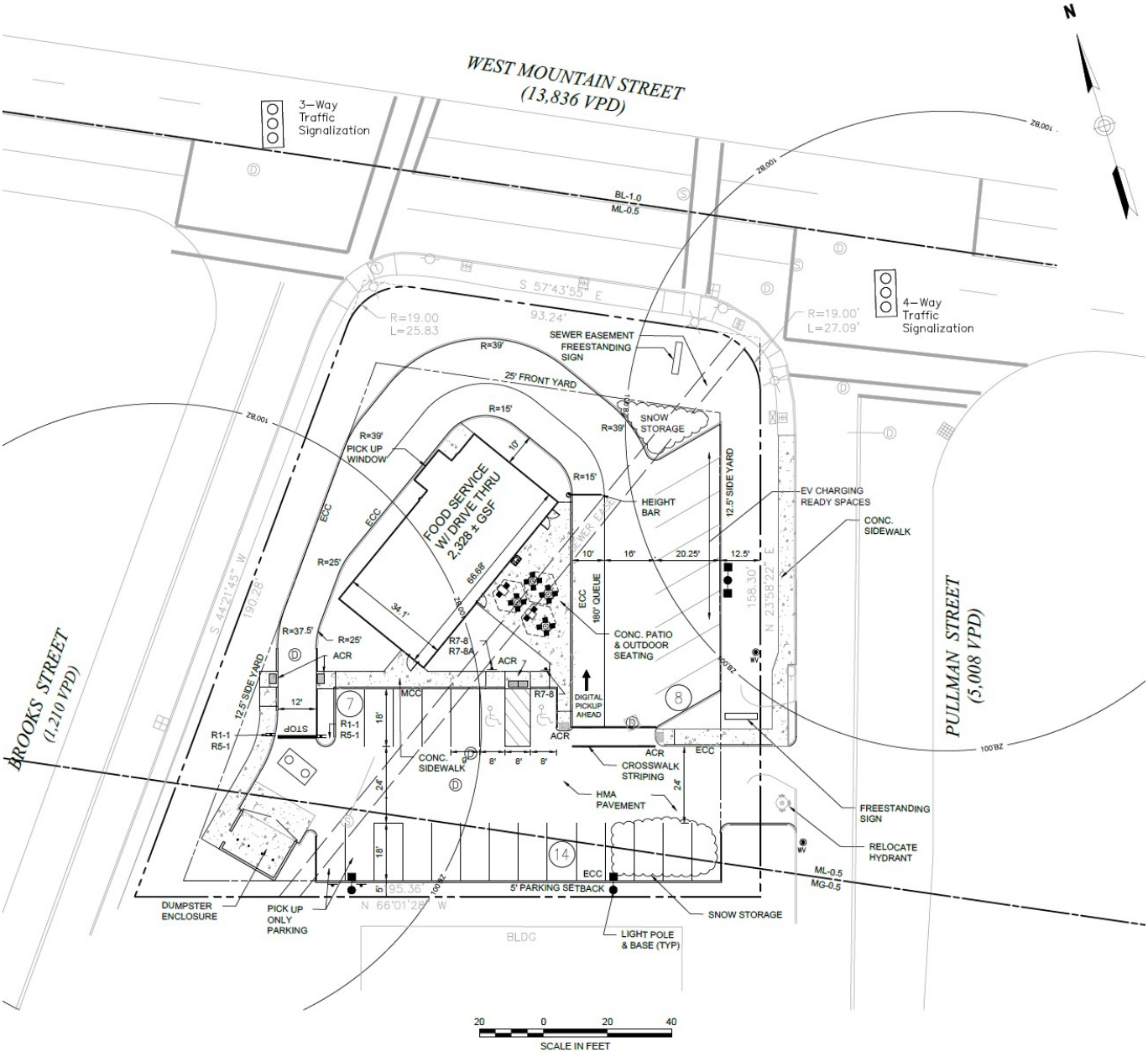
Lacy Topas, LLC, the developer of the site of the former Sylvan Learning Center, hereafter referred to as the applicant is proposing the redevelopment of a 0.68-acre parcel of land to construct a stand-alone restaurant consisting of a 2,328 square foot (sf) building with a total of 29 associated off-street parking spaces. The proposed redevelopment project consists of constructing a 2,328-sf building that will house a fast casual restaurant, replacing the former learning center. The site is located south of West Mountain Street and approximately 1,200 feet west of the intersection of West Boylston Street, East Mountain Street, and West Mountain Street (the Summit). The proposed redevelopment site is zoned ML 0.5 and MG 0.5. Land use along West Mountain Street is primarily commercial. Figure 1 depicts the proposed site plan. As shown in Figure 1, the proposed site will be accessed by one driveway from Pullman Street.

## Project Description

The applicant proposes to redevelop an existing site and build a new 2,328-sf building that will house a fast casual restaurant replacing the former learning center at this location. The proposed site is zoned ML 0.5 and MG 0.5 and is shown on the site plan in Figure 1. The proposed redevelopment site is located approximately 1,200 feet west of the intersection of West Boylston Street, East Mountain Street, and West Mountain Street.

The building is designed and situated in such a way that it will have ample off-street parking. This will eliminate the potential for on-street parking activities, thus maintaining optimal safety for motorists along West Mountain Street and Pullman Street. The proposed redevelopment will have one driveway off Pullman Street on the east side of the building and 150 feet south of the intersection of West Mountain Street and Pullman Street. This driveway will also serve a digital pickup lane to a drive through window, as there will be no menu board for ordering. All orders will be electronic via the internet or mobile application. The driveways and all parking spaces are designed in such a way that they will provide safe access to both the drive through window and the parking spaces. The dimensions of the proposed driveway and parking spaces are designed and will be built to the standards of the City of Worcester.

FIGURE 1
Proposed Redevelopment Site Plan



# 2

# EXISTING CONDITIONS

Evaluation of the transportation impacts associated with the proposed redevelopment project requires a thorough understanding of the existing transportation system in the immediate vicinity of the site. Evaluating existing roadway network operating conditions necessitates an examination of existing roadway traffic volumes, geometric features, and local community traffic-related issues. Each of these elements is described below.

## Study Area Roadway Network

The study area for this traffic impact report has been defined by the City of Worcester's Department of Transportation and Mobility to include the following two signalized intersections and the proposed Pullman Street driveway for this fast casual restaurant.

- West Mountain Street at Pullman Street
- West Mountain Street at Brooks Street

**West Mountain Street** is a two-way roadway with two travel lanes in each direction in the immediate vicinity of the proposed restaurant. The roadway width is approximately 50' in dimension in the vicinity of the proposed redevelopment site and provides a 1-foot shoulder on each side of the road in front of the proposed site. It provides two, 12-foot lanes in each direction. It also has a paved sidewalk on each side of the street. It is fairly straight on either side of the proposed site for a distance of approximately 1,400 feet. It traverses in easterly and westerly general directions and provides access to other major roadways in the area, including I-90 to the west and I-290 to the east. This street intersects with West Boylston Street to the east forming a 4-legged intersection that is equipped with a fully actuated traffic signal system. It also intersects with Pullman Street and Brooks Street in front of the proposed site forming two 3-legged "T" intersections. Both of these two intersections are also controlled by fully actuated traffic signal systems. No speed limit signs are posted on this street except a Warning Thickly Settled sign with a 30 miles per hour (mph) plate for eastbound traffic approximately a quarter of a mile west of the proposed site.

**Brooks Street** is a two-way roadway with one lane in each direction that serves several commercial, industrial and some new residential land uses. It traverses in the northerly and southerly general directions, and it is 3,550 feet (two thirds of a mile) in length. It has a 30-foot paved surface, and a sidewalk is available on the east side of the street for a distance of 1,600 feet. The width of the sidewalk begins at eight feet and gradually tapers off. Although Brooks Street continues all the way to West Boylston Street at its intersection with Airlie Street, it is cut off to traffic at the site of the former Showcase Cinemas, effectively becoming a dead-end

street. Its northerly terminus intersects West Boylston Street and as stated earlier its traffic is controlled by a traffic signal system. There are no speed limit signs posted on this street. However, since this street is thickly settled, the prima facia speed limit of 30 mph applies to this street.

**Pullman Street** is also a two-way roadway with one travel lane in each direction. It serves many commercial and industrial land uses. It is approximately 1,700 feet (one third of a mile) long and it starts at West Mountain Street and terminates at Brooks Street. The pavement width is 30 feet except for 200 feet in front of the proposed site and the Market 32 supermarket where the pavement width increases to 44 feet in order to provide a two-lane approach at West Mountain Street with a dedicated right-turn lane. Except for the Market 32 property frontage, there are no sidewalks on this street. Again, like Brooks Street, there are no speed limit signs posted, but the statutory prima facia speed limit of 30 mph applies to this street.

**Intersection of West Mountain Street and Pullman Street** is a signalized "T" intersection with two lane approaches. The westbound approach consists of a through lane and a shared through and left lane. The eastbound approach also has two lanes, one for through and a second lane for through and right movements. This signal system was installed primarily to accommodate traffic to and from the supermarket when it was developed in the mid-2000s. This traffic signal system has been advantageous for motorists getting to and from other businesses along this street.

**Intersection of West Mountain Street and Brooks Street** is also a "T" intersection with two lane approaches on West Mountain Street and a single lane approach on Brooks Street. It too is fully signalized, and the signal system for this location was installed to serve patrons of the former Showcase Cinemas when it was developed. This signal system has been valuable to countless other land uses along Brooks Street.

## Traffic Volumes

To evaluate the traffic volumes for the intersections in the study area, new traffic counts were collected. It should be noted that although traffic volumes were at historic lows during COVID-19, traffic volumes have finally stabilized. Nevertheless, the new traffic counts may potentially undercount the baseline for which future years are based. Therefore, the peak hour traffic counts were adjusted to pre-COVID-19 conditions using *massDOT* historic traffic data and guidelines.

The new peak hour turning movement counts were obtained to reflect the current traffic conditions in the area. The new counts were collected on Saturday, April 6, 2024, during a two-hour period between 11 AM and 1 PM, as well as on Tuesday, April 9, 2024, during two-hour periods between the hours of 7-9 AM and 4-6 PM at peak commuter periods.

To establish the present baseline volumes, the intersection turning movement counts were adjusted and normalized into the present year (baseline) utilizing the *massDOT* factor as described below. The COVID-19 adjusted peak hour turning movement counts are summarized in the following Table 1. They are also depicted in the following Figure 2.

Table 1 - COVID Adjusted Volumes

West Mountain Street at Pullman Street

| | EB T | EB R | WB L | WB T | NB L | NB R |
|---|---|---|---|---|---|---|
| AM Peak | 583 | 110 | 69 | 268 | 55 | 71 |
| PM Peak | 368 | 164 | 159 | 627 | 199 | 181 |
| Sat Peak | 383 | 128 | 136 | 390 | 124 | 134 |

West Mountain Street at Brooks Street

| | EB T | EB R | WB L | WB T | NB L | NB R |
|---|---|---|---|---|---|---|
| AM Peak | 675 | 71 | 11 | 324 | 48 | 16 |
| PM Peak | 515 | 47 | 22 | 834 | 49 | 15 |
| Sat Peak | 502 | 15 | 9 | 507 | 11 | 7 |

A more concise method of adjusting the turning movement counts is using the revised *massDOT* Guidance on Traffic Count Data. The *massDOT* Yearly Growth Rates data for a period before the COVID-19 pandemic from 2014-2019 are shown in the Technical Appendix section of this report. The growth rates go back to 2014, and therefore, the rates were averaged and then expanded to a five-year period to adjust for the COVID-19 pandemic and then a five-year period to account for the future no-build and build conditions. The average annual growth rate was calculated at 0.0034. This rate was multiplied by five to get the total increased rate of 0.0175 for the COVID-19 adjustment (for baseline) and then the resultant was multiplied by this rate another five times to get the total increase rate of 0.0175 for future no build conditions. Therefore, the turning movement counts were increased by these factors. Again, as per *massDOT* Guidance on Traffic Count Data, this increase also accounts for all future traffic from any other additional developments that may take place in the general area of the proposed development site between now and the year 2029.

Additionally, the *massDOT* Highway Division provides statewide traffic data collection that includes weekday seasonal factors. To evaluate the potential for seasonal fluctuation of traffic volumes on roadways near the proposed site, weekday seasonal factors were obtained from the *massDOT* Statewide Traffic Data Collection. The data indicated that the seasonal factor for traffic collected during the month of April is 0.92 for U4-7 category roadways. Usually, the TMCs are multiplied by the factor of 0.92 to reflect those of the yearly average. Therefore, the extrapolated data were further adjusted to reflect those of an average year. A copy of adjustment factors is presented in the Technical Appendix section of this report. The seasonally adjusted turning movement counts for the present time (baseline) are shown below in Table 2 and Figure 3.

Table 2 – Seasonally Adjusted Volumes

West Mountain Street at Pullman Street

| | EB T | EB R | WB L | WB T | NB L | NB R |
|---|---|---|---|---|---|---|
| AM Peak | 536 | 101 | 63 | 247 | 51 | 65 |
| PM Peak | 339 | 151 | 146 | 577 | 183 | 167 |
| Sat Peak | 352 | 118 | 125 | 359 | 114 | 123 |

West Mountain Street at Brooks Street

| | EB T | EB R | WB L | WB T | NB L | NB R |
|---|---|---|---|---|---|---|
| AM Peak | 621 | 65 | 10 | 298 | 44 | 15 |
| PM Peak | 474 | 43 | 20 | 767 | 45 | 14 |
| Sat Peak | 462 | 14 | 8 | 466 | 10 | 6 |

Typically, the PM peak period has the higher volumes, and is considered the critical peak. As is the case here, higher traffic volumes also occur during the PM peak period at the intersection of West Mountain and Pullman Streets while the higher traffic volumes occur during AM peak hour for the intersection of West Mountain and Brooks Streets. However, all three peak periods are evaluated in this traffic study.

The percentage of truck traffic at permanent counting station #S17-042-348-02 along West Mountain Street was recorded by the *massDOT* at 1.9%. This rate includes all vehicles having three axles or more, some of these include single unit tree axel trucks that provide services to the residential properties along West Mountain Street. This rate is considered average for roadways having similar characteristics. Again, Figure 3 depicts the baseline turning movement counts that were adjusted to reflect an average year for the year 2024.

Figure 2
Existing Turning Movement Counts COVID Adjusted

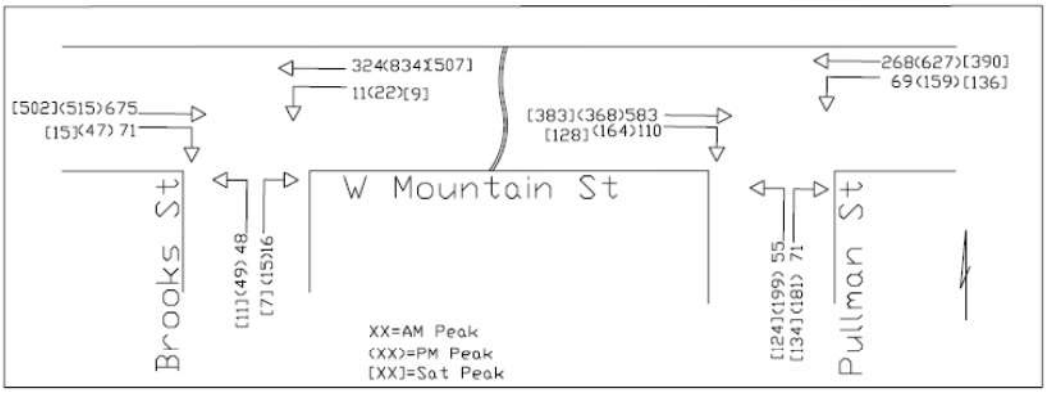
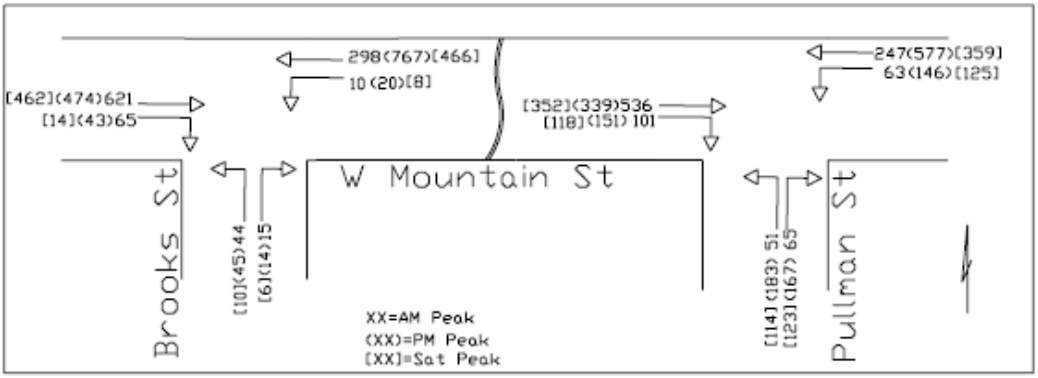



Figure 3
Seasonally Adjusted Baseline Turning Movement Counts



## Safety Concerns

**Sight Distances:** The available sight distances for the proposed driveway were evaluated. The examination of the proposed Pullman Street driveway showed that the available sight distance to the right (south) is 465 feet. The available sight distance to the left (north) for this driveway was measured at 150 feet all the way to the signalized intersection. Photographs showing the available sight distances are provided and are shown below.

Since no speed limit signs are posted along Pullman Street, the statutory prima facia speed limit of 30 mph applies. It is noted that due to the proximity of the site driveway to the signalized intersection of West Mountain Street and Pullman Street, most vehicles traveling in the southerly direction do not reach 30-mph speed until they are long past the proposed site, particularly when starting from a standing stop after the traffic signal turns green.

Based on Basic Design Controls for roadway design, Stopping Sight Distances are calculated using the formula d=(V*V)/(30*f), plus the time required for perception and reaction by drivers (2.5 seconds). V is approach speed in mph, and f=0.28-0.35. The stopping sight distances are calculated and are provided in Exhibit 3-8 of the 2006 *massDOT* Project Development and Design Guide. A copy of this exhibit is presented in the Technical Appendix section of this report. The required stopping sight distance for a speed of 30 miles per hour is 200 feet. Therefore, the available sight distance far exceeds 300' to the right (south). As stated herein above, traffic from the left (north) does not have the distance required to reach 30 mph.

From proposed driveway looking to the left (north)

From proposed driveway looking to the right (south)

As demonstrated herein above, available sight distances are greater than the required values. Therefore, proper sight distances will be provided in both directions.

**Accidents:** The latest accident data compiled by the *massDOT* were obtained and reviewed for a period of January 1, 2020, through March 23, 2024. This review summarizes the total number of accidents that occurred at each of these two intersections during this period, and is listed in Table 3, below. It is noted that a total of eight accidents occurred during this period at the intersection of West Mountain Street and Pullman Street with no personal injuries, while a total of 14 accidents were reported during the same period at the intersection of West Mountain Street and Brooks Street, five of which involved nonfatal injuries. None of the West Mountain and Pullman Streets intersection accidents took place during peak traffic periods. Five of the accidents at the intersection of West Mountain and Brooks Streets occurred during peak periods. The breakdown of all accidents at these two intersections is also presented below in Table 3.

Using the baseline turning movement counts compiled during traffic surveys of these two intersections, accident rates were calculated in accidents per million vehicles entering each intersection. Utilizing the *massDOT* prescribed methodology, the accident rates for these intersections were calculated at lower to significantly lower than the *massDOT*'s latest available rate of 0.89 for signalized intersections on roadways in District 3 of the *massDOT*, in which the City of Worcester is located. A summary of the accident rates is also included in the following Table 3. A copy of the accident rate calculation is included in the Technical Appendix section of this report. Also included in the Technical Appendix section of this report is a copy of the

*massDOT* Average Crash Rates for signalized and unsignalized intersections throughout the Commonwealth of Massachusetts.

The above accident analysis indicates that there are no potential safety deficiencies associated with any of these intersections.

**Table 3 - Vehicle Crash Summary (Jan 1, 2020-March 23, 2024)**

| | Pullman St<br>W Mountain St | Brooks St<br>W Mountain St |
|---|---|---|
| Intersection | Signalized | Signalized |
| Calculated Crash Rate | 0.30 | 0.77 |
| massDOT Av Rate | 0.89 | 0.89 |
| **Year** | | |
| 2020 | 3 | 3 |
| 2021 | 2 | 2 |
| 2022 | 2 | 2 |
| 2023 | 1 | 7 |
| 2024 | 0 | 0 |
| **Total** | **8** | **14** |
| **Collision Type** | | |
| Angle | 6 | 7 |
| Head-On | 0 | 3 |
| Rear-end | 2 | 1 |
| Sideswipe | 0 | 1 |
| Single Vehicle | 0 | 1 |
| Unknown | 0 | 1 |
| **Total** | **8** | **14** |
| **Severity** | | |
| Fatal Injury | 0 | 0 |
| Non-Fatal Injury | 0 | 5 |
| Property Damage | 8 | 9 |
| **Total** | **8** | **14** |
| **Time of Day** | | |
| 7:00 AM to 9:00 AM | 0 | 1 |
| 4:00 PM to 6:00 PM | 0 | 2 |
| Other Times | 8 | 11 |
| **Total** | **8** | **14** |
| **Pavement Conditions** | | |
| Dry | 5 | 8 |
| Wet | 2 | 5 |
| Snow | 1 | 1 |
| **Total** | **8** | **14** |

Source: massDOT Crash Portal Jan 1, 220-March 23, 2024

# Existing Conditions Summary

West Mountain Street can be characterized as a two-way roadway with two travel lanes in each direction in the immediate vicinity of the proposed fast casual restaurant. It is an urban arterial roadway. The roadway width is approximately 50' in the surrounding area of the proposed fast

casual restaurant site. On-street parking is not permitted along this section of the street, and all properties provide off-street parking. Finally, there are no bike lanes on the surrounding streets leading to this site.

The current land use designation for the site of the proposed redevelopment is ML 0.5 and MG 0.5 as established by the City of Worcester and is the site of former Sylvan Learning Center.

# 3
# FUTURE CONDITIONS

Where possible, traffic volumes in the study area are projected to post-development levels. Projected traffic volumes include the existing traffic data obtained from the new turning movement counts, adjusted, and normalized into the year 2024 to account for the COVID-19 pandemic and to represent the post-pandemic baseline, then projected into the future no build (year 2029) to reflect increases due to future area projects, and finally, added to the new traffic expected to be generated by the proposed fast casual restaurant development to represent future build conditions.

## Site-Generated Traffic

The magnitude of traffic volumes that will be generated by the proposed development was projected by using the 11th Edition (latest) of *Trip Generation*[1] *Manual* plus its supplement published by the Institute of Transportation Engineers (ITE).

Based on the ITE *Trip Generation Manual*, the rates at which the proposed land use generates traffic vary depending upon the time of day. These rates were used to calculate the number of trips expected to be generated by the proposed fast casual restaurant development during an average weekday, morning, afternoon, and Saturday peak traffic periods. To obtain the most accurate forecast and to be consistent with the guidelines established by the *massDOT*, when available, the fitted curves in the *Trip Generation Manual* were used to forecast trips to and from the proposed site for daily, AM, PM, and Saturday peak hours. The ITE Trip Generation pages are presented in the Technical Appendix section of this report. The resulting trips and their directional distribution for this site are shown in the following Table 4.

TABLE 4
**ITE Trip Generation for Fast Casual Restaurant Development**
**2,328 sf Restaurant - ITE LU Code 930**

| | Daily | %In | %Out | AM Pk | %In | %Out | PM Pk | %In | %Out | Sat Pk | %In | %Out |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Trip Rate | 97.14 | 50% | 50% | 1.43 | 50% | 50% | 12.55 | 55% | 45% | 32.65 | 55% | 45% |
| Trips | 226 | 113 | 113 | 3 | 2 | 1 | 26* | 14* | 12* | 76 | 42 | 34 |

* *Fitted Curve values were used as they were greater than Average values*

As can be seen in Table 4 above, the total number of new trips expected to be generated by the proposed fast casual restaurant development results in the highest traffic during Saturday peak period, thus making the Saturday peak hour the critical peak. In standard traffic engineering

practice, the critical peak period trips are usually used to evaluate the worst-case scenario. However, since the area roadway peak traffic occurs during AM and PM peak periods, all three AM, PM and Saturday peak traffic periods were evaluated for both signalized intersections.

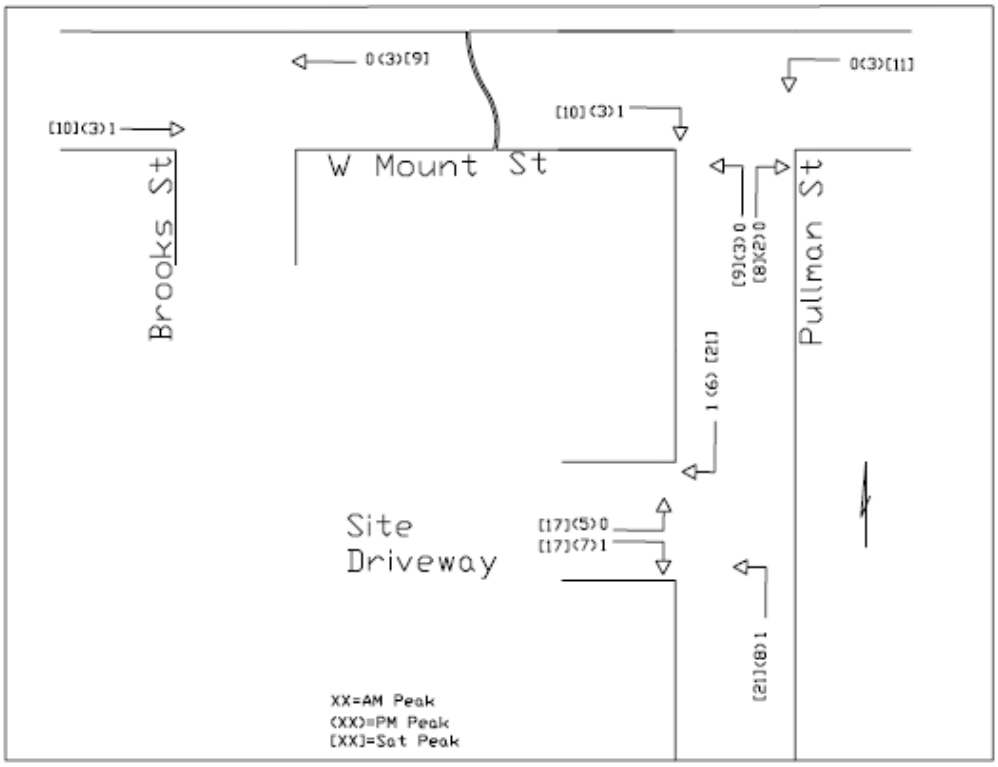
## Trip Distribution and Assignment

Because such factors as population density, land use, availability of major highways in the area, and other demographics that make up the traffic patterns within a community, the directional distribution of the projected site-generated trips to and from the proposed restaurant development site was based on the existing traffic patterns within the immediate vicinity of the site and based on the knowledge of local traffic patterns. The turning movement traffic counts for the intersection of West Mountain Street with Brooks Street and Pullman Street are good indicators of the traffic patterns in this area.

Using this information, the projected new site-generated trips from the above table 4 are proportionally assigned to each approach of these intersections. As shown in table 4 above and Figure 4 below, during AM peak period, a sum of two vehicles would be arriving at the proposed development site and one vehicle would be departing from the site in both directions along Pullman Street via the proposed site driveway. During PM peak period, a total of 14 vehicles are expected to arrive and 12 vehicles are expected to depart from the proposed site via the proposed site driveway. During a Saturday peak hour, a total of 42 vehicles are expected to arrive and 34 vehicles are expected to exit the site. Finally, a total of 113 vehicles are expected to arrive and 113 vehicles are expected to depart from the proposed restaurant site during a 24-hour period on an average day.

Figure 4

Trip Generation and Distribution




## Site Access and Circulation

Site access and internal traffic circulation were evaluated as part of assessing the proposed residential development site. Access to the proposed site is achieved through a driveway located on Pullman Street approximately 150 feet south of the West Mountain Street intersection. The proposed site driveway will provide full access to all parking spaces and the drive-through lane with an escape lane in a safe manner as required by the City of Worcester Zoning ordinances. The site driveway is 24 feet in width to accommodate two-way traffic in and out of the site.

Also, as stated earlier, a total of 29 parking spaces are proposed, two of which will be designed and designated as van accessible handicap parking. This translates into 12.5 parking spaces per 1,000 sf of floor area. A total of eight of the proposed parking spaces will be diagonal and the remaining spaces will be at 90 degrees.

As for the length of the drive through lane, a 180-foot stacking lane is proposed. Although this is shorter than that required by the Zoning ordinances of the City of Worcester for traditional fast food restaurants, it should suffice for this particular land use with a digital pickup lane. It is noted that this type of restaurant is different from the traditional fast-food restaurants as no menu board

will be provided. All orders are processed and paid for ahead of time before a patron arrives at the site. That means people arrive at the drive through window just to pick up an order. As such, the pickup time for each order is significantly shorter than those associated with traditional fast-food restaurants where a patron will have to view the menu board, then place an order, pull up to the window, pay for the order, and pick up the order. Assuming one third of all trips to the site are to use the digital pickup lane to pick up an order, during a Saturday peak a total of 14 pickup orders will be processed. This translates into more than four minutes between each pickup. In absolute worst-case scenario, if it is assumed half of the Saturday peak trips are to use the digital pickup lane, we are talking about nearly three minutes between orders. Therefore, the stacking lane is not expected to surpass or even reach the length of the proposed 180 feet digital pickup lane.

The magnitude of parking spaces that will be required by the proposed restaurant development was forecasted by using the 6th Edition of *Parking Generation Manual*[1] also published by the ITE. Based on the latest ITE *Parking Generation Manual*, the rates at which fast casual restaurant (land use 930) generate demand for parking vary depending upon the time of day. The demand for off-street parking is greatest during midday for lunch and slightly less during the afternoon peak period for dinner. The average peak period parking demand for fast casual restaurants on a weekday is 9.77 vehicles per 1,000 sf of floor area and 7.97 parking spaces per 1,000 sf of floor area on Saturdays. This translates into anywhere from 28% to 57% more available parking spaces than will be needed during an average weekday or on a Saturday.

[1] *Parking Generation,* Institute of Transportation Engineers; Washington, DC

# 4

# TRAFFIC OPERATIONS

Measuring existing traffic volumes and projecting future traffic volumes quantifies traffic flow within the study area. To assess the quality of traffic flow, intersection capacity analyses were performed to measure projected future conditions with the implementation of the proposed restaurant development project. Intersection capacity analyses provide an indication of how well roadway facilities and their components serve the traffic demands placed upon them. This section includes potential on-site and off-site mitigation improvements that may be necessary to minimize the impact of the proposed restaurant development on the adjacent roadway.

## Traffic Operations Measures

Level of service (LOS) is the term used to demonstrate the different operating conditions which occur on a given roadway segment or intersection under different traffic volume conditions. LOS is a qualitative measure of the effect of several factors including roadway geometry, speed, travel delay, signal timing, freedom to maneuver and safety. The driveway of the proposed fast casual restaurant is treated as a stop-controlled intersection for the purpose of this evaluation. The criteria used to analyze the proposed driveway at Pullman Street are based on the Highway Capacity Manual.

The LOS concept is an indicator of the operational qualities of a roadway or an intersection. Six LOSs are defined for each type of facility. They are given letter designations from “A” to “F”. LOS “A” represents the best operating conditions, while LOS “F” represents the worst. Typically, LOS “D” is considered acceptable for arterial roadways during critical peak hour conditions, but LOS ”E” may also be acceptable under some circumstances.

The LOS designation is reported differently for signalized and unsignalized intersections. For signalized intersections, the analysis considers the operation of all traffic entering the intersection, and a LOS designation can be calculated for overall conditions at the intersection. For an unsignalized intersection, however, the analysis assumes that through traffic on major roadways is not affected by traffic on side streets (streets with lower volumes and/or ones under stop sign control). Therefore, a LOS designation is typically calculated for the controlled movements (minor street approaches and major street left-turn movements). As described in the following paragraphs, capacity or LOS analyses were considered for year 2024 existing, year 2029 future no build, and year 2029 future build conditions for morning, evening, and Saturday peak hours at the above-mentioned intersections, including the proposed site driveway.

# Existing Conditions

Intersection capacity analyses were performed for both intersections during morning, evening, and Saturday peak traffic periods. These intersections are the only locations within the immediate vicinity of the proposed development site that may be affected by the traffic expected to be generated by the proposed fast casual restaurant development.

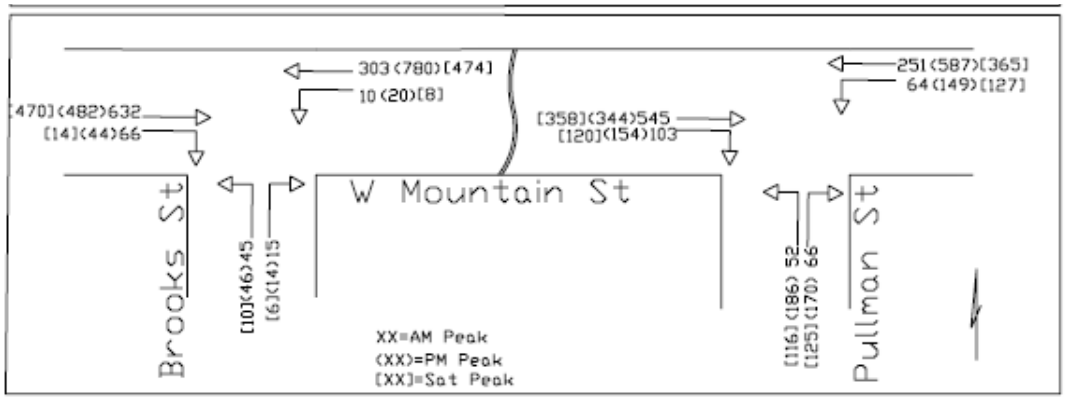
The analysis concluded that LOS "C" or better is calculated for all approaches of the intersection of West Mountain Street and Brooks Street during all three peak periods. Also, the analysis showed that LOS "D" or better is calculated for all approaches of the intersection of West Mountain Street and Pullman Street. A summary of intersection analyses results for existing conditions is shown below in Table 5.

# Future Conditions

Capacity analyses for the future year peak hour traffic operations were performed for the year 2029 volumes during all three peak periods with and without the proposed fast casual restaurant project in place. A summary of intersection analyses results for both future no-build and future build conditions is also shown below in Table 5.

As noted earlier in this report, in projecting the year 2029 future no-build traffic volumes, the latest *massDOT* available statistics were used. As stated earlier under the Traffic Volumes section, the growth rates that go back to 2014 were averaged and then applied to expand to a five-year period to represent the buildout year. The average annual growth rate over the past five-year period was calculated at 0.0034. Therefore, the baseline volumes were increased by that rate over five years or a factor of 0.0175. Figure 5 shows the volumes for the future no-build conditions for both intersections within the study area. The projected future no build year (2029) traffic should also account for any future developments in the general area of the proposed site.

Figure 5
Future No Build Turning Movement Counts




The intersection LOSs for the year 2029 no-build conditions were calculated for the approaches of these two intersections and are expected to be the same as those under existing conditions.

Build traffic volumes were determined by projecting site-generated traffic volumes and distributing those volumes over the intersections within the study area, and finally, adding them to the future no-build conditions volumes. Figure 6 shows future build conditions traffic volumes for both intersections, including the proposed site driveway that will form a three-legged intersection with Pullman Street.

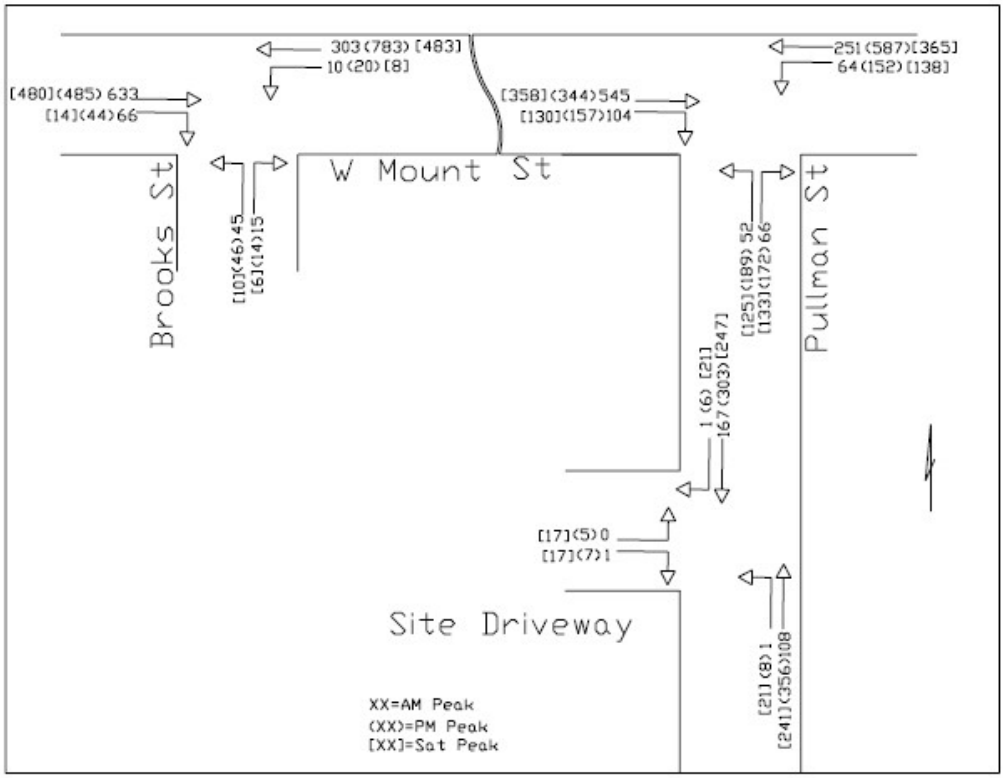
To assess the potential traffic impact of the proposed development on these two intersections, all traffic to and from the site was distributed along Pullman Street and two nearby signalized intersections. This will result in the assessment of these intersections under worst-case scenarios. The above Figures 3, 5 and 6 show the traffic volumes at all intersections for the AM, PM, and Saturday peak hours under existing, future no-build, and future build conditions.

The intersection analysis for the year 2029 build conditions were performed for approaches of both intersections including the site driveway. The analysis revealed that under future build conditions, all existing intersections will continue to operate at the same LOSs as those under the future no-build conditions.

Again, the above-mentioned LOSs for both signalized intersections under existing and for future no-build and future build conditions are indicative of no impact associated with the development of the proposed fast casual restaurant project.

A summary of intersection analyses for all intersections, including the proposed driveway that forms the third leg of the intersection of Pullman Street and the site driveway is also provided below in Table 5. Finally, the computer printout of the above-mentioned intersection analysis is presented and included in the Technical Appendix section of this report.

Figure 6
Future Build Turning Movement Counts



# Table 5
# Intersection Analysis

**Intersetion of West Mountain Street and Brooks Street**

| Existing Conditions | AM Peak | | | PM Peak | | |
|---|---|---|---|---|---|---|
| | EB | WB | NB | EB | WB | NB |
| V/C | 0.52 | 0.2 | 0.16 | 0.41 | 0.49 | 0.16 |
| App Delay | 17 | 9.3 | 19.8 | 23.9 | 16.4 | 20.5 |
| App LOS | B | A | B | C | B | C |
| 95% Queue | 181 | 66 | 46 | 189 | 238 | 49 |
| Int LOS | B | | | B | | |

| Future No Build Conditions | | | | | | |
|---|---|---|---|---|---|---|
| | EB | WB | NB | EB | WB | NB |
| V/C | 0.53 | 0.2 | 0.17 | 0.42 | 0.5 | 0.16 |
| App Delay | 17.1 | 9.3 | 19.9 | 24 | 16.5 | 20.9 |
| App LOS | B | A | B | C | B | C |
| 95% Queue | 184 | 67 | 47 | 193 | 244 | 50 |
| Int LOS | B | | | B | | |

| Future Build Conditions | | | | | | |
|---|---|---|---|---|---|---|
| | EB | WB | NB | EB | WB | NB |
| V/C | 0.53 | 0.2 | 0.17 | 0.42 | 0.5 | 0.16 |
| App Delay | 17.1 | 9.3 | 19.9 | 24 | 16.5 | 20.9 |
| App LOS | B | A | B | C | B | C |
| 95% Queue | 185 | 67 | 47 | 194 | 244 | 50 |
| Int LOS | B | | | B | | |

**Intersetion of West Mountain Street and Pullman Street**

| Existing Conditions | AM Peak | | | PM Peak | | |
|---|---|---|---|---|---|---|
| | EB | WB | NB | EB | WB | NB |
| V/C | 0.83 | 0.23 | 0.17 | 0.44 | 0.48 | 0.61 |
| App Delay | 35.6 | 10.1 | 15.1 | 23.4 | 9.9 | 23.7 |
| App LOS | D | B | B | C | A | C |
| 95% Queue | 265 | 74 | 58 | 181 | 168 | 195 |
| Int LOS | C | | | B | | |

| Future No Build Conditions | | | | | | |
|---|---|---|---|---|---|---|
| | EB | WB | NB | EB | WB | NB |
| V/C | 0.84 | 0.23 | 0.18 | 0.44 | 0.48 | 0.62 |
| App Delay | 36.4 | 10.2 | 15.1 | 23.6 | 10 | 23.7 |
| App LOS | D | B | B | C | A | C |
| 95% Queue | 271 | 75 | 60 | 184 | 172 | 198 |
| Int LOS | C | | | B | | |

| Future Build Conditions | | | | | | |
|---|---|---|---|---|---|---|
| | EB | WB | NB | EB | WB | NB |
| V/C | 0.85 | 0.23 | 0.18 | 0.44 | 0.49 | 0.63 |
| App Delay | 36.6 | 10.2 | 15.1 | 23.4 | 10 | 23.8 |
| App LOS | D | B | B | C | A | C |
| 95% Queue | 272 | 75 | 60 | 184 | 173 | 202 |
| Int LOS | C | | | B | | |

**Intersetion of Site Driveway and Pullman Street**

| Future Build Conditions | AM Peak | | | PM Peak | | |
|---|---|---|---|---|---|---|
| | EB | NB | SB | EB | NB | SB |
| V/C | 0 | 0.01 | 0.11 | 0.03 | 0.01 | 0.2 |
| App Delay | 9.2 | 0.7 | 0 | 12.5 | 0.3 | 0 |
| Lane LOS | A | A | | B | A | |
| Queue ft | 0 | 1 | 0 | 2 | 1 | 0 |
| ICU LOS | A | | | A | | |

# 5
# FINDINGS

This traffic study has been conducted to evaluate the potential traffic impacts associated with the proposed fast casual restaurant development site located west of Pullman Street and just to the south of West Mountain Street in Worcester, Massachusetts utilizing new traffic data that were collected in April of 2024. This study includes the evaluation of two signalized intersections in close proximity of the proposed site which are likely to be impacted by any traffic from the proposed restaurant development project. An evaluation of the area roadway to identify capacity constraints was performed for existing, future no-build, and future build conditions. Future analyses have determined that the site-generated traffic volumes are not significant, and they can safely be accommodated with the existing roadways and the proposed site driveway. These analyses demonstrated that with the additional traffic volumes associated with the proposed restaurant development, the intersection LOSs would not degrade and remain at those of existing and future no build conditions. The analysis also showed that the approaches of the intersection of Pullman Street and the site driveway will be operating at LOS "B" or better during all three peak periods.

Also, the accident analysis for the intersections in the study area revealed that accident rates are lower than those of similar intersections, further signifying there are no particular safety issues associated with these intersections.

Although there are no bike lane designations on the streets leading to the proposed site, it would be helpful to provide a bike rack on the site to accommodate the needs of those who may ride their bicycles to the proposed restaurant.

As stated earlier, the percentage of truck traffic at permanent counting station #S17-042-348-02 along West Mountain Street was recorded by the *massDOT* at 1.9%. This value is considered average for roadways having similar characteristics.

Finally, due to the very low levels of new traffic associated with the proposed restaurant, the length of the drive-through lane (digital pickup lane) should sufficiently accommodate the demand at this location. As established herein above, even if 50% of the Saturday peak trips to the site were to use the drive through window for picking up orders, ample time would be available, thus no measurable queueing should occur.

# Conclusion & Recommendations

It is concluded that the area roadways within the vicinity of the proposed development site have enough capacity to safely serve the anticipated additional traffic associated with the proposed fast casual restaurant. The level of service evaluation presented above is an indicator of the quality of traffic flow through the area. This evaluation indicates that the LOSs are not expected to change or should not degrade at either of the two signalized intersections studied.

It should be noted that the applicant will need to maintain any landscaped area along the frontage of the proposed property to further enhance the sight distances for motorists leaving the site.

Therefore, to maintain optimum safety and efficiency, the following improvements are recommended.

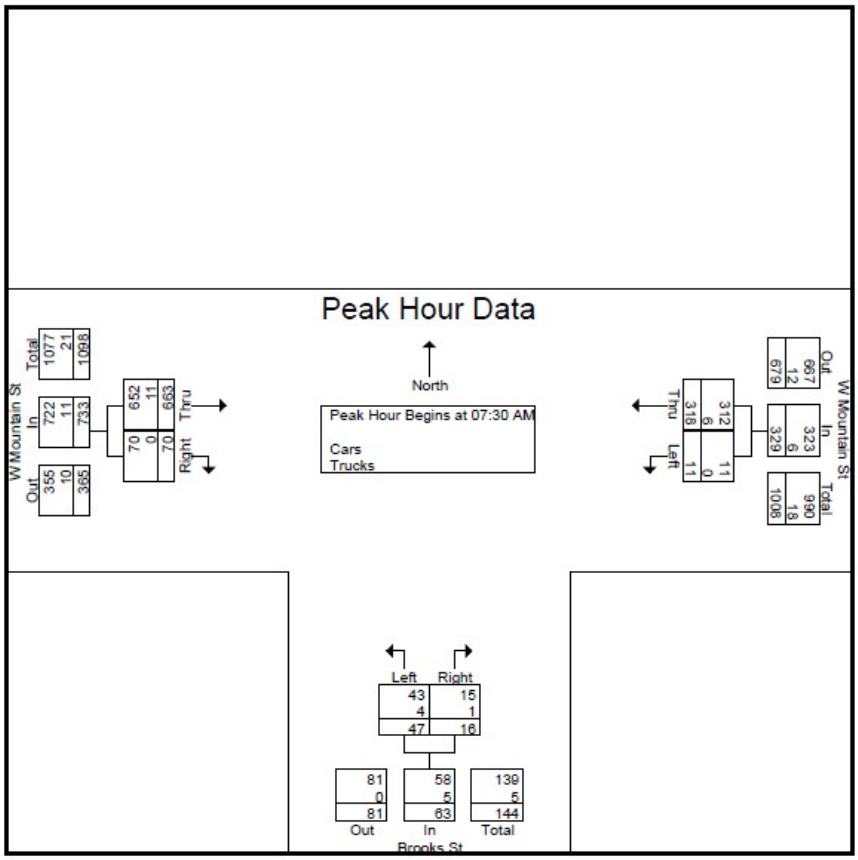
- The site frontage on the east side of Pullman Street should be clear of future tall landscaping vegetation that could impede the line of sight of motorists leaving the site via the proposed driveway.
- Any landscaping along the frontage of the proposed site on Pullman Street should be limited to vegetation varieties that do not grow higher than 2.5 feet to ensure the best sight distances are maintained.
- It is recommended that a double yellow center line be installed in the driveway area to help maintain safe two-way traffic.
- It is recommended that a Stop Bar be installed for the eastbound traffic exiting the site.
- It is recommended that a MUTCD standard stop sign be installed for the eastbound traffic leaving the site and entering Pullman Street traffic.
- Finally, it is recommended that a bike rack be provided to accommodate cyclists that may frequent the proposed restaurant. Such a bike rack could be installed just south of the building and north of the HP parking spaces, or alternatively it could be installed in one of the parking spaces closest to the building.

# Appendix

**Accurate Counts**
978-664-2565

N/S Street : Brooks Street
E/W Street : W Mountain Street
City/State : Worcester, MA
Weather : Clear

File Name : 20140001
Site Code : 20140001
Start Date : 4/9/2024
Page No : 2



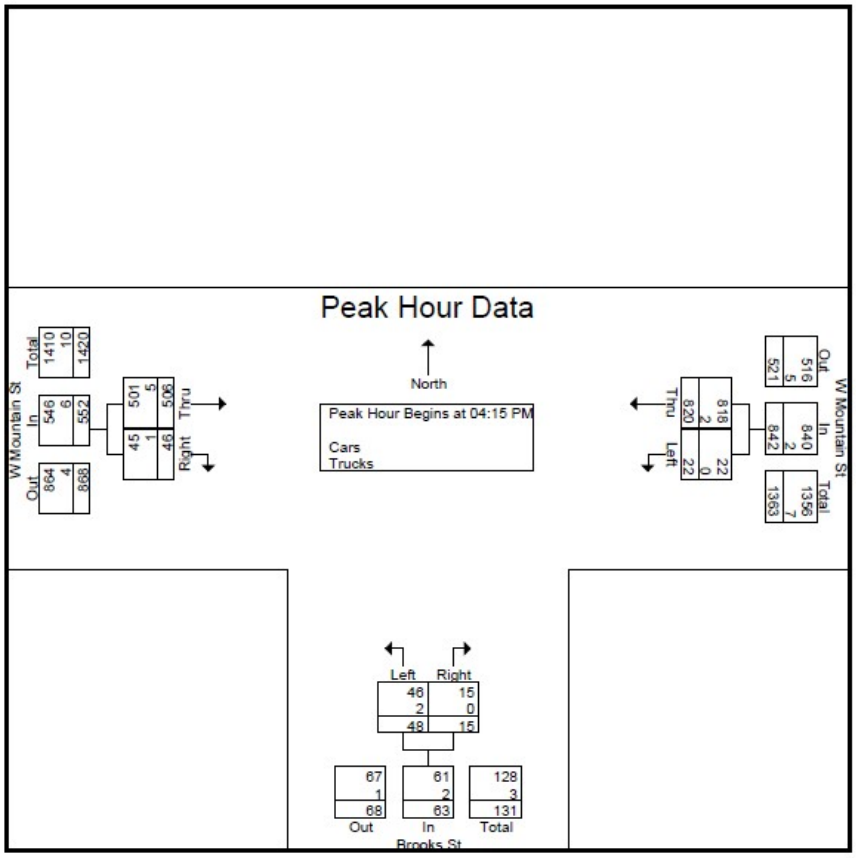

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

| | 07:30 AM | | | 08:00 AM | | | 07:30 AM | | |
|---|---|---|---|---|---|---|---|---|---|
| +0 mins. | 3 | 69 | 72 | 14 | 2 | 16 | 169 | **21** | 190 |
| +15 mins. | 6 | 87 | 93 | **17** | **4** | **21** | **191** | 18 | **209** |
| +30 mins. | 1 | **88** | 89 | 9 | 4 | 13 | 156 | 14 | 170 |
| +45 mins. | 1 | 74 | 75 | 13 | 4 | 17 | 147 | 17 | 164 |
| Total Volume | 11 | 318 | 329 | 53 | 14 | 67 | 663 | 70 | 733 |
| % App. Total | 3.3 | 96.7 | | 79.1 | 20.9 | | 90.5 | 9.5 | |
| PHF | .458 | .903 | .884 | .779 | .875 | .798 | .868 | .833 | .877 |
| Cars | 11 | 312 | 323 | 50 | 12 | 62 | 652 | 70 | 722 |
| % Cars | 100 | 98.1 | 98.2 | 94.3 | 85.7 | 92.5 | 98.3 | 100 | 98.5 |
| Trucks | 0 | 6 | 6 | 3 | 2 | 5 | 11 | 0 | 11 |
| % Trucks | 0 | 1.9 | 1.8 | 5.7 | 14.3 | 7.5 | 1.7 | 0 | 1.5 |

**Accurate Counts**
978-664-2565

N/S Street : Brooks Street
E/W Street : W Mountain Street
City/State : Worcester, MA
Weather : Clear

File Name : 20140001
Site Code : 20140001
Start Date : 4/9/2024
Page No : 2



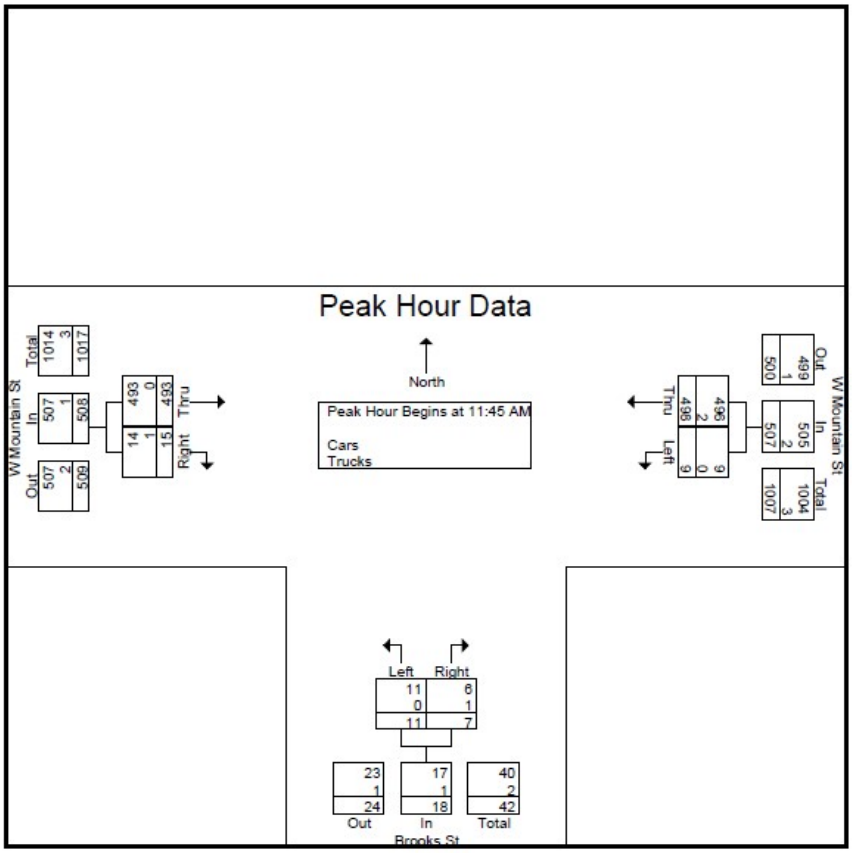

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

| | 04:15 PM | | | 04:00 PM | | | 04:00 PM | | |
|---|---|---|---|---|---|---|---|---|---|
| +0 mins. | 7 | 196 | 203 | **22** | 5 | **27** | **139** | 10 | **149** |
| +15 mins. | 5 | **224** | **229** | 11 | 1 | 12 | 127 | 8 | 135 |
| +30 mins. | 2 | 201 | 203 | 12 | **7** | 19 | 137 | 11 | 148 |
| +45 mins. | **8** | 199 | 207 | 14 | 3 | 17 | 119 | **13** | 132 |
| Total Volume | 22 | 820 | 842 | 59 | 16 | 75 | 522 | 42 | 564 |
| % App. Total | 2.6 | 97.4 | | 78.7 | 21.3 | | 92.6 | 7.4 | |
| PHF | .688 | .915 | .919 | .670 | .571 | .694 | .939 | .808 | .946 |
| Cars | 22 | 818 | 840 | 58 | 16 | 74 | 509 | 40 | 549 |
| % Cars | 100 | 99.8 | 99.8 | 98.3 | 100 | 98.7 | 97.5 | 95.2 | 97.3 |
| Trucks | 0 | 2 | 2 | 1 | 0 | 1 | 13 | 2 | 15 |
| % Trucks | 0 | 0.2 | 0.2 | 1.7 | 0 | 1.3 | 2.5 | 4.8 | 2.7 |

**Accurate Counts**
978-664-2565

N/S Street : Brooks Street
E/W Street : W Mountain Street
City/State : Worcester, MA
Weather : Cloudy

File Name : 201400S1
Site Code : 20140001
Start Date : 4/6/2024
Page No : 2



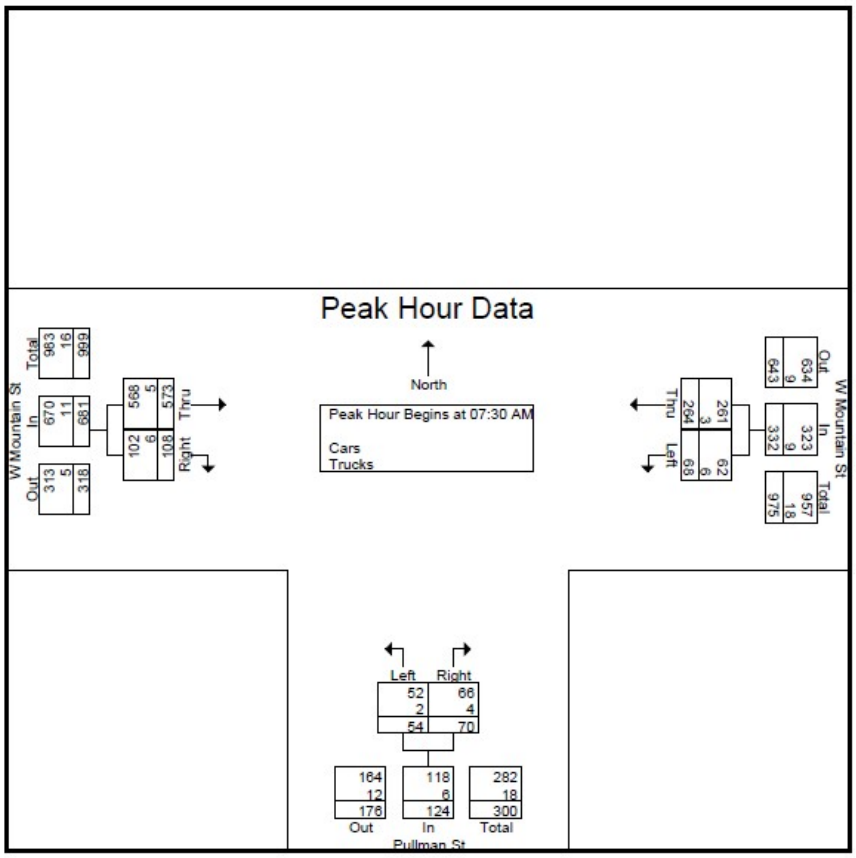

Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

| | 11:30 AM | | | 11:00 AM | | | 11:45 AM | | |
|---|---|---|---|---|---|---|---|---|---|
| +0 mins. | 0 | 125 | 125 | 4 | 6 | 10 | 134 | 5 | 139 |
| +15 mins. | 0 | 133 | 133 | 5 | 3 | 8 | 122 | 1 | 123 |
| +30 mins. | 4 | 115 | 119 | 8 | 4 | **12** | 101 | 5 | 106 |
| +45 mins. | 2 | **136** | **138** | 3 | 1 | 4 | **136** | 4 | **140** |
| Total Volume | 6 | 509 | 515 | 20 | 14 | 34 | 493 | 15 | 508 |
| % App. Total | 1.2 | 98.8 | | 58.8 | 41.2 | | 97 | 3 | |
| PHF | .375 | .936 | .933 | .625 | .583 | .708 | .906 | .750 | .907 |
| Cars | 6 | 509 | 515 | 20 | 14 | 34 | 493 | 14 | 507 |
| % Cars | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 93.3 | 99.8 |
| Trucks | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| % Trucks | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6.7 | 0.2 |

**Accurate Counts**
978-664-2565

N/S Street : Pullman Street
E/W Street : W Mountain Street
City/State : Worcester, MA
Weather : Clear

File Name : 20140002
Site Code : 20140002
Start Date : 4/9/2024
Page No : 2



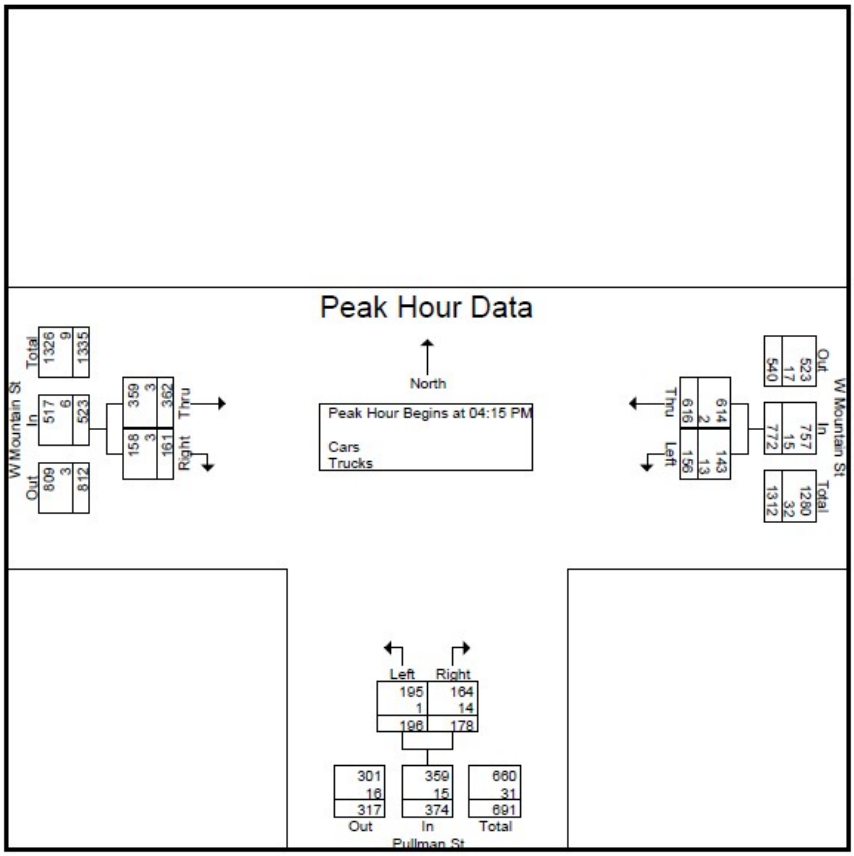

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

| | 07:15 AM | | | 08:00 AM | | | 07:30 AM | | |
|---|---|---|---|---|---|---|---|---|---|
| +0 mins. | 15 | 65 | 80 | 17 | 16 | 33 | 146 | 27 | 173 |
| +15 mins. | 8 | 60 | 68 | 16 | 20 | 36 | **177** | 22 | **199** |
| +30 mins. | **21** | 77 | **98** | 14 | 18 | 32 | 130 | 29 | 159 |
| +45 mins. | 18 | 69 | 87 | **18** | **26** | **44** | 120 | **30** | 150 |
| Total Volume | 62 | 271 | 333 | 65 | 80 | 145 | 573 | 108 | 681 |
| % App. Total | 18.6 | 81.4 | | 44.8 | 55.2 | | 84.1 | 15.9 | |
| PHF | .738 | .880 | .849 | .903 | .769 | .824 | .809 | .900 | .856 |
| Cars | 57 | 266 | 323 | 59 | 74 | 133 | 568 | 102 | 670 |
| % Cars | 91.9 | 98.2 | 97 | 90.8 | 92.5 | 91.7 | 99.1 | 94.4 | 98.4 |
| Trucks | 5 | 5 | 10 | 6 | 6 | 12 | 5 | 6 | 11 |
| % Trucks | 8.1 | 1.8 | 3 | 9.2 | 7.5 | 8.3 | 0.9 | 5.6 | 1.6 |

**Accurate Counts**
978-664-2565

N/S Street : Pullman Street
E/W Street : W Mountain Street
City/State : Worcester, MA
Weather : Clear

File Name : 20140002
Site Code : 20140002
Start Date : 4/9/2024
Page No : 2



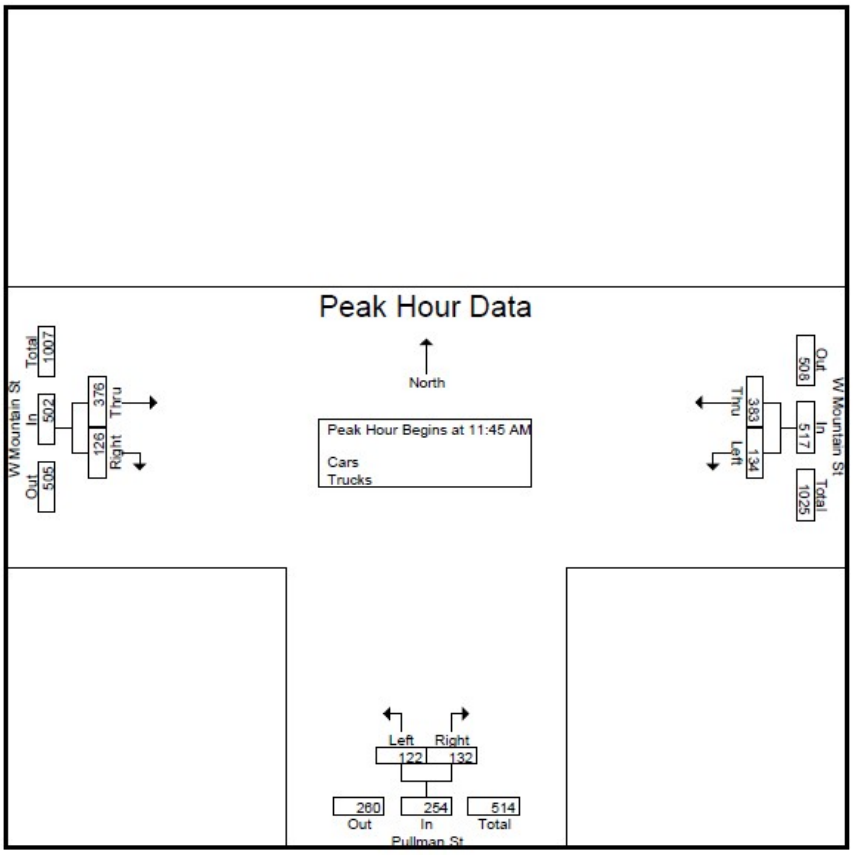

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

| | 04:15 PM | | | 04:15 PM | | | 04:00 PM | | |
|---|---|---|---|---|---|---|---|---|---|
| +0 mins. | 34 | **167** | **201** | 41 | 40 | 81 | **108** | 43 | **151** |
| +15 mins. | **46** | 151 | 197 | **65** | 45 | **110** | 80 | **46** | 126 |
| +30 mins. | 37 | 142 | 179 | 47 | 38 | 85 | 106 | 42 | 148 |
| +45 mins. | 39 | 156 | 195 | 43 | **55** | 98 | 89 | 34 | 123 |
| Total Volume | 156 | 616 | 772 | 196 | 178 | 374 | 383 | 165 | 548 |
| % App. Total | 20.2 | 79.8 | | 52.4 | 47.6 | | 69.9 | 30.1 | |
| PHF | .848 | .922 | .960 | .754 | .809 | .850 | .887 | .897 | .907 |
| Cars | 143 | 614 | 757 | 195 | 164 | 359 | 373 | 160 | 533 |
| % Cars | 91.7 | 99.7 | 98.1 | 99.5 | 92.1 | 96 | 97.4 | 97 | 97.3 |
| Trucks | 13 | 2 | 15 | 1 | 14 | 15 | 10 | 5 | 15 |
| % Trucks | 8.3 | 0.3 | 1.9 | 0.5 | 7.9 | 4 | 2.6 | 3 | 2.7 |

**Accurate Counts**
978-664-2565

N/S Street : Pullman Street
E/W Street : W Mountain Street
City/State : Worcester, MA
Weather : Cloudy

File Name : 201400S2
Site Code : 20140002
Start Date : 4/6/2024
Page No : 2




Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

| | 12:00 PM | | | 11:15 AM | | | 11:45 AM | | |
|---|---|---|---|---|---|---|---|---|---|
| +0 mins. | 37 | 89 | 126 | **41** | 20 | 61 | 95 | **41** | 136 |
| +15 mins. | 29 | 100 | 129 | 28 | 28 | 56 | 93 | 29 | 122 |
| +30 mins. | 35 | 92 | 127 | 30 | 33 | 63 | 78 | 28 | 106 |
| +45 mins. | 37 | **109** | **146** | 33 | **42** | **75** | **110** | 28 | **138** |
| Total Volume | 138 | 390 | 528 | 132 | 123 | 255 | 376 | 126 | 502 |
| % App. Total | 26.1 | 73.9 | | 51.8 | 48.2 | | 74.9 | 25.1 | |
| PHF | .932 | .894 | .904 | .805 | .732 | .850 | .855 | .768 | .909 |

## Exhibit 3-8
## Motor Vehicle Stopping Sight Distances

| | Stopping Sight Distance (ft) by Percent Grade (%) | | | | | | |
|---|---|---|---|---|---|---|---|
| | | Downgrade | | | Upgrade | | |
| Design Speed | 0 | 3 | 6 | 9 | 3 | 6 | 9 |
| 20 | 115 | 116 | 120 | 126 | 109 | 107 | 104 |
| 25 | 155 | 158 | 165 | 173 | 147 | 143 | 140 |
| 30 | 200 | 205 | 215 | 227 | 200 | 184 | 179 |
| 35 | 250 | 257 | 271 | 287 | 237 | 229 | 222 |
| 40 | 305 | 315 | 333 | 354 | 289 | 278 | 269 |
| 45 | 360 | 378 | 400 | 427 | 344 | 331 | 320 |
| 50 | 425 | 446 | 474 | 507 | 405 | 388 | 375 |
| 55 | 495 | 520 | 553 | 593 | 469 | 450 | 433 |
| 60 | 570 | 598 | 638 | 686 | 538 | 515 | 495 |
| 65 | 645 | 682 | 728 | 785 | 612 | 584 | 561 |
| 70 | 730 | 771 | 825 | 891 | 690 | 658 | 631 |
| 75 | 820 | 866 | 927 | 1003 | 772 | 736 | 704 |

Source: A Policy on Geometric Design of Streets and Highways, AASHTO, Washington DC, 2004. Chapter 3 Elements of Design

Massachusetts Highway Department
Statewide Traffic Data Collection
2019 Weekday Seasonal Factors

| Factor Group | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | Axle Factor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| R1 | 1.22 | 1.14 | 1.12 | 1.06 | 1.00 | 0.96 | 0.87 | 0.85 | 0.96 | 0.99 | 1.04 | 1.12 | 0.85 |
| R2 | 0.95 | 0.96 | 0.98 | 0.97 | 0.97 | 0.93 | 0.97 | 0.94 | 0.96 | 0.90 | 0.92 | 0.93 | 0.96 |
| R3 | 1.15 | 1.06 | 1.07 | 1.00 | 0.89 | 0.88 | 0.89 | 0.89 | 0.95 | 0.92 | 1.02 | 1.01 | 0.97 |
| R4-R7 | 1.09 | 1.09 | 1.11 | 1.02 | 0.96 | 0.92 | 0.89 | 0.89 | 0.99 | 0.98 | 1.09 | 1.13 | 0.98 |
| U1-Boston | 1.03 | 1.01 | 0.98 | 0.94 | 0.94 | 0.92 | 0.95 | 0.93 | 0.94 | 0.94 | 0.97 | 1.04 | 0.96 |
| U1-Essex | 1.09 | 1.06 | 1.03 | 0.99 | 0.94 | 0.90 | 0.88 | 0.86 | 0.93 | 0.94 | 0.99 | 1.06 | 0.93 |
| U1-Southeast | 1.06 | 1.05 | 1.01 | 0.97 | 0.95 | 0.93 | 0.93 | 0.90 | 0.94 | 0.94 | 0.98 | 1.04 | 0.98 |
| U1-West | 1.19 | 1.14 | 1.09 | 0.95 | 0.92 | 0.89 | 0.89 | 0.86 | 0.91 | 0.95 | 0.97 | 1.07 | 0.84 |
| U1-Worcester | 1.02 | 1.04 | 0.97 | 0.94 | 0.93 | 0.91 | 0.95 | 0.91 | 0.93 | 0.92 | 0.95 | 1.10 | 0.88 |
| U2 | 1.01 | 1.00 | 0.94 | 0.93 | 0.91 | 0.89 | 0.93 | 0.90 | 0.90 | 0.91 | 0.94 | 1.02 | 0.99 |
| U3 | 1.06 | 1.03 | 0.98 | 0.94 | 0.93 | 0.91 | 0.95 | 0.91 | 0.92 | 0.93 | 0.97 | 1.00 | 0.98 |
| U4-U7 | 1.01 | 1.00 | 0.95 | 0.92 | 0.88 | 0.86 | 0.92 | 0.91 | 0.92 | 0.94 | 0.99 | 1.04 | 0.99 |
| Rec - East | 1.04 | 1.16 | 1.12 | 0.98 | 0.92 | 0.88 | 0.77 | 0.81 | 0.94 | 1.02 | 1.08 | 1.12 | 0.99 |
| Rec - West | 1.30 | 1.23 | 1.32 | 1.18 | 0.95 | 0.82 | 0.70 | 0.69 | 0.97 | 0.96 | 1.16 | 1.15 | 0.98 |

Round off:
0-999 = 10
>1000 = 100

U = Urban
R = Rural

1 - Interstate
2 - Freeway and Expressway
3 - Other Principal Arterial
4 - Minor Arterial
5 - Major Collector
6 - Minor Collector
7 - Local Road and Street

| |
|---|
| **Recreational - East Group** - Cape Cod (all towns) including the town of Plymouth south of Route 3A (stations 7014,7079,7080,7090,7091,7092,7093,7094,7095,7096,7097,7108 and 7178), Martha's Vineyard and Nantucket. |
| **Recreational - West Group** - Continuous Stations 2 and 189 including stations 1066,1067,1083,1084,1085,1086,1087,1088,1089,1090,1091,1092,1093,1094,1095,1096,1097,1098,1099,1100,1101,1102,1103,1104,1105,1106,1107,1108,1113,1114, 1116,2196,2197 and 2198. |

| Average Crash Rates, per Million Entering Vehicles, by Intersection Type (Based upon crash information queried on June 26, 2018) | | |
|---|---|---|
| **Location** | **Signalized Intersections** | **Unsignalized Intersections** |
| Statewide | 0.78 | 0.57 |
| District 1* | 0.80* | 0.44* |
| District 2 | 0.89 | 0.62 |
| District 3 | 0.89 | 0.61 |
| District 4 | 0.73 | 0.57 |
| District 5 | 0.75 | 0.57 |
| District 6 | 0.71 | 0.52 |
| **Location** | **Signalized Intersections** | **Unsignalized Intersections** |

* - District 1 should use Statewide Rates due to low sample total

# Fast Casual Restaurant
# (930)

**Vehicle Trip Ends vs: 1000 Sq. Ft. GFA**
**On a: Weekday**

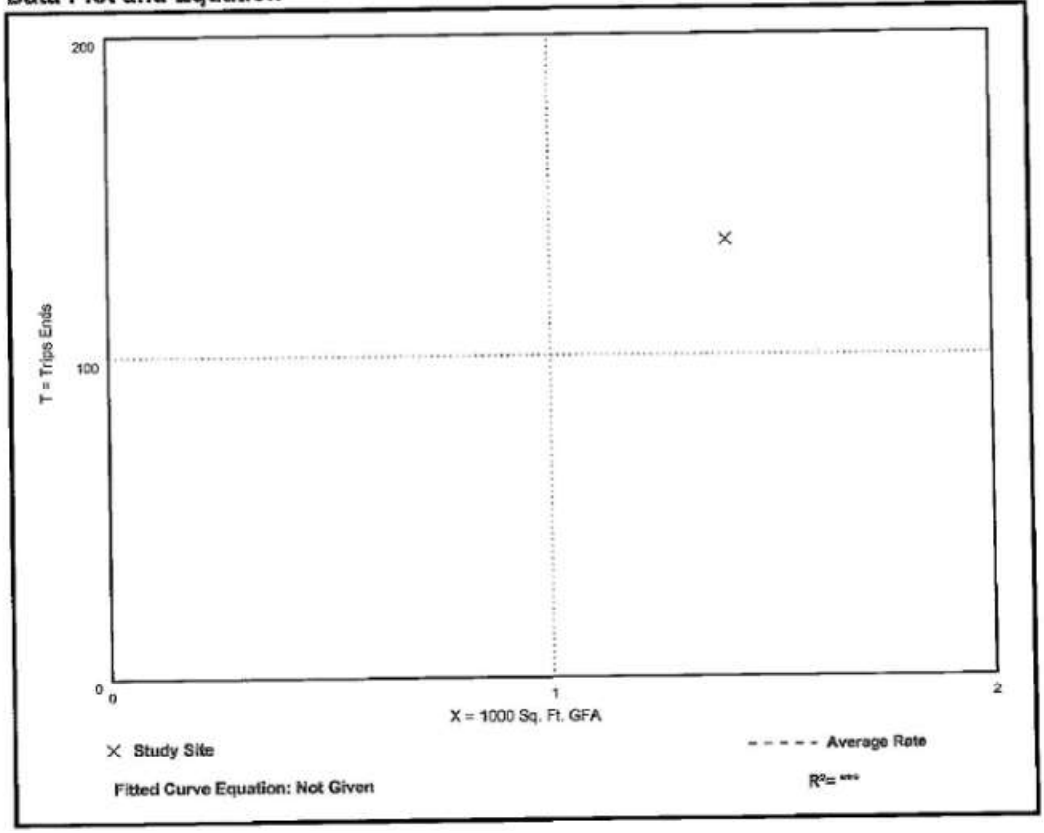
**Setting/Location: General Urban/Suburban**
Number of Studies: 1
Avg. 1000 Sq. Ft. GFA: 1
Directional Distribution: 50% entering, 50% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

| Average Rate | Range of Rates | Standard Deviation |
|---|---|---|
| 97.14 | 97.14 - 97.14 | *** |

## Data Plot and Equation

*Caution – Small Sample Size*



# Fast Casual Restaurant
# (930)

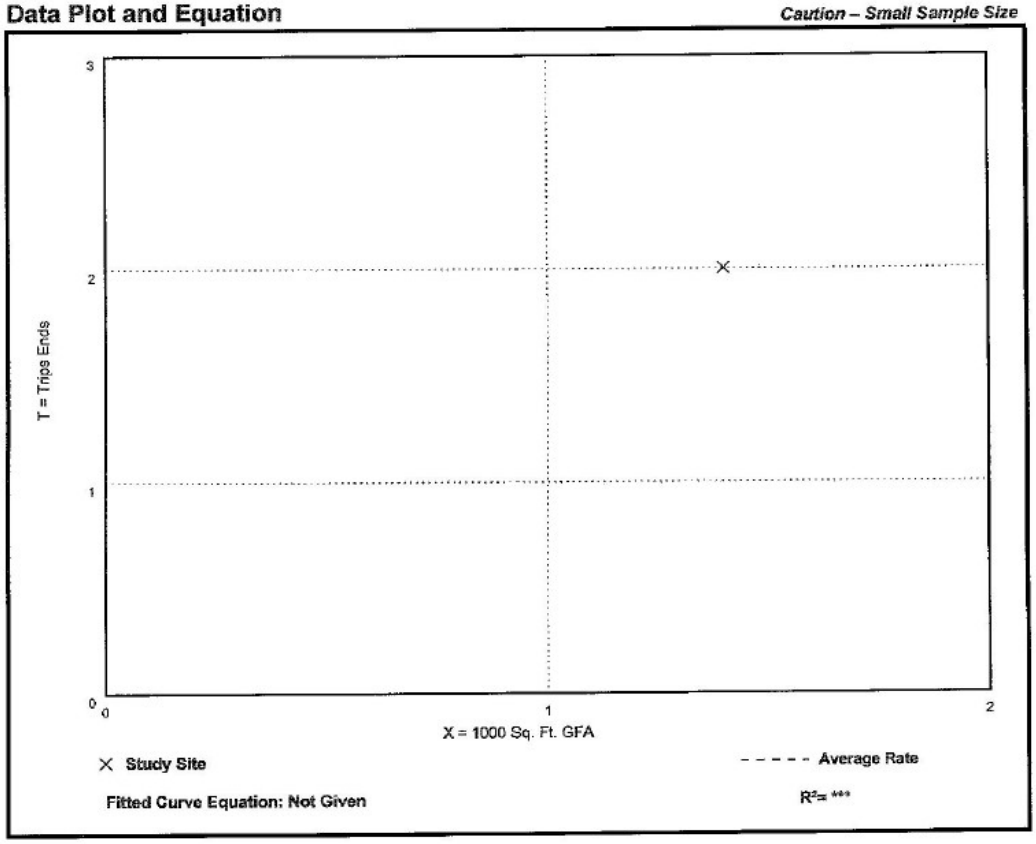
**Vehicle Trip Ends vs: 1000 Sq. Ft. GFA**
**On a: Weekday,**
**Peak Hour of Adjacent Street Traffic,**
**One Hour Between 7 and 9 a.m.**
**Setting/Location: General Urban/Suburban**
Number of Studies: 1
Avg. 1000 Sq. Ft. GFA: 1
Directional Distribution: 50% entering, 50% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

| Average Rate | Range of Rates | Standard Deviation |
|---|---|---|
| 1.43 | 1.43 - 1.43 | *** |

## Data Plot and Equation

***Caution – Small Sample Size***



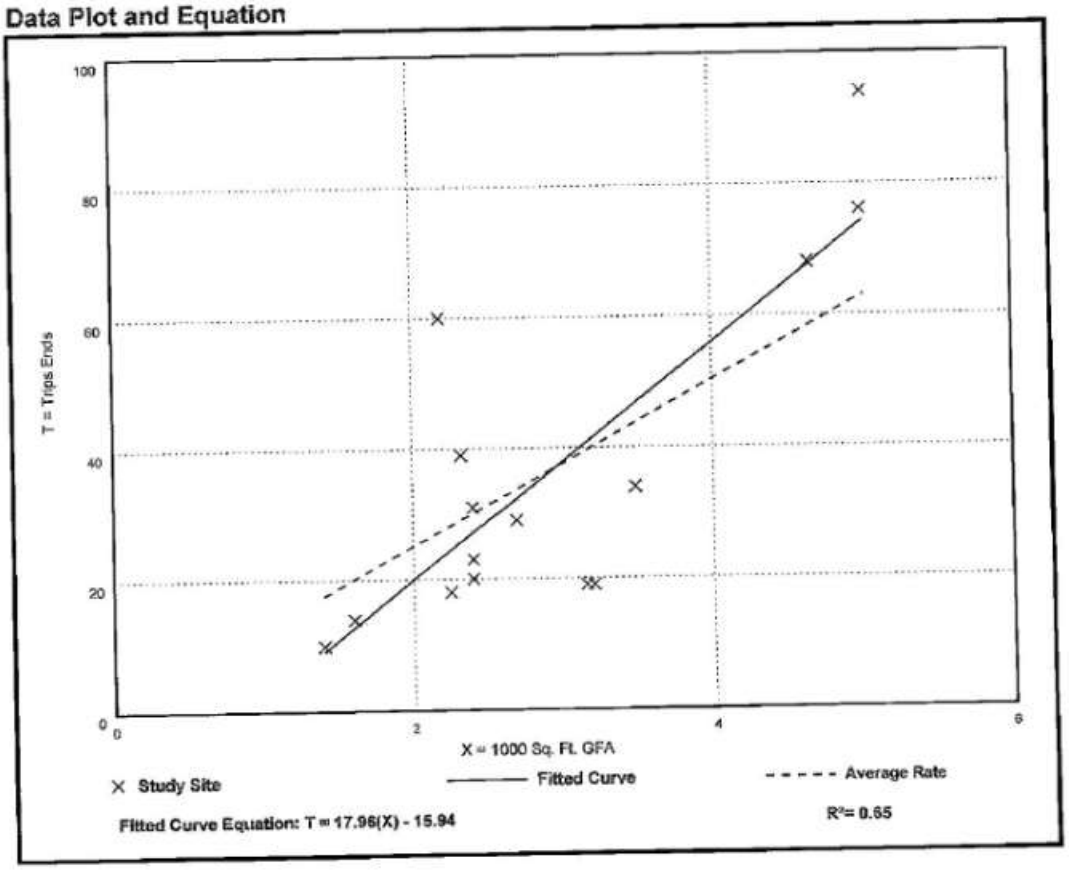
# Fast Casual Restaurant
# (930)

**Vehicle Trip Ends vs: 1000 Sq. Ft. GFA**
**On a: Weekday,**
**Peak Hour of Adjacent Street Traffic,**
**One Hour Between 4 and 6 p.m.**
**Setting/Location: General Urban/Suburban**
Number of Studies: 15
Avg. 1000 Sq. Ft. GFA: 3
Directional Distribution: 55% entering, 45% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

| Average Rate | Range of Rates | Standard Deviation |
|---|---|---|
| 12.55 | 5.94 - 27.40 | 5.52 |

## Data Plot and Equation



# Fast Casual Restaurant
# (930)

**Vehicle Trip Ends vs: 1000 Sq. Ft. GFA**
**On a: Saturday, Peak Hour of Generator**

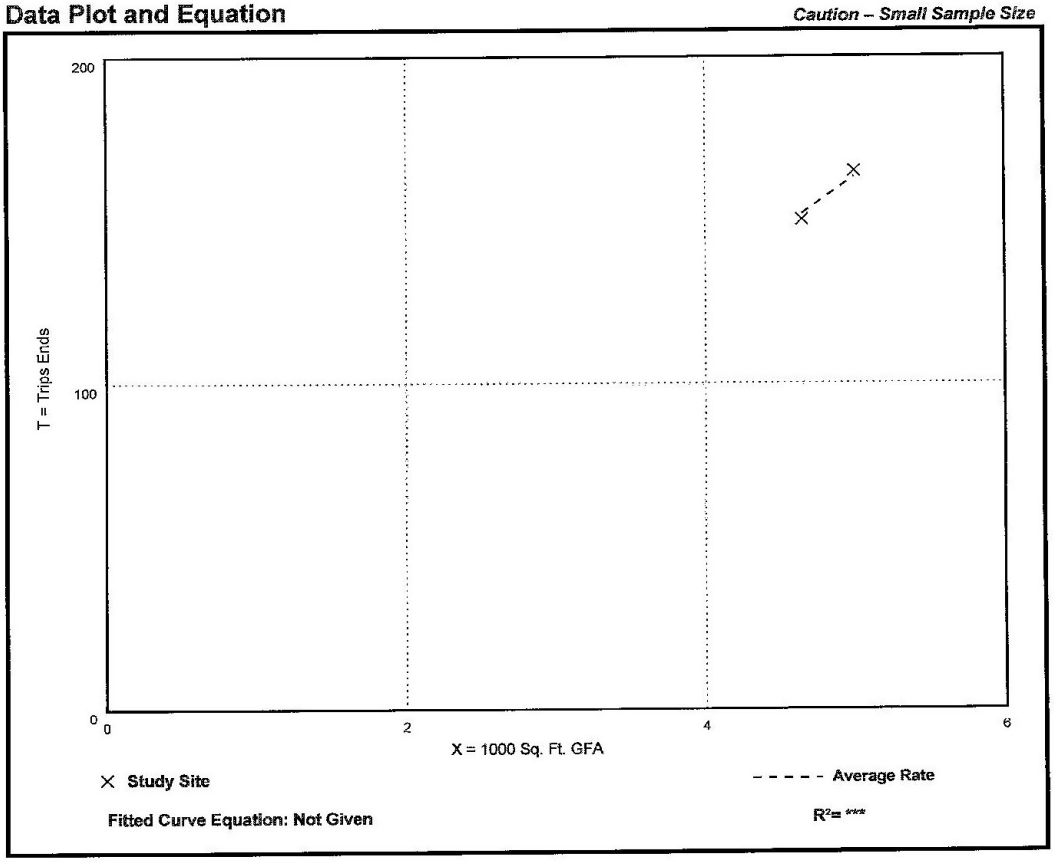
**Setting/Location: General Urban/Suburban**
Number of Studies: 2
Avg. 1000 Sq. Ft. GFA: 5
Directional Distribution: 55% entering, 45% exiting

## Vehicle Trip Generation per 1000 Sq. Ft. GFA

| Average Rate | Range of Rates | Standard Deviation |
|---|---|---|
| 32.64 | 32.26 - 33.00 | *** |

## Data Plot and Equation

***Caution – Small Sample Size***



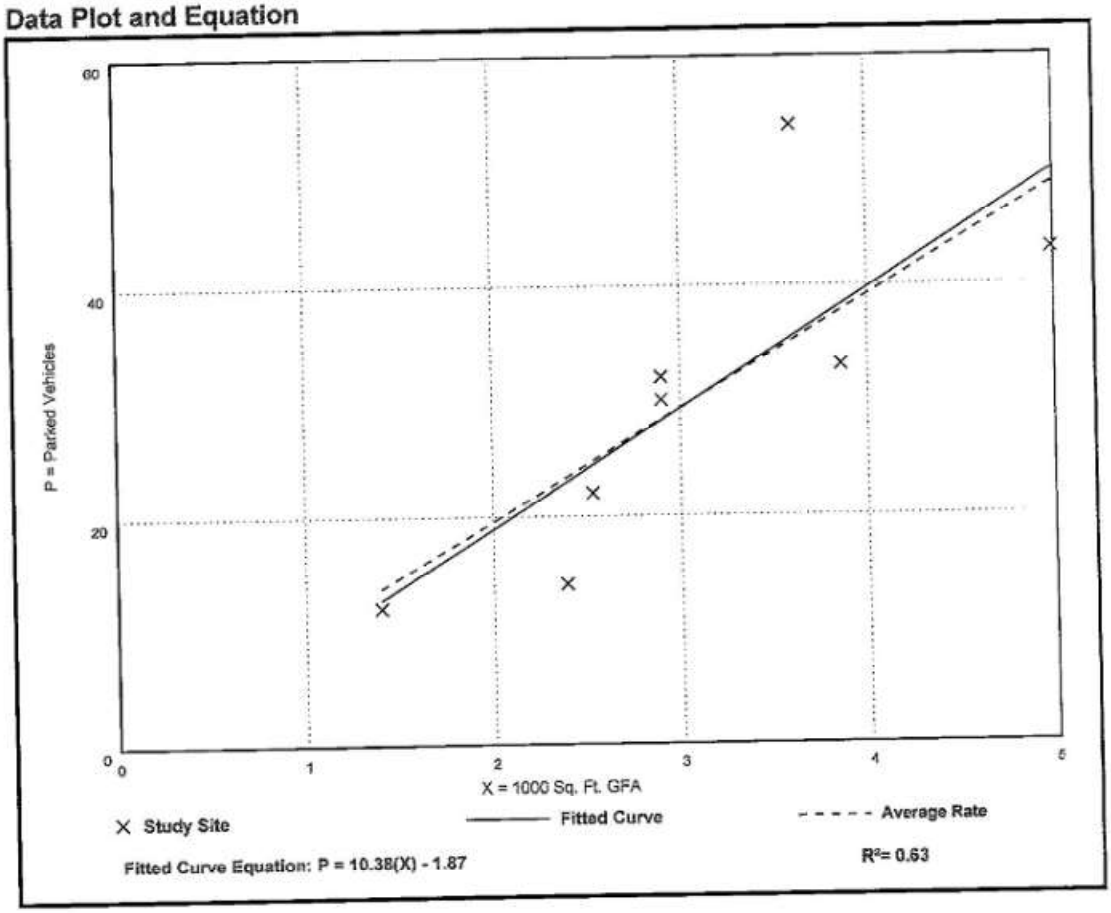
# Fast Casual Restaurant
# (930)

**Peak Period Parking Demand vs: 1000 Sq. Ft. GFA**
**On a: Weekday (Monday - Friday)**
**Setting/Location: General Urban/Suburban**
Number of Studies: 8
Avg. 1000 Sq. Ft. GFA: 3.1

## Peak Period Parking Demand per 1000 Sq. Ft. GFA

| Average Rate | Range of Rates | 33rd / 85th Percentile | 95% Confidence Interval | Standard Deviation (Coeff. of Variation) |
|---|---|---|---|---|
| 9.77 | 5.86 - 15.00 | 8.57 / 13.61 | *** | 2.71 ( 28% ) |

## Data Plot and Equation



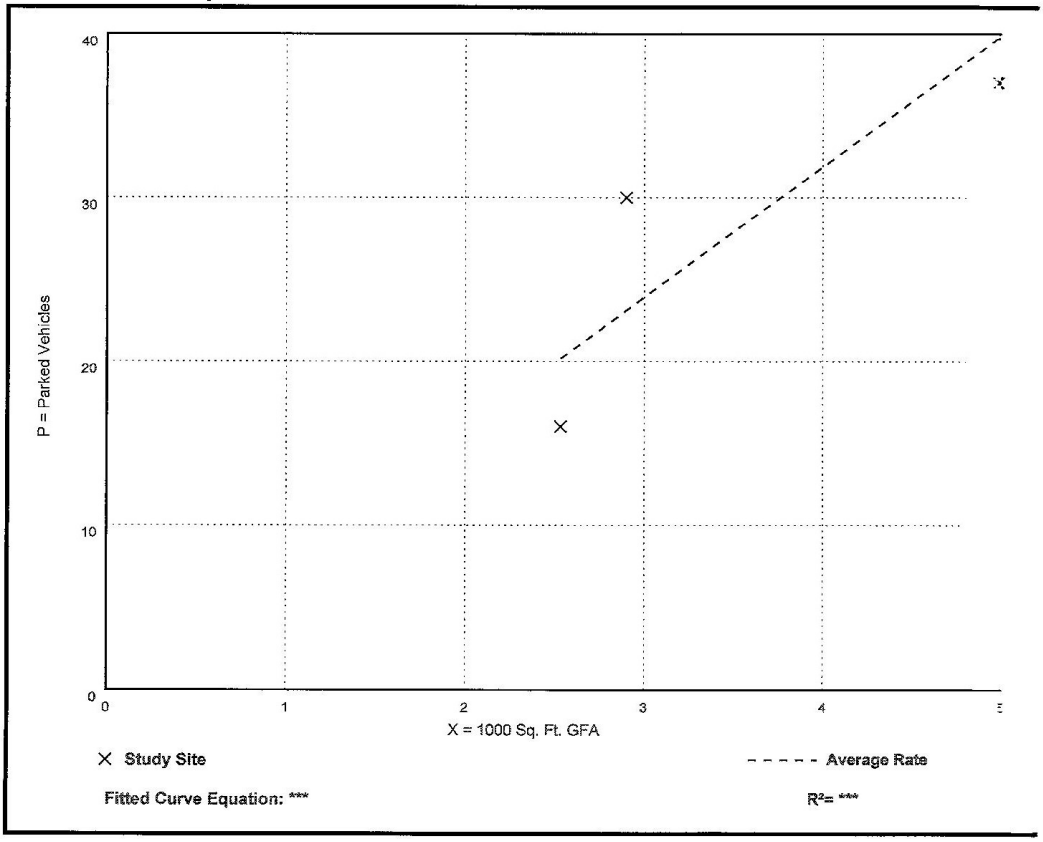
# Fast Casual Restaurant
# (930)

**Peak Period Parking Demand vs: 1000 Sq. Ft. GFA**
**On a: Saturday**
**Setting/Location: General Urban/Suburban**
Number of Studies: 3
Avg. 1000 Sq. Ft. GFA: 3.5

## Peak Period Parking Demand per 1000 Sq. Ft. GFA

| Average Rate | Range of Rates | 33rd / 85th Percentile | 95% Confidence Interval | Standard Deviation (Coeff. of Variation) |
|---|---|---|---|---|
| 7.97 | 6.32 - 10.34 | 6.67 / 10.34 | *** | 1.89 ( 24% ) |

## Data Plot and Equation



# INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Worcester COUNT DATE : Apr-24

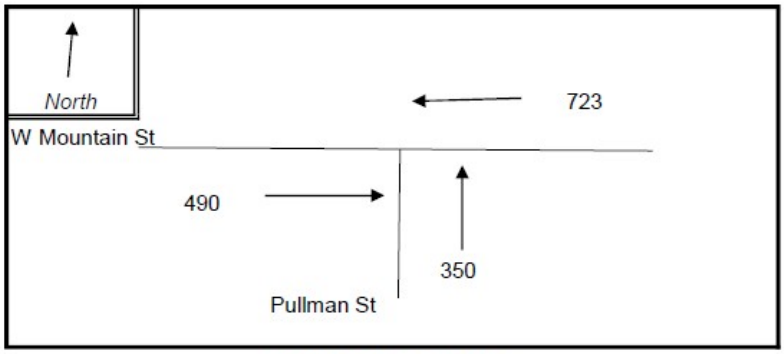
DISTRICT : 3 UNSIGNALIZED : SIGNALIZED : X

## ~ INTERSECTION DATA ~

MAJOR STREET : West Mountain Street

MINOR STREET(S) : Pullman Street

**INTERSECTION DIAGRAM (Label Approaches)**




**PEAK HOUR VOLUMES**

| APPROACH : | 1 | 2 | 3 | 4 | 5 | Total Peak Hourly Approach Volume |
|---|---|---|---|---|---|---|
| DIRECTION : | EB | WB | NB | | | |
| PEAK HOURLY VOLUMES (AM/PM) : | 490 | 723 | 350 | | | 1,563 |

" K " FACTOR : 0.090 INTERSECTION ADT ( V ) = TOTAL DAILY APPROACH VOLUME : 17,367

TOTAL # OF CRASHES : 8 # OF YEARS : 4.25 AVERAGE # OF CRASHES PER YEAR ( A ) : 1.88

**CRASH RATE CALCULATION :** 0.30 RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : Significantly lower that 0.89 for signalized intersections in massDOT D3 Worcester is in

Project Title & Date: 14-Apr-24

Moving Massachusetts Forward. massDOT Highway

# INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Worcester COUNT DATE :

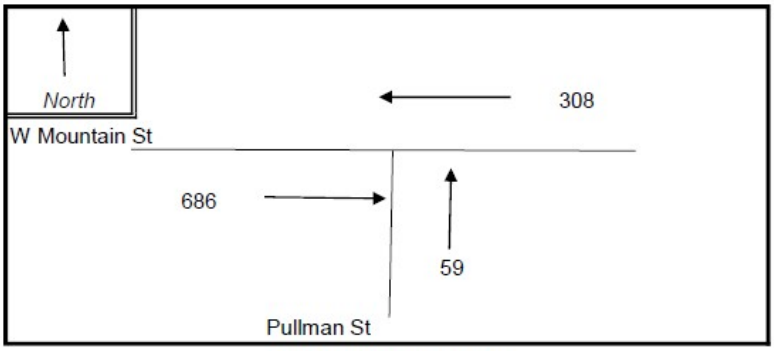
DISTRICT : 3 UNSIGNALIZED : SIGNALIZED : X

## ~ INTERSECTION DATA ~

MAJOR STREET : West Mountain Street

MINOR STREET(S) : Brooks Street

**INTERSECTION DIAGRAM (Label Approaches)**




**PEAK HOUR VOLUMES**

| APPROACH : | 1 | 2 | 3 | 4 | 5 | Total Peak Hourly Approach Volume |
|---|---|---|---|---|---|---|
| DIRECTION : | EB | WB | NB | | | |
| PEAK HOURLY VOLUMES (AM/PM) : | 686 | 308 | 59 | | | 1,053 |

| " K " FACTOR : | 0.090 | INTERSECTION ADT ( V ) = TOTAL DAILY APPROACH VOLUME : | 11,700 |
|---|---|---|---|

| TOTAL # OF CRASHES : | 14 | # OF YEARS : | 4.25 | AVERAGE # OF CRASHES PER YEAR ( A ) : | 3.29 |
|---|---|---|---|---|---|

**CRASH RATE CALCULATION :** 0.77 RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : Lower than 0.89 for signalized intersections in D3 of massDOT Worcester is located in

Project Title & Date: 14-Apr-24

| RMV Crash Number | City Town Name | Crash Date | Crash Time | Crash Severity | Maximum Injury Severity Reported | Number of Vehicles | Total Nonfatal Injuries | Total Fatal Injuries | Manner of Collision | Vehicle Action Prior to Crash | Most Harmful Events | Vehicle Configuration | Road Surface Condition | Ambient Light | Weather Condition | At Roadway Intersection | Distance From Nearest Roadway Intersection | Distance From Nearest Exit | Vulnerable User Type | X Coooordinate | Y Coooordinate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4915976 | WORCESTER | 03-May-2020 | 8:25 PM | Property damage only (none injured) | No Apparent Injury (O) | 2 | 0 | 0 | Rear-end | V1: Slowing or stopped in traffic / V2: Not reported | V1:(Collision with motor vehicle in traffic) | V1:(Light truck(van, mini-van, pickup, sport utility)) | Dry | Dusk | Clear | | MOUNTAIN STREET WEST / PULLMAN STREET | | | 175479.1817 | 897181.6118 |
| 4916828 | WORCESTER | 27-Aug-2020 | 12:08 PM | Property damage only (none injured) | No Apparent Injury (O) | 2 | 0 | 0 | Rear-end | V1: Travelling straight ahead / V2: Slowing or stopped in traffic | V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic) | V1:(Light truck(van, mini-van, pickup, sport utility)) / V2:(Light truck(van, mini-van, pickup, sport utility)) | Dry | Daylight | Clear | | 71 PULLMAN STREET | | | 175435.83445838 | 897085.55776169 |
| 4928680 | WORCESTER | 02-Sep-2020 | 7:44 PM | Property damage only (none injured) | No Apparent Injury (O) | 2 | 0 | 0 | Angle | V1: Turning left / V2: Travelling straight ahead | V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic) | V1:(Passenger car) / V2:(Light truck(van, mini-van, pickup, sport utility)) | Wet | Dark - lighted roadway | Clear | PULLMAN STREET / MOUNTAIN STREET WEST | PULLMAN STREET / MOUNTAIN STREET WEST | | | 175479.1817 | 897181.6118 |
| 4947580 | WORCESTER | 19-Feb-2021 | 11:46 AM | Property damage only (none injured) | No Apparent Injury (O) | 1 | 0 | 0 | Head-on | V1: Travelling straight ahead | V1:(Collision with utility pole) | V1:(Passenger car) | Snow | Daylight | Cloudy/ Cloudy | | 51 PULLMAN STREET | | | 175403.92167513 | 897014.76010058 |
| 4946544 | WORCESTER | 17-Mar-2021 | 3:15 PM | Non-fatal injury | Suspected Minor Injury (B) | 2 | 1 | 0 | Angle | V1: Turning left / V2: Travelling straight ahead | V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic) | V1:(Passenger car) / V2:(Light truck(van, mini-van, pickup, sport utility)) | Dry | Daylight | Clear | MOUNTAIN STREET EAST / PULLMAN STREET | MOUNTAIN STREET EAST / PULLMAN STREET | | | 175479.1817 | 897181.6118 |
| 5080712 | WORCESTER | 30-Jan-2022 | 12:50 PM | Property damage only (none injured) | No Apparent Injury (O) | 2 | 0 | 0 | Angle | V1: Turning left / V2: Travelling straight ahead | V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic) | V1:(Light truck(van, mini-van, pickup, sport utility)) / V2:(Passenger car) | Wet | Daylight | Clear | MOUNTAIN STREET WEST / PULLMAN STREET | MOUNTAIN STREET WEST / PULLMAN STREET | | | 175479.1817 | 897181.6118 |
| 5087978 | WORCESTER | 20-Mar-2022 | 3:31 PM | Property damage only (none injured) | No Apparent Injury (O) | 2 | 0 | 0 | Angle | V1: Not reported / V2: Leaving traffic lane | V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic) | V1:(Passenger car) / V2:(Light truck(van, mini-van, pickup, sport utility)) | Dry | Daylight | Clear | PULLMAN STREET / MOUNTAIN STREET WEST / | PULLMAN STREET / MOUNTAIN STREET WEST / | | | 175479.1817 | 897181.6118 |
| 5324409 | WORCESTER | 06-Nov-2023 | 12:50 PM | Property damage only (none injured) | No Apparent Injury (O) | 2 | 0 | 0 | Angle | V1: Travelling straight ahead / V2: Turning left | V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic) | V1:(Light truck(van, mini-van, pickup, sport utility)) / V2:(Light truck(van, mini-van, pickup, sport utility)) | Dry | Daylight | Clear | MOUNTAIN STREET WEST Rte / PULLMAN STREET Rte | MOUNTAIN STREET WEST Rte / PULLMAN STREET Rte | | | 175479.1817 | 897181.6118 |

| RMV Crash Number | City Town Name | Crash Date | Crash Time | Crash Severity | Maximum Injury Severity Reported | Number of Vehicles | Total Nonfatal Injuries | Total Fatal Injuries | Manner of Collision | Vehicle Action Prior to Crash | Most Harmful Events | Vehicle Configuration | Road Surface Condition | Ambient Light | Weather Condition | At Roadway Intersection | Distance From Nearest Roadway Intersection | Distance From Nearest Exit | Vulnerable User Type | X Cooordinate | Y Cooordinate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4916657 | WORCESTER | 17-Jul-2020 | 7:48 PM | Property damage only (none injured) | No Apparent Injury (O) | 2 | 0 | 0 | Angle | V1: Travelling straight ahead / V2: Travelling straight ahead | V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic) | V1:(Passenger car) / V2:(Light truck(van, mini-van, pickup, sport utility)) | Dry | Daylight | Clear | MOUNTAIN STREET WEST / BROOKS STREET | MOUNTAIN STREET WEST / BROOKS STREET | | | 175334.4455 | 897272.778 |
| 4902800 | WORCESTER | 17-Jul-2020 | 8:09 PM | Property damage only (none injured) | No Apparent Injury (O) | 2 | 0 | 0 | Head-on | V1: Travelling straight ahead / V2: Turning left | V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic) | V1:(Light truck(van, mini-van, pickup, sport utility)) / V2:(Light truck(van, mini-van, pickup, sport utility)) | Dry | Dusk | Clear/ Clear | MOUNTAIN STREET WEST / BROOKS STREET | MOUNTAIN STREET WEST / BROOKS STREET | | | 175334.4455 | 897272.778 |
| 4892649 | WORCESTER | 17-Oct-2020 | 9:00 AM | Property damage only (none injured) | No Apparent Injury (O) | 2 | 0 | 0 | Head-on | V1: Travelling straight ahead / V2: Slowing or stopped in traffic | V1:(Collision with parked motor vehicle) / V2:(Collision with parked motor vehicle) | V1:(Light truck(van, mini-van, pickup, sport utility)) / V2:(Passenger car) | Snow | Daylight | Cloudy/ Rain | MOUNTAIN STREET WEST / BROOKS STREET | MOUNTAIN STREET WEST / BROOKS STREET | | | 175437.4942 | 897208.2992 |
| 4961069 | WORCESTER | 15-Apr-2021 | 5:12 PM | Property damage only (none injured) | No Apparent Injury (O) | 2 | 0 | 0 | Angle | V1: Turning left / V2: Travelling straight ahead | V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic) | V1:(Passenger car) / V2:(Light truck(van, mini-van, pickup, sport utility)) | Wet | Daylight | Rain | BROOKS STREET / MOUNTAIN STREET WEST | BROOKS STREET / MOUNTAIN STREET WEST | | | 175437.4942 | 897208.2992 |
| 5011604 | WORCESTER | 13-Aug-2021 | 6:17 PM | Non-fatal injury | Suspected Minor Injury (B) | 2 | 1 | 0 | Angle | V1: Turning left / V2: Travelling straight ahead | V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic) | V1:(Light truck(van, mini-van, pickup, sport utility)) / V2:(Light truck(van, mini-van, pickup, sport utility)) | Dry | Daylight | Clear | MOUNTAIN STREET WEST / BROOKS STREET | MOUNTAIN STREET WEST / BROOKS STREET | | | 175437.4942 | 897208.2992 |
| 5017976 | WORCESTER | 01-Sep-2021 | 11:46 AM | Non-fatal injury | Possible Injury (C) | 2 | 1 | 0 | Front to Rear | V1: Slowing or stopped in traffic / V2: Travelling straight ahead | V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic) | V1:(Passenger car) / V2:(Passenger car) | Wet | Daylight | Rain | | BROOKS STREET / MOUNTAIN STREET WEST | | | 175437.4942 | 897208.2992 |
| 5031726 | WORCESTER | 24-Sep-2021 | 9:27 AM | Property damage only (none injured) | No Apparent Injury (O) | 2 | 0 | 0 | Angle | V1: Travelling straight ahead / V2: Not reported | V1:(Collision with motor vehicle in traffic) | V1:(Passenger car) | Wet | Daylight | Rain/Rain | BROOKS STREET / MOUNTAIN STREET WEST / MOUNTAIN STREET WEST | 79 BROOKS STREET / MOUNTAIN STREET WEST / MOUNTAIN STREET WEST | | | 175437.4942 | 897208.2992 |

W Mountain St at Brooks St AM Peak Existing Conditions

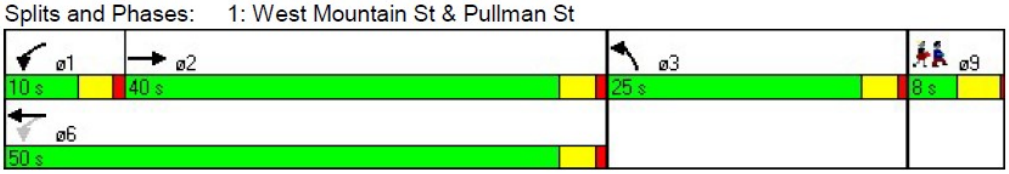
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Turning Speed (mph) | | 9 | 15 | | 15 | 9 | |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Frt | 0.985 | | | | 0.969 | | |
| Flt Protected | | | | 0.997 | 0.963 | | |
| Satd. Flow (prot) | 3486 | 0 | 0 | 3529 | 1738 | 0 | |
| Flt Permitted | | | | 0.905 | 0.963 | | |
| Satd. Flow (perm) | 3486 | 0 | 0 | 3203 | 1738 | 0 | |
| Right Turn on Red | | Yes | | | | Yes | |
| Satd. Flow (RTOR) | 18 | | | | 17 | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Link Speed (mph) | 30 | | | 30 | 30 | | |
| Link Distance (ft) | 1572 | | | 4656 | 2800 | | |
| Travel Time (s) | 35.7 | | | 105.8 | 63.6 | | |
| Volume (vph) | 621 | 65 | 10 | 298 | 44 | 15 | |
| Peak Hour Factor | 0.87 | 0.83 | 0.46 | 0.90 | 0.78 | 0.88 | |
| Adj. Flow (vph) | 714 | 78 | 22 | 331 | 56 | 17 | |
| Lane Group Flow (vph) | 792 | 0 | 0 | 353 | 73 | 0 | |
| Turn Type | | | pm+pt | | | | |
| Protected Phases | 2 | | 1 | 6 | 3 | | 9 |
| Permitted Phases | | | 6 | | | | |
| Minimum Split (s) | 40.0 | | 10.0 | 40.0 | 25.0 | | 8.0 |
| Total Split (s) | 40.0 | 0.0 | 10.0 | 50.0 | 25.0 | 0.0 | 8.0 |
| Total Split (%) | 48% | 0% | 12% | 60% | 30% | 0% | 10% |
| Maximum Green (s) | 36.0 | | 6.0 | 46.0 | 21.0 | | 4.0 |
| Yellow Time (s) | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.5 |
| All-Red Time (s) | 1.0 | | 1.0 | 1.0 | 1.0 | | 0.5 |
| Lead/Lag | Lag | | Lead | | | | |
| Lead-Lag Optimize? | Yes | | Yes | | | | |
| Walk Time (s) | 5.0 | | 5.0 | 5.0 | 5.0 | | |
| Flash Dont Walk (s) | 11.0 | | 11.0 | 11.0 | 11.0 | | |
| Pedestrian Calls (#/hr) | 0 | | 0 | 0 | 0 | | |
| Act Effct Green (s) | 36.0 | | | 46.0 | 21.0 | | |
| Actuated g/C Ratio | 0.43 | | | 0.55 | 0.25 | | |
| v/c Ratio | 0.52 | | | 0.20 | 0.16 | | |
| Uniform Delay, d1 | 16.7 | | | 9.2 | 18.3 | | |
| Delay | 17.0 | | | 9.3 | 19.8 | | |
| LOS | B | | | A | B | | |
| Approach Delay | 17.0 | | | 9.3 | 19.8 | | |
| Approach LOS | B | | | A | B | | |
| Queue Length 50th (ft) | 140 | | | 44 | 22 | | |
| Queue Length 95th (ft) | 181 | | | 66 | 46 | | |
| Internal Link Dist (ft) | 1492 | | | 4576 | 2720 | | |
| 50th Up Block Time (%) | | | | | | | |
| 95th Up Block Time (%) | | | | | | | |
| Turn Bay Length (ft) | | | | | | | |
| 50th Bay Block Time % | | | | | | | |

W Mountain St at Brooks St AM Peak Existing Conditions

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| 95th Bay Block Time % | | | | | | | |
| Queuing Penalty (veh) | | | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 83 | | | |
| Actuated Cycle Length: 83 | | | |
| Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green | | | |
| Natural Cycle: 85 | | | |
| Control Type: Pretimed | | | |
| Maximum v/c Ratio: 0.52 | | | |
| Intersection Signal Delay: 14.9 | | Intersection LOS: B | |
| Intersection Capacity Utilization 33.1% | | ICU Level of Service A | |

Splits and Phases: 1: West Mountain St & Pullman St



W Mountain St at Brooks St AM Peak Future No Build Conditions

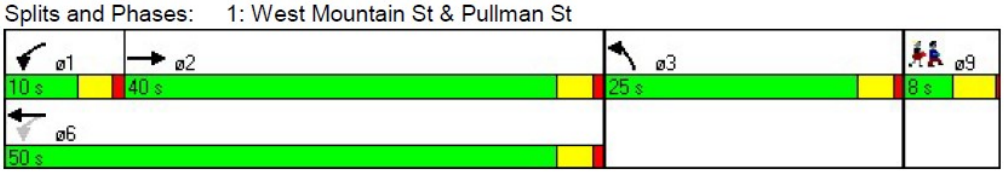
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Turning Speed (mph) | | 9 | 15 | | 15 | 9 | |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Frt | 0.985 | | | | 0.969 | | |
| Flt Protected | | | | 0.997 | 0.963 | | |
| Satd. Flow (prot) | 3486 | 0 | 0 | 3529 | 1738 | 0 | |
| Flt Permitted | | | | 0.905 | 0.963 | | |
| Satd. Flow (perm) | 3486 | 0 | 0 | 3203 | 1738 | 0 | |
| Right Turn on Red | | Yes | | | | Yes | |
| Satd. Flow (RTOR) | 18 | | | | 17 | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Link Speed (mph) | 30 | | | 30 | 30 | | |
| Link Distance (ft) | 1572 | | | 4656 | 2800 | | |
| Travel Time (s) | 35.7 | | | 105.8 | 63.6 | | |
| Volume (vph) | 632 | 66 | 10 | 303 | 45 | 15 | |
| Peak Hour Factor | 0.87 | 0.83 | 0.46 | 0.90 | 0.78 | 0.88 | |
| Adj. Flow (vph) | 726 | 80 | 22 | 337 | 58 | 17 | |
| Lane Group Flow (vph) | 806 | 0 | 0 | 359 | 75 | 0 | |
| Turn Type | | | pm+pt | | | | |
| Protected Phases | 2 | | 1 | 6 | 3 | | 9 |
| Permitted Phases | | | 6 | | | | |
| Minimum Split (s) | 40.0 | | 10.0 | 40.0 | 25.0 | | 8.0 |
| Total Split (s) | 40.0 | 0.0 | 10.0 | 50.0 | 25.0 | 0.0 | 8.0 |
| Total Split (%) | 48% | 0% | 12% | 60% | 30% | 0% | 10% |
| Maximum Green (s) | 36.0 | | 6.0 | 46.0 | 21.0 | | 4.0 |
| Yellow Time (s) | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.5 |
| All-Red Time (s) | 1.0 | | 1.0 | 1.0 | 1.0 | | 0.5 |
| Lead/Lag | Lag | | Lead | | | | |
| Lead-Lag Optimize? | Yes | | Yes | | | | |
| Walk Time (s) | 5.0 | | 5.0 | 5.0 | 5.0 | | |
| Flash Dont Walk (s) | 11.0 | | 11.0 | 11.0 | 11.0 | | |
| Pedestrian Calls (#/hr) | 0 | | 0 | 0 | 0 | | |
| Act Effct Green (s) | 36.0 | | | 46.0 | 21.0 | | |
| Actuated g/C Ratio | 0.43 | | | 0.55 | 0.25 | | |
| v/c Ratio | 0.53 | | | 0.20 | 0.17 | | |
| Uniform Delay, d1 | 16.8 | | | 9.2 | 18.5 | | |
| Delay | 17.1 | | | 9.3 | 19.9 | | |
| LOS | B | | | A | B | | |
| Approach Delay | 17.1 | | | 9.3 | 19.9 | | |
| Approach LOS | B | | | A | B | | |
| Queue Length 50th (ft) | 143 | | | 45 | 23 | | |
| Queue Length 95th (ft) | 184 | | | 67 | 47 | | |
| Internal Link Dist (ft) | 1492 | | | 4576 | 2720 | | |
| 50th Up Block Time (%) | | | | | | | |
| 95th Up Block Time (%) | | | | | | | |
| Turn Bay Length (ft) | | | | | | | |
| 50th Bay Block Time % | | | | | | | |

W Mountain St at Brooks St AM Peak Future No Build Conditions

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| 95th Bay Block Time % | | | | | | | |
| Queuing Penalty (veh) | | | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 83 | | | |
| Actuated Cycle Length: 83 | | | |
| Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green | | | |
| Natural Cycle: 85 | | | |
| Control Type: Pretimed | | | |
| Maximum v/c Ratio: 0.53 | | | |
| Intersection Signal Delay: 15.0 | | Intersection LOS: B | |
| Intersection Capacity Utilization 33.5% | | ICU Level of Service A | |

Splits and Phases: 1: West Mountain St & Pullman St



W Mountain St at Brooks St AM Peak Future Build Conditions

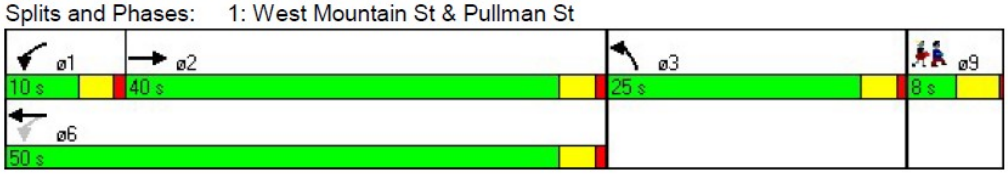
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Turning Speed (mph) | | 9 | 15 | | 15 | 9 | |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Frt | 0.985 | | | | 0.969 | | |
| Flt Protected | | | | 0.997 | 0.963 | | |
| Satd. Flow (prot) | 3486 | 0 | 0 | 3529 | 1738 | 0 | |
| Flt Permitted | | | | 0.904 | 0.963 | | |
| Satd. Flow (perm) | 3486 | 0 | 0 | 3199 | 1738 | 0 | |
| Right Turn on Red | | Yes | | | | Yes | |
| Satd. Flow (RTOR) | 18 | | | | 17 | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Link Speed (mph) | 30 | | | 30 | 30 | | |
| Link Distance (ft) | 1572 | | | 4656 | 2800 | | |
| Travel Time (s) | 35.7 | | | 105.8 | 63.6 | | |
| Volume (vph) | 633 | 66 | 10 | 303 | 45 | 15 | |
| Peak Hour Factor | 0.87 | 0.83 | 0.46 | 0.90 | 0.78 | 0.88 | |
| Adj. Flow (vph) | 728 | 80 | 22 | 337 | 58 | 17 | |
| Lane Group Flow (vph) | 808 | 0 | 0 | 359 | 75 | 0 | |
| Turn Type | | | pm+pt | | | | |
| Protected Phases | 2 | | 1 | 6 | 3 | | 9 |
| Permitted Phases | | | 6 | | | | |
| Minimum Split (s) | 40.0 | | 10.0 | 40.0 | 25.0 | | 8.0 |
| Total Split (s) | 40.0 | 0.0 | 10.0 | 50.0 | 25.0 | 0.0 | 8.0 |
| Total Split (%) | 48% | 0% | 12% | 60% | 30% | 0% | 10% |
| Maximum Green (s) | 36.0 | | 6.0 | 46.0 | 21.0 | | 4.0 |
| Yellow Time (s) | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.5 |
| All-Red Time (s) | 1.0 | | 1.0 | 1.0 | 1.0 | | 0.5 |
| Lead/Lag | Lag | | Lead | | | | |
| Lead-Lag Optimize? | Yes | | Yes | | | | |
| Walk Time (s) | 5.0 | | 5.0 | 5.0 | 5.0 | | |
| Flash Dont Walk (s) | 11.0 | | 11.0 | 11.0 | 11.0 | | |
| Pedestrian Calls (#/hr) | 0 | | 0 | 0 | 0 | | |
| Act Effct Green (s) | 36.0 | | | 46.0 | 21.0 | | |
| Actuated g/C Ratio | 0.43 | | | 0.55 | 0.25 | | |
| v/c Ratio | 0.53 | | | 0.20 | 0.17 | | |
| Uniform Delay, d1 | 16.8 | | | 9.2 | 18.5 | | |
| Delay | 17.1 | | | 9.3 | 19.9 | | |
| LOS | B | | | A | B | | |
| Approach Delay | 17.1 | | | 9.3 | 19.9 | | |
| Approach LOS | B | | | A | B | | |
| Queue Length 50th (ft) | 144 | | | 45 | 23 | | |
| Queue Length 95th (ft) | 185 | | | 67 | 47 | | |
| Internal Link Dist (ft) | 1492 | | | 4576 | 2720 | | |
| 50th Up Block Time (%) | | | | | | | |
| 95th Up Block Time (%) | | | | | | | |
| Turn Bay Length (ft) | | | | | | | |
| 50th Bay Block Time % | | | | | | | |

W Mountain St at Brooks St AM Peak Future Build Conditions

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| 95th Bay Block Time % | | | | | | | |
| Queuing Penalty (veh) | | | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 83 | | | |
| Actuated Cycle Length: 83 | | | |
| Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBTL, Start of Green | | | |
| Natural Cycle: 85 | | | |
| Control Type: Pretimed | | | |
| Maximum v/c Ratio: 0.53 | | | |
| Intersection Signal Delay: 15.0 | | Intersection LOS: B | |
| Intersection Capacity Utilization 33.5% | | ICU Level of Service A | |

Splits and Phases: 1: West Mountain St & Pullman St



W Mountain St at Brooks St PM Peak Existing Conditions

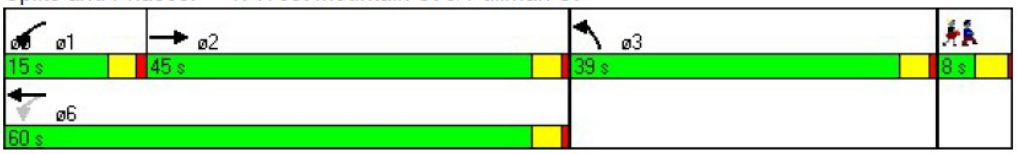
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Turning Speed (mph) | | 9 | 15 | | 15 | 9 | |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Frt | 0.986 | | | | 0.963 | | |
| Flt Protected | | | | 0.998 | 0.965 | | |
| Satd. Flow (prot) | 3490 | 0 | 0 | 3532 | 1731 | 0 | |
| Flt Permitted | | | | 0.928 | 0.965 | | |
| Satd. Flow (perm) | 3490 | 0 | 0 | 3284 | 1731 | 0 | |
| Right Turn on Red | | Yes | | | | Yes | |
| Satd. Flow (RTOR) | 12 | | | | 19 | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Link Speed (mph) | 30 | | | 30 | 30 | | |
| Link Distance (ft) | 1572 | | | 4656 | 2800 | | |
| Travel Time (s) | 35.7 | | | 105.8 | 63.6 | | |
| Volume (vph) | 474 | 43 | 20 | 767 | 45 | 14 | |
| Peak Hour Factor | 0.94 | 0.81 | 0.69 | 0.92 | 0.67 | 0.57 | |
| Adj. Flow (vph) | 504 | 53 | 29 | 834 | 67 | 25 | |
| Lane Group Flow (vph) | 557 | 0 | 0 | 863 | 92 | 0 | |
| Turn Type | | | pm+pt | | | | |
| Protected Phases | 2 | | 1 | 6 | 3 | | 9 |
| Permitted Phases | | | 6 | | | | |
| Minimum Split (s) | 45.0 | | 15.0 | 45.0 | 35.0 | | 8.0 |
| Total Split (s) | 45.0 | 0.0 | 15.0 | 60.0 | 39.0 | 0.0 | 8.0 |
| Total Split (%) | 42% | 0% | 14% | 56% | 36% | 0% | 7% |
| Maximum Green (s) | 41.0 | | 11.0 | 56.0 | 35.0 | | 4.0 |
| Yellow Time (s) | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.5 |
| All-Red Time (s) | 1.0 | | 1.0 | 1.0 | 1.0 | | 0.5 |
| Lead/Lag | Lag | | Lead | | | | |
| Lead-Lag Optimize? | Yes | | Yes | | | | |
| Walk Time (s) | 5.0 | | 5.0 | 5.0 | 5.0 | | |
| Flash Dont Walk (s) | 11.0 | | 11.0 | 11.0 | 11.0 | | |
| Pedestrian Calls (#/hr) | 0 | | 0 | 0 | 0 | | |
| Act Effct Green (s) | 41.0 | | | 56.0 | 35.0 | | |
| Actuated g/C Ratio | 0.38 | | | 0.52 | 0.33 | | |
| v/c Ratio | 0.41 | | | 0.49 | 0.16 | | |
| Uniform Delay, d1 | 23.6 | | | 16.1 | 20.1 | | |
| Delay | 23.9 | | | 16.4 | 20.5 | | |
| LOS | C | | | B | C | | |
| Approach Delay | 23.9 | | | 16.4 | 20.5 | | |
| Approach LOS | C | | | B | C | | |
| Queue Length 50th (ft) | 142 | | | 187 | 33 | | |
| Queue Length 95th (ft) | 189 | | | 238 | 49 | | |
| Internal Link Dist (ft) | 1492 | | | 4576 | 2720 | | |
| 50th Up Block Time (%) | | | | | | | |
| 95th Up Block Time (%) | | | | | | | |
| Turn Bay Length (ft) | | | | | | | |
| 50th Bay Block Time % | | | | | | | |

W Mountain St at Brooks St PM Peak Existing Conditions

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| 95th Bay Block Time % | | | | | | | |
| Queuing Penalty (veh) | | | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 107 | | | |
| Actuated Cycle Length: 107 | | | |
| Offset: 92 (86%), Referenced to phase 2:EBT and 6:WBTL, Start of Green | | | |
| Natural Cycle: 105 | | | |
| Control Type: Pretimed | | | |
| Maximum v/c Ratio: 0.49 | | | |
| Intersection Signal Delay: 19.4 | | Intersection LOS: B | |
| Intersection Capacity Utilization 42.3% | | ICU Level of Service A | |

Splits and Phases: 1: West Mountain St & Pullman St



W Mountain St at Brooks St PM Peak Future No Build Conditions

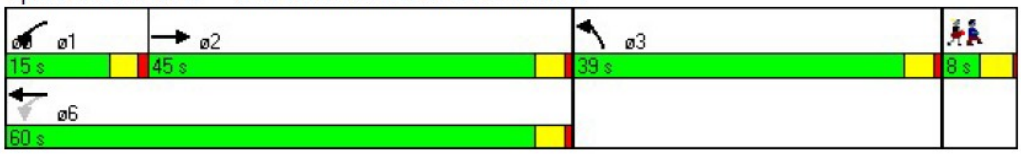
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Turning Speed (mph) | | 9 | 15 | | 15 | 9 | |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Frt | 0.986 | | | | 0.964 | | |
| Flt Protected | | | | 0.998 | 0.965 | | |
| Satd. Flow (prot) | 3490 | 0 | 0 | 3532 | 1733 | 0 | |
| Flt Permitted | | | | 0.928 | 0.965 | | |
| Satd. Flow (perm) | 3490 | 0 | 0 | 3284 | 1733 | 0 | |
| Right Turn on Red | | Yes | | | | Yes | |
| Satd. Flow (RTOR) | 12 | | | | 18 | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Link Speed (mph) | 30 | | | 30 | 30 | | |
| Link Distance (ft) | 1572 | | | 4656 | 2800 | | |
| Travel Time (s) | 35.7 | | | 105.8 | 63.6 | | |
| Volume (vph) | 482 | 44 | 20 | 780 | 46 | 14 | |
| Peak Hour Factor | 0.94 | 0.81 | 0.69 | 0.92 | 0.67 | 0.57 | |
| Adj. Flow (vph) | 513 | 54 | 29 | 848 | 69 | 25 | |
| Lane Group Flow (vph) | 567 | 0 | 0 | 877 | 94 | 0 | |
| Turn Type | | | pm+pt | | | | |
| Protected Phases | 2 | | 1 | 6 | 3 | | 9 |
| Permitted Phases | | | 6 | | | | |
| Minimum Split (s) | 45.0 | | 15.0 | 45.0 | 35.0 | | 8.0 |
| Total Split (s) | 45.0 | 0.0 | 15.0 | 60.0 | 39.0 | 0.0 | 8.0 |
| Total Split (%) | 42% | 0% | 14% | 56% | 36% | 0% | 7% |
| Maximum Green (s) | 41.0 | | 11.0 | 56.0 | 35.0 | | 4.0 |
| Yellow Time (s) | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.5 |
| All-Red Time (s) | 1.0 | | 1.0 | 1.0 | 1.0 | | 0.5 |
| Lead/Lag | Lag | | Lead | | | | |
| Lead-Lag Optimize? | Yes | | Yes | | | | |
| Walk Time (s) | 5.0 | | 5.0 | 5.0 | 5.0 | | |
| Flash Dont Walk (s) | 11.0 | | 11.0 | 11.0 | 11.0 | | |
| Pedestrian Calls (#/hr) | 0 | | 0 | 0 | 0 | | |
| Act Effct Green (s) | 41.0 | | | 56.0 | 35.0 | | |
| Actuated g/C Ratio | 0.38 | | | 0.52 | 0.33 | | |
| v/c Ratio | 0.42 | | | 0.50 | 0.16 | | |
| Uniform Delay, d1 | 23.7 | | | 16.2 | 20.5 | | |
| Delay | 24.0 | | | 16.5 | 20.9 | | |
| LOS | C | | | B | C | | |
| Approach Delay | 24.0 | | | 16.5 | 20.9 | | |
| Approach LOS | C | | | B | C | | |
| Queue Length 50th (ft) | 145 | | | 192 | 34 | | |
| Queue Length 95th (ft) | 193 | | | 244 | 50 | | |
| Internal Link Dist (ft) | 1492 | | | 4576 | 2720 | | |
| 50th Up Block Time (%) | | | | | | | |
| 95th Up Block Time (%) | | | | | | | |
| Turn Bay Length (ft) | | | | | | | |
| 50th Bay Block Time % | | | | | | | |

W Mountain St at Brooks St PM Peak Future No Build Conditions

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| 95th Bay Block Time % | | | | | | | |
| Queuing Penalty (veh) | | | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 107 | | | |
| Actuated Cycle Length: 107 | | | |
| Offset: 92 (86%), Referenced to phase 2:EBT and 6:WBTL, Start of Green | | | |
| Natural Cycle: 105 | | | |
| Control Type: Pretimed | | | |
| Maximum v/c Ratio: 0.50 | | | |
| Intersection Signal Delay: 19.5 | | Intersection LOS: B | |
| Intersection Capacity Utilization 42.9% | | ICU Level of Service A | |

Splits and Phases: 1: West Mountain St & Pullman St



W Mountain St at Brooks St PM Peak Future Build Conditions

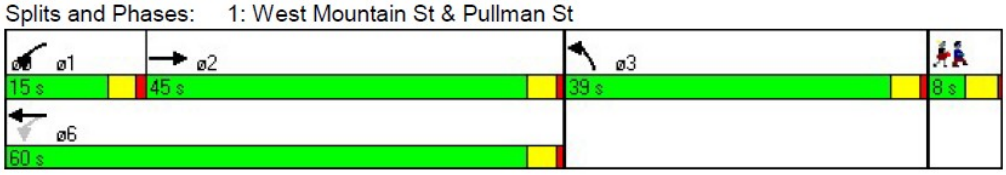
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Turning Speed (mph) | | 9 | 15 | | 15 | 9 | |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Frt | 0.986 | | | | 0.964 | | |
| Flt Protected | | | | 0.998 | 0.965 | | |
| Satd. Flow (prot) | 3490 | 0 | 0 | 3532 | 1733 | 0 | |
| Flt Permitted | | | | 0.928 | 0.965 | | |
| Satd. Flow (perm) | 3490 | 0 | 0 | 3284 | 1733 | 0 | |
| Right Turn on Red | | Yes | | | | Yes | |
| Satd. Flow (RTOR) | 12 | | | | 18 | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Link Speed (mph) | 30 | | | 30 | 30 | | |
| Link Distance (ft) | 1572 | | | 4656 | 2800 | | |
| Travel Time (s) | 35.7 | | | 105.8 | 63.6 | | |
| Volume (vph) | 485 | 44 | 20 | 783 | 46 | 14 | |
| Peak Hour Factor | 0.94 | 0.81 | 0.69 | 0.92 | 0.67 | 0.57 | |
| Adj. Flow (vph) | 516 | 54 | 29 | 851 | 69 | 25 | |
| Lane Group Flow (vph) | 570 | 0 | 0 | 880 | 94 | 0 | |
| Turn Type | | | pm+pt | | | | |
| Protected Phases | 2 | | 1 | 6 | 3 | | 9 |
| Permitted Phases | | | 6 | | | | |
| Minimum Split (s) | 45.0 | | 15.0 | 45.0 | 35.0 | | 8.0 |
| Total Split (s) | 45.0 | 0.0 | 15.0 | 60.0 | 39.0 | 0.0 | 8.0 |
| Total Split (%) | 42% | 0% | 14% | 56% | 36% | 0% | 7% |
| Maximum Green (s) | 41.0 | | 11.0 | 56.0 | 35.0 | | 4.0 |
| Yellow Time (s) | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.5 |
| All-Red Time (s) | 1.0 | | 1.0 | 1.0 | 1.0 | | 0.5 |
| Lead/Lag | Lag | | Lead | | | | |
| Lead-Lag Optimize? | Yes | | Yes | | | | |
| Walk Time (s) | 5.0 | | 5.0 | 5.0 | 5.0 | | |
| Flash Dont Walk (s) | 11.0 | | 11.0 | 11.0 | 11.0 | | |
| Pedestrian Calls (#/hr) | 0 | | 0 | 0 | 0 | | |
| Act Effct Green (s) | 41.0 | | | 56.0 | 35.0 | | |
| Actuated g/C Ratio | 0.38 | | | 0.52 | 0.33 | | |
| v/c Ratio | 0.42 | | | 0.50 | 0.16 | | |
| Uniform Delay, d1 | 23.7 | | | 16.2 | 20.5 | | |
| Delay | 24.0 | | | 16.5 | 20.9 | | |
| LOS | C | | | B | C | | |
| Approach Delay | 24.0 | | | 16.5 | 20.9 | | |
| Approach LOS | C | | | B | C | | |
| Queue Length 50th (ft) | 145 | | | 192 | 34 | | |
| Queue Length 95th (ft) | 194 | | | 244 | 50 | | |
| Internal Link Dist (ft) | 1492 | | | 4576 | 2720 | | |
| 50th Up Block Time (%) | | | | | | | |
| 95th Up Block Time (%) | | | | | | | |
| Turn Bay Length (ft) | | | | | | | |
| 50th Bay Block Time % | | | | | | | |

## W Mountain St at Brooks St PM Peak Future Build Conditions

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| 95th Bay Block Time % | | | | | | | |
| Queuing Penalty (veh) | | | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 107 | | | |
| Actuated Cycle Length: 107 | | | |
| Offset: 92 (86%), Referenced to phase 2:EBT and 6:WBTL, Start of Green | | | |
| Natural Cycle: 105 | | | |
| Control Type: Pretimed | | | |
| Maximum v/c Ratio: 0.50 | | | |
| Intersection Signal Delay: 19.5 | | Intersection LOS: B | |
| Intersection Capacity Utilization 43.0% | | ICU Level of Service A | |

Splits and Phases: 1: West Mountain St & Pullman St



W Mountain St at Brooks St Sat Peak Existing Conditions

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Turning Speed (mph) | | 9 | 15 | | 15 | 9 | |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Frt | 0.995 | | | | 0.943 | | |
| Flt Protected | | | | 0.999 | 0.972 | | |
| Satd. Flow (prot) | 3522 | 0 | 0 | 3536 | 1707 | 0 | |
| Flt Permitted | | | | 0.946 | 0.972 | | |
| Satd. Flow (perm) | 3522 | 0 | 0 | 3348 | 1707 | 0 | |
| Right Turn on Red | | Yes | | | | Yes | |
| Satd. Flow (RTOR) | 5 | | | | 11 | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Link Speed (mph) | 30 | | | 30 | 30 | | |
| Link Distance (ft) | 1572 | | | 4656 | 2800 | | |
| Travel Time (s) | 35.7 | | | 105.8 | 63.6 | | |
| Volume (vph) | 462 | 14 | 8 | 466 | 10 | 6 | |
| Peak Hour Factor | 0.94 | 0.81 | 0.69 | 0.92 | 0.67 | 0.57 | |
| Adj. Flow (vph) | 491 | 17 | 12 | 507 | 15 | 11 | |
| Lane Group Flow (vph) | 508 | 0 | 0 | 519 | 26 | 0 | |
| Turn Type | | | pm+pt | | | | |
| Protected Phases | 2 | | 1 | 6 | 3 | | 9 |
| Permitted Phases | | | 6 | | | | |
| Minimum Split (s) | 40.0 | | 10.0 | 40.0 | 25.0 | | 8.0 |
| Total Split (s) | 40.0 | 0.0 | 10.0 | 50.0 | 25.0 | 0.0 | 8.0 |
| Total Split (%) | 48% | 0% | 12% | 60% | 30% | 0% | 10% |
| Maximum Green (s) | 36.0 | | 6.0 | 46.0 | 21.0 | | 4.0 |
| Yellow Time (s) | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.5 |
| All-Red Time (s) | 1.0 | | 1.0 | 1.0 | 1.0 | | 0.5 |
| Lead/Lag | Lag | | Lead | | | | |
| Lead-Lag Optimize? | Yes | | Yes | | | | |
| Walk Time (s) | 5.0 | | 5.0 | 5.0 | 5.0 | | |
| Flash Dont Walk (s) | 11.0 | | 11.0 | 11.0 | 11.0 | | |
| Pedestrian Calls (#/hr) | 0 | | 0 | 0 | 0 | | |
| Act Effct Green (s) | 36.0 | | | 46.0 | 21.0 | | |
| Actuated g/C Ratio | 0.43 | | | 0.55 | 0.25 | | |
| v/c Ratio | 0.33 | | | 0.28 | 0.06 | | |
| Uniform Delay, d1 | 15.4 | | | 9.7 | 13.5 | | |
| Delay | 15.6 | | | 9.8 | 17.1 | | |
| LOS | B | | | A | B | | |
| Approach Delay | 15.6 | | | 9.8 | 17.1 | | |
| Approach LOS | B | | | A | B | | |
| Queue Length 50th (ft) | 87 | | | 68 | 6 | | |
| Queue Length 95th (ft) | 124 | | | 96 | 17 | | |
| Internal Link Dist (ft) | 1492 | | | 4576 | 2720 | | |
| 50th Up Block Time (%) | | | | | | | |
| 95th Up Block Time (%) | | | | | | | |
| Turn Bay Length (ft) | | | | | | | |
| 50th Bay Block Time % | | | | | | | |

W Mountain St at Brooks St Sat Peak Existing Conditions

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| 95th Bay Block Time % | | | | | | | |
| Queuing Penalty (veh) | | | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 83 | | | |
| Actuated Cycle Length: 83 | | | |
| Offset: 9 (11%), Referenced to phase 2:EBT and 6:WBTL, Start of Green | | | |
| Natural Cycle: 85 | | | |
| Control Type: Pretimed | | | |
| Maximum v/c Ratio: 0.33 | | | |
| Intersection Signal Delay: 12.8 | | Intersection LOS: B | |
| Intersection Capacity Utilization 26.3% | | ICU Level of Service A | |

Splits and Phases: 1: West Mountain St & Pullman St

W Mountain St at Brooks St Sat Peak Future No Build Conditions

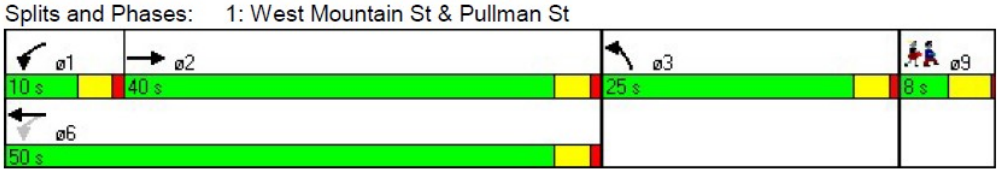
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Turning Speed (mph) | | 9 | 15 | | 15 | 9 | |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Frt | 0.995 | | | | 0.943 | | |
| Flt Protected | | | | 0.999 | 0.972 | | |
| Satd. Flow (prot) | 3522 | 0 | 0 | 3536 | 1707 | 0 | |
| Flt Permitted | | | | 0.946 | 0.972 | | |
| Satd. Flow (perm) | 3522 | 0 | 0 | 3348 | 1707 | 0 | |
| Right Turn on Red | | Yes | | | | Yes | |
| Satd. Flow (RTOR) | 5 | | | | 11 | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Link Speed (mph) | 30 | | | 30 | 30 | | |
| Link Distance (ft) | 1572 | | | 4656 | 2800 | | |
| Travel Time (s) | 35.7 | | | 105.8 | 63.6 | | |
| Volume (vph) | 470 | 14 | 8 | 474 | 10 | 6 | |
| Peak Hour Factor | 0.94 | 0.81 | 0.69 | 0.92 | 0.67 | 0.57 | |
| Adj. Flow (vph) | 500 | 17 | 12 | 515 | 15 | 11 | |
| Lane Group Flow (vph) | 517 | 0 | 0 | 527 | 26 | 0 | |
| Turn Type | | | pm+pt | | | | |
| Protected Phases | 2 | | 1 | 6 | 3 | | 9 |
| Permitted Phases | | | 6 | | | | |
| Minimum Split (s) | 40.0 | | 10.0 | 40.0 | 25.0 | | 8.0 |
| Total Split (s) | 40.0 | 0.0 | 10.0 | 50.0 | 25.0 | 0.0 | 8.0 |
| Total Split (%) | 48% | 0% | 12% | 60% | 30% | 0% | 10% |
| Maximum Green (s) | 36.0 | | 6.0 | 46.0 | 21.0 | | 4.0 |
| Yellow Time (s) | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.5 |
| All-Red Time (s) | 1.0 | | 1.0 | 1.0 | 1.0 | | 0.5 |
| Lead/Lag | Lag | | Lead | | | | |
| Lead-Lag Optimize? | Yes | | Yes | | | | |
| Walk Time (s) | 5.0 | | 5.0 | 5.0 | 5.0 | | |
| Flash Dont Walk (s) | 11.0 | | 11.0 | 11.0 | 11.0 | | |
| Pedestrian Calls (#/hr) | 0 | | 0 | 0 | 0 | | |
| Act Effct Green (s) | 36.0 | | | 46.0 | 21.0 | | |
| Actuated g/C Ratio | 0.43 | | | 0.55 | 0.25 | | |
| v/c Ratio | 0.34 | | | 0.28 | 0.06 | | |
| Uniform Delay, d1 | 15.4 | | | 9.7 | 13.5 | | |
| Delay | 15.6 | | | 9.8 | 17.1 | | |
| LOS | B | | | A | B | | |
| Approach Delay | 15.6 | | | 9.8 | 17.1 | | |
| Approach LOS | B | | | A | B | | |
| Queue Length 50th (ft) | 90 | | | 70 | 6 | | |
| Queue Length 95th (ft) | 127 | | | 98 | 17 | | |
| Internal Link Dist (ft) | 1492 | | | 4576 | 2720 | | |
| 50th Up Block Time (%) | | | | | | | |
| 95th Up Block Time (%) | | | | | | | |
| Turn Bay Length (ft) | | | | | | | |
| 50th Bay Block Time % | | | | | | | |

W Mountain St at Brooks St Sat Peak Future No Build Conditions

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| 95th Bay Block Time % | | | | | | | |
| Queuing Penalty (veh) | | | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 83 | | | |
| Actuated Cycle Length: 83 | | | |
| Offset: 9 (11%), Referenced to phase 2:EBT and 6:WBTL, Start of Green | | | |
| Natural Cycle: 85 | | | |
| Control Type: Pretimed | | | |
| Maximum v/c Ratio: 0.34 | | | |
| Intersection Signal Delay: 12.8 | | Intersection LOS: B | |
| Intersection Capacity Utilization 26.6% | | ICU Level of Service A | |

Splits and Phases: 1: West Mountain St & Pullman St



W Mountain St at Brooks St Sat Peak Future Build Conditions

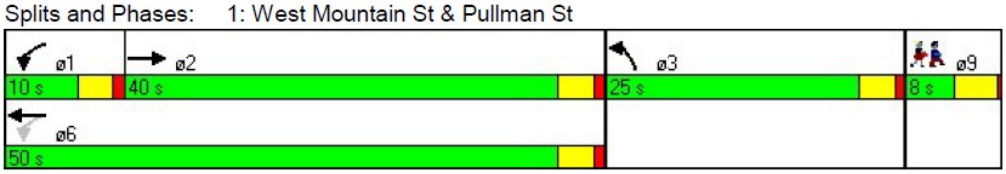
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Turning Speed (mph) | | 9 | 15 | | 15 | 9 | |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Frt | 0.995 | | | | 0.943 | | |
| Flt Protected | | | | 0.999 | 0.972 | | |
| Satd. Flow (prot) | 3522 | 0 | 0 | 3536 | 1707 | 0 | |
| Flt Permitted | | | | 0.946 | 0.972 | | |
| Satd. Flow (perm) | 3522 | 0 | 0 | 3348 | 1707 | 0 | |
| Right Turn on Red | | Yes | | | | Yes | |
| Satd. Flow (RTOR) | 5 | | | | 11 | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Link Speed (mph) | 30 | | | 30 | 30 | | |
| Link Distance (ft) | 1572 | | | 4656 | 2800 | | |
| Travel Time (s) | 35.7 | | | 105.8 | 63.6 | | |
| Volume (vph) | 480 | 14 | 8 | 483 | 10 | 6 | |
| Peak Hour Factor | 0.94 | 0.81 | 0.69 | 0.92 | 0.67 | 0.57 | |
| Adj. Flow (vph) | 511 | 17 | 12 | 525 | 15 | 11 | |
| Lane Group Flow (vph) | 528 | 0 | 0 | 537 | 26 | 0 | |
| Turn Type | | | pm+pt | | | | |
| Protected Phases | 2 | | 1 | 6 | 3 | | 9 |
| Permitted Phases | | | 6 | | | | |
| Minimum Split (s) | 40.0 | | 10.0 | 40.0 | 25.0 | | 8.0 |
| Total Split (s) | 40.0 | 0.0 | 10.0 | 50.0 | 25.0 | 0.0 | 8.0 |
| Total Split (%) | 48% | 0% | 12% | 60% | 30% | 0% | 10% |
| Maximum Green (s) | 36.0 | | 6.0 | 46.0 | 21.0 | | 4.0 |
| Yellow Time (s) | 3.0 | | 3.0 | 3.0 | 3.0 | | 3.5 |
| All-Red Time (s) | 1.0 | | 1.0 | 1.0 | 1.0 | | 0.5 |
| Lead/Lag | Lag | | Lead | | | | |
| Lead-Lag Optimize? | Yes | | Yes | | | | |
| Walk Time (s) | 5.0 | | 5.0 | 5.0 | 5.0 | | |
| Flash Dont Walk (s) | 11.0 | | 11.0 | 11.0 | 11.0 | | |
| Pedestrian Calls (#/hr) | 0 | | 0 | 0 | 0 | | |
| Act Effct Green (s) | 36.0 | | | 46.0 | 21.0 | | |
| Actuated g/C Ratio | 0.43 | | | 0.55 | 0.25 | | |
| v/c Ratio | 0.35 | | | 0.29 | 0.06 | | |
| Uniform Delay, d1 | 15.5 | | | 9.7 | 13.5 | | |
| Delay | 15.7 | | | 9.9 | 17.1 | | |
| LOS | B | | | A | B | | |
| Approach Delay | 15.7 | | | 9.9 | 17.1 | | |
| Approach LOS | B | | | A | B | | |
| Queue Length 50th (ft) | 92 | | | 72 | 6 | | |
| Queue Length 95th (ft) | 129 | | | 100 | 17 | | |
| Internal Link Dist (ft) | 1492 | | | 4576 | 2720 | | |
| 50th Up Block Time (%) | | | | | | | |
| 95th Up Block Time (%) | | | | | | | |
| Turn Bay Length (ft) | | | | | | | |
| 50th Bay Block Time % | | | | | | | |

W Mountain St at Brooks St Sat Peak Future Build Conditions

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| 95th Bay Block Time % | | | | | | | |
| Queuing Penalty (veh) | | | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 83 | | | |
| Actuated Cycle Length: 83 | | | |
| Offset: 9 (11%), Referenced to phase 2:EBT and 6:WBTL, Start of Green | | | |
| Natural Cycle: 85 | | | |
| Control Type: Pretimed | | | |
| Maximum v/c Ratio: 0.35 | | | |
| Intersection Signal Delay: 12.8 | | Intersection LOS: B | |
| Intersection Capacity Utilization 26.9% | | ICU Level of Service A | |

Splits and Phases: 1: West Mountain St & Pullman St



W Mountain St at Pullman St AM Peak Existing Conditions

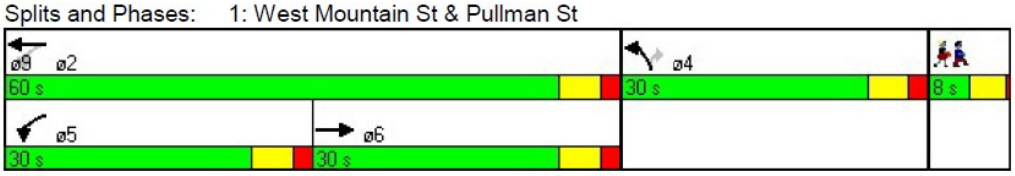
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Storage Length (ft) | | 0 | 0 | | 0 | 200 | |
| Storage Lanes | | 0 | 0 | | 1 | 1 | |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Turning Speed (mph) | | 9 | 15 | | 15 | 9 | |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Frt | 0.978 | | | | | 0.850 | |
| Flt Protected | | | | 0.989 | 0.950 | | |
| Satd. Flow (prot) | 3461 | 0 | 0 | 3500 | 1770 | 1583 | |
| Flt Permitted | | | | 0.627 | 0.950 | | |
| Satd. Flow (perm) | 3461 | 0 | 0 | 2219 | 1770 | 1583 | |
| Right Turn on Red | | Yes | | | | Yes | |
| Satd. Flow (RTOR) | 19 | | | | | 84 | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Link Speed (mph) | 30 | | | 30 | 30 | | |
| Link Distance (ft) | 1572 | | | 4656 | 2800 | | |
| Travel Time (s) | 35.7 | | | 105.8 | 63.6 | | |
| Volume (vph) | 536 | 101 | 63 | 247 | 51 | 65 | |
| Peak Hour Factor | 0.81 | 0.90 | 0.74 | 0.88 | 0.90 | 0.77 | |
| Adj. Flow (vph) | 662 | 112 | 85 | 281 | 57 | 84 | |
| Lane Group Flow (vph) | 774 | 0 | 0 | 366 | 57 | 84 | |
| Turn Type | | | pm+pt | | | Perm | |
| Protected Phases | 6 | | 5 | 2 | 4 | | 9 |
| Permitted Phases | | | 2 | | | 4 | |
| Minimum Split (s) | 30.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 8.0 |
| Total Split (s) | 30.0 | 0.0 | 30.0 | 60.0 | 30.0 | 30.0 | 8.0 |
| Total Split (%) | 31% | 0% | 31% | 61% | 31% | 31% | 8% |
| Maximum Green (s) | 24.0 | | 24.0 | 54.0 | 24.0 | 24.0 | 4.0 |
| Yellow Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 3.5 |
| All-Red Time (s) | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 0.5 |
| Lead/Lag | Lag | | Lead | | | | |
| Lead-Lag Optimize? | Yes | | Yes | | | | |
| Walk Time (s) | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | |
| Flash Dont Walk (s) | 11.0 | | 11.0 | 11.0 | 11.0 | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 26.0 | | | 56.0 | 26.0 | 26.0 | |
| Actuated g/C Ratio | 0.27 | | | 0.57 | 0.27 | 0.27 | |
| v/c Ratio | 0.83 | | | 0.23 | 0.12 | 0.17 | |
| Uniform Delay, d1 | 33.0 | | | 10.0 | 27.3 | 0.0 | |
| Delay | 35.6 | | | 10.1 | 27.8 | 6.6 | |
| LOS | D | | | B | C | A | |
| Approach Delay | 35.6 | | | 10.1 | 15.1 | | |
| Approach LOS | D | | | B | B | | |
| Queue Length 50th (ft) | 234 | | | 53 | 27 | 0 | |
| Queue Length 95th (ft) | 265 | | | 74 | 58 | 24 | |
| Internal Link Dist (ft) | 1492 | | | 4576 | 2720 | | |
| 50th Up Block Time (%) | | | | | | | |
| 95th Up Block Time (%) | | | | | | | |

## W Mountain St at Pullman St AM Peak Existing Conditions

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| Turn Bay Length (ft) | | | | | | 200 | |
| 50th Bay Block Time % | | | | | | | |
| 95th Bay Block Time % | | | | | | | |
| Queuing Penalty (veh) | | | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 98 | | | |
| Actuated Cycle Length: 98 | | | |
| Offset: 30 (31%), Referenced to phase 6:EBT, Start of Green | | | |
| Natural Cycle: 100 | | | |
| Control Type: Pretimed | | | |
| Maximum v/c Ratio: 0.83 | | | |
| Intersection Signal Delay: 26.1 | | Intersection LOS: C | |
| Intersection Capacity Utilization 47.1% | | ICU Level of Service A | |

Splits and Phases: 1: West Mountain St & Pullman St



W Mountain St at Pullman St AM Peak Future No Build Conditions

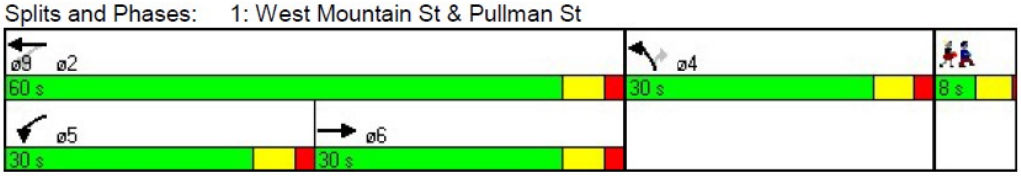
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Storage Length (ft) | | 0 | 0 | | 0 | 200 | |
| Storage Lanes | | 0 | 0 | | 1 | 1 | |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Turning Speed (mph) | | 9 | 15 | | 15 | 9 | |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Frt | 0.978 | | | | | 0.850 | |
| Flt Protected | | | | 0.989 | 0.950 | | |
| Satd. Flow (prot) | 3461 | 0 | 0 | 3500 | 1770 | 1583 | |
| Flt Permitted | | | | 0.620 | 0.950 | | |
| Satd. Flow (perm) | 3461 | 0 | 0 | 2194 | 1770 | 1583 | |
| Right Turn on Red | | Yes | | | | Yes | |
| Satd. Flow (RTOR) | 19 | | | | | 86 | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Link Speed (mph) | 30 | | | 30 | 30 | | |
| Link Distance (ft) | 1572 | | | 4656 | 2800 | | |
| Travel Time (s) | 35.7 | | | 105.8 | 63.6 | | |
| Volume (vph) | 545 | 103 | 64 | 251 | 52 | 66 | |
| Peak Hour Factor | 0.81 | 0.90 | 0.74 | 0.88 | 0.90 | 0.77 | |
| Adj. Flow (vph) | 673 | 114 | 86 | 285 | 58 | 86 | |
| Lane Group Flow (vph) | 787 | 0 | 0 | 371 | 58 | 86 | |
| Turn Type | | | pm+pt | | | Perm | |
| Protected Phases | 6 | | 5 | 2 | 4 | | 9 |
| Permitted Phases | | | 2 | | | 4 | |
| Minimum Split (s) | 30.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 8.0 |
| Total Split (s) | 30.0 | 0.0 | 30.0 | 60.0 | 30.0 | 30.0 | 8.0 |
| Total Split (%) | 31% | 0% | 31% | 61% | 31% | 31% | 8% |
| Maximum Green (s) | 24.0 | | 24.0 | 54.0 | 24.0 | 24.0 | 4.0 |
| Yellow Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 3.5 |
| All-Red Time (s) | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 0.5 |
| Lead/Lag | Lag | | Lead | | | | |
| Lead-Lag Optimize? | Yes | | Yes | | | | |
| Walk Time (s) | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | |
| Flash Dont Walk (s) | 11.0 | | 11.0 | 11.0 | 11.0 | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 26.0 | | | 56.0 | 26.0 | 26.0 | |
| Actuated g/C Ratio | 0.27 | | | 0.57 | 0.27 | 0.27 | |
| v/c Ratio | 0.84 | | | 0.23 | 0.12 | 0.18 | |
| Uniform Delay, d1 | 33.2 | | | 10.1 | 27.3 | 0.0 | |
| Delay | 36.4 | | | 10.2 | 27.8 | 6.5 | |
| LOS | D | | | B | C | A | |
| Approach Delay | 36.4 | | | 10.2 | 15.1 | | |
| Approach LOS | D | | | B | B | | |
| Queue Length 50th (ft) | 239 | | | 54 | 28 | 0 | |
| Queue Length 95th (ft) | 271 | | | 75 | 60 | 24 | |
| Internal Link Dist (ft) | 1492 | | | 4576 | 2720 | | |
| 50th Up Block Time (%) | | | | | | | |
| 95th Up Block Time (%) | | | | | | | |

## W Mountain St at Pullman St AM Peak Future No Build Conditions

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| Turn Bay Length (ft) | | | | | | 200 | |
| 50th Bay Block Time % | | | | | | | |
| 95th Bay Block Time % | | | | | | | |
| Queuing Penalty (veh) | | | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 98 | | | |
| Actuated Cycle Length: 98 | | | |
| Offset: 30 (31%), Referenced to phase 6:EBT, Start of Green | | | |
| Natural Cycle: 100 | | | |
| Control Type: Pretimed | | | |
| Maximum v/c Ratio: 0.84 | | | |
| Intersection Signal Delay: 26.6 | | Intersection LOS: C | |
| Intersection Capacity Utilization 47.6% | | ICU Level of Service A | |

Splits and Phases: 1: West Mountain St & Pullman St



W Mountain St at Pullman St AM Peak Future Build Conditions

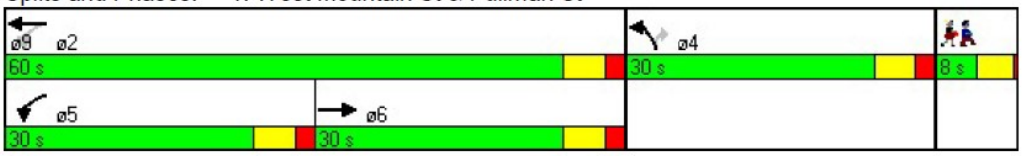
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Storage Length (ft) | | 0 | 0 | | 0 | 200 | |
| Storage Lanes | | 0 | 0 | | 1 | 1 | |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Turning Speed (mph) | | 9 | 15 | | 15 | 9 | |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Frt | 0.978 | | | | | 0.850 | |
| Flt Protected | | | | 0.989 | 0.950 | | |
| Satd. Flow (prot) | 3461 | 0 | 0 | 3500 | 1770 | 1583 | |
| Flt Permitted | | | | 0.619 | 0.950 | | |
| Satd. Flow (perm) | 3461 | 0 | 0 | 2191 | 1770 | 1583 | |
| Right Turn on Red | | Yes | | | | Yes | |
| Satd. Flow (RTOR) | 19 | | | | | 86 | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Link Speed (mph) | 30 | | | 30 | 30 | | |
| Link Distance (ft) | 1572 | | | 4656 | 2800 | | |
| Travel Time (s) | 35.7 | | | 105.8 | 63.6 | | |
| Volume (vph) | 545 | 104 | 64 | 251 | 52 | 66 | |
| Peak Hour Factor | 0.81 | 0.90 | 0.74 | 0.88 | 0.90 | 0.77 | |
| Adj. Flow (vph) | 673 | 116 | 86 | 285 | 58 | 86 | |
| Lane Group Flow (vph) | 789 | 0 | 0 | 371 | 58 | 86 | |
| Turn Type | | | pm+pt | | | Perm | |
| Protected Phases | 6 | | 5 | 2 | 4 | | 9 |
| Permitted Phases | | | 2 | | | 4 | |
| Minimum Split (s) | 30.0 | | 30.0 | 30.0 | 30.0 | 30.0 | 8.0 |
| Total Split (s) | 30.0 | 0.0 | 30.0 | 60.0 | 30.0 | 30.0 | 8.0 |
| Total Split (%) | 31% | 0% | 31% | 61% | 31% | 31% | 8% |
| Maximum Green (s) | 24.0 | | 24.0 | 54.0 | 24.0 | 24.0 | 4.0 |
| Yellow Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 3.5 |
| All-Red Time (s) | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 0.5 |
| Lead/Lag | Lag | | Lead | | | | |
| Lead-Lag Optimize? | Yes | | Yes | | | | |
| Walk Time (s) | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | |
| Flash Dont Walk (s) | 11.0 | | 11.0 | 11.0 | 11.0 | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 26.0 | | | 56.0 | 26.0 | 26.0 | |
| Actuated g/C Ratio | 0.27 | | | 0.57 | 0.27 | 0.27 | |
| v/c Ratio | 0.85 | | | 0.23 | 0.12 | 0.18 | |
| Uniform Delay, d1 | 33.2 | | | 10.1 | 27.3 | 0.0 | |
| Delay | 36.6 | | | 10.2 | 27.8 | 6.5 | |
| LOS | D | | | B | C | A | |
| Approach Delay | 36.6 | | | 10.2 | 15.1 | | |
| Approach LOS | D | | | B | B | | |
| Queue Length 50th (ft) | 240 | | | 54 | 28 | 0 | |
| Queue Length 95th (ft) | 272 | | | 75 | 60 | 24 | |
| Internal Link Dist (ft) | 1492 | | | 4576 | 2720 | | |
| 50th Up Block Time (%) | | | | | | | |
| 95th Up Block Time (%) | | | | | | | |

W Mountain St at Pullman St AM Peak Future Build Conditions

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| Turn Bay Length (ft) | | | | | | 200 | |
| 50th Bay Block Time % | | | | | | | |
| 95th Bay Block Time % | | | | | | | |
| Queuing Penalty (veh) | | | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 98 | | | |
| Actuated Cycle Length: 98 | | | |
| Offset: 30 (31%), Referenced to phase 6:EBT, Start of Green | | | |
| Natural Cycle: 100 | | | |
| Control Type: Pretimed | | | |
| Maximum v/c Ratio: 0.85 | | | |
| Intersection Signal Delay: 26.7 | | Intersection LOS: C | |
| Intersection Capacity Utilization 47.7% | | ICU Level of Service A | |

Splits and Phases: 1: West Mountain St & Pullman St



W Mountain St at Pullman St PM Peak Existing Conditions

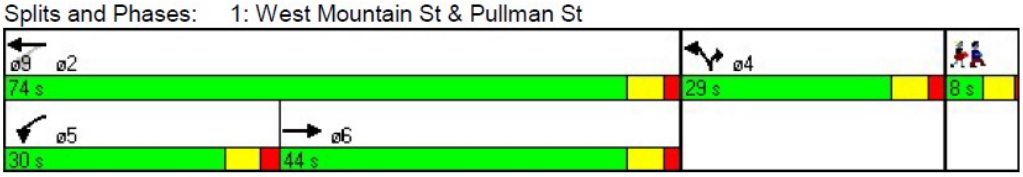
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Storage Length (ft) | | 0 | 0 | | 0 | 200 | |
| Storage Lanes | | 0 | 0 | | 1 | 1 | |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Turning Speed (mph) | | 9 | 15 | | 15 | 9 | |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Frt | 0.954 | | | | | 0.850 | |
| Flt Protected | | | | 0.989 | 0.950 | | |
| Satd. Flow (prot) | 3376 | 0 | 0 | 3500 | 1770 | 1583 | |
| Flt Permitted | | | | 0.614 | 0.950 | | |
| Satd. Flow (perm) | 3376 | 0 | 0 | 2173 | 1770 | 1583 | |
| Right Turn on Red | | Yes | | | | Yes | |
| Satd. Flow (RTOR) | 70 | | | | | 206 | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Link Speed (mph) | 30 | | | 30 | 30 | | |
| Link Distance (ft) | 1572 | | | 4656 | 2800 | | |
| Travel Time (s) | 35.7 | | | 105.8 | 63.6 | | |
| Volume (vph) | 339 | 151 | 146 | 577 | 183 | 167 | |
| Peak Hour Factor | 0.89 | 0.90 | 0.85 | 0.92 | 0.75 | 0.81 | |
| Adj. Flow (vph) | 381 | 168 | 172 | 627 | 244 | 206 | |
| Lane Group Flow (vph) | 549 | 0 | 0 | 799 | 244 | 206 | |
| Turn Type | | | pm+pt | | | Prot | |
| Protected Phases | 6 | | 5 | 2 | 4 | 4 | 9 |
| Permitted Phases | | | 2 | | | | |
| Minimum Split (s) | 44.0 | | 30.0 | 30.0 | 29.0 | 29.0 | 8.0 |
| Total Split (s) | 44.0 | 0.0 | 30.0 | 74.0 | 29.0 | 29.0 | 8.0 |
| Total Split (%) | 40% | 0% | 27% | 67% | 26% | 26% | 7% |
| Maximum Green (s) | 38.0 | | 24.0 | 68.0 | 23.0 | 23.0 | 4.0 |
| Yellow Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 3.5 |
| All-Red Time (s) | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 0.5 |
| Lead/Lag | Lag | | Lead | | | | |
| Lead-Lag Optimize? | Yes | | Yes | | | | |
| Walk Time (s) | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | |
| Flash Dont Walk (s) | 11.0 | | 11.0 | 11.0 | 11.0 | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 40.0 | | | 70.0 | 25.0 | 25.0 | |
| Actuated g/C Ratio | 0.36 | | | 0.63 | 0.23 | 0.23 | |
| v/c Ratio | 0.44 | | | 0.48 | 0.61 | 0.40 | |
| Uniform Delay, d1 | 23.2 | | | 9.8 | 38.6 | 0.0 | |
| Delay | 23.4 | | | 9.9 | 39.4 | 5.1 | |
| LOS | C | | | A | D | A | |
| Approach Delay | 23.4 | | | 9.9 | 23.7 | | |
| Approach LOS | C | | | A | C | | |
| Queue Length 50th (ft) | 134 | | | 132 | 157 | 0 | |
| Queue Length 95th (ft) | 181 | | | 168 | 195 | 38 | |
| Internal Link Dist (ft) | 1492 | | | 4576 | 2720 | | |
| 50th Up Block Time (%) | | | | | | | |
| 95th Up Block Time (%) | | | | | | | |

## W Mountain St at Pullman St PM Peak Existing Conditions

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| Turn Bay Length (ft) | | | | | | 200 | |
| 50th Bay Block Time % | | | | | | | |
| 95th Bay Block Time % | | | | | 4% | | |
| Queuing Penalty (veh) | | | | | 3 | | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 111 | | | |
| Actuated Cycle Length: 111 | | | |
| Offset: 94 (85%), Referenced to phase 6:EBT, Start of Green | | | |
| Natural Cycle: 115 | | | |
| Control Type: Pretimed | | | |
| Maximum v/c Ratio: 0.61 | | | |
| Intersection Signal Delay: 17.5 | | Intersection LOS: B | |
| Intersection Capacity Utilization 61.7% | | ICU Level of Service B | |

Splits and Phases: 1: West Mountain St & Pullman St



W Mountain St at Pullman St PM Peak Future No Build Conditions

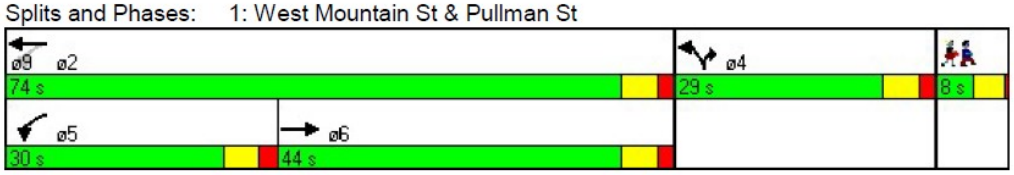
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Storage Length (ft) | | 0 | 0 | | 0 | 200 | |
| Storage Lanes | | 0 | 0 | | 1 | 1 | |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Turning Speed (mph) | | 9 | 15 | | 15 | 9 | |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Frt | 0.954 | | | | | 0.850 | |
| Flt Protected | | | | 0.989 | 0.950 | | |
| Satd. Flow (prot) | 3376 | 0 | 0 | 3500 | 1770 | 1583 | |
| Flt Permitted | | | | 0.611 | 0.950 | | |
| Satd. Flow (perm) | 3376 | 0 | 0 | 2162 | 1770 | 1583 | |
| Right Turn on Red | | Yes | | | | Yes | |
| Satd. Flow (RTOR) | 70 | | | | | 210 | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Link Speed (mph) | 30 | | | 30 | 30 | | |
| Link Distance (ft) | 1572 | | | 4656 | 2800 | | |
| Travel Time (s) | 35.7 | | | 105.8 | 63.6 | | |
| Volume (vph) | 344 | 154 | 149 | 587 | 186 | 170 | |
| Peak Hour Factor | 0.89 | 0.90 | 0.85 | 0.92 | 0.75 | 0.81 | |
| Adj. Flow (vph) | 387 | 171 | 175 | 638 | 248 | 210 | |
| Lane Group Flow (vph) | 558 | 0 | 0 | 813 | 248 | 210 | |
| Turn Type | | | pm+pt | | | Prot | |
| Protected Phases | 6 | | 5 | 2 | 4 | 4 | 9 |
| Permitted Phases | | | 2 | | | | |
| Minimum Split (s) | 44.0 | | 30.0 | 30.0 | 29.0 | 29.0 | 8.0 |
| Total Split (s) | 44.0 | 0.0 | 30.0 | 74.0 | 29.0 | 29.0 | 8.0 |
| Total Split (%) | 40% | 0% | 27% | 67% | 26% | 26% | 7% |
| Maximum Green (s) | 38.0 | | 24.0 | 68.0 | 23.0 | 23.0 | 4.0 |
| Yellow Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 3.5 |
| All-Red Time (s) | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 0.5 |
| Lead/Lag | Lag | | Lead | | | | |
| Lead-Lag Optimize? | Yes | | Yes | | | | |
| Walk Time (s) | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | |
| Flash Dont Walk (s) | 11.0 | | 11.0 | 11.0 | 11.0 | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 40.0 | | | 70.0 | 25.0 | 25.0 | |
| Actuated g/C Ratio | 0.36 | | | 0.63 | 0.23 | 0.23 | |
| v/c Ratio | 0.44 | | | 0.48 | 0.62 | 0.40 | |
| Uniform Delay, d1 | 23.3 | | | 9.9 | 38.7 | 0.0 | |
| Delay | 23.6 | | | 10.0 | 39.5 | 5.0 | |
| LOS | C | | | A | D | A | |
| Approach Delay | 23.6 | | | 10.0 | 23.7 | | |
| Approach LOS | C | | | A | C | | |
| Queue Length 50th (ft) | 136 | | | 135 | 160 | 0 | |
| Queue Length 95th (ft) | 184 | | | 172 | 198 | 38 | |
| Internal Link Dist (ft) | 1492 | | | 4576 | 2720 | | |
| 50th Up Block Time (%) | | | | | | | |
| 95th Up Block Time (%) | | | | | | | |

## W Mountain St at Pullman St PM Peak Future No Build Conditions

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| Turn Bay Length (ft) | | | | | | 200 | |
| 50th Bay Block Time % | | | | | | | |
| 95th Bay Block Time % | | | | | 5% | | |
| Queuing Penalty (veh) | | | | | 5 | | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 111 | | | |
| Actuated Cycle Length: 111 | | | |
| Offset: 94 (85%), Referenced to phase 6:EBT, Start of Green | | | |
| Natural Cycle: 115 | | | |
| Control Type: Pretimed | | | |
| Maximum v/c Ratio: 0.62 | | | |
| Intersection Signal Delay: 17.6 | | Intersection LOS: B | |
| Intersection Capacity Utilization 62.6% | | ICU Level of Service B | |

Splits and Phases: 1: West Mountain St & Pullman St



W Mountain St at Pullman St PM Peak Future Build Conditions

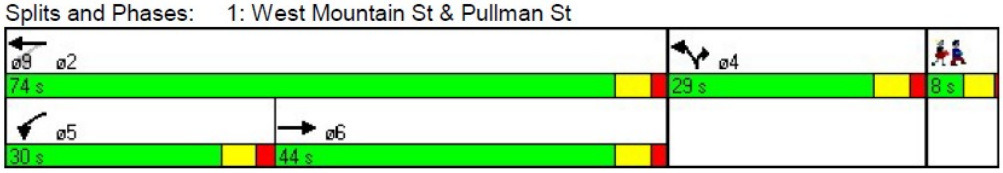
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Storage Length (ft) | | 0 | 0 | | 0 | 200 | |
| Storage Lanes | | 0 | 0 | | 1 | 1 | |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Turning Speed (mph) | | 9 | 15 | | 15 | 9 | |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Frt | 0.953 | | | | | 0.850 | |
| Flt Protected | | | | 0.989 | 0.950 | | |
| Satd. Flow (prot) | 3373 | 0 | 0 | 3500 | 1770 | 1583 | |
| Flt Permitted | | | | 0.608 | 0.950 | | |
| Satd. Flow (perm) | 3373 | 0 | 0 | 2152 | 1770 | 1583 | |
| Right Turn on Red | | Yes | | | | Yes | |
| Satd. Flow (RTOR) | 73 | | | | | 212 | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Link Speed (mph) | 30 | | | 30 | 30 | | |
| Link Distance (ft) | 1572 | | | 4656 | 2800 | | |
| Travel Time (s) | 35.7 | | | 105.8 | 63.6 | | |
| Volume (vph) | 344 | 157 | 152 | 587 | 189 | 172 | |
| Peak Hour Factor | 0.89 | 0.90 | 0.85 | 0.92 | 0.75 | 0.81 | |
| Adj. Flow (vph) | 387 | 174 | 179 | 638 | 252 | 212 | |
| Lane Group Flow (vph) | 561 | 0 | 0 | 817 | 252 | 212 | |
| Turn Type | | | pm+pt | | | Prot | |
| Protected Phases | 6 | | 5 | 2 | 4 | 4 | 9 |
| Permitted Phases | | | 2 | | | | |
| Minimum Split (s) | 44.0 | | 30.0 | 30.0 | 29.0 | 29.0 | 8.0 |
| Total Split (s) | 44.0 | 0.0 | 30.0 | 74.0 | 29.0 | 29.0 | 8.0 |
| Total Split (%) | 40% | 0% | 27% | 67% | 26% | 26% | 7% |
| Maximum Green (s) | 38.0 | | 24.0 | 68.0 | 23.0 | 23.0 | 4.0 |
| Yellow Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 3.5 |
| All-Red Time (s) | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 0.5 |
| Lead/Lag | Lag | | Lead | | | | |
| Lead-Lag Optimize? | Yes | | Yes | | | | |
| Walk Time (s) | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | |
| Flash Dont Walk (s) | 11.0 | | 11.0 | 11.0 | 11.0 | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 40.0 | | | 70.0 | 25.0 | 25.0 | |
| Actuated g/C Ratio | 0.36 | | | 0.63 | 0.23 | 0.23 | |
| v/c Ratio | 0.44 | | | 0.49 | 0.63 | 0.41 | |
| Uniform Delay, d1 | 23.2 | | | 9.9 | 38.8 | 0.0 | |
| Delay | 23.4 | | | 10.0 | 39.6 | 5.0 | |
| LOS | C | | | A | D | A | |
| Approach Delay | 23.4 | | | 10.0 | 23.8 | | |
| Approach LOS | C | | | A | C | | |
| Queue Length 50th (ft) | 137 | | | 136 | 163 | 0 | |
| Queue Length 95th (ft) | 184 | | | 173 | 202 | 38 | |
| Internal Link Dist (ft) | 1492 | | | 4576 | 2720 | | |
| 50th Up Block Time (%) | | | | | | | |
| 95th Up Block Time (%) | | | | | | | |

W Mountain St at Pullman St PM Peak Future Build Conditions

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| Turn Bay Length (ft) | | | | | | 200 | |
| 50th Bay Block Time % | | | | | | | |
| 95th Bay Block Time % | | | | | 6% | | |
| Queuing Penalty (veh) | | | | | 6 | | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 111 | | | |
| Actuated Cycle Length: 111 | | | |
| Offset: 94 (85%), Referenced to phase 6:EBT, Start of Green | | | |
| Natural Cycle: 115 | | | |
| Control Type: Pretimed | | | |
| Maximum v/c Ratio: 0.63 | | | |
| Intersection Signal Delay: 17.6 | | Intersection LOS: B | |
| Intersection Capacity Utilization 63.1% | | ICU Level of Service B | |

Splits and Phases: 1: West Mountain St & Pullman St



W Mountain St at Pullman St Sat Peak Existing Conditions

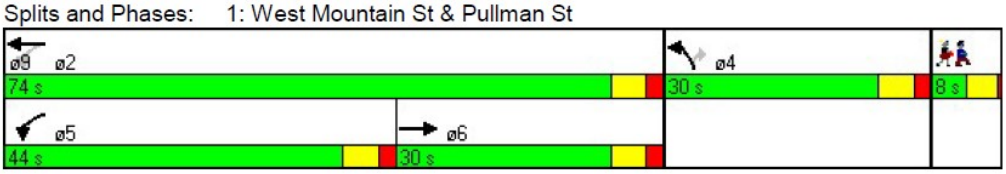
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Storage Length (ft) | | 0 | 0 | | 0 | 200 | |
| Storage Lanes | | 0 | 0 | | 1 | 1 | |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Turning Speed (mph) | | 9 | 15 | | 15 | 9 | |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Frt | 0.959 | | | | | 0.850 | |
| Flt Protected | | | | 0.988 | 0.950 | | |
| Satd. Flow (prot) | 3394 | 0 | 0 | 3497 | 1770 | 1583 | |
| Flt Permitted | | | | 0.577 | 0.950 | | |
| Satd. Flow (perm) | 3394 | 0 | 0 | 2042 | 1770 | 1583 | |
| Right Turn on Red | | Yes | | | | Yes | |
| Satd. Flow (RTOR) | 45 | | | | | 168 | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Link Speed (mph) | 30 | | | 30 | 30 | | |
| Link Distance (ft) | 1572 | | | 4656 | 2800 | | |
| Travel Time (s) | 35.7 | | | 105.8 | 63.6 | | |
| Volume (vph) | 352 | 118 | 125 | 359 | 114 | 123 | |
| Peak Hour Factor | 0.86 | 0.77 | 0.93 | 0.89 | 0.81 | 0.73 | |
| Adj. Flow (vph) | 409 | 153 | 134 | 403 | 141 | 168 | |
| Lane Group Flow (vph) | 562 | 0 | 0 | 537 | 141 | 168 | |
| Turn Type | | | pm+pt | | | Perm | |
| Protected Phases | 6 | | 5 | 2 | 4 | | 9 |
| Permitted Phases | | | 2 | | | 4 | |
| Minimum Split (s) | 30.0 | | 44.0 | 30.0 | 30.0 | 30.0 | 8.0 |
| Total Split (s) | 30.0 | 0.0 | 44.0 | 74.0 | 30.0 | 30.0 | 8.0 |
| Total Split (%) | 27% | 0% | 39% | 66% | 27% | 27% | 7% |
| Maximum Green (s) | 24.0 | | 38.0 | 68.0 | 24.0 | 24.0 | 4.0 |
| Yellow Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 3.5 |
| All-Red Time (s) | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 0.5 |
| Lead/Lag | Lag | | Lead | | | | |
| Lead-Lag Optimize? | Yes | | Yes | | | | |
| Walk Time (s) | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | |
| Flash Dont Walk (s) | 11.0 | | 11.0 | 11.0 | 11.0 | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 26.0 | | | 70.0 | 26.0 | 26.0 | |
| Actuated g/C Ratio | 0.23 | | | 0.63 | 0.23 | 0.23 | |
| v/c Ratio | 0.68 | | | 0.30 | 0.34 | 0.34 | |
| Uniform Delay, d1 | 35.9 | | | 9.3 | 35.9 | 0.0 | |
| Delay | 36.3 | | | 9.4 | 36.4 | 5.5 | |
| LOS | D | | | A | D | A | |
| Approach Delay | 36.3 | | | 9.4 | 19.6 | | |
| Approach LOS | D | | | A | B | | |
| Queue Length 50th (ft) | 180 | | | 83 | 85 | 0 | |
| Queue Length 95th (ft) | 227 | | | 108 | 128 | 24 | |
| Internal Link Dist (ft) | 1492 | | | 4576 | 2720 | | |
| 50th Up Block Time (%) | | | | | | | |
| 95th Up Block Time (%) | | | | | | | |

## W Mountain St at Pullman St Sat Peak Existing Conditions

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| Turn Bay Length (ft) | | | | | | 200 | |
| 50th Bay Block Time % | | | | | | | |
| 95th Bay Block Time % | | | | | | | |
| Queuing Penalty (veh) | | | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 112 | | | |
| Actuated Cycle Length: 112 | | | |
| Offset: 30 (27%), Referenced to phase 6:EBT, Start of Green | | | |
| Natural Cycle: 115 | | | |
| Control Type: Pretimed | | | |
| Maximum v/c Ratio: 0.68 | | | |
| Intersection Signal Delay: 22.4 | | Intersection LOS: C | |
| Intersection Capacity Utilization 49.1% | | ICU Level of Service A | |

Splits and Phases: 1: West Mountain St & Pullman St



W Mountain St at Pullman St Sat Peak Future No Build Conditions

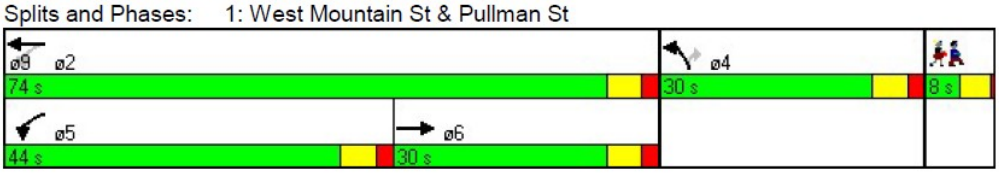
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Storage Length (ft) | | 0 | 0 | | 0 | 200 | |
| Storage Lanes | | 0 | 0 | | 1 | 1 | |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Turning Speed (mph) | | 9 | 15 | | 15 | 9 | |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Frt | 0.959 | | | | | 0.850 | |
| Flt Protected | | | | 0.988 | 0.950 | | |
| Satd. Flow (prot) | 3394 | 0 | 0 | 3497 | 1770 | 1583 | |
| Flt Permitted | | | | 0.568 | 0.950 | | |
| Satd. Flow (perm) | 3394 | 0 | 0 | 2010 | 1770 | 1583 | |
| Right Turn on Red | | Yes | | | | Yes | |
| Satd. Flow (RTOR) | 45 | | | | | 171 | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Link Speed (mph) | 30 | | | 30 | 30 | | |
| Link Distance (ft) | 1572 | | | 4656 | 2800 | | |
| Travel Time (s) | 35.7 | | | 105.8 | 63.6 | | |
| Volume (vph) | 358 | 120 | 127 | 365 | 116 | 125 | |
| Peak Hour Factor | 0.86 | 0.77 | 0.93 | 0.89 | 0.81 | 0.73 | |
| Adj. Flow (vph) | 416 | 156 | 137 | 410 | 143 | 171 | |
| Lane Group Flow (vph) | 572 | 0 | 0 | 547 | 143 | 171 | |
| Turn Type | | | pm+pt | | | Perm | |
| Protected Phases | 6 | | 5 | 2 | 4 | | 9 |
| Permitted Phases | | | 2 | | | 4 | |
| Minimum Split (s) | 30.0 | | 44.0 | 30.0 | 30.0 | 30.0 | 8.0 |
| Total Split (s) | 30.0 | 0.0 | 44.0 | 74.0 | 30.0 | 30.0 | 8.0 |
| Total Split (%) | 27% | 0% | 39% | 66% | 27% | 27% | 7% |
| Maximum Green (s) | 24.0 | | 38.0 | 68.0 | 24.0 | 24.0 | 4.0 |
| Yellow Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 3.5 |
| All-Red Time (s) | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 0.5 |
| Lead/Lag | Lag | | Lead | | | | |
| Lead-Lag Optimize? | Yes | | Yes | | | | |
| Walk Time (s) | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | |
| Flash Dont Walk (s) | 11.0 | | 11.0 | 11.0 | 11.0 | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 26.0 | | | 70.0 | 26.0 | 26.0 | |
| Actuated g/C Ratio | 0.23 | | | 0.63 | 0.23 | 0.23 | |
| v/c Ratio | 0.70 | | | 0.31 | 0.35 | 0.34 | |
| Uniform Delay, d1 | 36.1 | | | 9.3 | 35.9 | 0.0 | |
| Delay | 36.5 | | | 9.4 | 36.5 | 5.5 | |
| LOS | D | | | A | D | A | |
| Approach Delay | 36.5 | | | 9.4 | 19.6 | | |
| Approach LOS | D | | | A | B | | |
| Queue Length 50th (ft) | 184 | | | 85 | 86 | 0 | |
| Queue Length 95th (ft) | 232 | | | 111 | 130 | 24 | |
| Internal Link Dist (ft) | 1492 | | | 4576 | 2720 | | |
| 50th Up Block Time (%) | | | | | | | |
| 95th Up Block Time (%) | | | | | | | |

W Mountain St at Pullman St Sat Peak Future No Build Conditions

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| Turn Bay Length (ft) | | | | | | 200 | |
| 50th Bay Block Time % | | | | | | | |
| 95th Bay Block Time % | | | | | | | |
| Queuing Penalty (veh) | | | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 112 | | | |
| Actuated Cycle Length: 112 | | | |
| Offset: 30 (27%), Referenced to phase 6:EBT, Start of Green | | | |
| Natural Cycle: 115 | | | |
| Control Type: Pretimed | | | |
| Maximum v/c Ratio: 0.70 | | | |
| Intersection Signal Delay: 22.5 | | Intersection LOS: C | |
| Intersection Capacity Utilization 49.7% | | ICU Level of Service A | |

Splits and Phases: 1: West Mountain St & Pullman St



W Mountain St at Pullman St Sat Peak Future Build Conditions

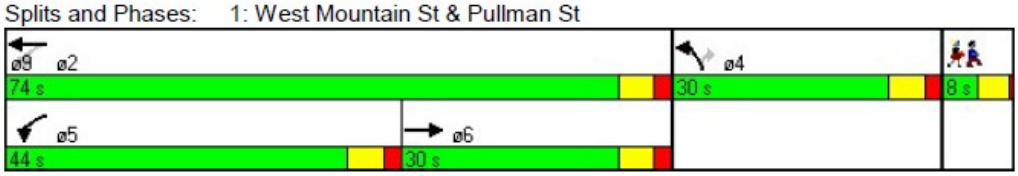
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | |
| Storage Length (ft) | | 0 | 0 | | 0 | 200 | |
| Storage Lanes | | 0 | 0 | | 1 | 1 | |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Turning Speed (mph) | | 9 | 15 | | 15 | 9 | |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | |
| Frt | 0.957 | | | | | 0.850 | |
| Flt Protected | | | | 0.987 | 0.950 | | |
| Satd. Flow (prot) | 3387 | 0 | 0 | 3493 | 1770 | 1583 | |
| Flt Permitted | | | | 0.545 | 0.950 | | |
| Satd. Flow (perm) | 3387 | 0 | 0 | 1929 | 1770 | 1583 | |
| Right Turn on Red | | Yes | | | | Yes | |
| Satd. Flow (RTOR) | 51 | | | | | 182 | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Link Speed (mph) | 30 | | | 30 | 30 | | |
| Link Distance (ft) | 1572 | | | 4656 | 2800 | | |
| Travel Time (s) | 35.7 | | | 105.8 | 63.6 | | |
| Volume (vph) | 358 | 130 | 138 | 365 | 125 | 133 | |
| Peak Hour Factor | 0.86 | 0.77 | 0.93 | 0.89 | 0.81 | 0.73 | |
| Adj. Flow (vph) | 416 | 169 | 148 | 410 | 154 | 182 | |
| Lane Group Flow (vph) | 585 | 0 | 0 | 558 | 154 | 182 | |
| Turn Type | | | pm+pt | | | Perm | |
| Protected Phases | 6 | | 5 | 2 | 4 | | 9 |
| Permitted Phases | | | 2 | | | 4 | |
| Minimum Split (s) | 30.0 | | 44.0 | 30.0 | 30.0 | 30.0 | 8.0 |
| Total Split (s) | 30.0 | 0.0 | 44.0 | 74.0 | 30.0 | 30.0 | 8.0 |
| Total Split (%) | 27% | 0% | 39% | 66% | 27% | 27% | 7% |
| Maximum Green (s) | 24.0 | | 38.0 | 68.0 | 24.0 | 24.0 | 4.0 |
| Yellow Time (s) | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 3.5 |
| All-Red Time (s) | 2.0 | | 2.0 | 2.0 | 2.0 | 2.0 | 0.5 |
| Lead/Lag | Lag | | Lead | | | | |
| Lead-Lag Optimize? | Yes | | Yes | | | | |
| Walk Time (s) | 5.0 | | 5.0 | 5.0 | 5.0 | 5.0 | |
| Flash Dont Walk (s) | 11.0 | | 11.0 | 11.0 | 11.0 | 11.0 | |
| Pedestrian Calls (#/hr) | 0 | | 0 | 0 | 0 | 0 | |
| Act Effct Green (s) | 26.0 | | | 70.0 | 26.0 | 26.0 | |
| Actuated g/C Ratio | 0.23 | | | 0.63 | 0.23 | 0.23 | |
| v/c Ratio | 0.71 | | | 0.32 | 0.37 | 0.36 | |
| Uniform Delay, d1 | 35.9 | | | 9.4 | 36.1 | 0.0 | |
| Delay | 36.3 | | | 9.5 | 36.8 | 5.3 | |
| LOS | D | | | A | D | A | |
| Approach Delay | 36.3 | | | 9.5 | 19.7 | | |
| Approach LOS | D | | | A | B | | |
| Queue Length 50th (ft) | 187 | | | 87 | 94 | 0 | |
| Queue Length 95th (ft) | 236 | | | 113 | 139 | 24 | |
| Internal Link Dist (ft) | 1492 | | | 4576 | 2720 | | |
| 50th Up Block Time (%) | | | | | | | |
| 95th Up Block Time (%) | | | | | | | |

W Mountain St at Pullman St Sat Peak Future Build Conditions

| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR | ø9 |
|---|---|---|---|---|---|---|---|
| Turn Bay Length (ft) | | | | | | 200 | |
| 50th Bay Block Time % | | | | | | | |
| 95th Bay Block Time % | | | | | | | |
| Queuing Penalty (veh) | | | | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 112 | | | |
| Actuated Cycle Length: 112 | | | |
| Offset: 30 (27%), Referenced to phase 6:EBT, Start of Green | | | |
| Natural Cycle: 115 | | | |
| Control Type: Pretimed | | | |
| Maximum v/c Ratio: 0.71 | | | |
| Intersection Signal Delay: 22.4 | | Intersection LOS: C | |
| Intersection Capacity Utilization 51.1% | | ICU Level of Service A | |

Splits and Phases: 1: West Mountain St & Pullman St



Pullman St at Site Driveway AM Peak Build Conditions

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 0 | 1 | 11 | 108 | 167 | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.90 | 0.77 | 0.89 | 0.89 |
| Hourly flow rate (veh/h) | 0 | 1 | 12 | 140 | 188 | 1 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 353 | 188 | 189 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 100 | 100 | 99 | | | |
| cM capacity (veh/h) | 639 | 854 | 1385 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 1 | 152 | 189 |
| Volume Left | 0 | 12 | 0 |
| Volume Right | 1 | 0 | 1 |
| cSH | 854 | 1385 | 1700 |
| Volume to Capacity | 0.00 | 0.01 | 0.11 |
| Queue Length (ft) | 0 | 1 | 0 |
| Control Delay (s) | 9.2 | 0.7 | 0.0 |
| Lane LOS | A | A | |
| Approach Delay (s) | 9.2 | 0.7 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.3 | | |
| Intersection Capacity Utilization | 19.9% | ICU Level of Service | A |

Pullman St at Site Driveway PM Peak Build Conditions

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 5 | 7 | 10 | 356 | 303 | 6 |
| Peak Hour Factor | 0.87 | 0.87 | 0.78 | 0.78 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 6 | 8 | 13 | 456 | 329 | 7 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 815 | 333 | 336 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 98 | 99 | 99 | | | |
| cM capacity (veh/h) | 344 | 709 | 1223 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 14 | 469 | 336 |
| Volume Left | 6 | 13 | 0 |
| Volume Right | 8 | 0 | 7 |
| cSH | 491 | 1223 | 1700 |
| Volume to Capacity | 0.03 | 0.01 | 0.20 |
| Queue Length (ft) | 2 | 1 | 0 |
| Control Delay (s) | 12.5 | 0.3 | 0.0 |
| Lane LOS | B | A | |
| Approach Delay (s) | 12.5 | 0.3 | 0.0 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.4 | | |
| Intersection Capacity Utilization | 40.5% | ICU Level of Service | A |

Pullman St at Site Driveway Sat Peak Build Conditions

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 17 | 17 | 21 | 241 | 247 | 21 |
| Peak Hour Factor | 0.87 | 0.87 | 0.78 | 0.78 | 0.92 | 0.92 |
| Hourly flow rate (veh/h) | 20 | 20 | 27 | 309 | 268 | 23 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | None | | | | | |
| Median storage veh) | | | | | | |
| vC, conflicting volume | 643 | 280 | 291 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 95 | 97 | 98 | | | |
| cM capacity (veh/h) | 429 | 759 | 1270 | | | |

| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 39 | 336 | 291 |
| Volume Left | 20 | 27 | 0 |
| Volume Right | 20 | 0 | 23 |
| cSH | 548 | 1270 | 1700 |
| Volume to Capacity | 0.07 | 0.02 | 0.17 |
| Queue Length (ft) | 6 | 2 | 0 |
| Control Delay (s) | 12.1 | 0.8 | 0.0 |
| Lane LOS | B | A | |
| Approach Delay (s) | 12.1 | 0.8 | 0.0 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.1 | | |
| Intersection Capacity Utilization | 39.5% | ICU Level of Service | A |