

Proposed Mixed-Use Development

Windsor, Connecticut

PREPARED FOR

Dijion LLC

PREPARED BY



1 Federal Street
Building 103-3N
Springfield, MA 01105

January 4, 2023
Revised: July 28, 2023

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Introduction

Vanasse Hangen Brustlin, Inc. (VHB) has been retained by Dijion, LLC to conduct a traffic impact assessment for a proposed mixed-use development to be located at 29 Windsor Avenue in Windsor, Connecticut. The site is proposed to be situated on the site of the former Flamingo Inn, bounded to the north of the site by the southbound off-ramp to Interstate 91. VHB has evaluated existing traffic operations in the area, assessed the impacts of this development, and summarized the results in this report.

1.1 Project Description

The Project site is located on the west side of Windsor Avenue south of the Interstate 91 southbound ramps in Windsor, Connecticut. The site is currently occupied by the Ranch House Diner, and the site was also formerly occupied by the Flamingo Inn which was recently demolished. Access to the site is provided by a full access driveway located approximately 150-feet south of the Interstate 91 exit ramp.

Proposed on site is a gas station with 16 fueling positions and a 6,000 square foot convenience market. Adjacent to the gas station and market is proposed a one-tunnel car wash.

The Site is proposed to have one full access driveway on Windsor Avenue located approximately 40-feet north of Violet Street and one entrance/right-in only driveway on Windsor Avenue located approximately 140 feet north of the full access driveway. Violet Street is proposed to be realigned opposite of the new full access driveway, and the

installation of a new traffic control signal is proposed to control this intersection. Traffic signal warrant analysis demonstrating that the traffic signal is warranted is included in this study. Parking on site is proposed at 50 spaces for the car wash, market, and gas station.

A site location map is provided in Figure 1. A draft site plan of the proposed development is included as part of the submittal.

1.2 Summary of Findings

The transportation impacts of the project were examined during the study area's weekday morning, evening, and Saturday midday peak hours at three existing intersections. An analysis of existing conditions was conducted for the study area in 2023 to compare future scenarios to. A no-build condition for the year 2029 (a seven-year planning horizon) was developed to create a base future condition without the project, incorporating background traffic growth. A build condition for the year 2029 was developed to evaluate future transportation conditions with the project constructed. The following are key findings of the TIAS:

- The project is anticipated to generate 104 (52 entering, 52 exiting) new vehicle trips during the weekday morning peak hour, approximately 133 (67 entering, 66 exiting) new vehicle trips during the weekday evening peak hour, and approximately 205 (97 entering, 108 exiting) new vehicle trips during the Saturday midday peak hour.
- Most of the site generated traffic including trucks will travel to and from the north along Windsor Avenue towards the Interstate 91 interchange.
- As part of this project, Violet Street is proposed to be realigned with the new full access site driveway, and a new traffic control signal is proposed to control this intersection. This traffic control signal will be coordinated with the existing State-owned traffic control signal at the I-91 southbound ramps. These improvements are subject to the review and approval of the Connecticut Department of Transportation (CTDOT).
- All of the study area intersections will operate at acceptable Levels of Service (LOS) during the peak hours with no significant impacts. This includes the proposed and warranted signalization of the intersection with Windsor Avenue/Violet Street at the proposed Site Driveway.

1.3 Study Methodology

This traffic study was conducted in three stages. The first stage involved an assessment of existing traffic conditions in the study area, and included an inventory of roadway geometrics and observations of traffic flow. In addition, daily and peak period traffic counts were collected in June 2021 and a safety review of the study area intersections was performed.

In the second stage of the study, future traffic conditions both with and without the project were estimated and analyzed. This study assessed specific travel demand forecasts for the project, and the estimated background growth unrelated to this project.

The third and final stage involved conducting traffic analyses to identify both existing and projected future roadway capacity and demand. From this information and other factors, the likely traffic impacts associated with the project can be determined. This analysis was used as the basis for determining if any resulting roadway improvements or measures would be required in support of the site-generated traffic.

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2023 Existing Conditions

Effective evaluation of the transportation impacts associated with the proposed development project requires a thorough understanding of the existing transportation system surrounding the project study area. A complete inventory of the existing transportation system was conducted, and is presented in this section. The analysis of existing transportation conditions is based on the existing network, roadway and intersection geometry, traffic control, existing traffic volumes, traffic safety, and pedestrian facilities.

2.1 Study Area

The study area includes those locations that are expected to be affected by this project. The roads and intersections included in the study area were selected based on VHB's knowledge of the traffic patterns in the area. The specific study area encompasses the following intersections:

1. Windsor Avenue at Interstate 91 southbound ramps (signalized); and,
2. Windsor Avenue at Violet Street (unsignalized)

2.1.1 Intersections

The description of the intersections includes the physical characteristics, geometric conditions, and current operating conditions.

Windsor Avenue (Route 159) at Meadow Road (signalized)

Meadow Road intersects Windsor Avenue from the east to form a 3-legged signalized intersection. Windsor Avenue northbound consists of a through lane and a shared through/right-turn lane. Windsor Avenue southbound consists of an exclusive left-turn lane and two through lanes. The westbound approach contains an exclusive left-turn lane and an exclusive right-turn lane. Sidewalks are provided on both sides of the Windsor Avenue approaches and on the northern side of Meadow Road. Crosswalks are provided across the southbound and westbound approaches. Pedestrian signal heads and pushbuttons are present at this intersection.

Windsor Avenue (Route 159) at I-91 Southbound Ramps (signalized)

The Interstate 91 ramps intersect Windsor Avenue from the northwest and southeast to form a 4-legged signalized intersection. Windsor Avenue northbound consists of two through lanes, and a channelized right-turn lane. Windsor Avenue southbound consists of an exclusive left-turn lane and two through lanes. The westbound approach is the southbound on-ramp to I-91, which is one-way away from the intersection. The eastbound approach is the southbound off-ramp, designated one-way, and contains a shared left-turn/through lane and an exclusive right-turn lane. Sidewalks are provided on both sides of the Windsor Avenue approaches. Crosswalks are provided across the ramp approaches and the southbound Windsor Avenue approach. Pedestrian signal heads and pushbuttons are not present at this intersection.

Windsor Avenue (Route 159) at Violet Street (unsignalized)

Violet Street intersects Windsor Avenue from the east to form a 3-legged unsignalized intersection. The Violet Street approach consist of one multi-purpose lane. Windsor Avenue from the north and south contain an exclusive through lane and a shared through/turning lane. Violet Street operates under stop control while Windsor Avenue flows freely. Sidewalks are provided on both sides of all approaches to the intersection. A crosswalk is present across the Violet Street approach to this intersection.

2.1.2 Roadways

Windsor Avenue is a principal arterial roadway under state jurisdiction. Windsor Avenue provides four travel lanes, two in each direction in the vicinity of the project site, separated by a concrete median. Land use along Windsor Avenue consists of primarily commercial uses. The posted speed limit along Windsor Avenue is 35 mph. Windsor Avenue provides sidewalks on both sides of the roadway. South of Sunset Street, Windsor Avenue turns into Main Street at the Hartford Town Line.

Violet Street is a short local roadway under local jurisdiction and runs in an east/west direction. Violet Street measures approximately 470 feet in length. Violet Street provides two travel lanes, one in each direction. Land use along Violet Street consists of primarily residential uses. Sidewalks are provided along both sides of the roadway separated by a grass buffer.

Meadow Road is a local roadway under local jurisdiction and runs in an east/west direction. Meadow Road connects Route 159 to the northbound on/off ramps of Interstate 91 as well as connects to industrial properties. Meadow Road provides two travel lanes, one in each direction. Land use along this roadway consists of primarily industrial uses. Sidewalks are provided along the norther edge of the roadway.

2.2 Crash History and Analysis

To identify potential vehicle crash trends and/or roadway deficiencies near the project site, VHB conducted a review of the UConn Crash Database to document the number of geolocated vehicular collisions that have taken place over the most recent three years (2019-2021).

The review revealed 34 reported crashes occurred at the I-91 Ramps at Windsor Avenue intersection. 13 crashes were reported at the Windsor Avenue at Violet Street intersection. 17 crashes were reported at the Meadow Road at Windsor Avenue intersection. It should be noted that the results of the Crash Database review were dependent on the accuracy of crash reporting and geolocating.

Table 1 presents the number of crashes and crash characteristics for the study intersections. One crash resulted in a fatality, and no crashes included non-motorists within the three years at the study intersections.

At the intersection of Windsor Avenue at the I-91 Ramps, approximately 62% of all crashes resulted in property damage only, with 38% of the collisions resulting in injuries. Angle crashes were most prevalent (17 out of 34), followed closely by rear-end collisions (12 out of 34), the remaining crashes were sideswipe or unknown type collisions. Of the crashes recorded at this intersection, 8 of the 34 involved vehicles turning left from Windsor Avenue onto the southbound I-91 ramp. A potential countermeasure to address the angle crashes could be to revise the phasing to protected only left-turns from permissive.

The intersection of Windsor Avenue at Violet Street recorded approximately 46% of all crashes resulted in property damage only, with 54% of the collisions resulting in injuries. Angle crashes were most prevalent (8 out of 13), with the remaining crashes varying in type of rear-end (1 out of 13), sideswipe (2 out of 13), and unknown (2 out of 13).

At the intersection of Windsor Avenue at Meadow Road, approximately 82% of all crashes resulted in property damage only, with 12% of the collisions resulting in injuries. One fatality was reported at this intersection. Crashes were varied at this intersection and rear-end crashes were most prevalent (6 out of 17), followed closely by angle collisions (4 out of 17), with the remaining crashes varying in type of head-on (1 out of 17), sideswipe (3 out of 17), and unknown (3 out of 17). The preponderance of rear-end collisions involving property damage only is common at signalized intersections, and this data does not indicate any atypical crash patterns.

Table 1 Crash Analysis Summary

	Windsor Avenue (Route 159) at I-91 Ramps	Windsor Avenue (Route 159) at Violet Street	Windsor Avenue (Route 159) at Meadow Road
Year			
2019	13	2	3
2020	12	4	8
<u>2021</u>	<u>9</u>	<u>7</u>	<u>6</u>
Total	34	13	17
Collision Type			
Angle	17	8	4
Head-on	0	0	1
Rear-end	12	1	6
Sideswipe, same direction	3	2	3
<u>Unknown</u>	<u>2</u>	<u>2</u>	<u>3</u>
Total	34	13	17
Severity			
Fatal Injury	0	0	1
Non-Fatal Injury	13	7	2
Property Damage Only	21	6	14
<u>Not Reported/Unknown</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	34	13	17
Time of day			
Weekday, 7:00 AM - 9:00 AM	3	0	2
Weekday, 4:00 – 6:00 PM	5	1	3
Saturday, 11:00 AM – 2:00 PM	0	0	0
Weekday, other time	16	7	8
<u>Weekend, other time</u>	<u>10</u>	<u>5</u>	<u>4</u>
Total	34	13	17
Season			
Dec – Feb	9	3	3
Mar – May	8	1	4
June – Aug	13	7	5
<u>Sept – Nov</u>	<u>4</u>	<u>2</u>	<u>5</u>
Total	34	13	17
Pavement Conditions			
Dry	32	12	14
Wet	2	1	2
Snow	0	0	1
<u>Ice</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	34	13	17
Light Conditions			
Daylight	21	10	11
Dawn/Dusk	0	0	0
Dark, Not Lighted	1	0	0
<u>Dark, Lighted</u>	<u>12</u>	<u>3</u>	<u>6</u>
Total	34	13	17
Non-Motorist (Bike, Pedestrian)	0	0	0

Source: UConn Connecticut Crash Data Repository

2.3 Traffic Count Data

VHB conducted manual turning movement and classification (TMC) counts at the intersections of Windsor Street at the Interstate I-91 ramps and Windsor Street at Violet Street during the typical weekday morning peak hours (7:00 – 9:00 AM) and typical weekday evening peak hours (4:00 – 6:00 PM) on June 10, 2021. Included in these counts are passenger vehicles, heavy vehicles, buses, and pedestrians. Based on this count data, the peak hour in the morning occurred from 7:30 AM to 8:30 AM, and the peak hour in the evening occurred from 4:00 PM to 5:00 PM. To bring the 2021 count data into 2023, the traffic volumes were grown by a conservative 1-percent per year.

Additionally, to capture the Saturday midday peak hour and the intersection of Meadow Road at Windsor Avenue, VHB collected TMCs during typical Saturday midday peak hours at all intersections (11:00 AM – 2:00 PM) and during the above listed typical peak hours for the weekday morning and evening peak hours at the Meadow Road intersection. These volumes were balanced with the previously conducted counts to provide a conservative analysis.

The 2023 Existing conditions peak hour traffic volume networks are summarized in Figure 2.

2.4 Intersection Sight Distance

The available sight distances from the site driveway and Violet Street were collected and compared with the intersection sight distance requirements outlined in the CTDOT Highway Design Manual to ensure that adequate sight distance is provided to allow a vehicle exiting the site driveway and Violet Street and turning onto Windsor Avenue (Route 159) to safely enter the traffic stream.

To evaluate the adequacy of the intersection sight distance from the driveway onto Windsor Avenue, the minimum suggested sight distance was calculated based on a design speed of 40 miles per hour on Windsor Avenue (5 miles per hour above the posted speed limit) for tractor trailers as these are the largest vehicles that will be accessing the site. Based on review of the available sight distances, ample intersection sight distance is available from the Site Driveway looking to the north and south on Windsor Avenue.

The intersection of Violet Street at Windsor Avenue was also evaluated and calculated based on the same 40 miles per hour design speed, however passenger vehicles were utilized as this roadway is a local road and narrow, so larger vehicles would not be frequenting this roadway. Based on the review of the sight distances, looking to the north, appropriate sight distance is available, however looking to the south there is a sign listing prices for a gas station that blocks the view of oncoming vehicles. However, with the realignment of Violet Street that is proposed, sight distance concerns should be mitigated.

The results of the intersection sight distances are summarized in Table 2.

Table 2 Intersection Sight Distances

Location	Available Sight Distance		Minimum	Meets Standard	
	Left	Right		Left	Right
Site Driveway at Windsor Avenue (Route 159)	+700'	+700'	680'	Yes	Yes
Violet Street at Windsor Avenue (Route 159)	355'	+445'	445'	No	Yes

Source: Vanasse Hangen Brustlin, Inc.

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2029 Future Conditions

To determine the impacts of the future site-generated traffic volumes on the roadway network, traffic conditions were projected to a seven-year planning horizon. Future traffic projections include regional background traffic growth and planned roadway improvements. Consideration of these factors resulted in the development of the 2029 No-Build traffic volumes. Anticipated Future Site-generated traffic volumes were then added to the 2029 No-Build traffic flow networks to reflect the 2029 Build scenario with the proposed development.

3.1 2029 No-Build Conditions

Traffic growth on area roadways is a function of the expected land development, economic activity, and changes in demographics. A frequently used procedure is to estimate traffic that could be generated by planned new major developments, potentially affecting the project study area roadways. An alternative procedure is to estimate an overall area annual percentage increase and apply that increase to study area traffic volumes. For the purpose of this assessment, the latter methodology was utilized and is detailed further below.

3.1.1 Background Traffic Growth

Per discussions with CTDOT and the Town of Windsor, no background developments were identified as impacting traffic on the roadway network. In order to account for any potential background sources of traffic growth, a conservative 1 percent per year growth rate was applied to the traffic volumes.

The 1 percent per year annual growth rate was applied to the 2023 Existing traffic volumes to develop the projected 2029 No-Build (without the proposed project) weekday morning, weekday evening, and Saturday midday peak hour traffic volumes.

The 2029 No-Build peak hour traffic volumes can be seen in Figure 3.

3.2 2029 Build Conditions

The 2029 build conditions represent future conditions with the opening of the proposed project. The 2029 build conditions traffic volumes include the no-build conditions volumes plus the vehicle trips anticipated to be generated by the project.

3.2.1 Site Access and Parking

This Site is proposed to have one full access point on Windsor Avenue, and one right-in only driveway approximately 140 feet north of the full access driveway. VHB has investigated the signalization of the full access driveway. The below section details the analysis conducted for meeting signal warrants at the proposed driveway location.

Parking will be available for patrons and employees in the proposed surface lots. A total of 50 parking spaces are proposed for the car wash, market, and gas station. On-site, pedestrian walkways are to be provided connecting parking areas with the associated buildings.

A reduced-size copy of the proposed site plan can be seen as part of the submittal package.

3.2.2 Site-Generated Traffic

In order to estimate the trip-generating characteristics for the proposed project, traffic projections can be derived from trip generation rates published by the Institute of Transportation Engineers (ITE) in their Trip Generation Manual, 11th Edition¹. ITE is the standard methodology used to project trips generated by this type of development, which is based on a number of observations at other, similar land uses throughout the United States. It was determined that the following land use codes should be utilized to estimate the site generated traffic:

- LUC 945 "Gasoline/Service Station with Convenience Market" was utilized to estimate trip generation associated with the proposed 16 fueling position gas station and 6,000 square foot market space;
- LUC 948 "Automated Car Wash" was utilized to estimate the trip generation associated with the 1 tunnel car wash. In addition, data provided by the Client for a

¹ Trip Generation; Eleventh Edition; Institute of Transportation Engineers; Washington, D.C.; 2021.

similar sized and located car wash was utilized to determine the weekday morning peak hour.

It is worth noting that pass-by trips were taken into consideration for the proposed development. A portion of the trips generated by retail establishments are typically classified as “pass-by” traffic. Pass-by traffic consists of vehicles already on the roadway that are attracted to a site when passing through the area. The primary destination of this traffic is elsewhere, and the primary trip will be resumed following a stop at the proposed development. The CTDOT Bureau of Policy and Planning, recommends a 60% pass-by credit for the gas station/convenience market and carwash uses.

An internal capture rate was also applied to the trip generation estimate to account for multi-purpose trips on site. Due to the fueling station and car wash being located on the same site, patrons would not take separate trips to attend each use. It was conservatively assumed that 50% of the car wash traffic will be a multi-purpose trip.

The anticipated new total trip generation for the proposed development is summarized in Table 3. As shown in Table 3, the total development is expected to generate approximately 104 (52 entering, 52 exiting) new vehicle trips during the weekday morning peak hour, approximately 133 (67 entering, 66 exiting) new vehicle trips during the weekday evening peak hour, and approximately 205 (97 entering, 108 exiting) new vehicle trips during the Saturday midday peak hour. This represents net new vehicles on the adjacent roadway network.

Table 3 Trip Generation Summary

Time Period	Gas Station and Market ¹ (16 Fueling Positions) +	Car Wash (1 tunnel) ² -	Internal Capture ³ -	Total External Trips =	Pass-By ⁴ -	Net New (Primary) Trips =
Weekday AM Peak						
Enter	128	4	(2)	130	(78)	52
Exit	<u>128</u>	<u>5</u>	<u>(3)</u>	<u>130</u>	<u>(78)</u>	<u>52</u>
Total	256	9	(5)	260	(156)	104
Weekday PM Peak						
Enter	148	39	(19)	168	(101)	67
Exit	<u>148</u>	<u>39</u>	<u>(20)</u>	<u>167</u>	<u>(101)</u>	<u>66</u>
Total	296	78	(39)	335	(202)	133
Saturday Midday						
Enter	233	19	(9)	243	(146)	97
Exit	<u>243</u>	<u>22</u>	<u>(11)</u>	<u>254</u>	<u>(146)</u>	<u>108</u>
Total	476	41	(20)	497	(292)	205

Source: Trip Generation, 11th Edition; Institute of Transportation Engineers (ITE); Washington, D.C. (2021).

- a vehicles per day
- b vehicles per hour
- 1 Future trip generation data based on LUC 945 for gas station with market use
- 2 Future trip generation based on LUC 948 based on 1 tunnel
- 3 Internal capture traffic, 50% applied to the carwash use
- 4 Pass-by traffic: 60% of external carwash and gas station trips

3.2.3 Trip Distribution and Assignment

The site-generated trips presented in Table 3 were distributed along the study area roadways and assigned to specific intersection turning movements to determine where exactly project-related traffic impacts may occur.

The anticipated distribution of the site generated traffic was determined by examining the proximity to Interstate 91 in Windsor in relation to the site location, anticipating commuter traffic patterns in the area, and ease of access to the site.

It was assumed that site-generated traffic would be allocated across the major routes in the area based on the traffic percentages that are summarized in Table 4. A figure depicting the distribution patterns shown in Table 4 can be seen in Figures 4 through 6. The 2029 Build conditions peak hour traffic volume networks are summarized in Figure 7.

Table 2 Trip Distribution Summary

<u>Traffic Entering/Leaving via</u>	<u>Portion of Project-Generated Traffic</u>
I-91 north of site	40%
Windsor Avenue north of the Site	30%
Windsor Avenue south of the site	30%

Based on a function of population densities, anticipated commuter traffic patterns, and ease of access to the Site

3.3 Signal Warrant Analysis

A traffic signal warrant analysis was conducted confirm the need for a traffic signal at the study location. The methodology used to determine if traffic signal controls are warranted is based on the criteria set in the Manual on Uniform Traffic Control Devices (MUTCD)². There are nine warrants defined in the MUTCD. The MUTCD is the established standard for Warrant analyses, and CTDOT requires that at least one of the warrants outlined in the MUTCD are met to approve the installation of a traffic signal. The Warrants consider the traffic volume entering the intersection, crash history, and other unique conditions such as the presence of school crossings, railroad grade crossings, or coordinated signal systems. The unique conditions noted above do not apply to this site, so the traffic projections were evaluated for the following three volume-based Warrants.

- **Warrant 1 (Eight Hour Vehicular Volume)** – Warrant 1 is based on any eight hours of a day where the traffic entering the intersection reaches a threshold that warrants considering signal control.
- **Warrant 2 (Four Hour Vehicular Volume)** – Warrant 2 is for any four hours of a day.

² Manual on Uniform Traffic Control Devices; Part 4 – Highway Traffic Signals; U.S. Department of Transportation/Federal Highway Administration; 2009 Edition.

- **Warrant 3 (Peak Hour)** – Warrant 3 is for the peak hour of any given day.

Table 5 presents the results of the three most commonly utilized warrants analysis completed for the study intersection. As these are existing traffic signals, all day turning movement counts were not collected, however traffic volumes from the CT DOT count station (WNDS-038) were used to complete the 8-hour warrant analysis. The signal warrant worksheets are provided in the Appendix.

Table 5 Traffic Signal Warrants Analysis Summary

	Warrant 1^a Met	Warrant 2^b Met	Warrant 3^c Met
Proposed Site Driveway on Windsor Ave	Yes	Yes	Yes

^a Eight-hour volume warrant

^b Four-hour volume warrant

^c Peak hour volume warrant

There are six other warrants that the intersections likely do not meet. These are:

- **Warrant 4 – Pedestrian Volume:** Pedestrian volumes would need to exceed 107 persons per hour for four hours or 133 persons per hour for one hour to meet criteria for this warrant.
- **Warrant 5 – School Crossing:** This warrant is not applicable to the project area.
- **Warrant 6 – Coordinated Signal System:** This warrant is not applicable to the project area, as there are no existing coordinated traffic signals in the vicinity of this intersection.
- **Warrant 7 – Crash Experience:** This warrant applies to locations where crash frequency and severity are the primary reasoning behind installing traffic signal equipment.
- **Warrant 8 – Roadway Network:** This warrant is not applicable to the project area.
- **Warrant 9 – Intersection Near a Grade Crossing:** There is no active at-grade rail crossing of the project area roadways.

This warrant analysis indicates that the proposed site driveway will meet Traffic Signal Warrants 1, 2, and 3. Therefore, the installation of a traffic signal for the proposed site driveway is warranted.

3.3.1 Recommended Improvements

The proposed development will generate enough traffic to warrant the installation of a traffic signal at the site driveway, and it was determined that the proposed site driveway will satisfy three of the warrants outlined in the Manual on Uniform Traffic Control Devices (MUTCD). Therefore, the installation of a traffic signal for the site driveway is warranted based on CTDOT standards and is proposed under this project. VHB recommends that the proposed

traffic signal operate in coordination with the signalized intersection at the I-91 Ramps to the North.

VHB recommends realigning the end of Violet Street to be located across from the Site Driveway. In addition, to reduce queues along Windsor Avenue, left-turn lanes into the Site are recommended.

The concept design for the realignment and turning lanes can be found in the Appendix. These recommendations are subject to the review and approval of the Connecticut Department of Transportation.

4

Traffic Operations Analysis

To assess the quality of traffic operations within the study area, intersection capacity analyses were conducted for the 2020 existing conditions, the 2029 no-build conditions, and the 2029 build conditions. Capacity analyses provide an indication of the adequacy of the roadway facilities to serve the anticipated traffic demands.

4.1 Method

The capacity analyses were conducted using industry standard Synchro software (Version 11). Signalized intersections were analyzed based on the evaluation criteria from the *Highway Capacity Manual (HCM) 2000*³. The HCM 2000 methodology was used instead of HCM 2010 or HCM 6th Edition due to limitations in these newer HCM methodologies that would preclude analysis of some signalized study intersections. For instance, the HCM 2010 and HCM 6th Edition methodologies do not support analysis of intersections with non-NEMA phasing, more than four approaches, or clustered intersections. To analyze unsignalized

³ *Highway Capacity Manual*, Transportation Research Board, Washington, DC (2000).

intersections, the HCM 6th Edition was used due to limitations analyzing all-way stop-controlled intersections in the previous versions.

Capacity analyses results are reported using a variety of performance measures, including “Level of Service” (LOS), Volume-to-Capacity (v/c) ratio, and queue length. These performance measures are described below.

Level-of-Service (LOS)

The level of service designation at intersections is based on the average control delay experienced by a vehicle traveling through the intersection. Similar to a report card, LOS designations are letter based, ranging from A to F, with LOS A representing the best operating condition (lowest vehicle delays) and LOS F representing the worst operating condition (highest vehicle delays). It is important to note that intersections during peak traffic conditions are not necessarily expected to operate at LOS A; an intersection operating at LOS A during typical peak conditions may suggest that the roadway is over-designed with too much capacity. Additionally, an intersection operating at LOS F during the peak periods does not necessarily indicate a failing intersection. In some cases, LOS F conditions may be deemed tolerable, provided that the lengthy delays do not lead to other, more serious conditions, such as increases in crash frequency.

LOS is assigned differently for signalized and unsignalized intersections. For signalized intersections, the analysis considers the operation of all traffic entering the intersection, and the LOS can be reported for individual turning movements, approaches, or for the intersection as a whole. For unsignalized intersections with stop-control on the side street approaches, the analysis assumes that through and right-turning movements on the main street are unimpeded by side street traffic. As such, LOS is reported only for left-turns from the main street and for all movements from the side street; the overall intersection LOS is not reported. Additionally, the delay values for each range are slightly longer for signalized intersections than unsignalized intersections. This is based on the presumption that the public will be more patient at signalized intersections where they are guaranteed entry into the intersection in a reasonable amount of time.

Volume-to-Capacity (v/c)

Volume-to-Capacity (v/c) can be reported for individual lane groups or for the intersection as a whole. Volume-to-Capacity is a ratio comparing the volume of vehicles proceeding through an intersection (or lane group) with the capacity of the intersection (or lane group) to accommodate that volume. A v/c ratio of 1.0 indicates an intersection operating at its capacity.

Queue Length

Vehicle queues are the expected length of vehicles waiting at an intersection. This report documents the 50th percentile and 95th percentile vehicle queue lengths in feet. The 50th percentile queue represents the maximum vehicle queue length that is expected to occur during a signal cycle under typical (median) traffic flow rates during the peak period analyzed. The 95th percentile queue represents the maximum vehicle queue length that is

expected to be exceeded only during the 5-percent of signal cycles (two or three times per hour) in the peak hour with the heaviest traffic flow. The 95th percentile queue is generally considered the maximum vehicle queue for design purposes.

4.2 Signalized Intersection Capacity Analysis

Table 6 summarizes the results of the signalized intersection capacity analysis for the study intersections.

The existing signal at the intersection of Windsor Avenue at the I-91 Ramps currently operates with LOS B with short delays, and this is expected to continue under No-Build conditions. Under Build conditions, the signalized intersection of Windsor Avenue at the I-91 Ramps is expected to operate with LOS B or better during all peak hours with minor increases to delay.

As previously noted, the installation of a new traffic control signal is proposed to control the full access driveway and Violet Street intersection. Additionally, Violet Street is recommended to be realigned directly opposite of the site driveway. Therefore, the Build conditions analysis includes these recommended improvements. Under Build conditions, the proposed signalized intersection is expected to operate with LOS B during all peak hours.

The existing signal at the intersection of Windsor Avenue at Meadow Road currently operates with LOS B or better with short delays, and this is expected to continue under No-Build conditions. Under Build conditions, the signalized intersection of Windsor Avenue at Meadow Road is expected to operate with LOS B or better during all peak hours with minor increases to delay.

The Synchro analysis results are included in the Appendix.

Table 6 Signalized Intersection Capacity Analysis Summary

Location	Period	Movement	2022 Existing					2029 No-Build					2029 Build					
			v/c ^a	Delay ^b	LOS ^c	50thQ ^d	95thQ ^e	v/c	Delay	LOS	50thQ	95thQ	v/c	Delay	LOS	50thQ	95thQ	
3Windsor Ave at I-91 Ramps	AM	EB L/T	0.15	20.7	C	15	29	0.14	19.7	B	15	30	0.12	18.1	B	14	29	
		EB R	0.52	23.6	C	30	63	0.62	25.2	C	45	85	0.70	26.9	C	63	108	
		NB T	0.22	11.6	B	42	70	0.25	12.1	B	46	73	0.30	14.9	B	56	89	
		NB R	0.10	0.1	A	0	0	0.10	0.1	A	0	0	0.12	0.2	A	0	0	
		SB L	0.49	9.2	A	58	118	0.55	7.7	A	52	75	0.56	8.9	A	55	78	
		SB T	0.23	6.2	A	44	80	0.26	4.1	A	41	54	0.28	5.0	A	45	58	
		Overall	0.50	11.5	B	-	-	0.57	11.1	B	-	-	0.61	12.4	B	-	-	
	PM	EB L/T	0.12	22.4	C	13	29	0.12	21.0	C	13	31	0.11	20.1	C	13	31	
		EB R	0.64	29.4	C	42	95	0.73	32.1	C	59	126	0.83	38.6	D	77	#169	
		NB T	0.43	12.2	B	105	143	0.48	13.5	B	114	153	0.50	14.2	B	118	159	
		NB R	0.13	0.2	A	0	0	0.13	0.2	A	0	0	0.15	0.2	A	0	0	
		SB L	0.50	9.2	A	24	96	0.58	12.1	B	31	#118	0.62	13.6	B	35	#123	
		SB T	0.22	3.4	A	25	49	0.24	4.4	A	32	62	0.26	4.6	A	36	62	
		Overall	0.53	12.6	B	-	-	0.62	14.2	B	-	-	0.68	16.0	B	-	-	
	Sat	EB L/T	0.09	22.4	C	7	22	0.09	22.4	C	8	22	0.09	22.2	C	8	22	
		EB R	0.17	23.0	C	0	51	0.18	22.9	C	0	52	0.21	22.9	C	0	54	
		NB T	0.27	10.0	B	45	92	0.29	10.3	B	48	98	0.32	10.9	B	55	106	
		NB R	0.09	0.1	A	0	0	0.10	0.1	A	0	0	0.13	0.2	A	0	0	
SB L		0.28	5.5	A	16	44	0.30	5.5	A	18	48	0.31	4.6	A	12	39		
SB T		0.16	3.7	A	17	27	0.17	3.7	A	18	32	0.19	2.7	A	14	37		
Overall		0.26	9.4	A	-	-	0.28	9.5	A	-	-	0.30	9.2	A	-	-		
Windsor Ave at Site Driveway and Violet Street	AM	EB L	-	-	-	-	-	-	-	-	-	-	0.47	24.1	C	25	58	
		EB T/R	-	-	-	-	-	-	-	-	-	-	-	0.04	20.9	C	0	0
		WB L/T/R	-	-	-	-	-	-	-	-	-	-	-	0.04	20.9	C	0	0
		NB L	-	-	-	-	-	-	-	-	-	-	-	0.17	4.7	A	5	16
		NB T/R	-	-	-	-	-	-	-	-	-	-	-	0.22	6.4	A	26	75
		SB L	-	-	-	-	-	-	-	-	-	-	-	0.02	6.1	A	1	5
		SB T/R	-	-	-	-	-	-	-	-	-	-	-	0.53	10.1	B	116	168
	Overall	-	-	-	-	-	-	-	-	-	-	-	0.48	10.4	B	-	-	
	PM	EB L	-	-	-	-	-	-	-	-	-	-	-	0.59	26.8	C	32	72
		EB T/R	-	-	-	-	-	-	-	-	-	-	-	0.05	20.6	C	0	0
		WB L/T/R	-	-	-	-	-	-	-	-	-	-	-	0.04	20.5	C	0	0
		NB L	-	-	-	-	-	-	-	-	-	-	-	0.24	5.3	A	8	19
		NB T/R	-	-	-	-	-	-	-	-	-	-	-	0.44	8.0	A	64	150
		SB L	-	-	-	-	-	-	-	-	-	-	-	0.04	6.2	A	1	6
		SB T/R	-	-	-	-	-	-	-	-	-	-	-	0.56	10.5	B	129	187
	Overall	-	-	-	-	-	-	-	-	-	-	-	0.54	10.8	B	-	-	
	Sat	EB L	-	-	-	-	-	-	-	-	-	-	-	0.66	27.6	C	48	92
		EB T/R	-	-	-	-	-	-	-	-	-	-	-	0.07	18.8	B	0	0
WB L/T/R		-	-	-	-	-	-	-	-	-	-	-	0.03	18.6	B	0	0	
NB L		-	-	-	-	-	-	-	-	-	-	-	0.25	5.4	A	12	32	
NB T/R		-	-	-	-	-	-	-	-	-	-	-	0.29	8.2	A	38	101	
SB L		-	-	-	-	-	-	-	-	-	-	-	0.05	8.3	A	2	9	
SB T/R		-	-	-	-	-	-	-	-	-	-	-	0.48	12.1	B	90	143	
Overall	-	-	-	-	-	-	-	-	-	-	-	0.50	12.6	B	-	-		
Windsor Ave at Meadow Road	AM	WB L	0.65	26.0	C	72	105	0.68	27.0	C	77	112	0.71	27.7	C	82	119	
		WB R	0.07	20.0	B	0	24	0.08	19.9	B	0	25	0.08	19.5	B	0	25	
		NB T/R	0.20	1.9	A	0	0	0.22	25.5	C	62	94	0.23	23.2	C	68	102	
		SB L	0.04	5.3	A	3	12	0.05	5.4	A	3	12	0.05	5.5	A	3	12	
		SB T	0.27	4.4	A	35	71	0.29	4.6	A	39	76	0.29	4.8	A	41	76	
		Overall	0.38	8.4	A	-	-	0.41	15.4	B	-	-	0.42	15.1	B	-	-	
	PM	WB L	0.63	28.4	C	69	115	0.65	28.9	C	74	121	0.69	30.2	C	81	132	
		WB R	0.16	23.1	C	0	48	0.16	22.9	C	0	48	0.16	22.6	C	0	48	
		NB T/R	0.38	3.3	A	4	6	0.41	3.6	A	5	7	0.42	3.4	A	4	7	
		SB L	0.04	4.8	A	2	8	0.04	4.9	A	2	9	0.05	5.1	A	2	9	
		SB T	0.25	3.9	A	34	63	0.27	4.1	A	37	69	0.27	4.3	A	40	70	
		Overall	0.42	8.8	A	-	-	0.45	9.0	A	-	-	0.47	9.2	A	-	-	
	Sat	WB L	0.46	24.1	C	41	74	0.49	24.1	C	43	77	0.55	24.4	C	53	88	
		WB R	0.11	22.4	C	0	37	0.12	22.4	C	0	38	0.12	21.7	C	0	37	
		NB T/R	0.23	13.5	B	65	124	0.25	13.7	B	70	132	0.27	18.7	B	20	132	
		SB L	0.03	4.1	A	2	8	0.04	4.2	A	2	8	0.04	4.5	A	2	8	
		SB T	0.19	3.1	A	18	40	0.20	3.2	A	21	44	0.20	3.5	A	23	48	
		Overall	0.27	11.7	B	-	-	0.29	11.9	B	-	-	0.32	14.1	B	-	-	

a volume-to-capacity ratio
 b delay, in seconds/vehicle
 c level of service
 d 50th percentile queue length, in feet
 e 95th percentile queue length, in feet
 EB, WB, NB, SB, L, T, Reastbound, westbound, northbound, southbound, left turn, through, right turn
 # 95th percentile volume exceeds capacity, queue may be longer

4.3 Unsignalized Intersection Capacity Analysis

Unsignalized intersection capacity analyses were conducted for the existing unsignalized intersection of Violet Street at Windsor Avenue. Capacity analyses were conducted for 2022 Existing Conditions and 2029 No-Build conditions (without the proposed development). Analysis was not conducted for Build conditions, as this intersection is to be signalized and Violet Street realigned to improve signalized operations. The results of the analysis are shown in Table 7.

Table 7 Unsignalized Intersection Capacity Analysis Summary

Location	Period	Movement	2022 Existing				2029 No-Build				2029 Build			
			Dem ^a	v/c ^b	Delay ^c	LOS ^d	Dem	v/c	Delay	LOS	Dem	v/c	Delay	LOS
Violet Street at Windsor Ave	Weekday Morning	EB-LTR	1	0.01	27.9	D	1	0.01	30.5	D	-	-	-	-
		WB-LTR	35	0.12	14.3	B	38	0.14	15.1	C	-	-	-	-
		NB-LTR	422	0.13	0.1	A	448	0.14	0.1	A	-	-	-	-
		SB-LTR	762	0.26	0.3	A	809	0.27	0.3	A	-	-	-	-
	Weekday Evening	EB-LTR	0	0.00	0.0	A	0	0.00	0.0	A	-	-	-	-
		WB-LTR	45	0.14	14.6	B	48	0.16	15.3	C	-	-	-	-
		NB-LTR	763	0.25	0.0	-	810	0.27	0.0	-	-	-	-	-
		SB-LTR	845	0.27	0.5	A	897	0.29	0.5	A	-	-	-	-
	Saturday Midday	EB-LTR	0	0.00	0.0	A	0	0.00	0.0	A	-	-	-	-
		WB-LTR	38	0.09	11.6	B	40	0.09	11.9	B	-	-	-	-
		NB-LTR	525	0.16	0.0	-	557	0.17	0.0	-	-	-	-	-
		SB-LTR	610	0.19	0.6	A	648	0.20	0.7	A	-	-	-	-

a demand in vehicles per hour for unsignalized intersections; demand is calculated as the total vehicular volume from the critical side street approach

b volume-to-capacity ratio for the critical movement

c delay of critical approach only

d level of service of the critical movement

EB, WB Eastbound, westbound,

NB, SB Northbound, southbound

LR shared left/right-turn movements;

LTR shared left/through/right turn movements

L left-turn movement

LT shared left/through movement

5

Conclusion

This traffic impact study has been prepared for a proposed mixed-use development with signalized driveway to be located at 29 Windsor Avenue in Windsor, Connecticut. Proposed on site is a gas station with 16 fueling positions and a 6,000 square foot convenience market. Adjacent to the gas station and market is proposed a one-tunnel car wash.

The Site is proposed to have one full access driveway on Windsor Avenue located approximately 40-feet north of Violet Street and one entrance/right-in only driveway on Windsor Avenue located approximately 140 feet north of the full access driveway. The installation of a new traffic control signal is proposed to control the full access driveway and Violet Street. VHB recommends the realignment of Violet Street to align opposite of the Site Driveway to form a four-leg signalized intersection.

Traffic signal warrant analysis documented in this report indicates that the proposed full access site driveway will meet MUTCD Traffic Signal Warrants 1, 2, and 3. Therefore, the installation of a traffic signal for the site driveway is warranted based on CTDOT standards.

The Site is expected to generate approximately 104 (52 entering, 52 exiting) new vehicle trips during the weekday morning peak hour, approximately 133 (67 entering, 66 exiting) new vehicle trips during the weekday evening peak hour, and approximately 205 (97 entering, 108 exiting) new vehicle trips during the Saturday midday peak hour. . This represents net new vehicles on the adjacent roadway network.

The existing signalized study area intersection of Windsor Avenue at I-91 southbound ramps currently operate with acceptable levels of service and delay and are expected to do so under proposed conditions (No-Build and Build) with slight increases due to the addition of site generated traffic to the network.

The existing unsignalized study area intersection of Windsor Avenue at Violet Street currently operates with acceptable levels of service and delay and are expected to do so under No-Build conditions with minor degradation. Under Build conditions, the proposed signalized intersection is expected to operate with LOS B during all peak hours.

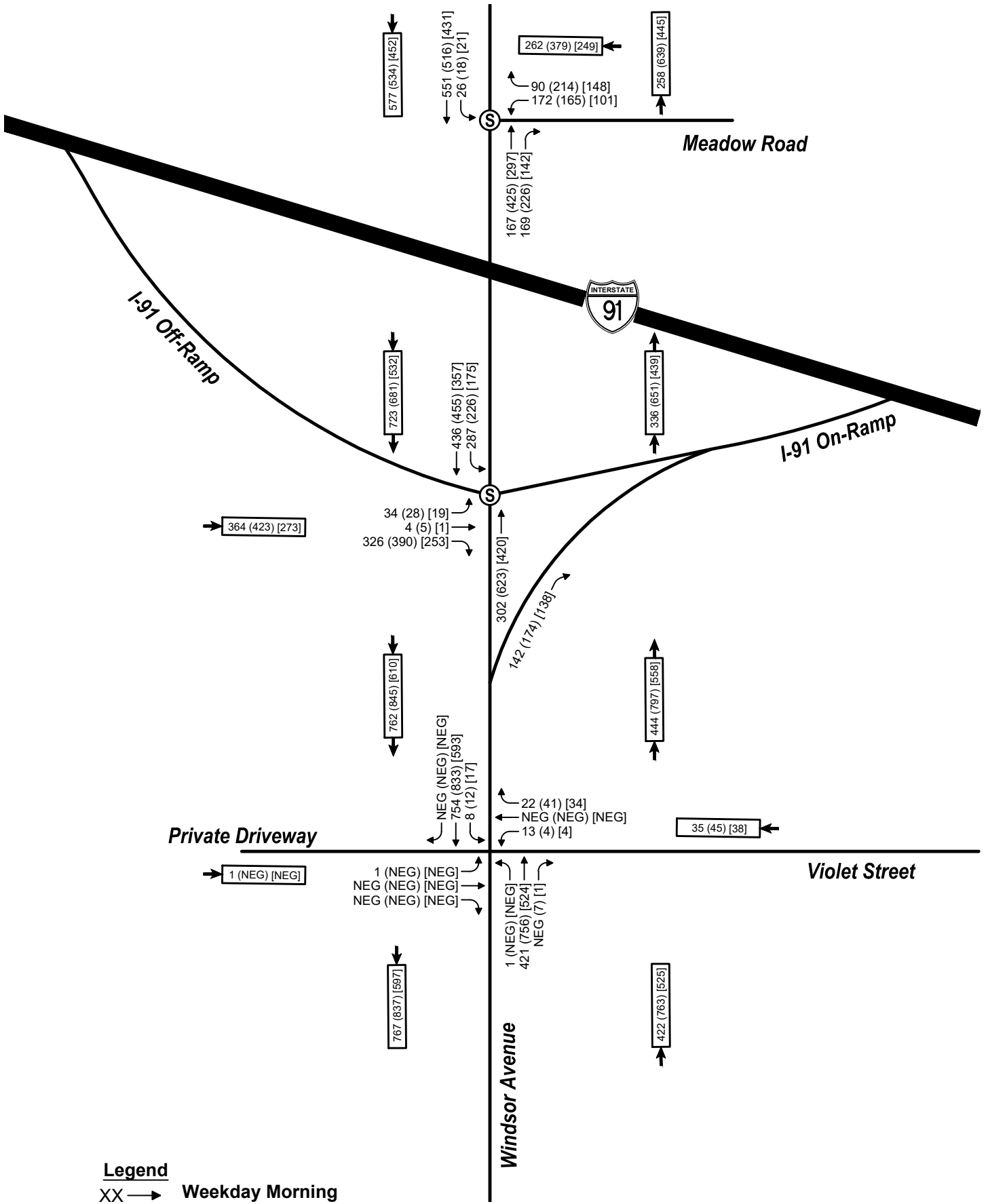
The existing signal at the intersection of Windsor Avenue at Meadow Road currently operates with LOS B or better with short delays, and this is expected to continue under No-Build and Build conditions.

It is therefore the conclusion of this Traffic Impact Study that the surrounding roadway network and study area intersections, with the recommended improvements, can accommodate the proposed development without significant adverse impacts to traffic operations.



Site Location Map
Proposed Mixed-Use Development
29 Windsor Avenue
Windsor, CT

Figure 1



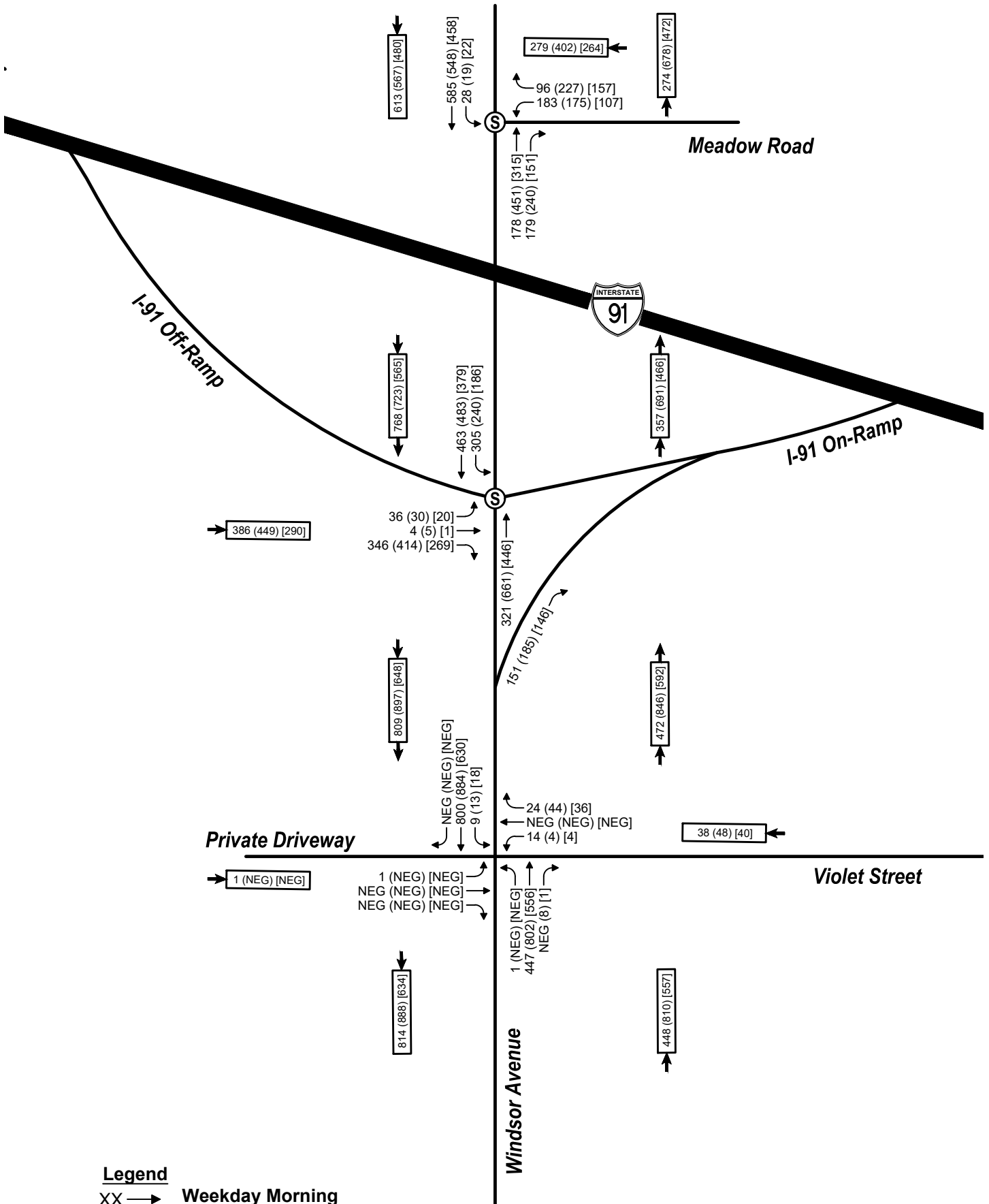
Legend
 XX → Weekday Morning Traffic Volume
 (XX) → Weekday Evening Traffic Volume
 [XX] → Saturday Midday Traffic Volume
 NOT TO SCALE



Proposed Mixed-Use Development
 2023 Existing Conditions
 Peak Hour Traffic Volumes
 Windsor, CT

Figure 2





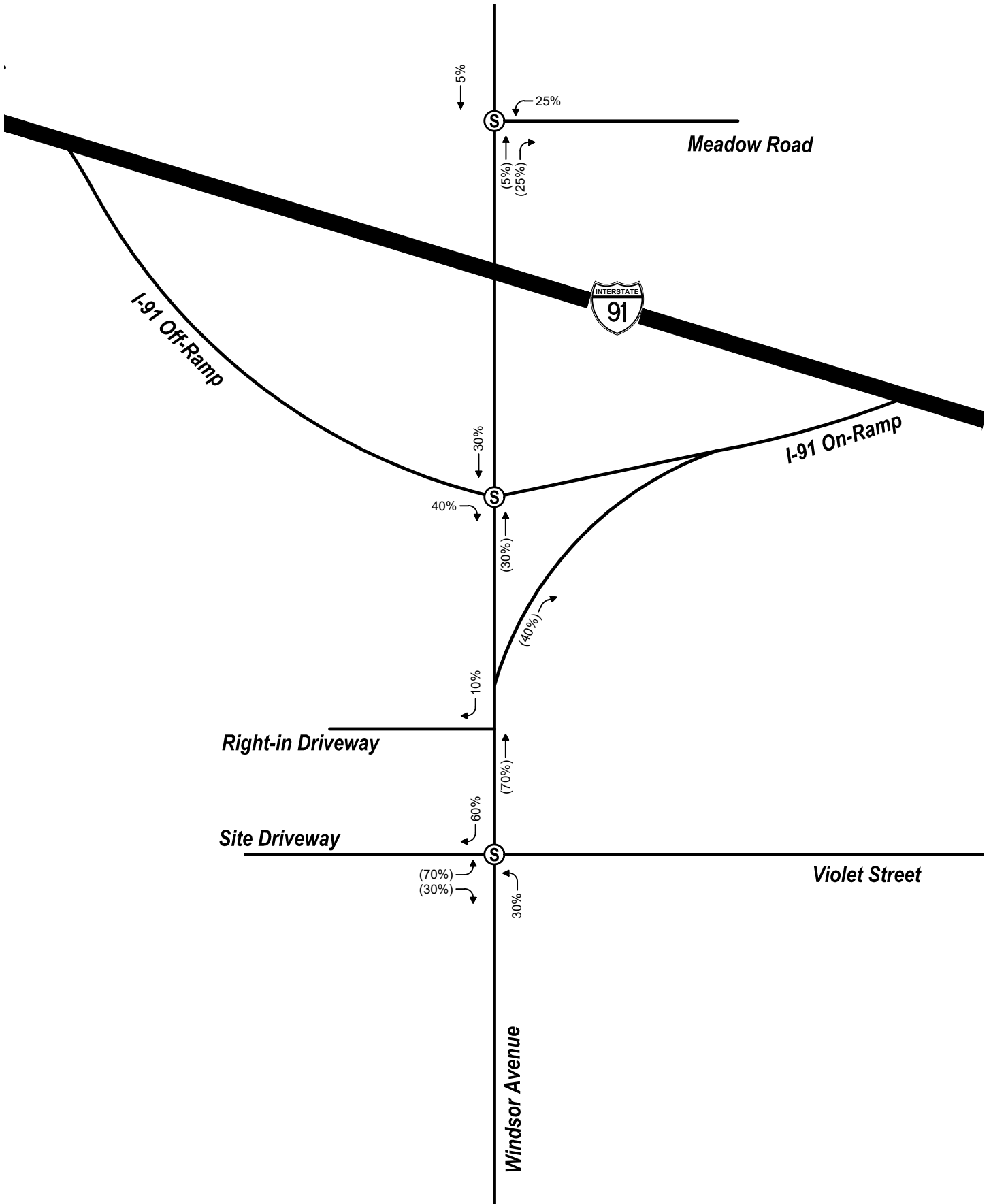
Legend
 XX → Weekday Morning Traffic Volume
 (XX) → Weekday Evening Traffic Volume
 [XX] → Saturday Midday Traffic Volume
 NOT TO SCALE



Proposed Mixed-Use Development
 2029 No-Build Conditions
 Peak Hour Traffic Volumes
 Windsor, CT

Figure 3



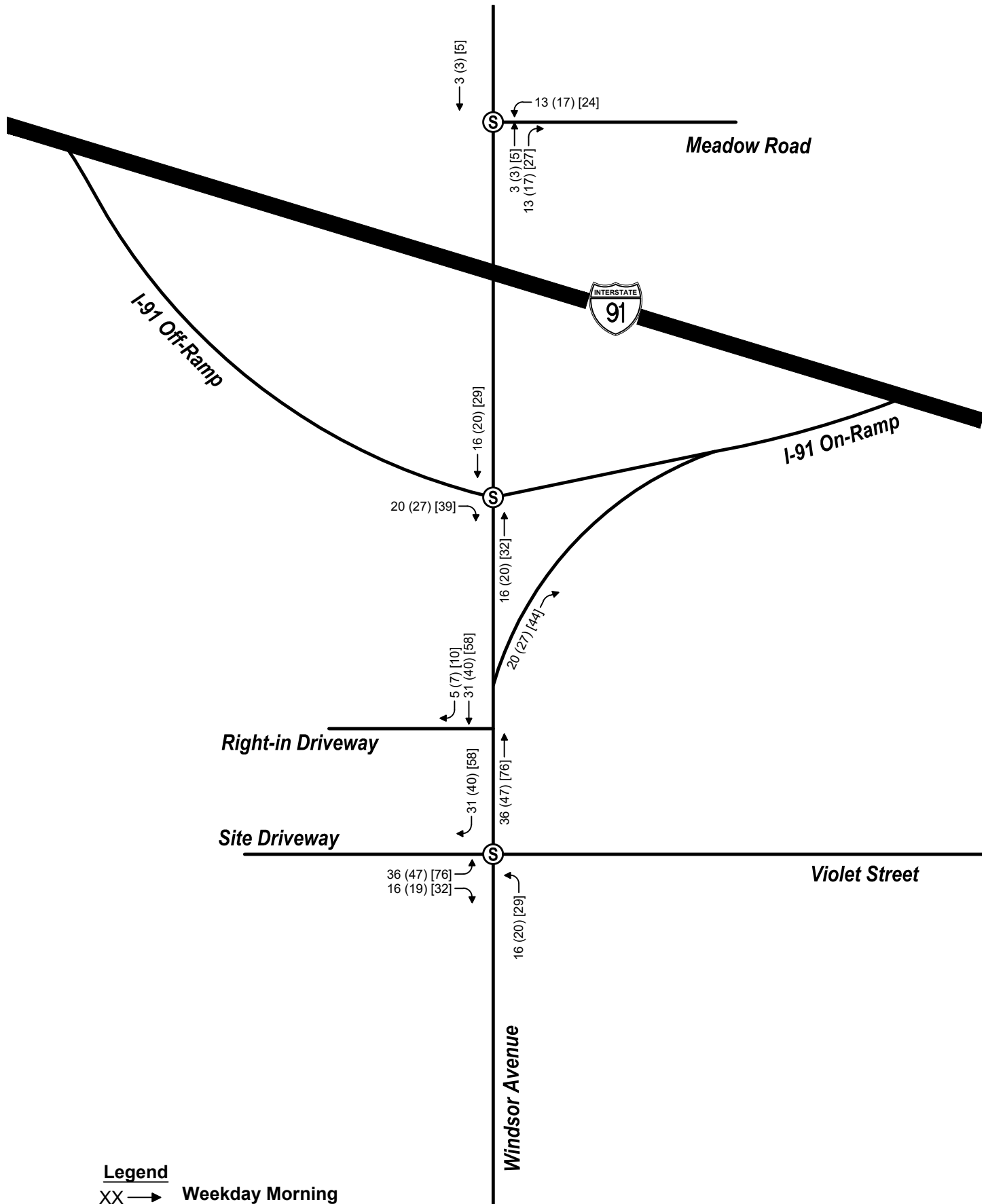


Proposed Mixed-Use Development
Trip Distribution
Windsor, CT

Figure 4

Legend:
 Entering Trips by %
 (Exiting Trips by %)





Legend

- XX → Weekday Morning Traffic Volume
- ((XX)) → Weekday Evening Traffic Volume
- [XX] → Saturday Midday Traffic Volume

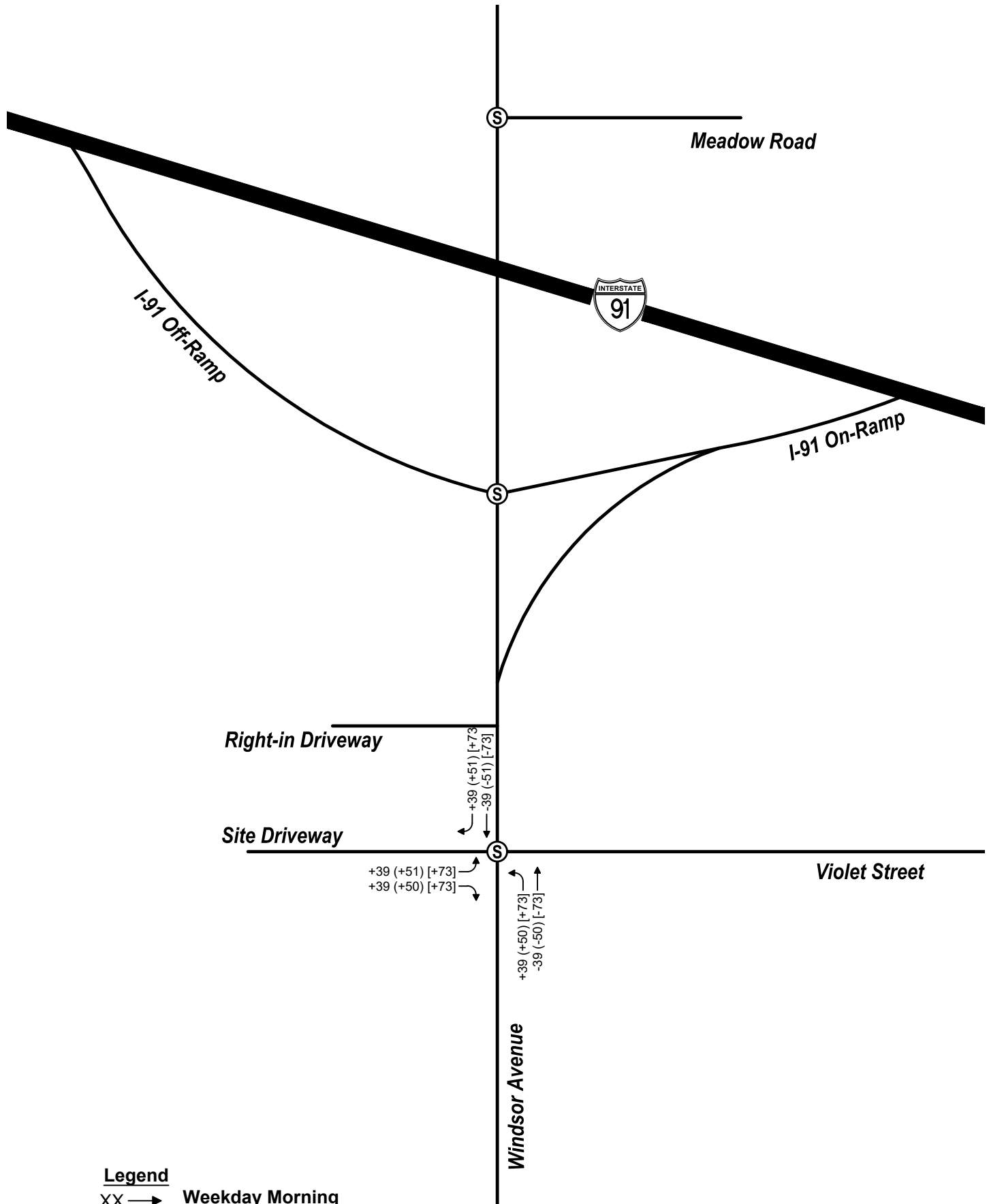
NOT TO SCALE



Proposed Mixed-Use Development
Site Generated Traffic
Windsor, CT

Figure 5





Legend

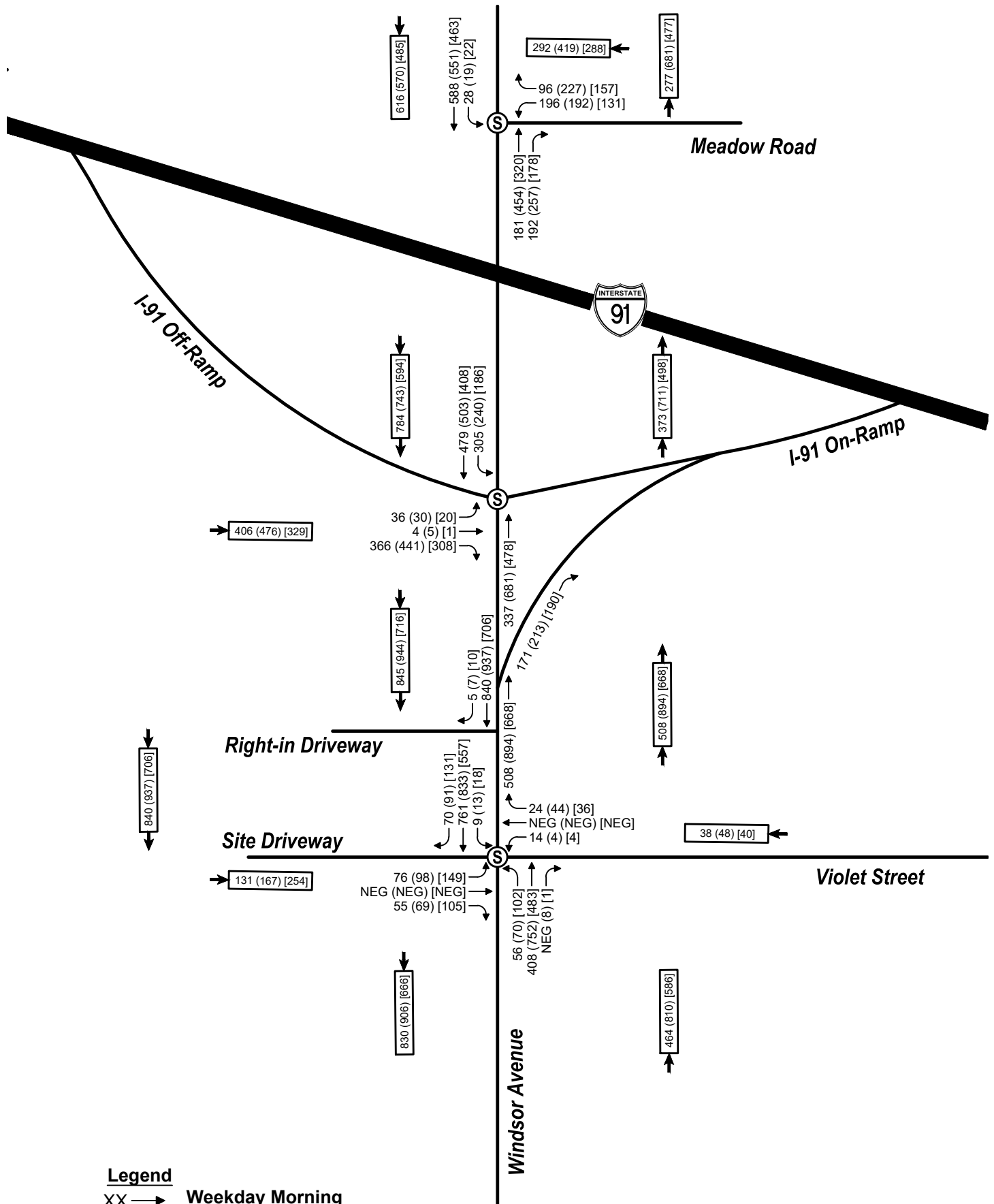
- XX → Weekday Morning Traffic Volume
 - (XX) → Weekday Evening Traffic Volume
 - [XX] → Saturday Midday Traffic Volume
- NOT TO SCALE



Proposed Mixed-Use Development
Pass-By Traffic
Windsor, CT

Figure 6





Legend
 XX → Weekday Morning Traffic Volume
 (XX) → Weekday Evening Traffic Volume
 [XX] → Saturday Midday Traffic Volume
NOT TO SCALE



Proposed Mixed-Use Development
 2029 Build Conditions
 Peak Hour Traffic Volumes
 Windsor, CT

Figure 7



Appendix

Site Plan and Development Program Information

Proposed Driveway Alignment Concept

Crash Data

Traffic Counts

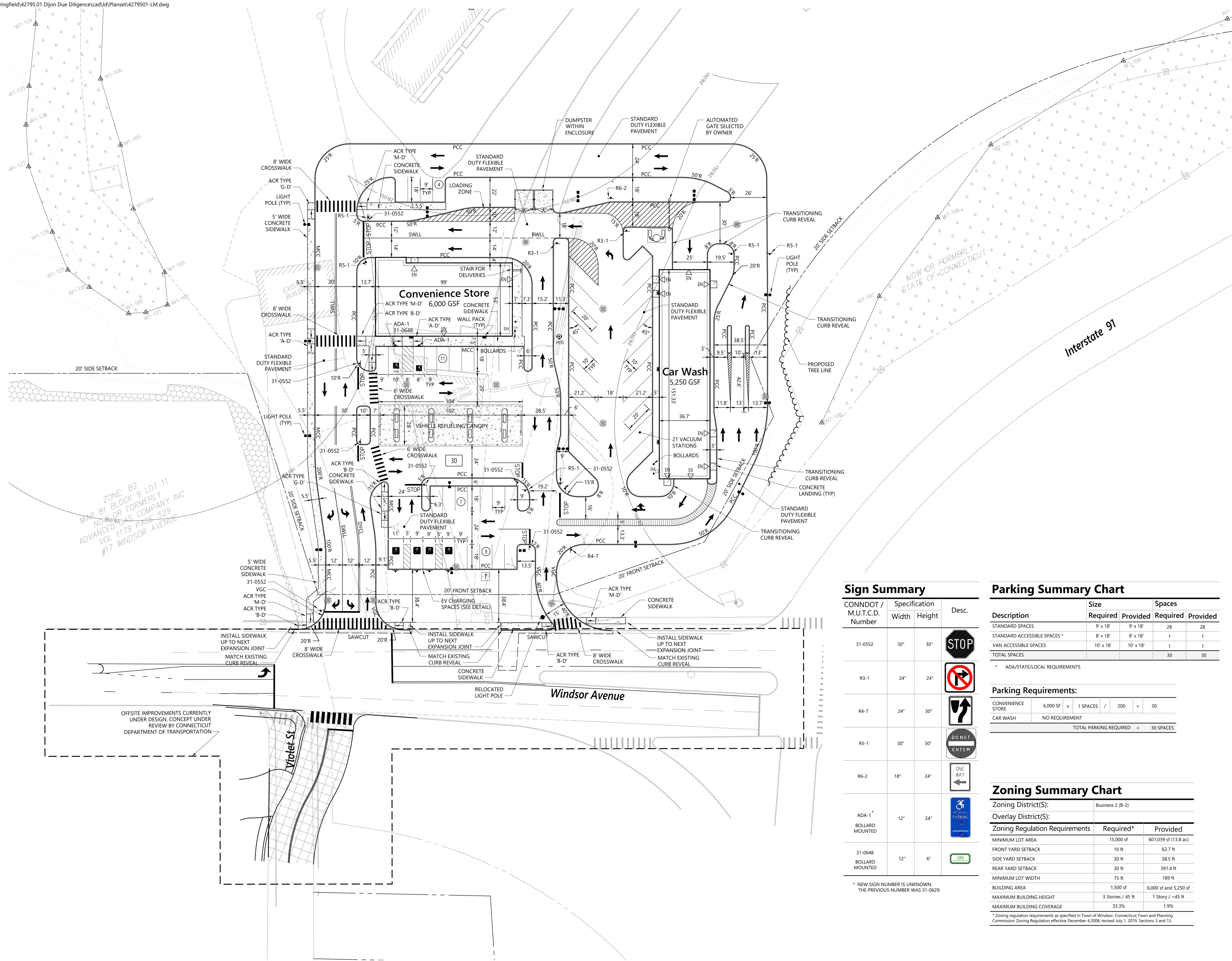
Project Trip Generation

Signal Warrants

Signal Plans

Capacity Analysis Reports

Site Plan and Development Program Information



ZONE: B2
MAP 81 BLOCK 9 LOT 11
NOW OR FORMERLY
ADVANCED GAS COMPANY INC
VOL 1179 PAGE 529
#17 WINDSOR AVENUE

Sign Summary

CONNDOT / M.U.T.C.D. Number	Specification		Desc.
	Width	Height	
31-0552	30"	30"	
R3-1	24"	24"	
R4-7	24"	30"	
R5-1	30"	30"	
R6-2	18"	24"	
ADA-1 [*] BOLLARD MOUNTED	12"	24"	
31-0648 BOLLARD MOUNTED	12"	6"	

^{*} NEW SIGN NUMBER IS UNKNOWN. THE PREVIOUS NUMBER WAS 31-0629.

Parking Summary Chart

Description	Size		Spaces	
	Required	Provided	Required	Provided
STANDARD SPACES	9' x 18'	9' x 18'	28	28
STANDARD ACCESSIBLE SPACES *	8' x 18'	8' x 18'	1	1
VAN ACCESSIBLE SPACES	10' x 18'	10' x 18'	1	1
TOTAL SPACES			30	30

* ADA/STATE/LOCAL REQUIREMENTS

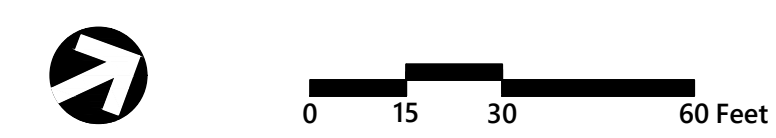
Parking Requirements:

CONVENIENCE STORE	6,000 SF	x	1 SPACES	/	200	=	30
CAR WASH	NO REQUIREMENT						
TOTAL PARKING REQUIRED = 30 SPACES							

Zoning Summary Chart

Zoning District(S):	Business 2 (B-2)	
Overlay District(S):		
Zoning Regulation Requirements	Required*	Provided
MINIMUM LOT AREA	15,000 sf	601,039 sf (13.8 ac)
FRONT YARD SETBACK	10 ft	62.7 ft
SIDE YARD SETBACK	30 ft	38.5 ft
REAR YARD SETBACK	30 ft	391.4 ft
MINIMUM LOT WIDTH	75 ft	189 ft
BUILDING AREA	1,500 sf	6,000 sf and 5,250 sf
MAXIMUM BUILDING HEIGHT	3 Stories / 45 ft	1 Story / <45 ft
MAXIMUM BUILDING COVERAGE	33.3%	1.9%

* Zoning regulation requirements as specified in Town of Windsor, Connecticut Town and Planning Commission Zoning Regulation effective December 4, 2008, revised July 1, 2019, Sections 3 and 13.



Wilson Center Mixed-Use Development

29 Windsor Avenue
Windsor, Connecticut

No.	Revision	Date	App'd.

Designed by: _____ Checked by: _____
 Issued for: _____ Date: _____
Site Plan Approval July 28, 2023

Not For Construction

Layout and Materials Plan

C-4

Proposed Driveway Realignment Concept



Crash Data

2019-2021 Crash Data: Windsor Avenue at Interstate 91 Ramps

CrashID	DOT Case #	Town Name	Date Of Crash	Time of Crash	Crash Severity	Manner of Crash / Collision Impact	Light Condition	Road Surface Condition
521726	3040175	Windsor	3/8/2019	8:25:00	Property Damage Only	Front to rear	Daylight	Dry
536778	3055219	Windsor	4/19/2019	22:17:00	Injury of any type (Serious, Minor, Possible)	Angle	Dark-Not Lighted	Wet
541753	3060193	Windsor	5/6/2019	10:39:00	Injury of any type (Serious, Minor, Possible)	Angle	Daylight	Dry
553428	3071863	Windsor	6/5/2019	14:30:00	Property Damage Only	Sideswipe, same direction	Daylight	Dry
553430	3071865	Windsor	6/10/2019	0:52:00	Property Damage Only	Sideswipe, opposite direction	Dark-Lighted	Dry
559172	3077606	Windsor	6/23/2019	16:32:00	Injury of any type (Serious, Minor, Possible)	Angle	Daylight	Dry
559334	3077768	Windsor	6/22/2019	22:29:00	Property Damage Only	Front to rear	Dark-Lighted	Dry
569411	3087844	Windsor	7/22/2019	14:17:00	Injury of any type (Serious, Minor, Possible)	Angle	Daylight	Dry
574598	3093031	Windsor	8/10/2019	17:31:00	Property Damage Only	Front to rear	Daylight	Dry
590796	3109227	Windsor	9/23/2019	6:12:00	Injury of any type (Serious, Minor, Possible)	Angle	Dark-Lighted	Dry
594825	3113256	Windsor	10/4/2019	15:07:00	Injury of any type (Serious, Minor, Possible)	Front to rear	Daylight	Dry
626247	3144670	Windsor	12/17/2019	0:29:00	Injury of any type (Serious, Minor, Possible)	Angle	Dark-Lighted	Dry
627777	3146200	Windsor	12/19/2019	17:26:00	Injury of any type (Serious, Minor, Possible)	Front to rear	Dark-Lighted	Dry
638105	3156523	Windsor	1/12/2020	13:36:00	Injury of any type (Serious, Minor, Possible)	Front to rear	Daylight	Dry
677143	3195550	Windsor	4/25/2020	20:22:00	Property Damage Only	Angle	Dark-Lighted	Dry
698615	3217018	Windsor	7/13/2020	22:20:00	Property Damage Only	Angle	Dark-Lighted	Dry
708093	3226495	Windsor	8/10/2020	8:31:00	Property Damage Only	Sideswipe, same direction	Daylight	Dry
723687	3242088	Windsor	8/11/2020	0:46:00	Property Damage Only	Front to rear	Dark-Lighted	Dry
724115	3242516	Windsor	8/16/2020	13:00:00	Property Damage Only	Angle	Daylight	Wet
724121	3242522	Windsor	8/19/2020	20:43:00	Injury of any type (Serious, Minor, Possible)	Angle	Dark-Lighted	Dry
724164	3242565	Windsor	9/17/2020	18:00:00	Property Damage Only	Front to rear	Daylight	Dry
731985	3250385	Windsor	10/14/2020	16:28:00	Property Damage Only	Not Applicable	Daylight	Dry
774569	3278679	Windsor	12/21/2020	7:35:00	Property Damage Only	Angle	Daylight	Dry
775066	3279176	Windsor	12/27/2020	11:17:00	Property Damage Only	Angle	Daylight	Dry
776829	3280939	Windsor	12/28/2020	15:40:00	Property Damage Only	Angle	Daylight	Dry
777357	3281467	Windsor	1/2/2021	17:08:00	Property Damage Only	Angle	Dark-Lighted	Dry
777894	3282004	Windsor	1/6/2021	17:47:00	Injury of any type (Serious, Minor, Possible)	Angle	Dark-Lighted	Dry
782339	3286449	Windsor	1/21/2021	17:20:00	Property Damage Only	Other	Dark-Lighted	Dry
793448	3297546	Windsor	3/6/2021	17:04:00	Property Damage Only	Front to rear	Daylight	Dry
795098	3299196	Windsor	3/13/2021	10:01:00	Property Damage Only	Angle	Daylight	Dry
799292	3303388	Windsor	3/30/2021	17:36:00	Property Damage Only	Front to rear	Daylight	Dry
815057	3318153	Windsor	5/24/2021	11:30:00	Injury of any type (Serious, Minor, Possible)	Angle	Daylight	Dry
833510	3336602	Windsor	7/13/2021	14:17:00	Property Damage Only	Front to rear	Daylight	Dry
837285	3340377	Windsor	8/11/2021	10:34:00	Injury of any type (Serious, Minor, Possible)	Front to rear	Daylight	Dry

2019 to 2021 Crash Data: Windsor Avenue at Violet Street

CrashId	Town Name	Date Of Crash	Time of Crash	Crash Severity	Manner of Crash / Collision Impact	Light Condition	Road Surface Condition
512789	Windsor	2/1/2019	11:02:00	Injury of any type (Serious, Minor, Possible)	Angle	Daylight	Dry
608607	Windsor	10/31/2019	15:31:00	Injury of any type (Serious, Minor, Possible)	Angle	Daylight	Dry
690717	Windsor	6/19/2020	12:53:00	Injury of any type (Serious, Minor, Possible)	Angle	Daylight	Dry
696822	Windsor	7/4/2020	14:28:00	Injury of any type (Serious, Minor, Possible)	Sideswipe, same direction	Daylight	Dry
764162	Windsor	12/2/2020	13:30:00	Property Damage Only	Sideswipe, same direction	Daylight	Dry
767158	Windsor	12/6/2020	9:44:00	Property Damage Only	Not Applicable	Daylight	Dry
813809	Windsor	5/22/2021	14:50:00	Injury of any type (Serious, Minor, Possible)	Angle	Daylight	Dry
820874	Windsor	6/16/2021	6:43:00	Property Damage Only	Angle	Daylight	Dry
827735	Windsor	7/8/2021	16:27:00	Property Damage Only	Angle	Daylight	Wet
831292	Windsor	7/20/2021	6:51:00	Property Damage Only	Angle	Daylight	Dry
834556	Windsor	8/1/2021	1:02:00	Property Damage Only	Not Applicable	Dark-Lighted	Dry
841848	Windsor	8/28/2021	19:43:00	Injury of any type (Serious, Minor, Possible)	Angle	Dark-Lighted	Dry
862368	Windsor	10/21/2021	19:27:00	Injury of any type (Serious, Minor, Possible)	Front to rear	Dark-Lighted	Dry

Traffic Counts

Connecticut Counts LLC
Kensington, Connecticut 06037
(860) 828-1693

Route 159 at I-91 SB Ramps
Windsor, Connecticut

File Name : 21910
Site Code : 21910
Start Date : 6/11/2021
Page No : 1

Groups Printed- Lights - Buses - Trucks - Bicycles on Crosswalk - Pedestrians

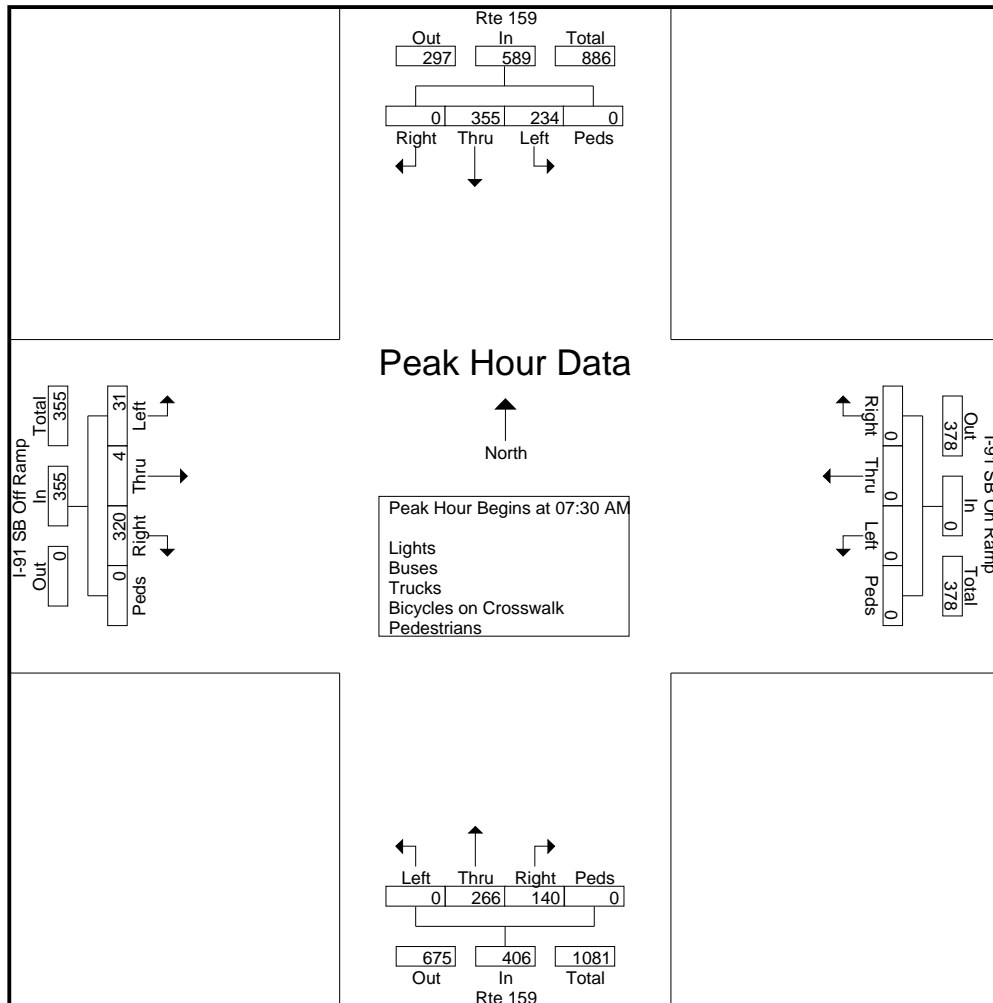
Start Time	Rte 159 From North					I-91 SB On Ramp From East					Rte 159 From South					I-91 SB Off Ramp From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	0	50	47	0	97	0	0	0	0	0	24	47	0	0	71	47	0	2	0	49	217
07:15 AM	0	71	57	0	128	0	0	0	1	1	23	68	0	0	91	56	0	2	0	58	278
07:30 AM	0	87	64	0	151	0	0	0	0	0	42	59	0	0	101	75	0	7	0	82	334
07:45 AM	0	107	71	0	178	0	0	0	0	0	36	76	0	0	112	98	4	9	0	111	401
Total	0	315	239	0	554	0	0	0	1	1	125	250	0	0	375	276	4	20	0	300	1230
08:00 AM	0	77	49	0	126	0	0	0	0	0	34	72	0	0	106	88	0	9	0	97	329
08:15 AM	0	84	50	0	134	0	0	0	0	0	28	59	0	0	87	59	0	6	0	65	286
08:30 AM	0	64	43	0	107	0	0	0	1	1	23	81	0	0	104	46	0	1	0	47	259
08:45 AM	0	83	34	0	117	0	0	0	0	0	39	94	0	0	133	67	0	7	1	75	325
Total	0	308	176	0	484	0	0	0	1	1	124	306	0	0	430	260	0	23	1	284	1199
Grand Total	0	623	415	0	1038	0	0	0	2	2	249	556	0	0	805	536	4	43	1	584	2429
Apprch %	0	60	40	0		0	0	0	100		30.9	69.1	0	0		91.8	0.7	7.4	0.2		
Total %	0	25.6	17.1	0	42.7	0	0	0	0.1	0.1	10.3	22.9	0	0	33.1	22.1	0.2	1.8	0	24	
Lights	0	583	401	0	984	0	0	0	0	0	229	492	0	0	721	492	3	41	0	536	2241
% Lights	0	93.6	96.6	0	94.8	0	0	0	0	0	92	88.5	0	0	89.6	91.8	75	95.3	0	91.8	92.3
Buses	0	24	6	0	30	0	0	0	0	0	0	35	0	0	35	6	0	1	0	7	72
% Buses	0	3.9	1.4	0	2.9	0	0	0	0	0	0	6.3	0	0	4.3	1.1	0	2.3	0	1.2	3
Trucks	0	16	8	0	24	0	0	0	0	0	20	29	0	0	49	38	1	1	0	40	113
% Trucks	0	2.6	1.9	0	2.3	0	0	0	0	0	8	5.2	0	0	6.1	7.1	25	2.3	0	6.8	4.7
Bicycles on Crosswalk																					
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	1	1	3
% Pedestrians	0	0	0	0	0	0	0	0	100	100	0	0	0	0	0	0	0	0	100	0.2	0.1

Connecticut Counts LLC

Kensington, Connecticut 06037
(860) 828-1693

File Name : 21910
Site Code : 21910
Start Date : 6/11/2021
Page No : 2

Start Time	Rte 159 From North					I-91 SB On Ramp From East					Rte 159 From South					I-91 SB Off Ramp From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	87	64	0	151	0	0	0	0	0	42	59	0	0	101	75	0	7	0	82	334
07:45 AM	0	107	71	0	178	0	0	0	0	0	36	76	0	0	112	98	4	9	0	111	401
08:00 AM	0	77	49	0	126	0	0	0	0	0	34	72	0	0	106	88	0	9	0	97	329
08:15 AM	0	84	50	0	134	0	0	0	0	0	28	59	0	0	87	59	0	6	0	65	286
Total Volume	0	355	234	0	589	0	0	0	0	0	140	266	0	0	406	320	4	31	0	355	1350
% App. Total	0	60.3	39.7	0		0	0	0	0		34.5	65.5	0	0		90.1	1.1	8.7	0		
PHF	.000	.829	.824	.000	.827	.000	.000	.000	.000	.000	.833	.875	.000	.000	.906	.816	.250	.861	.000	.800	.842



Connecticut Counts LLC

Kensington, Connecticut 06037

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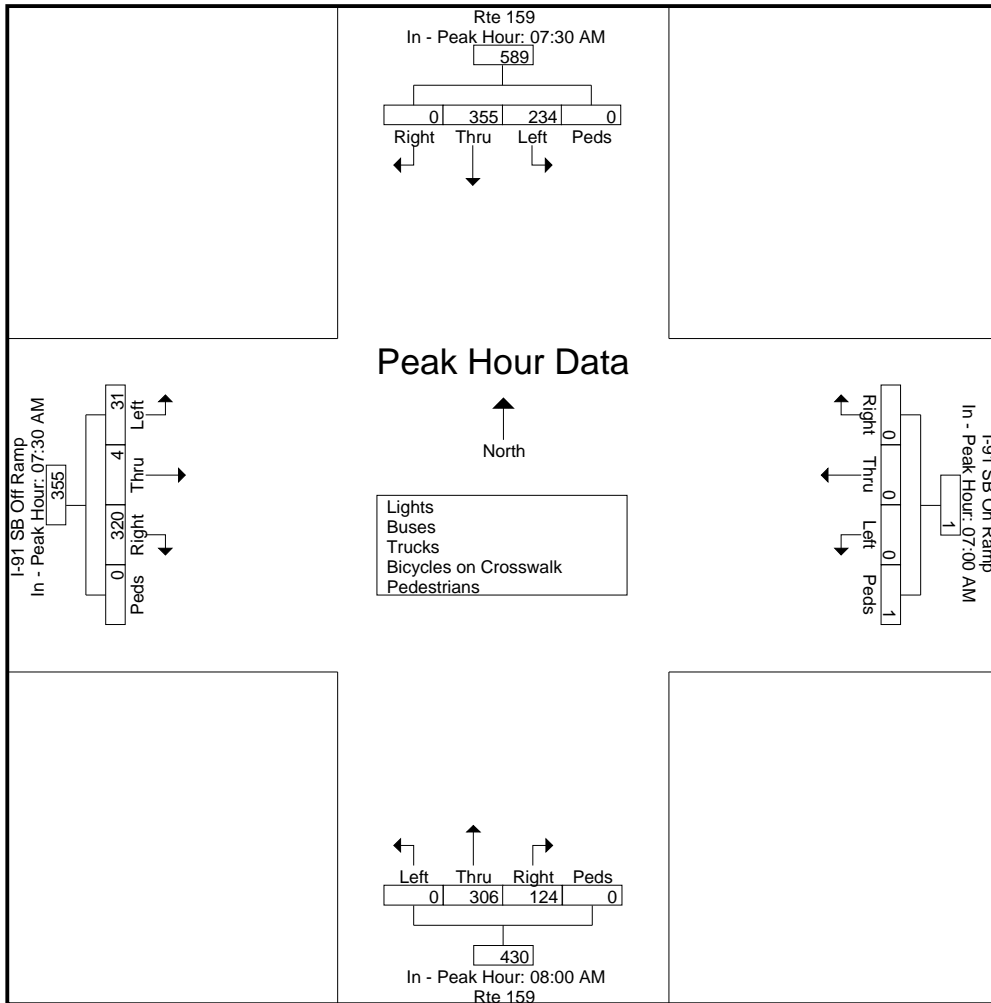
File Name : 21910
 Site Code : 21910
 Start Date : 6/11/2021
 Page No : 3

Start Time	Rte 159 From North					I-91 SB On Ramp From East					Rte 159 From South					I-91 SB Off Ramp From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

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					07:00 AM					08:00 AM					07:30 AM				
+0 mins.	0	87	64	0	151	0	0	0	0	0	34	72	0	0	106	75	0	7	0	82
+15 mins.	0	107	71	0	178	0	0	0	1	1	28	59	0	0	87	98	4	9	0	111
+30 mins.	0	77	49	0	126	0	0	0	0	0	23	81	0	0	104	88	0	9	0	97
+45 mins.	0	84	50	0	134	0	0	0	0	0	39	94	0	0	133	59	0	6	0	65
Total Volume	0	355	234	0	589	0	0	0	1	1	124	306	0	0	430	320	4	31	0	355
% App. Total	0	60.3	39.7	0		0	0	0	100		28.8	71.2	0	0		90.1	1.1	8.7	0	
PHF	.000	.829	.824	.000	.827	.000	.000	.000	.250	.250	.795	.814	.000	.000	.808	.816	.250	.861	.000	.800



Connecticut Counts LLC
Kensington, Connecticut 06037
(860) 828-1693

Route 159 at I-91 SB Ramps
Windsor, Connecticut

File Name : 21911
Site Code : 21911
Start Date : 6/10/2021
Page No : 1

Groups Printed- Lights - Buses - Trucks - Bicycles on Crosswalk - Pedestrians

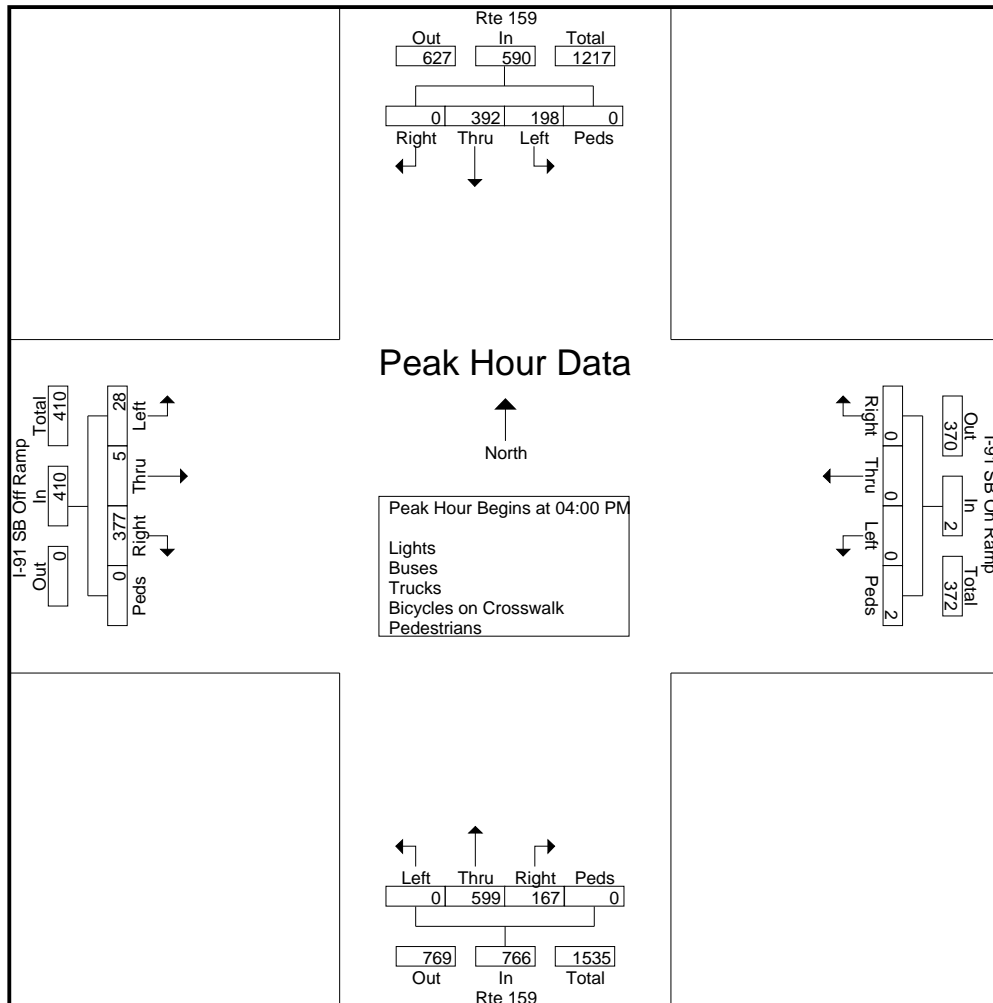
Start Time	Rte 159 From North					I-91 SB On Ramp From East					Rte 159 From South					I-91 SB Off Ramp From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:00 PM	0	103	61	0	164	0	0	0	0	0	34	168	0	0	202	116	3	6	0	125	491
04:15 PM	0	100	55	0	155	0	0	0	0	0	58	161	0	0	219	95	1	8	0	104	478
04:30 PM	0	102	40	0	142	0	0	0	2	2	34	134	0	0	168	98	1	7	0	106	418
04:45 PM	0	87	42	0	129	0	0	0	0	0	41	136	0	0	177	68	0	7	0	75	381
Total	0	392	198	0	590	0	0	0	2	2	167	599	0	0	766	377	5	28	0	410	1768
05:00 PM	0	118	35	0	153	0	0	0	0	0	40	146	0	0	186	96	0	4	0	100	439
05:15 PM	0	96	35	0	131	0	0	0	0	0	33	121	0	0	154	63	0	2	0	65	350
05:30 PM	0	97	49	0	146	0	0	0	0	0	26	106	0	0	132	66	0	11	0	77	355
05:45 PM	0	91	61	0	152	0	0	0	0	0	40	104	0	0	144	84	0	6	0	90	386
Total	0	402	180	0	582	0	0	0	0	0	139	477	0	0	616	309	0	23	0	332	1530
06:00 PM	0	116	53	0	169	0	0	0	1	1	53	98	1	0	152	64	0	2	0	66	388
Grand Total	0	910	431	0	1341	0	0	0	3	3	359	1174	1	0	1534	750	5	53	0	808	3686
Apprch %	0	67.9	32.1	0		0	0	0	100		23.4	76.5	0.1	0		92.8	0.6	6.6	0		
Total %	0	24.7	11.7	0	36.4	0	0	0	0.1	0.1	9.7	31.9	0	0	41.6	20.3	0.1	1.4	0	21.9	
Lights	0	882	427	0	1309	0	0	0	0	0	354	1124									
% Lights	0	96.9	99.1	0	97.6	0	0	0	0	0	98.6	95.7	100	0	96.4	97.6	100	98.1	0	97.6	97
Buses	0	17	2	0	19	0	0	0	0	0	0	27	0	0	27	1	0	1	0	2	48
% Buses	0	1.9	0.5	0	1.4	0	0	0	0	0	0	2.3	0	0	1.8	0.1	0	1.9	0	0.2	1.3
Trucks	0	11	2	0	13	0	0	0	0	0	5	23	0	0	28	17	0	0	0	17	58
% Trucks	0	1.2	0.5	0	1	0	0	0	0	0	1.4	2	0	0	1.8	2.3	0	0	0	2.1	1.6
Bicycles on Crosswalk																					
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	3
% Pedestrians	0	0	0	0	0	0	0	0	100	100	0	0	0	0	0	0	0	0	0	0	0.1

Connecticut Counts LLC

Kensington, Connecticut 06037
(860) 828-1693

File Name : 21911
 Site Code : 21911
 Start Date : 6/10/2021
 Page No : 2

Start Time	Rte 159 From North					I-91 SB On Ramp From East					Rte 159 From South					I-91 SB Off Ramp From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 04:00 PM to 06:00 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	103	61	0	164	0	0	0	0	0	34	168	0	0	202	116	3	6	0	125	491
04:15 PM	0	100	55	0	155	0	0	0	0	0	58	161	0	0	219	95	1	8	0	104	478
04:30 PM	0	102	40	0	142	0	0	0	2	2	34	134	0	0	168	98	1	7	0	106	418
04:45 PM	0	87	42	0	129	0	0	0	0	0	41	136	0	0	177	68	0	7	0	75	381
Total Volume	0	392	198	0	590	0	0	0	2	2	167	599	0	0	766	377	5	28	0	410	1768
% App. Total	0	66.4	33.6	0		0	0	0	100		21.8	78.2	0	0		92	1.2	6.8	0		
PHF	.000	.951	.811	.000	.899	.000	.000	.000	.250	.250	.720	.891	.000	.000	.874	.813	.417	.875	.000	.820	.900



Connecticut Counts LLC

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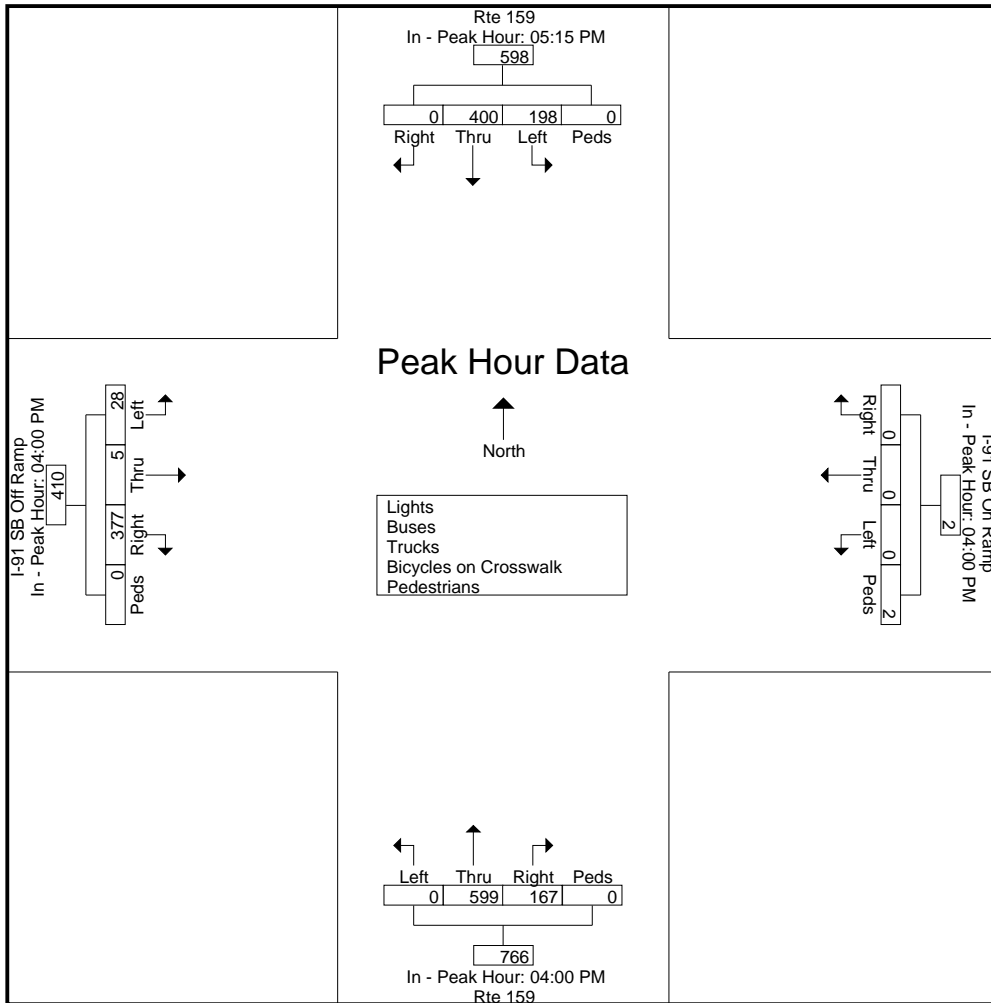
File Name : 21911
 Site Code : 21911
 Start Date : 6/10/2021
 Page No : 3

Start Time	Rte 159 From North					I-91 SB On Ramp From East					Rte 159 From South					I-91 SB Off Ramp From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 06:00 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	05:15 PM					04:00 PM					04:00 PM					04:00 PM				
+0 mins.	0	96	35	0	131	0	0	0	0	0	34	168	0	0	202	116	3	6	0	125
+15 mins.	0	97	49	0	146	0	0	0	0	0	58	161	0	0	219	95	1	8	0	104
+30 mins.	0	91	61	0	152	0	0	0	2	2	34	134	0	0	168	98	1	7	0	106
+45 mins.	0	116	53	0	169	0	0	0	0	0	41	136	0	0	177	68	0	7	0	75
Total Volume	0	400	198	0	598	0	0	0	2	2	167	599	0	0	766	377	5	28	0	410
% App. Total	0	66.9	33.1	0		0	0	0	100		21.8	78.2	0	0		92	1.2	6.8	0	
PHF	.000	.862	.811	.000	.885	.000	.000	.000	.250	.250	.720	.891	.000	.000	.874	.813	.417	.875	.000	.820



Connecticut Counts LLC
Kensington, Connecticut 06037
(860) 828-1693

Route 159 at Violet Street
Windsor, Connecticut

File Name : 21912
Site Code : 21912
Start Date : 6/11/2021
Page No : 1

Groups Printed- Lights - Buses - Trucks - Bicycles on Crosswalk - Pedestrians

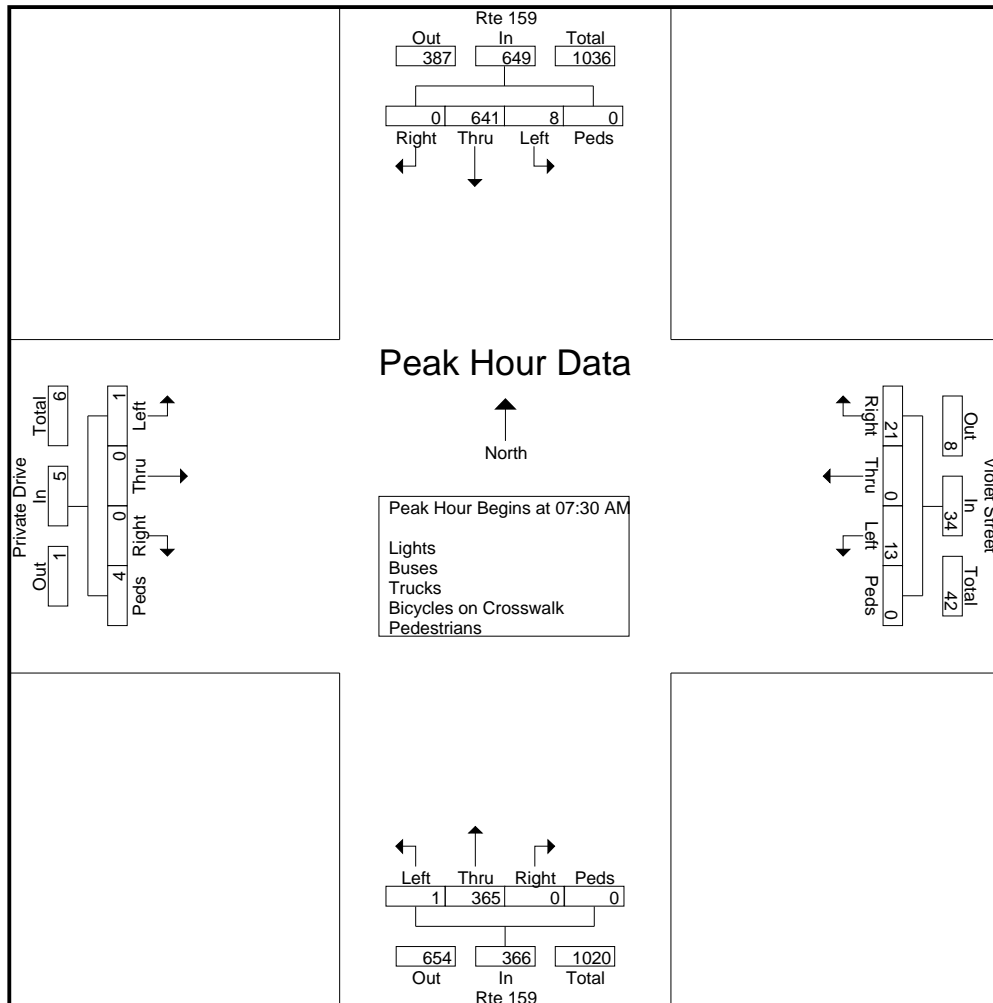
Start Time	Rte 159 From North					Violet Street From East					Rte 159 From South					Private Drive From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	0	97	1	0	98	6	0	2	0	8	0	71	0	0	71	0	0	0	1	1	178
07:15 AM	0	115	2	0	117	9	0	0	1	10	3	81	0	0	84	0	0	0	1	1	212
07:30 AM	0	145	1	0	146	7	0	0	0	7	0	91	0	0	91	0	0	1	2	3	247
07:45 AM	0	184	3	0	187	9	0	4	0	13	0	90	1	0	91	0	0	0	1	1	292
Total	0	541	7	0	548	31	0	6	1	38	3	333	1	0	337	0	0	1	5	6	929
08:00 AM	0	163	3	0	166	2	0	3	0	5	0	98	0	0	98	0	0	0	0	0	269
08:15 AM	0	149	1	0	150	3	0	6	0	9	0	86	0	0	86	0	0	0	1	1	246
08:30 AM	0	104	2	0	106	4	0	4	1	9	0	104	0	0	104	0	0	0	0	0	219
08:45 AM	0	141	5	0	146	9	0	3	0	12	2	121	0	1	124	0	0	0	2	2	284
Total	0	557	11	0	568	18	0	16	1	35	2	409	0	1	412	0	0	0	3	3	1018
Grand Total	0	1098	18	0	1116	49	0	22	2	73	5	742	1	1	749	0	0	1	8	9	1947
Apprch %	0	98.4	1.6	0		67.1	0	30.1	2.7		0.7	99.1	0.1	0.1		0	0	11.1	88.9		
Total %	0	56.4	0.9	0	57.3	2.5	0	1.1	0.1	3.7	0.3	38.1	0.1	0.1	38.5	0	0	0.1	0.4	0.5	
Lights	0	1026																			
% Lights	0	93.4	83.3	0	93.3	93.9	0	72.7	0	84.9	80	90.8	100	0	90.7	0	0	0	0	0	91.5
Buses	0	27	0	0	27	0	0	0	0	0	0	33	0	0	33	0	0	0	0	0	60
% Buses	0	2.5	0	0	2.4	0	0	0	0	0	0	4.4	0	0	4.4	0	0	0	0	0	3.1
Trucks	0	45	3	0	48	3	0	6	0	9	1	35	0	0	36	0	0	1	0	1	94
% Trucks	0	4.1	16.7	0	4.3	6.1	0	27.3	0	12.3	20	4.7	0	0	4.8	0	0	100	0	11.1	4.8
Bicycles on Crosswalk																					
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	2	2	0	0	0	1	1	0	0	0	8	8	11
% Pedestrians	0	0	0	0	0	0	0	0	100	2.7	0	0	0	100	0.1	0	0	0	100	88.9	0.6

Connecticut Counts LLC

Kensington, Connecticut 06037
(860) 828-1693

File Name : 21912
Site Code : 21912
Start Date : 6/11/2021
Page No : 2

Start Time	Rte 159 From North					Violet Street From East					Rte 159 From South					Private Drive From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	145	1	0	146	7	0	0	0	7	0	91	0	0	91	0	0	1	2	3	247
07:45 AM	0	184	3	0	187	9	0	4	0	13	0	90	1	0	91	0	0	0	1	1	292
08:00 AM	0	163	3	0	166	2	0	3	0	5	0	98	0	0	98	0	0	0	0	0	269
08:15 AM	0	149	1	0	150	3	0	6	0	9	0	86	0	0	86	0	0	0	1	1	246
Total Volume	0	641	8	0	649	21	0	13	0	34	0	365	1	0	366	0	0	1	4	5	1054
% App. Total	0	98.8	1.2	0		61.8	0	38.2	0		0	99.7	0.3	0		0	0	20	80		
PHF	.000	.871	.667	.000	.868	.583	.000	.542	.000	.654	.000	.931	.250	.000	.934	.000	.000	.250	.500	.417	.902

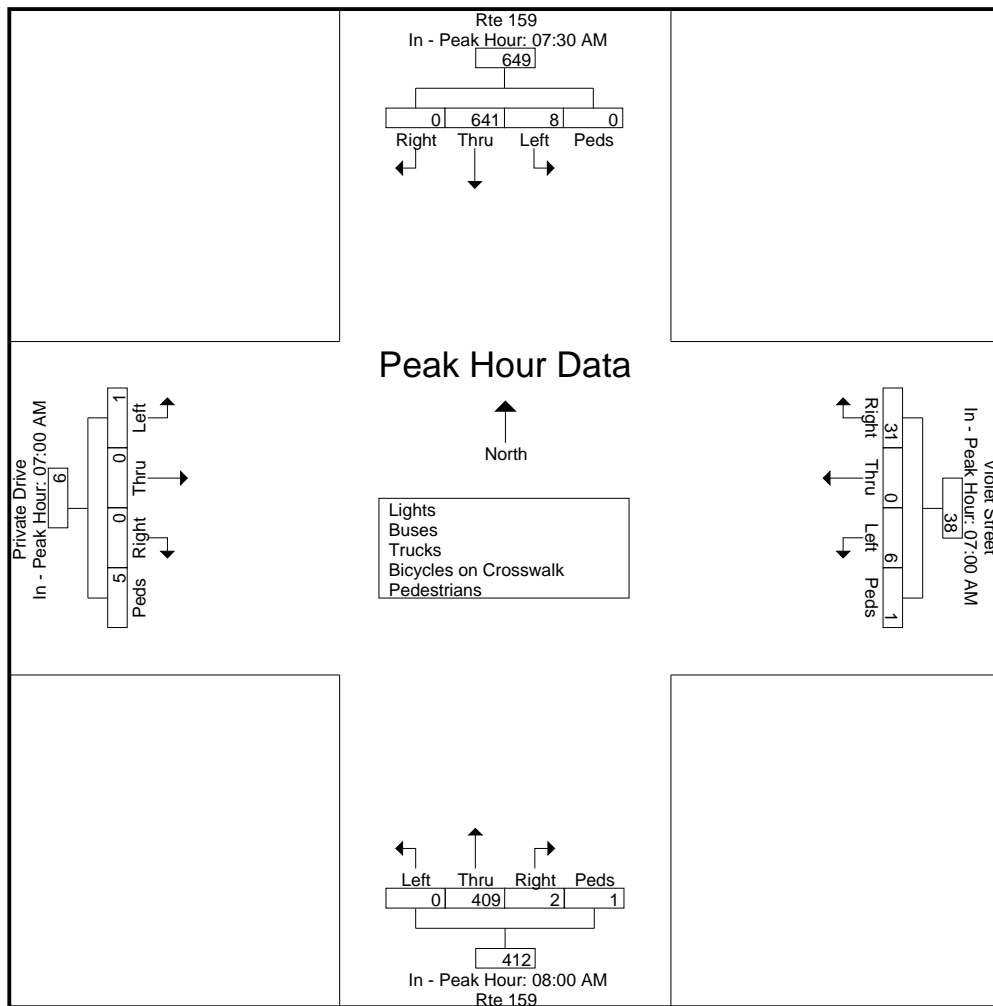


Connecticut Counts LLC

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(860) 828-1693

File Name : 21912
 Site Code : 21912
 Start Date : 6/11/2021
 Page No : 3

Start Time	Rte 159 From North					Violet Street From East					Rte 159 From South					Private Drive From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
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					07:00 AM					08:00 AM					07:00 AM					
+0 mins.	0	145	1	0	146	6	0	2	0	8	0	98	0	0	98	0	0	0	1	1	
+15 mins.	0	184	3	0	187	9	0	0	1	10	0	86	0	0	86	0	0	0	1	1	
+30 mins.	0	163	3	0	166	7	0	0	0	7	0	104	0	0	104	0	0	1	2	3	
+45 mins.	0	149	1	0	150	9	0	4	0	13	2	121	0	1	124	0	0	0	1	1	
Total Volume	0	641	8	0	649	31	0	6	1	38	2	409	0	1	412	0	0	1	5	6	
% App. Total	0	98.8	1.2	0		81.6	0	15.8	2.6		0.5	99.3	0	0.2		0	0	16.7	83.3		
PHF	.000	.871	.667	.000	.868	.861	.000	.375	.250	.731	.250	.845	.000	.250	.831	.000	.000	.250	.625	.500	



Connecticut Counts LLC
Kensington, Connecticut 06037
(860) 828-1693

Route 159 at Violet Street
Windsor, Connecticut

File Name : 21913
Site Code : 21913
Start Date : 6/10/2021
Page No : 1

Groups Printed- Lights - Buses - Trucks - Bicycles on Crosswalk - Pedestrians

Start Time	Rte 159 From North					Violet Street From East					Rte 159 From South					Private Drive From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:00 PM	0	211	3	0	214	13	0	3	0	16	1	196	0	0	197	0	0	0	0	0	427
04:15 PM	0	203	3	0	206	12	0	0	0	12	2	207	0	0	209	0	0	0	0	0	427
04:30 PM	0	196	5	0	201	6	0	1	2	9	2	170	0	0	172	0	0	0	0	0	382
04:45 PM	0	158	1	0	159	10	0	0	0	10	2	167	0	0	169	0	0	0	0	0	338
Total	0	768	12	0	780	41	0	4	2	47	7	740	0	0	747	0	0	0	0	0	1574
05:00 PM	0	204	5	0	209	15	0	4	0	19	2	182	1	0	185	0	0	0	0	0	413
05:15 PM	0	163	4	0	167	8	0	0	0	8	3	152	2	0	157	0	0	0	2	2	334
05:30 PM	0	161	7	0	168	9	0	3	1	13	0	125	1	0	126	0	0	0	1	1	308
05:45 PM	0	185	4	0	189	6	0	2	0	8	1	139	0	0	140	0	0	0	0	0	337
Total	0	713	20	0	733	38	0	9	1	48	6	598	4	0	608	0	0	0	3	3	1392
06:00 PM	0	168	6	0	174	10	0	3	0	13	1	140	1	0	142	0	0	0	0	0	329
Grand Total	0	1649	38	0	1687	89	0	16	3	108	14	1478	5	0	1497	0	0	0	3	3	3295
Apprch %	0	97.7	2.3	0		82.4	0	14.8	2.8		0.9	98.7	0.3	0		0	0	0	100		
Total %	0	50	1.2	0	51.2	2.7	0	0.5	0.1	3.3	0.4	44.9	0.2	0	45.4	0	0	0	0.1	0.1	
Lights	0	1602									1420										
% Lights	0	97.1	94.7	0	97.1	97.8	0	100	0	95.4	100	96.1	100	0	96.1	0	0	0	0	0	96.5
Buses	0	15	1	0	16	1	0	0	0	1	0	29	0	0	29	0	0	0	0	0	46
% Buses	0	0.9	2.6	0	0.9	1.1	0	0	0	0.9	0	2	0	0	1.9	0	0	0	0	0	1.4
Trucks	0	32	1	0	33	1	0	0	0	1	0	29	0	0	29	0	0	0	0	0	63
% Trucks	0	1.9	2.6	0	2	1.1	0	0	0	0.9	0	2	0	0	1.9	0	0	0	0	0	1.9
Bicycles on Crosswalk																					
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66.7	66.7	0.1
Pedestrians																					
% Pedestrians	0	0	0	0	0	0	0	0	100	2.8	0	0	0	0	0	0	0	0	33.3	33.3	0.1

Connecticut Counts LLC

Kensington, Connecticut 06037
(860) 828-1693

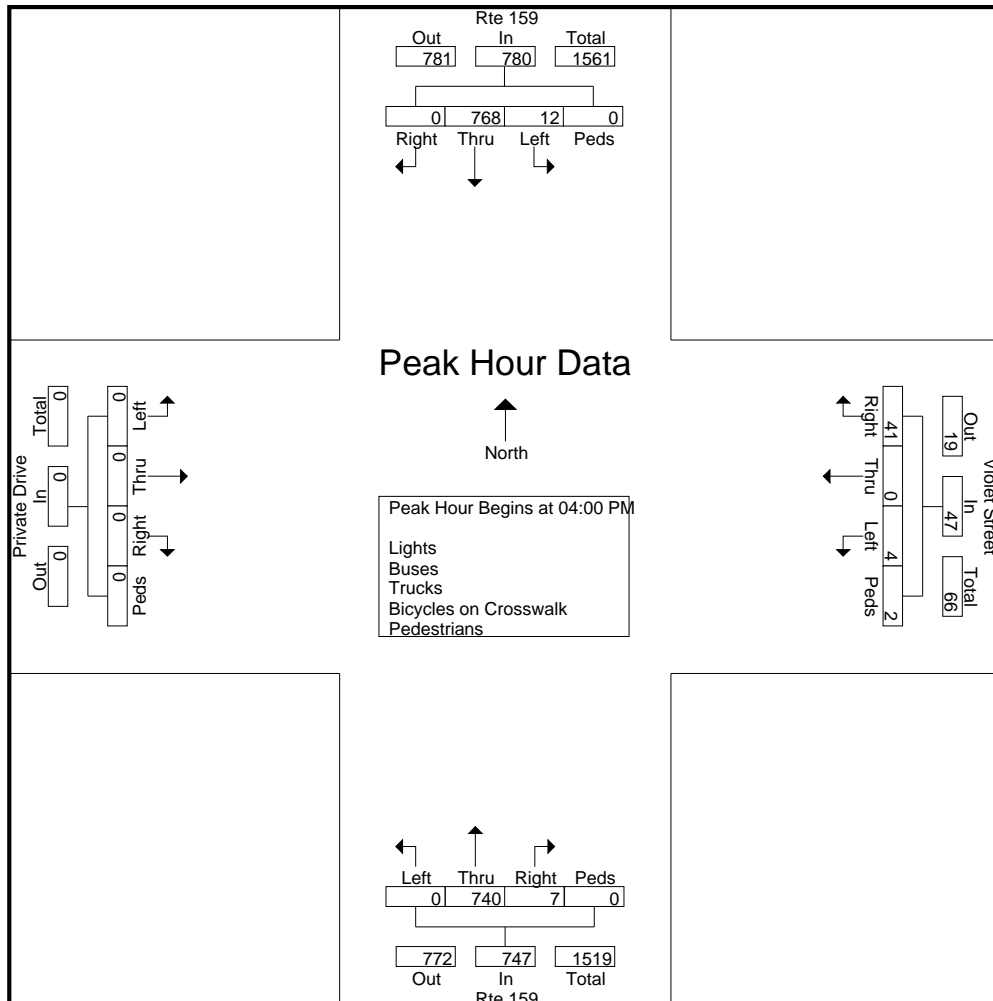
File Name : 21913
Site Code : 21913
Start Date : 6/10/2021
Page No : 2

Start Time	Rte 159 From North					Violet Street From East					Rte 159 From South					Private Drive From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 06:00 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:00 PM

04:00 PM	0	211	3	0	214	13	0	3	0	16	1	196	0	0	197	0	0	0	0	0	427
04:15 PM	0	203	3	0	206	12	0	0	0	12	2	207	0	0	209	0	0	0	0	0	427
04:30 PM	0	196	5	0	201	6	0	1	2	9	2	170	0	0	172	0	0	0	0	0	382
04:45 PM	0	158	1	0	159	10	0	0	0	10	2	167	0	0	169	0	0	0	0	0	338
Total Volume	0	768	12	0	780	41	0	4	2	47	7	740	0	0	747	0	0	0	0	0	1574
% App. Total	0	98.5	1.5	0		87.2	0	8.5	4.3		0.9	99.1	0	0		0	0	0	0		
PHF	.000	.910	.600	.000	.911	.788	.000	.333	.250	.734	.875	.894	.000	.000	.894	.000	.000	.000	.000	.000	.922



Connecticut Counts LLC

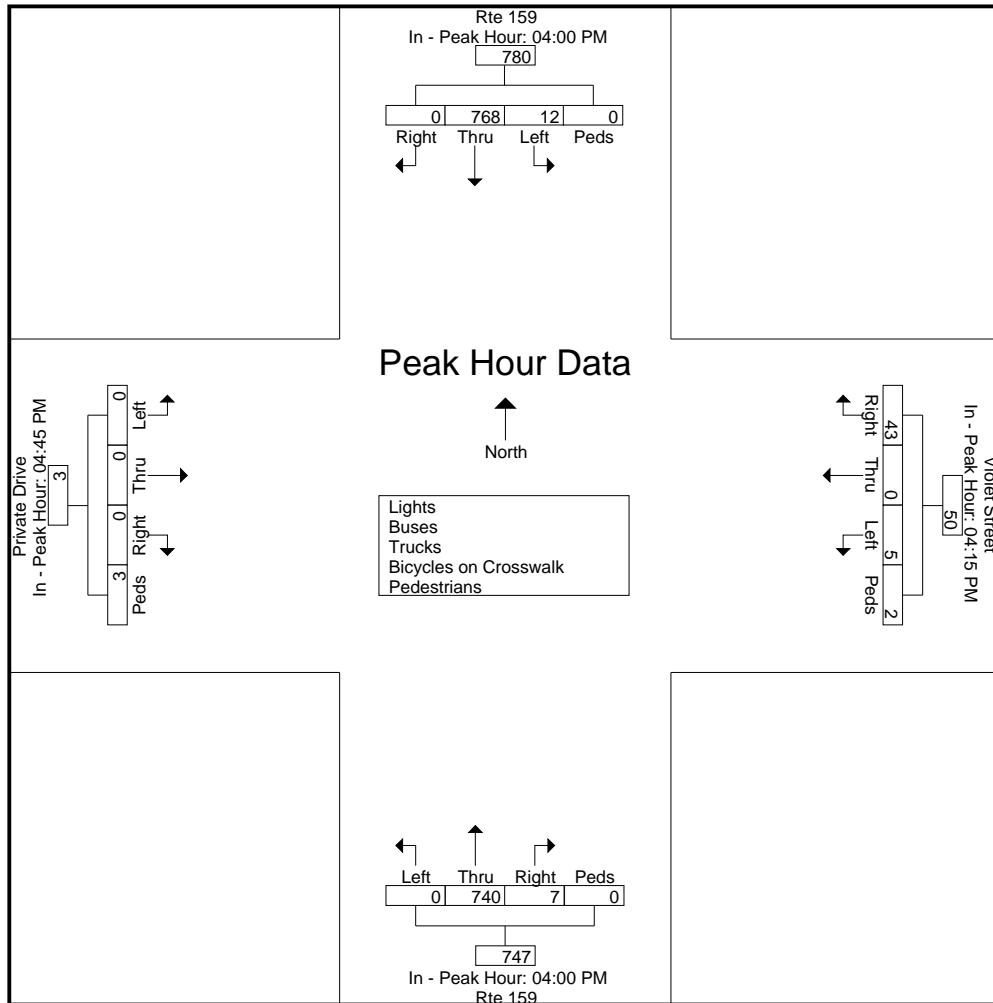
Kensington, Connecticut 06037
(860) 828-1693

File Name : 21913
 Site Code : 21913
 Start Date : 6/10/2021
 Page No : 3

Start Time	Rte 159 From North					Violet Street From East					Rte 159 From South					Private Drive From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 06:00 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:00 PM					04:15 PM					04:00 PM					04:45 PM				
+0 mins.	0	211	3	0	214	12	0	0	0	12	1	196	0	0	197	0	0	0	0	0
+15 mins.	0	203	3	0	206	6	0	1	2	9	2	207	0	0	209	0	0	0	0	0
+30 mins.	0	196	5	0	201	10	0	0	0	10	2	170	0	0	172	0	0	0	2	2
+45 mins.	0	158	1	0	159	15	0	4	0	19	2	167	0	0	169	0	0	0	1	1
Total Volume	0	768	12	0	780	43	0	5	2	50	7	740	0	0	747	0	0	0	3	3
% App. Total	0	98.5	1.5	0		86	0	10	4		0.9	99.1	0	0		0	0	0	100	
PHF	.000	.910	.600	.000	.911	.717	.000	.313	.250	.658	.875	.894	.000	.000	.894	.000	.000	.000	.375	.375



Route 159 at Meadow Road - TMC

Tue Nov 15, 2022

Full Length (7 AM-9 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1018244, Location: 41.80583, -72.658418

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,
Kensington, CT, 12345, US

Leg Direction	Route 159 Southbound					Meadow Road Westbound					Route 159 Northbound					
Time	T	L	U	App	Ped*	R	L	U	App	Ped*	R	T	U	App	Ped*	Int
2022-11-15 7:00AM	80	6	0	86	0	16	29	0	45	0	28	28	0	56	0	187
7:15AM	99	2	0	101	0	17	30	0	47	0	31	27	0	58	0	206
7:30AM	135	5	0	140	0	22	31	0	53	0	41	35	0	76	0	269
7:45AM	126	5	0	131	0	17	43	0	60	0	45	51	0	96	0	287
Hourly Total	440	18	0	458	0	72	133	0	205	0	145	141	0	286	0	949
8:00AM	138	5	0	143	0	26	54	0	80	0	45	40	0	85	0	308
8:15AM	147	11	0	158	0	24	42	0	66	0	36	40	0	76	0	300
8:30AM	97	7	0	104	0	23	49	0	72	0	39	45	0	84	0	260
8:45AM	110	8	0	118	0	28	48	0	76	0	39	48	0	87	0	281
Hourly Total	492	31	0	523	0	101	193	0	294	0	159	173	0	332	0	1149
Total	932	49	0	981	0	173	326	0	499	0	304	314	0	618	0	2098
% Approach	95.0%	5.0%	0%	-	-	34.7%	65.3%	0%	-	-	49.2%	50.8%	0%	-	-	-
% Total	44.4%	2.3%	0%	46.8%	-	8.2%	15.5%	0%	23.8%	-	14.5%	15.0%	0%	29.5%	-	-
Lights	892	45	0	937	-	162	308	0	470	-	271	286	0	557	-	1964
% Lights	95.7%	91.8%	0%	95.5%	-	93.6%	94.5%	0%	94.2%	-	89.1%	91.1%	0%	90.1%	-	93.6%
Articulated Trucks and Single-Unit Trucks	19	2	0	21	-	4	12	0	16	-	15	11	0	26	-	63
% Articulated Trucks and Single-Unit Trucks	2.0%	4.1%	0%	2.1%	-	2.3%	3.7%	0%	3.2%	-	4.9%	3.5%	0%	4.2%	-	3.0%
Buses	21	2	0	23	-	7	6	0	13	-	18	17	0	35	-	71
% Buses	2.3%	4.1%	0%	2.3%	-	4.0%	1.8%	0%	2.6%	-	5.9%	5.4%	0%	5.7%	-	3.4%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Route 159 at Meadow Road - TMC

Tue Nov 15, 2022

Full Length (7 AM-9 AM)

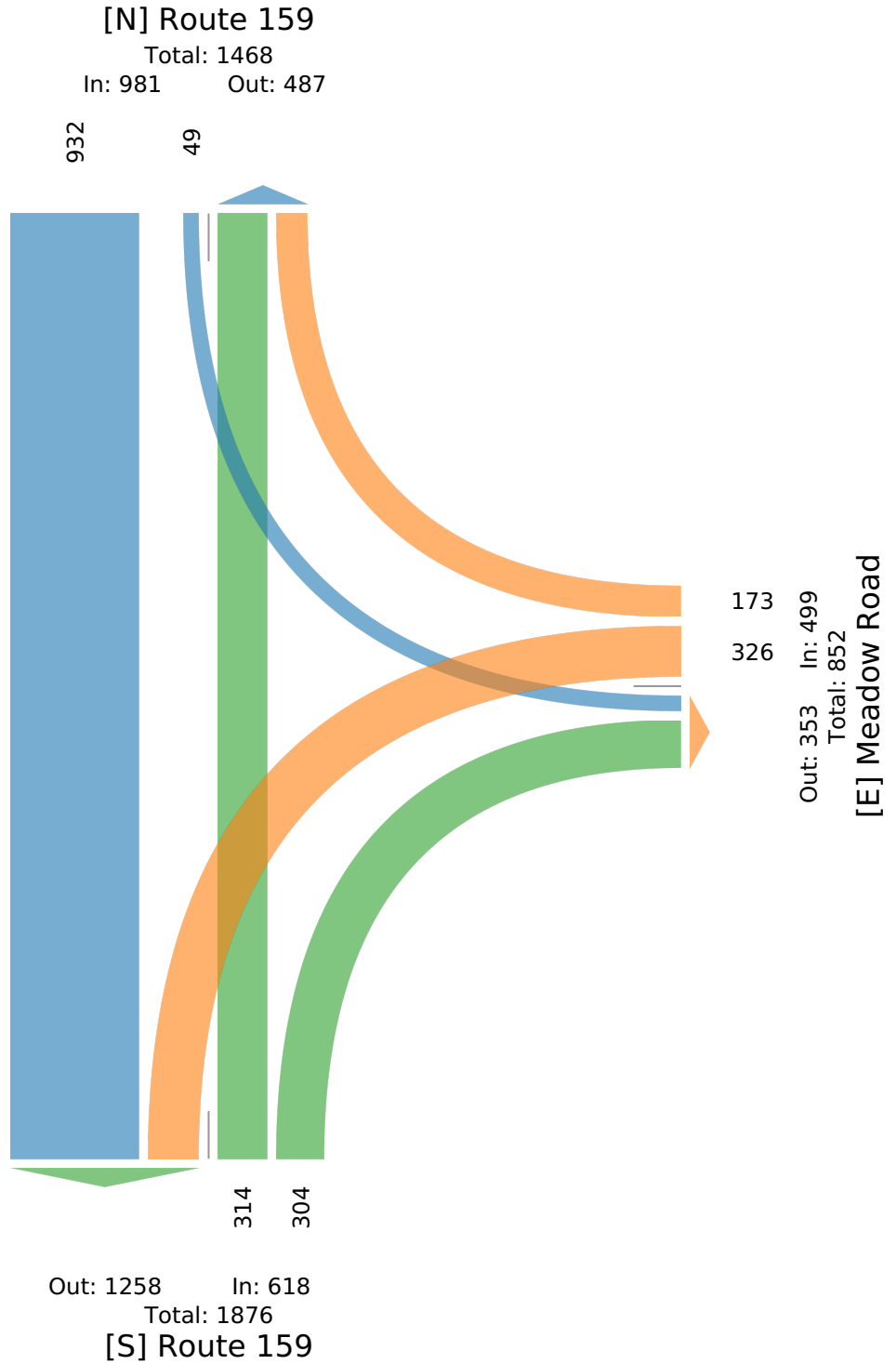
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1018244, Location: 41.80583, -72.658418

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,
Kensington, CT, 12345, US



Route 159 at Meadow Road - TMC

Tue Nov 15, 2022

AM Peak (7:30 AM - 8:30 AM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1018244, Location: 41.80583, -72.658418

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,
Kensington, CT, 12345, US

Leg Direction	Route 159 Southbound					Meadow Road Westbound					Route 159 Northbound					Int
	T	L	U	App	Ped*	R	L	U	App	Ped*	R	T	U	App	Ped*	
Time																
2022-11-15 7:30AM	135	5	0	140	0	22	31	0	53	0	41	35	0	76	0	269
7:45AM	126	5	0	131	0	17	43	0	60	0	45	51	0	96	0	287
8:00AM	138	5	0	143	0	26	54	0	80	0	45	40	0	85	0	308
8:15AM	147	11	0	158	0	24	42	0	66	0	36	40	0	76	0	300
Total	546	26	0	572	0	89	170	0	259	0	167	166	0	333	0	1164
% Approach	95.5%	4.5%	0%	-	-	34.4%	65.6%	0%	-	-	50.2%	49.8%	0%	-	-	-
% Total	46.9%	2.2%	0%	49.1%	-	7.6%	14.6%	0%	22.3%	-	14.3%	14.3%	0%	28.6%	-	-
PHF	0.929	0.591	-	0.905	-	0.856	0.787	-	0.809	-	0.928	0.814	-	0.867	-	0.945
Lights	524	24	0	548	-	84	162	0	246	-	146	150	0	296	-	1090
% Lights	96.0%	92.3%	0%	95.8%	-	94.4%	95.3%	0%	95.0%	-	87.4%	90.4%	0%	88.9%	-	93.6%
Articulated Trucks and Single-Unit Trucks	9	2	0	11	-	1	7	0	8	-	9	7	0	16	-	35
% Articulated Trucks and Single-Unit Trucks	1.6%	7.7%	0%	1.9%	-	1.1%	4.1%	0%	3.1%	-	5.4%	4.2%	0%	4.8%	-	3.0%
Buses	13	0	0	13	-	4	1	0	5	-	12	9	0	21	-	39
% Buses	2.4%	0%	0%	2.3%	-	4.5%	0.6%	0%	1.9%	-	7.2%	5.4%	0%	6.3%	-	3.4%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Route 159 at Meadow Road - TMC

Tue Nov 15, 2022

AM Peak (7:30 AM - 8:30 AM) - Overall Peak Hour

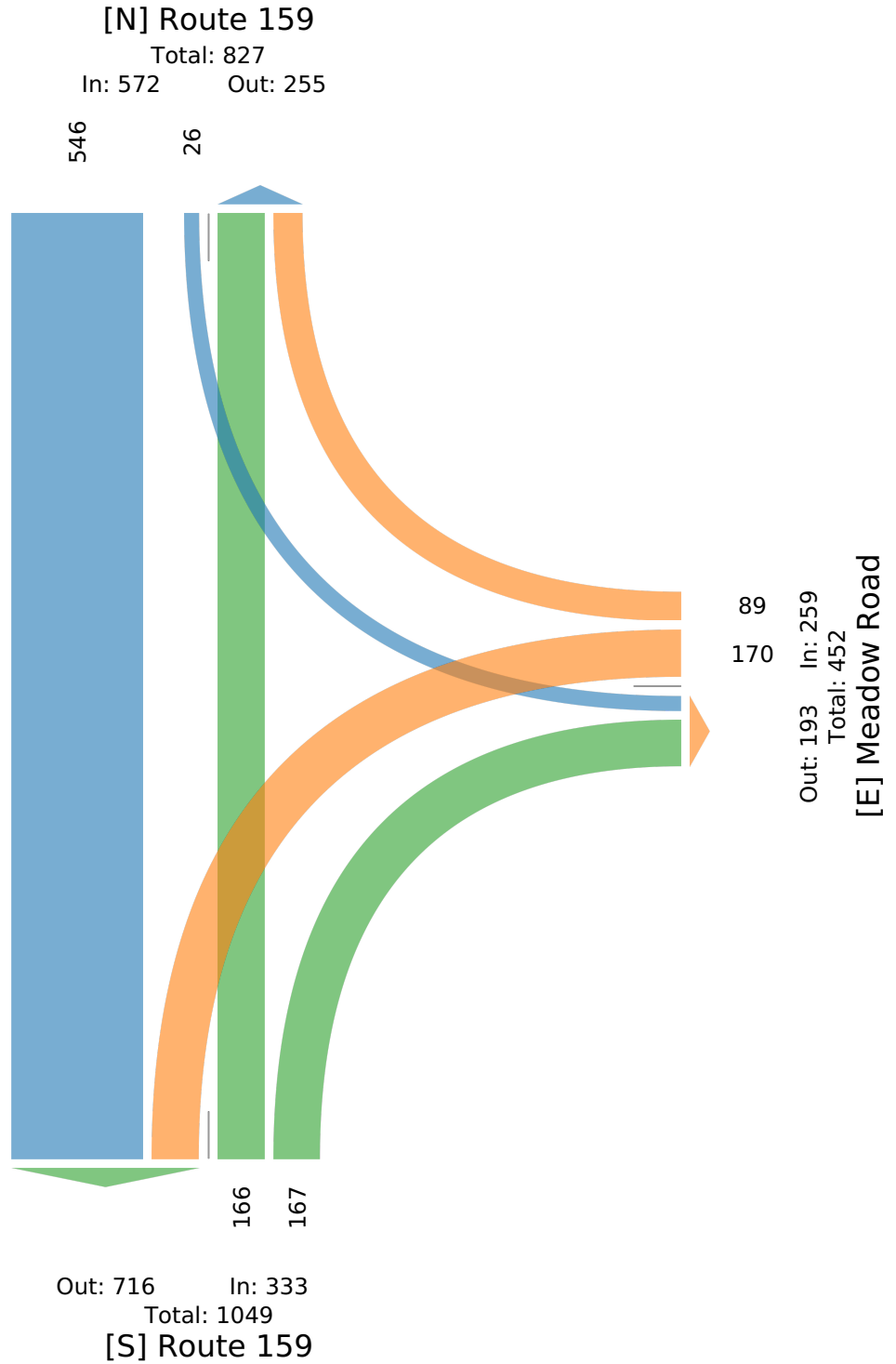
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1018244, Location: 41.80583, -72.658418

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,
Kensington, CT, 12345, US



Route 159 at Meadow Road - TMC

Tue Nov 15, 2022

Full Length (4 PM-6 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1018247, Location: 41.80583, -72.658418

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,
Kensington, CT, 12345, US

Leg Direction	Route 159 Southbound					Meadow Road Westbound					Route 159 Northbound					Int
	T	L	U	App	Ped*	R	L	U	App	Ped*	R	T	U	App	Ped*	
2022-11-15 4:00PM	151	5	0	156	0	55	50	0	105	0	40	91	0	131	0	392
4:15PM	129	5	0	134	0	57	43	0	100	0	48	103	1	152	0	386
4:30PM	121	5	0	126	0	48	31	0	79	0	65	105	0	170	0	375
4:45PM	110	3	0	113	0	52	39	0	91	0	59	100	1	160	0	364
Hourly Total	511	18	0	529	0	212	163	0	375	0	212	399	2	613	0	1517
5:00PM	132	1	0	133	0	67	63	0	130	0	45	83	0	128	0	391
5:15PM	133	6	0	139	0	42	32	0	74	0	42	78	0	120	0	333
5:30PM	106	3	0	109	0	47	32	0	79	0	53	86	1	140	0	328
5:45PM	76	1	0	77	0	55	26	0	81	0	42	73	0	115	0	273
Hourly Total	447	11	0	458	0	211	153	0	364	0	182	320	1	503	0	1325
Total	958	29	0	987	0	423	316	0	739	0	394	719	3	1116	0	2842
% Approach	97.1%	2.9%	0%	-	-	57.2%	42.8%	0%	-	-	35.3%	64.4%	0.3%	-	-	-
% Total	33.7%	1.0%	0%	34.7%	-	14.9%	11.1%	0%	26.0%	-	13.9%	25.3%	0.1%	39.3%	-	-
Lights	936	26	0	962	-	417	302	0	719	-	376	690	3	1069	-	2750
% Lights	97.7%	89.7%	0%	97.5%	-	98.6%	95.6%	0%	97.3%	-	95.4%	96.0%	100%	95.8%	-	96.8%
Articulated Trucks and Single-Unit Trucks	8	0	0	8	-	1	10	0	11	-	15	4	0	19	-	38
% Articulated Trucks and Single-Unit Trucks	0.8%	0%	0%	0.8%	-	0.2%	3.2%	0%	1.5%	-	3.8%	0.6%	0%	1.7%	-	1.3%
Buses	14	3	0	17	-	5	4	0	9	-	3	25	0	28	-	54
% Buses	1.5%	10.3%	0%	1.7%	-	1.2%	1.3%	0%	1.2%	-	0.8%	3.5%	0%	2.5%	-	1.9%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Route 159 at Meadow Road - TMC

Tue Nov 15, 2022

Full Length (4 PM-6 PM)

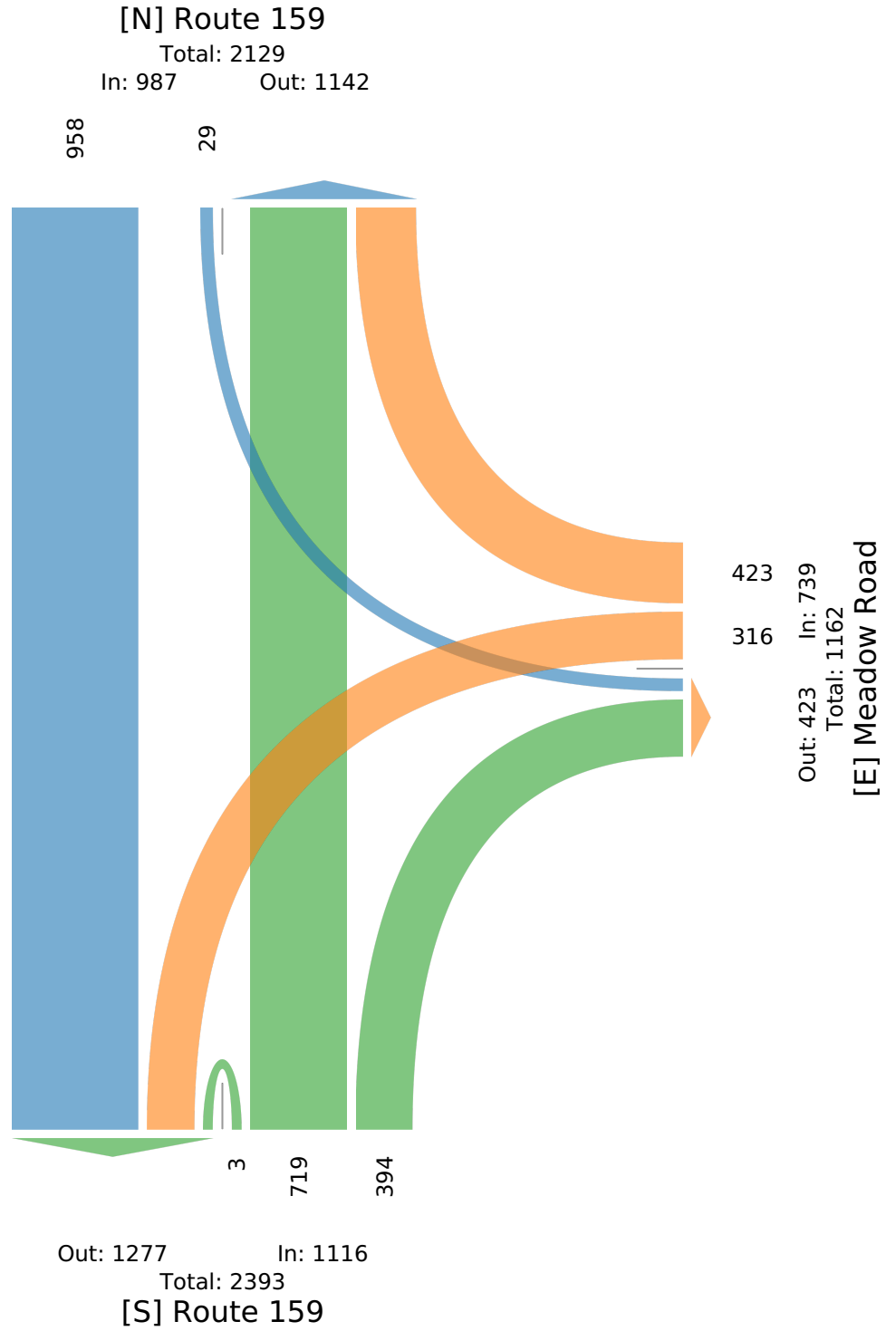
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1018247, Location: 41.80583, -72.658418

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,
Kensington, CT, 12345, US



Route 159 at Meadow Road - TMC

Tue Nov 15, 2022

PM Peak (4 PM - 5 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1018247, Location: 41.80583, -72.658418

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,
Kensington, CT, 12345, US

Leg Direction	Route 159 Southbound					Meadow Road Westbound					Route 159 Northbound					Int
	T	L	U	App	Ped*	R	L	U	App	Ped*	R	T	U	App	Ped*	
2022-11-15 4:00PM	151	5	0	156	0	55	50	0	105	0	40	91	0	131	0	392
4:15PM	129	5	0	134	0	57	43	0	100	0	48	103	1	152	0	386
4:30PM	121	5	0	126	0	48	31	0	79	0	65	105	0	170	0	375
4:45PM	110	3	0	113	0	52	39	0	91	0	59	100	1	160	0	364
Total	511	18	0	529	0	212	163	0	375	0	212	399	2	613	0	1517
% Approach	96.6%	3.4%	0%	-	-	56.5%	43.5%	0%	-	-	34.6%	65.1%	0.3%	-	-	-
% Total	33.7%	1.2%	0%	34.9%	-	14.0%	10.7%	0%	24.7%	-	14.0%	26.3%	0.1%	40.4%	-	-
PHF	0.846	0.900	-	0.848	-	0.930	0.815	-	0.893	-	0.815	0.950	0.500	0.901	-	0.967
Lights	500	16	0	516	-	207	153	0	360	-	202	382	2	586	-	1462
% Lights	97.8%	88.9%	0%	97.5%	-	97.6%	93.9%	0%	96.0%	-	95.3%	95.7%	100%	95.6%	-	96.4%
Articulated Trucks and Single-Unit Trucks	6	0	0	6	-	1	7	0	8	-	8	1	0	9	-	23
% Articulated Trucks and Single-Unit Trucks	1.2%	0%	0%	1.1%	-	0.5%	4.3%	0%	2.1%	-	3.8%	0.3%	0%	1.5%	-	1.5%
Buses	5	2	0	7	-	4	3	0	7	-	2	16	0	18	-	32
% Buses	1.0%	11.1%	0%	1.3%	-	1.9%	1.8%	0%	1.9%	-	0.9%	4.0%	0%	2.9%	-	2.1%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Route 159 at Meadow Road - TMC

Tue Nov 15, 2022

PM Peak (4 PM - 5 PM) - Overall Peak Hour

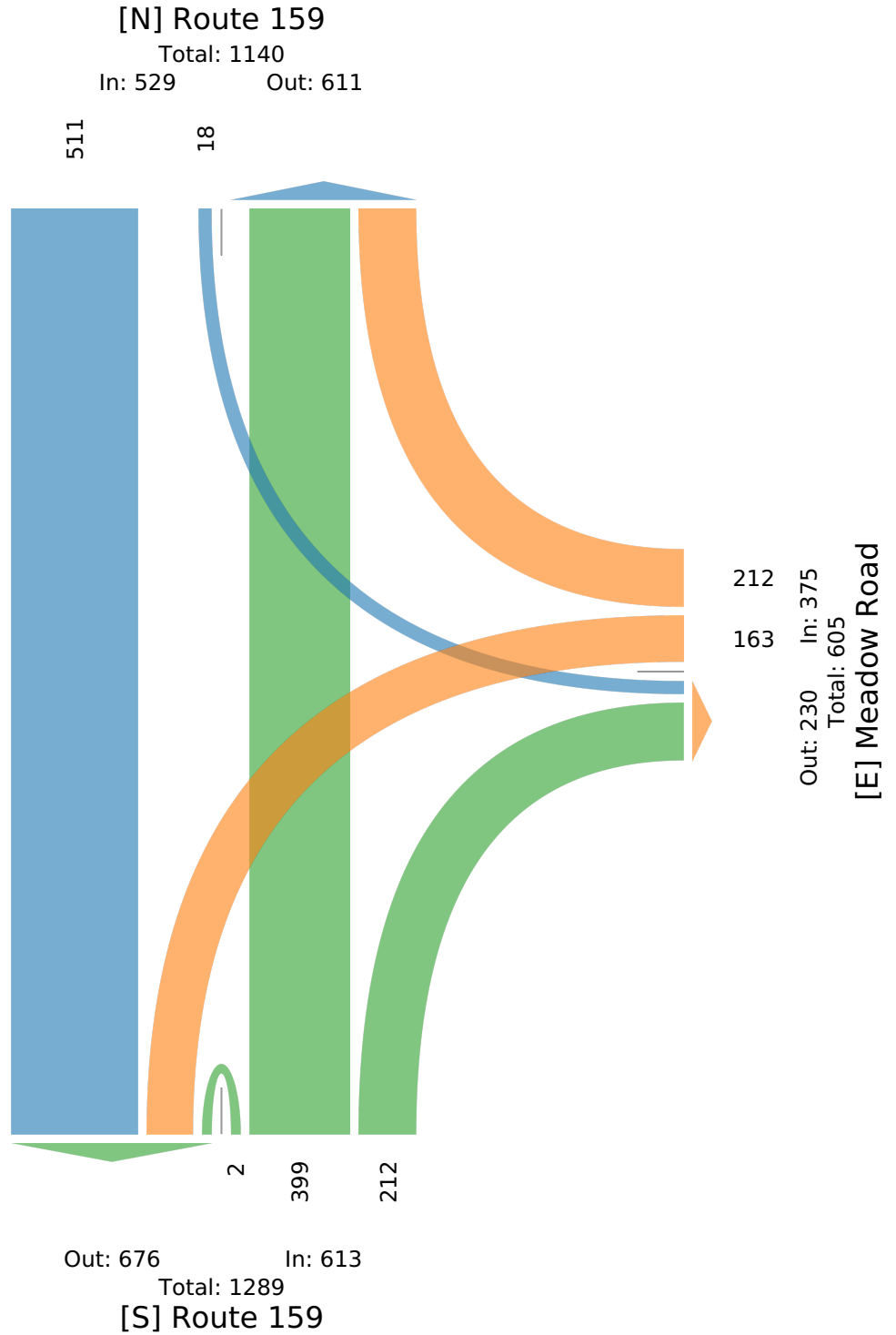
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1018247, Location: 41.80583, -72.658418

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,
Kensington, CT, 12345, US



Route 159 at Meadow Road - TMC

Sat Nov 12, 2022

Full Length (11 AM-2 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1018241, Location: 41.80583, -72.658418

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,

Kensington, CT, 12345, US

Leg Direction	Route 159 Southbound					Meadow Road Westbound					Route 159 Northbound					Int
	T	L	U	App	Ped*	R	L	U	App	Ped*	R	T	U	App	Ped*	
2022-11-12 11:00AM	91	8	0	99	0	42	16	0	58	0	23	66	0	89	0	246
11:15AM	76	6	0	82	0	35	23	0	58	0	19	66	0	85	0	225
11:30AM	100	5	0	105	0	21	29	0	50	0	40	69	0	109	0	264
11:45AM	84	5	0	89	0	30	25	0	55	0	22	96	0	118	0	262
Hourly Total	351	24	0	375	0	128	93	0	221	0	104	297	0	401	0	997
12:00PM	88	7	0	95	1	31	30	0	61	0	24	57	0	81	0	237
12:15PM	100	5	0	105	0	39	22	0	61	0	30	87	0	117	0	283
12:30PM	106	10	0	116	0	40	28	0	68	0	38	74	0	112	0	296
12:45PM	117	2	0	119	0	19	26	0	45	0	36	68	0	104	0	268
Hourly Total	411	24	0	435	1	129	106	0	235	0	128	286	0	414	0	1084
1:00PM	99	4	0	103	0	49	24	0	73	0	37	65	0	102	0	278
1:15PM	91	5	0	96	0	36	20	0	56	0	30	59	0	89	0	241
1:30PM	85	2	0	87	0	46	25	0	71	0	46	67	0	113	0	271
1:45PM	61	9	0	70	0	38	23	0	61	0	42	79	0	121	0	252
Hourly Total	336	20	0	356	0	169	92	0	261	0	155	270	0	425	0	1042
Total	1098	68	0	1166	1	426	291	0	717	0	387	853	0	1240	0	3123
% Approach	94.2%	5.8%	0%	-	-	59.4%	40.6%	0%	-	-	31.2%	68.8%	0%	-	-	-
% Total	35.2%	2.2%	0%	37.3%	-	13.6%	9.3%	0%	23.0%	-	12.4%	27.3%	0%	39.7%	-	-
Lights	1077	67	0	1144	-	424	280	0	704	-	378	838	0	1216	-	3064
% Lights	98.1%	98.5%	0%	98.1%	-	99.5%	96.2%	0%	98.2%	-	97.7%	98.2%	0%	98.1%	-	98.1%
Articulated Trucks and Single-Unit Trucks	8	0	0	8	-	1	8	0	9	-	8	5	0	13	-	30
% Articulated Trucks and Single-Unit Trucks	0.7%	0%	0%	0.7%	-	0.2%	2.7%	0%	1.3%	-	2.1%	0.6%	0%	1.0%	-	1.0%
Buses	13	1	0	14	-	1	3	0	4	-	1	10	0	11	-	29
% Buses	1.2%	1.5%	0%	1.2%	-	0.2%	1.0%	0%	0.6%	-	0.3%	1.2%	0%	0.9%	-	0.9%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Pedestrians	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Route 159 at Meadow Road - TMC

Sat Nov 12, 2022

Full Length (11 AM-2 PM)

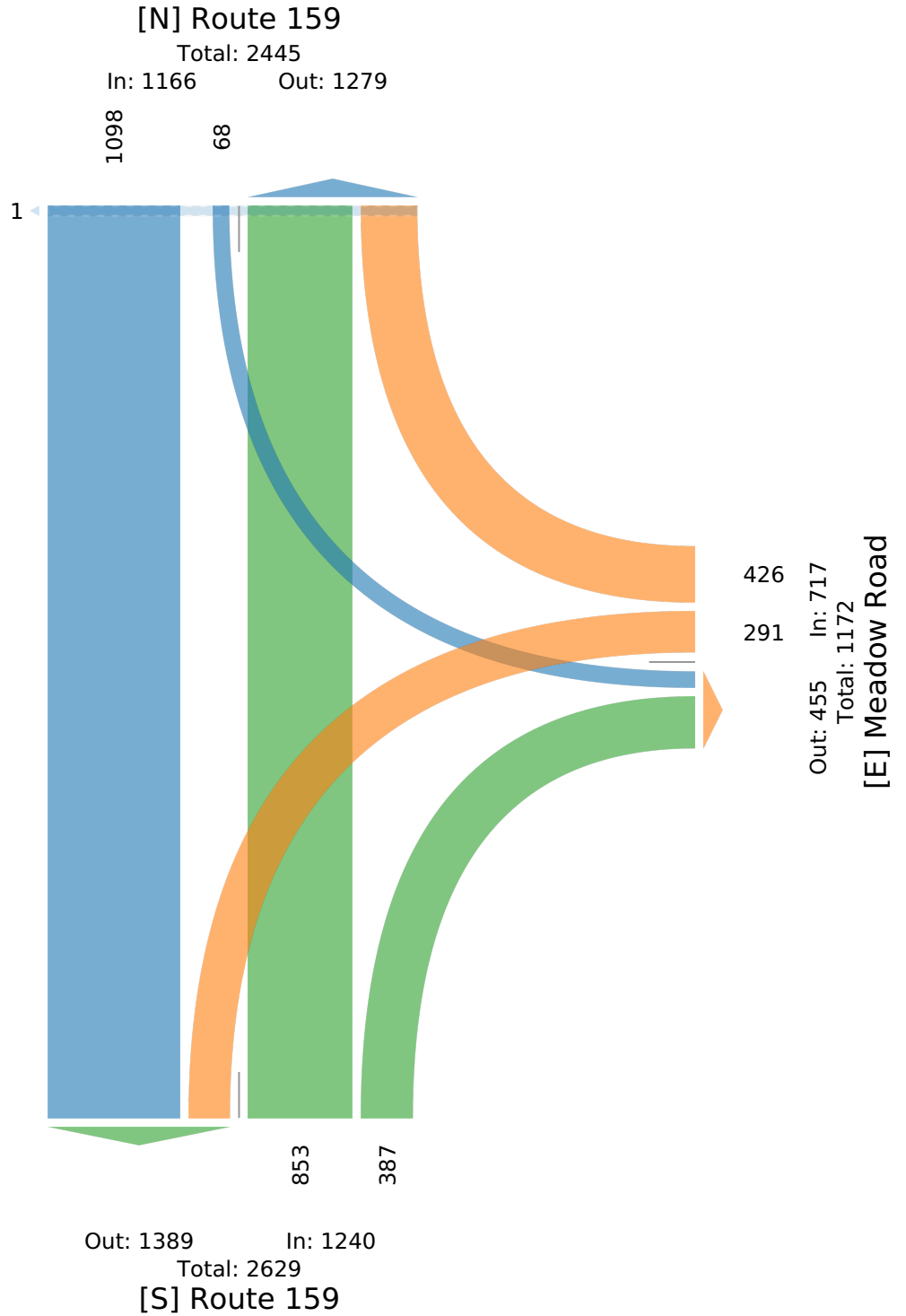
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1018241, Location: 41.80583, -72.658418

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,
Kensington, CT, 12345, US



Route 159 at Meadow Road - TMC

Sat Nov 12, 2022

Midday Peak (WKND) (12:15 PM - 1:15 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1018241, Location: 41.80583, -72.658418

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,
Kensington, CT, 12345, US

Leg Direction	Route 159 Southbound					Meadow Road Westbound					Route 159 Northbound					Int
	T	L	U	App	Ped*	R	L	U	App	Ped*	R	T	U	App	Ped*	
Time																
2022-11-12 12:15PM	100	5	0	105	0	39	22	0	61	0	30	87	0	117	0	283
12:30PM	106	10	0	116	0	40	28	0	68	0	38	74	0	112	0	296
12:45PM	117	2	0	119	0	19	26	0	45	0	36	68	0	104	0	268
1:00PM	99	4	0	103	0	49	24	0	73	0	37	65	0	102	0	278
Total	422	21	0	443	0	147	100	0	247	0	141	294	0	435	0	1125
% Approach	95.3%	4.7%	0%	-	-	59.5%	40.5%	0%	-	-	32.4%	67.6%	0%	-	-	-
% Total	37.5%	1.9%	0%	39.4%	-	13.1%	8.9%	0%	22.0%	-	12.5%	26.1%	0%	38.7%	-	-
PHF	0.902	0.525	-	0.931	-	0.750	0.893	-	0.846	-	0.928	0.845	-	0.929	-	0.950
Lights	417	21	0	438	-	147	98	0	245	-	136	286	0	422	-	1105
% Lights	98.8%	100%	0%	98.9%	-	100%	98.0%	0%	99.2%	-	96.5%	97.3%	0%	97.0%	-	98.2%
Articulated Trucks and Single-Unit Trucks	2	0	0	2	-	0	1	0	1	-	4	4	0	8	-	11
% Articulated Trucks and Single-Unit Trucks	0.5%	0%	0%	0.5%	-	0%	1.0%	0%	0.4%	-	2.8%	1.4%	0%	1.8%	-	1.0%
Buses	3	0	0	3	-	0	1	0	1	-	1	4	0	5	-	9
% Buses	0.7%	0%	0%	0.7%	-	0%	1.0%	0%	0.4%	-	0.7%	1.4%	0%	1.1%	-	0.8%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Route 159 at Meadow Road - TMC

Sat Nov 12, 2022

Midday Peak (WKND) (12:15 PM - 1:15 PM) - Overall Peak Hour

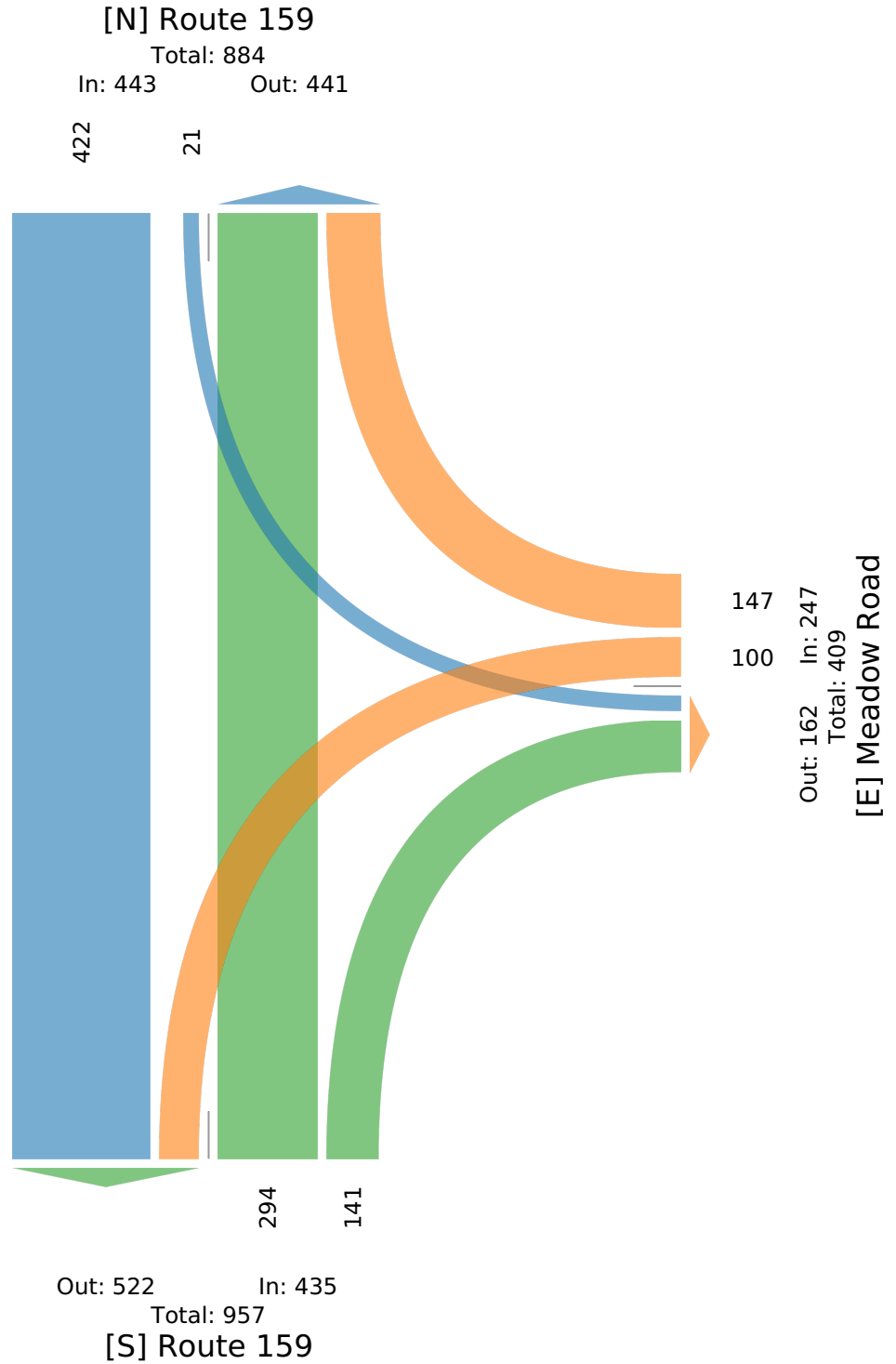
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1018241, Location: 41.80583, -72.658418

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,
Kensington, CT, 12345, US



Route 159 at Meadow Road - TMC

Sat Nov 12, 2022

PM Peak (WKND) (1 PM - 2 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1018241, Location: 41.80583, -72.658418

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,
Kensington, CT, 12345, US

Leg Direction	Route 159 Southbound					Meadow Road Westbound					Route 159 Northbound					Int
	T	L	U	App	Ped*	R	L	U	App	Ped*	R	T	U	App	Ped*	
Time																
2022-11-12 1:00PM	99	4	0	103	0	49	24	0	73	0	37	65	0	102	0	278
1:15PM	91	5	0	96	0	36	20	0	56	0	30	59	0	89	0	241
1:30PM	85	2	0	87	0	46	25	0	71	0	46	67	0	113	0	271
1:45PM	61	9	0	70	0	38	23	0	61	0	42	79	0	121	0	252
Total	336	20	0	356	0	169	92	0	261	0	155	270	0	425	0	1042
% Approach	94.4%	5.6%	0%	-	-	64.8%	35.2%	0%	-	-	36.5%	63.5%	0%	-	-	-
% Total	32.2%	1.9%	0%	34.2%	-	16.2%	8.8%	0%	25.0%	-	14.9%	25.9%	0%	40.8%	-	-
PHF	0.848	0.556	-	0.864	-	0.862	0.920	-	0.894	-	0.842	0.854	-	0.878	-	0.937
Lights	328	20	0	348	-	169	89	0	258	-	153	264	0	417	-	1023
% Lights	97.6%	100%	0%	97.8%	-	100%	96.7%	0%	98.9%	-	98.7%	97.8%	0%	98.1%	-	98.2%
Articulated Trucks and Single-Unit Trucks	3	0	0	3	-	0	2	0	2	-	2	2	0	4	-	9
% Articulated Trucks and Single-Unit Trucks	0.9%	0%	0%	0.8%	-	0%	2.2%	0%	0.8%	-	1.3%	0.7%	0%	0.9%	-	0.9%
Buses	5	0	0	5	-	0	1	0	1	-	0	4	0	4	-	10
% Buses	1.5%	0%	0%	1.4%	-	0%	1.1%	0%	0.4%	-	0%	1.5%	0%	0.9%	-	1.0%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Route 159 at Meadow Road - TMC

Sat Nov 12, 2022

PM Peak (WKND) (1 PM - 2 PM)

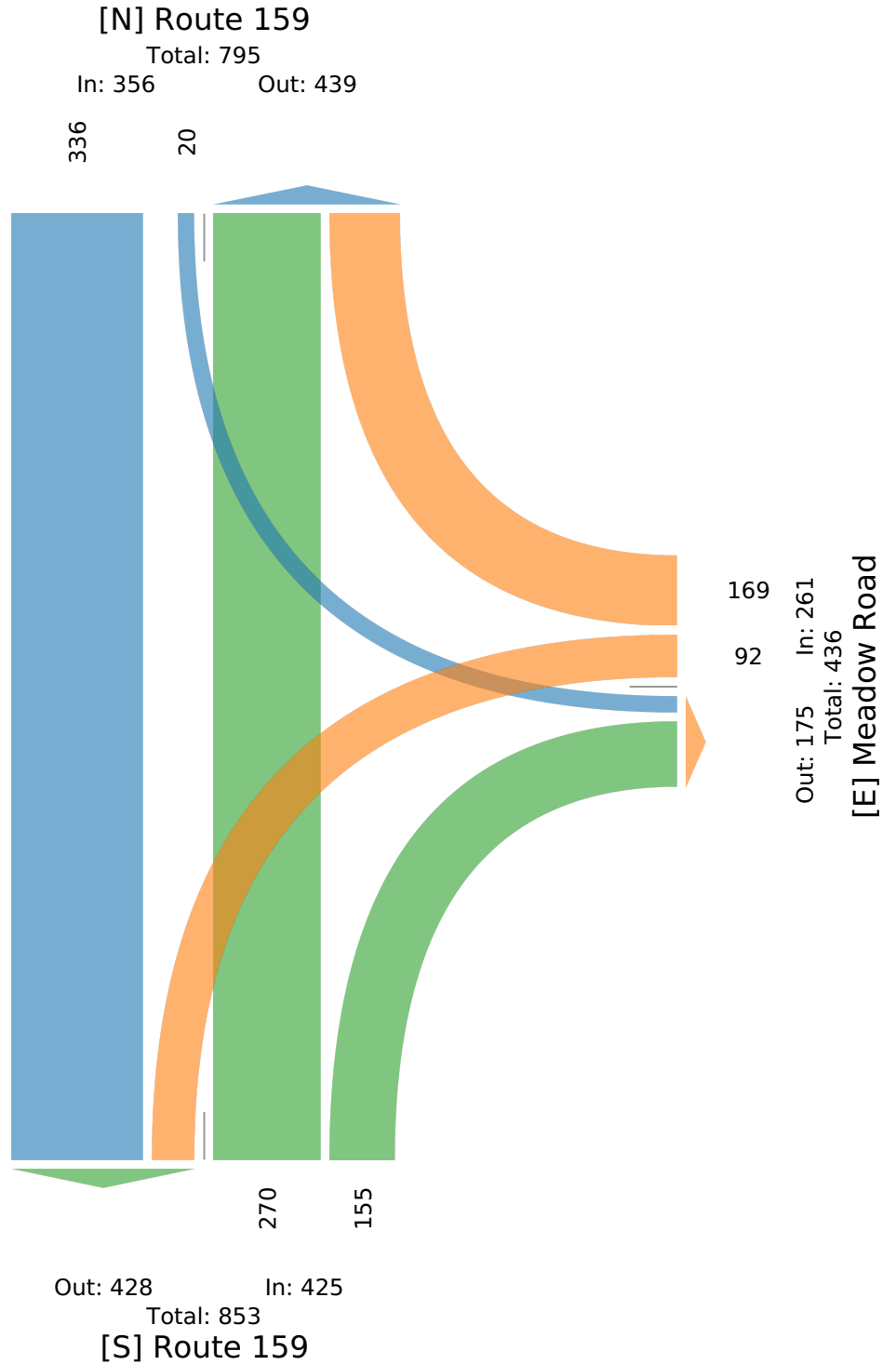
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1018241, Location: 41.80583, -72.658418

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,
Kensington, CT, 12345, US



Route 159 ay I-91 SB Ramps - TMC

Sat Nov 12, 2022

Full Length (11 AM-2 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1018214, Location: 41.803555, -72.659462

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,
Kensington, CT, 12345, US

Leg Direction	Route 159 Southbound						I-91 SB On Ramp Westbound						Route 159 Northbound						I-91 SB Off Ramp Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2022-11-12 11:00AM	0	73	34	0	107	0	0	0	3	0	3	0	31	81	0	0	112	0	52	0	3	0	55	0	277
11:15AM	0	69	32	0	101	0	0	0	0	0	0	0	37	88	0	0	125	0	65	0	7	0	72	1	298
11:30AM	0	89	38	0	127	0	0	0	0	0	0	0	34	98	0	1	133	0	79	0	4	0	83	0	343
11:45AM	0	62	43	0	105	0	0	0	0	0	0	0	27	101	0	0	128	0	57	0	7	0	64	1	297
Hourly Total	0	293	147	0	440	0	0	0	3	0	3	0	129	368	0	1	498	0	253	0	21	0	274	2	1215
12:00PM	0	83	34	0	117	0	0	0	0	0	0	0	31	87	0	0	118	0	49	0	2	0	51	0	286
12:15PM	0	80	41	0	121	0	0	0	0	0	0	0	37	106	0	0	143	0	67	0	7	0	74	1	338
12:30PM	0	100	45	0	145	0	0	0	0	0	0	0	32	103	0	0	135	0	60	0	2	0	62	0	342
12:45PM	0	91	52	0	143	0	0	0	0	0	0	0	30	92	0	0	122	0	63	1	6	0	70	0	335
Hourly Total	0	354	172	0	526	0	0	0	0	0	0	0	130	388	0	0	518	0	239	1	17	0	257	1	1301
1:00PM	0	82	35	0	117	0	0	0	0	0	0	0	38	100	0	1	139	0	61	0	4	0	65	0	321
1:15PM	0	72	31	0	103	0	0	0	0	0	0	0	35	98	0	0	133	0	57	0	5	0	62	1	298
1:30PM	0	83	32	0	115	0	0	0	0	0	0	0	36	87	0	0	123	0	51	0	6	0	57	0	295
1:45PM	0	80	44	0	124	0	0	0	0	0	0	0	24	115	0	0	139	0	53	0	6	0	59	2	322
Hourly Total	0	317	142	0	459	0	0	0	0	0	0	0	133	400	0	1	534	0	222	0	21	0	243	3	1236
Total	0	964	461	0	1425	0	0	0	3	0	3	0	392	1156	0	2	1550	0	714	1	59	0	774	6	3752
% Approach	0%	67.6%	32.4%	0%	-	-	0%	0%	100%	0%	-	-	25.3%	74.6%	0%	0.1%	-	-	92.2%	0.1%	7.6%	0%	-	-	-
% Total	0%	25.7%	12.3%	0%	38.0%	-	0%	0%	0.1%	0%	0.1%	-	10.4%	30.8%	0%	0.1%	41.3%	-	19.0%	0%	1.6%	0%	20.6%	-	-
Lights	0	940	459	0	1399	-	0	0	3	0	3	-	386	1130	0	2	1518	-	698	1	59	0	758	-	3678
% Lights	0%	97.5%	99.6%	0%	98.2%	-	0%	0%	100%	0%	100%	-	98.5%	97.8%	0%	100%	97.9%	-	97.8%	100%	100%	0%	97.9%	-	98.0%
Articulated Trucks and Single-Unit Trucks	0	12	2	0	14	-	0	0	0	0	0	-	5	13	0	0	18	-	13	0	0	0	13	-	45
% Articulated Trucks and Single-Unit Trucks	0%	1.2%	0.4%	0%	1.0%	-	0%	0%	0%	0%	0%	-	1.3%	1.1%	0%	0%	1.2%	-	1.8%	0%	0%	0%	1.7%	-	1.2%
Buses	0	12	0	0	12	-	0	0	0	0	0	-	1	13	0	0	14	-	3	0	0	0	3	-	29
% Buses	0%	1.2%	0%	0%	0.8%	-	0%	0%	0%	0%	0%	-	0.3%	1.1%	0%	0%	0.9%	-	0.4%	0%	0%	0%	0.4%	-	0.8%
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	-	5
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	83.3%
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	-	1
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16.7%

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Route 159 ay I-91 SB Ramps - TMC

Sat Nov 12, 2022

Full Length (11 AM-2 PM)

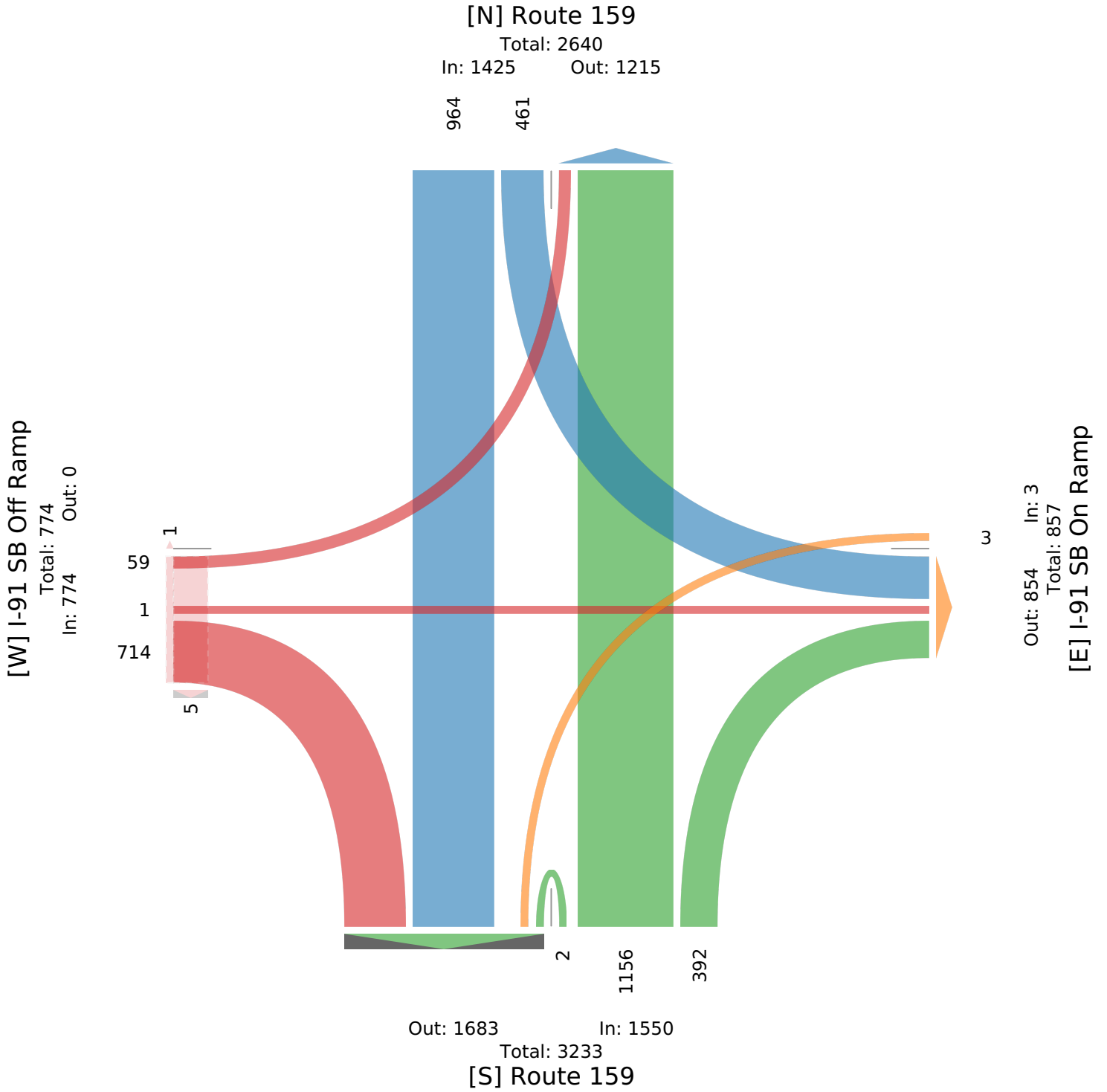
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1018214, Location: 41.803555, -72.659462

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,
Kensington, CT, 12345, US



Route 159 ay I-91 SB Ramps - TMC

Sat Nov 12, 2022

Midday Peak (WKND) (12:15 PM - 1:15 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1018214, Location: 41.803555, -72.659462

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,
Kensington, CT, 12345, US

Leg Direction	Route 159 Southbound						I-91 SB On Ramp Westbound						Route 159 Northbound						I-91 SB Off Ramp Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2022-11-12 12:15PM	0	80	41	0	121	0	0	0	0	0	0	0	37	106	0	0	143	0	67	0	7	0	74	1	338
12:30PM	0	100	45	0	145	0	0	0	0	0	0	0	32	103	0	0	135	0	60	0	2	0	62	0	342
12:45PM	0	91	52	0	143	0	0	0	0	0	0	0	30	92	0	0	122	0	63	1	6	0	70	0	335
1:00PM	0	82	35	0	117	0	0	0	0	0	0	0	38	100	0	1	139	0	61	0	4	0	65	0	321
Total	0	353	173	0	526	0	0	0	0	0	0	0	137	401	0	1	539	0	251	1	19	0	271	1	1336
% Approach	0%	67.1%	32.9%	0%	-	-	0%	0%	0%	0%	-	-	25.4%	74.4%	0%	0.2%	-	-	92.6%	0.4%	7.0%	0%	-	-	-
% Total	0%	26.4%	12.9%	0%	39.4%	-	0%	0%	0%	0%	0%	-	10.3%	30.0%	0%	0.1%	40.3%	-	18.8%	0.1%	1.4%	0%	20.3%	-	-
PHF	-	0.883	0.832	-	0.907	-	-	-	-	-	-	-	0.901	0.946	-	0.250	0.942	-	0.937	0.250	0.679	-	0.916	-	0.977
Lights	0	344	173	0	517	-	0	0	0	0	0	-	134	388	0	1	523	-	246	1	19	0	266	-	1306
% Lights	0%	97.5%	100%	0%	98.3%	-	0%	0%	0%	0%	-	-	97.8%	96.8%	0%	100%	97.0%	-	98.0%	100%	100%	0%	98.2%	-	97.8%
Articulated Trucks and Single-Unit Trucks	0	5	0	0	5	-	0	0	0	0	0	-	2	6	0	0	8	-	5	0	0	0	5	-	18
% Articulated Trucks and Single-Unit Trucks	0%	1.4%	0%	0%	1.0%	-	0%	0%	0%	0%	-	-	1.5%	1.5%	0%	0%	1.5%	-	2.0%	0%	0%	0%	1.8%	-	1.3%
Buses	0	4	0	0	4	-	0	0	0	0	0	-	1	7	0	0	8	-	0	0	0	0	0	-	12
% Buses	0%	1.1%	0%	0%	0.8%	-	0%	0%	0%	0%	-	-	0.7%	1.7%	0%	0%	1.5%	-	0%	0%	0%	0%	0%	-	0.9%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Route 159 ay I-91 SB Ramps - TMC

Sat Nov 12, 2022

Midday Peak (WKND) (12:15 PM - 1:15 PM) - Overall Peak Hour

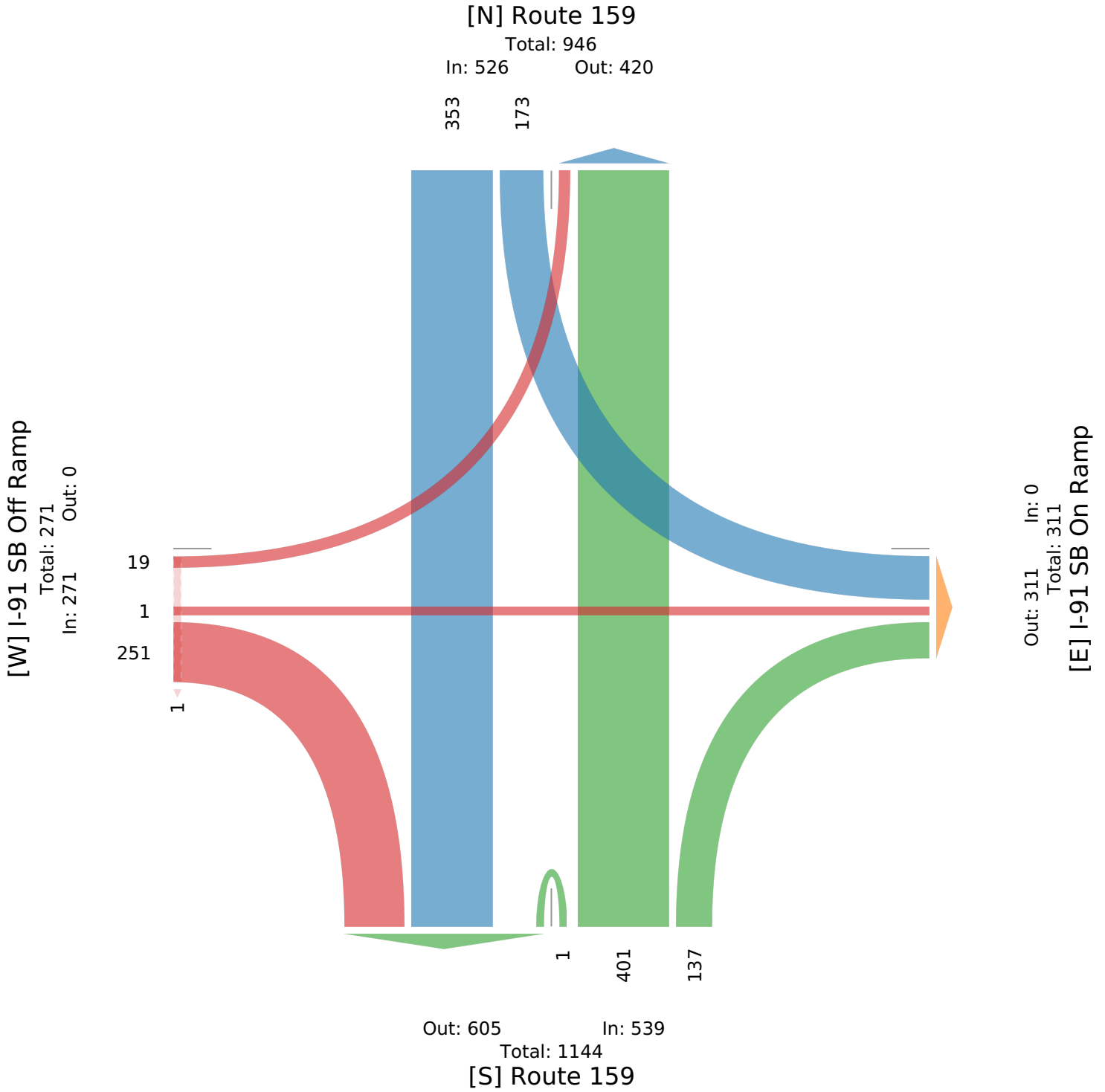
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1018214, Location: 41.803555, -72.659462

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,
Kensington, CT, 12345, US



Route 159 ay I-91 SB Ramps - TMC

Sat Nov 12, 2022

PM Peak (WKND) (1 PM - 2 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1018214, Location: 41.803555, -72.659462

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,
Kensington, CT, 12345, US

Leg Direction	Route 159 Southbound					I-91 SB On Ramp Westbound					Route 159 Northbound					I-91 SB Off Ramp Eastbound					Int		
	R	T	L	U	App Ped*	R	T	L	U	App Ped*	R	T	L	U	App Ped*	R	T	L	U	App Ped*			
2022-11-12 1:00PM	0	82	35	0	117	0	0	0	0	0	38	100	0	1	139	0	61	0	4	0	65	0	321
1:15PM	0	72	31	0	103	0	0	0	0	0	35	98	0	0	133	0	57	0	5	0	62	1	298
1:30PM	0	83	32	0	115	0	0	0	0	0	36	87	0	0	123	0	51	0	6	0	57	0	295
1:45PM	0	80	44	0	124	0	0	0	0	0	24	115	0	0	139	0	53	0	6	0	59	2	322
Total	0	317	142	0	459	0	0	0	0	0	133	400	0	1	534	0	222	0	21	0	243	3	1236
% Approach	0%	69.1%	30.9%	0%	-	0%	0%	0%	0%	-	24.9%	74.9%	0%	0.2%	-	91.4%	0%	8.6%	0%	-	-	-	-
% Total	0%	25.6%	11.5%	0%	37.1%	0%	0%	0%	0%	0%	10.8%	32.4%	0%	0.1%	43.2%	0%	18.0%	0%	1.7%	0%	19.7%	-	-
PHF	-	0.955	0.807	-	0.925	-	-	-	-	-	0.875	0.870	-	0.250	0.960	-	0.910	-	0.875	-	0.935	-	0.960
Lights	0	308	142	0	450	0	0	0	0	0	132	392	0	1	525	0	216	0	21	0	237	0	1212
% Lights	0%	97.2%	100%	0%	98.0%	0%	0%	0%	0%	-	99.2%	98.0%	0%	100%	98.3%	0%	97.3%	0%	100%	0%	97.5%	-	98.1%
Articulated Trucks and Single-Unit Trucks	0	4	0	0	4	0	0	0	0	0	1	4	0	0	5	0	6	0	0	0	6	0	15
% Articulated Trucks and Single-Unit Trucks	0%	1.3%	0%	0%	0.9%	0%	0%	0%	0%	-	0.8%	1.0%	0%	0%	0.9%	0%	2.7%	0%	0%	0%	2.5%	-	1.2%
Buses	0	5	0	0	5	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	0	9
% Buses	0%	1.6%	0%	0%	1.1%	0%	0%	0%	0%	-	0%	1.0%	0%	0%	0.7%	0%	0%	0%	0%	0%	0%	-	0.7%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	-	-	2
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	66.7%
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	-	-	1
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33.3%

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Route 159 ay I-91 SB Ramps - TMC

Sat Nov 12, 2022

PM Peak (WKND) (1 PM - 2 PM)

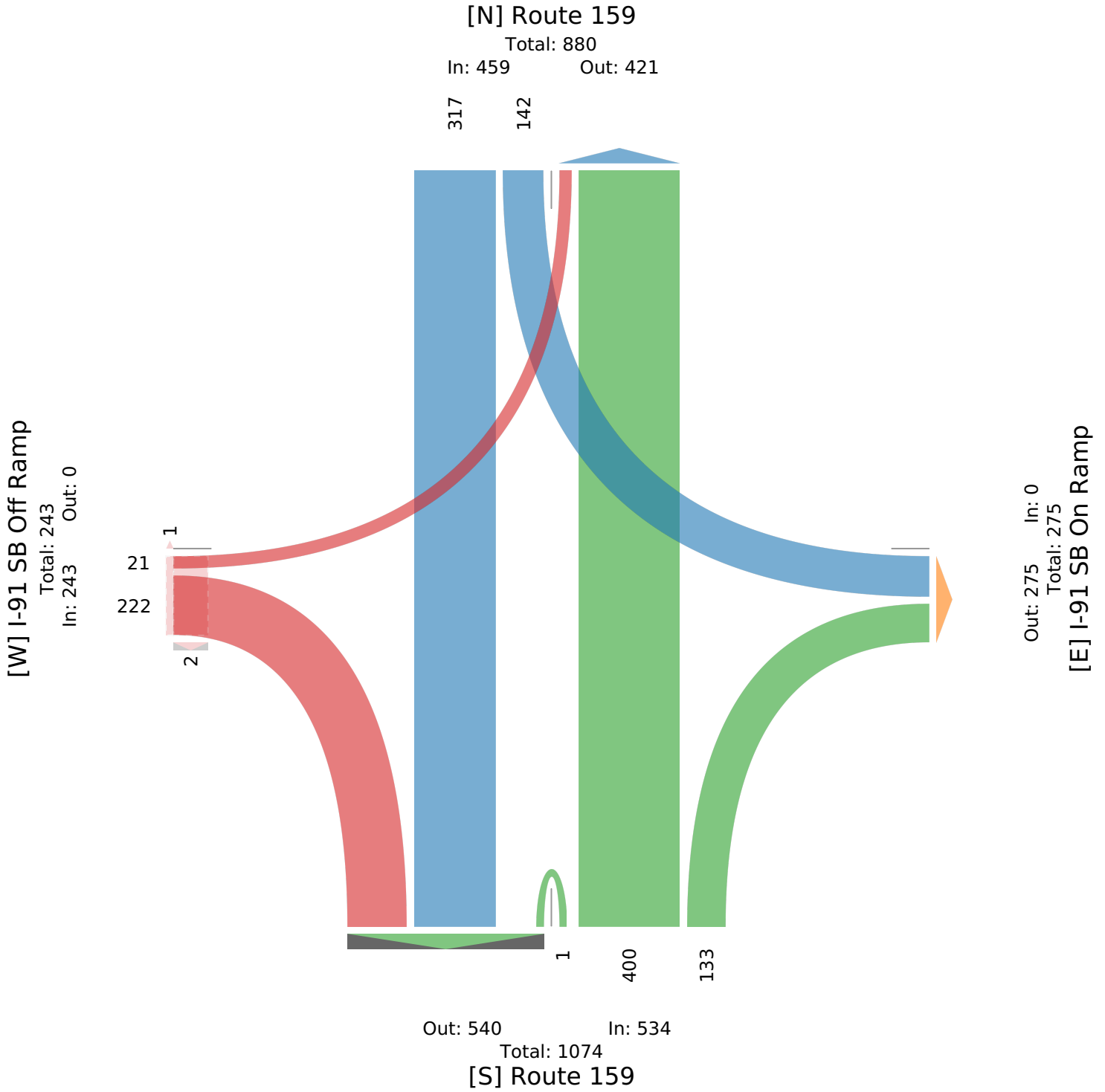
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1018214, Location: 41.803555, -72.659462

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,
Kensington, CT, 12345, US



Route 159 ay Violet Street/Private Dr - TMC

Sat Nov 12, 2022

Full Length (11 AM-2 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1018216, Location: 41.802684, -72.659985

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,
Kensington, CT, 12345, US

Leg Direction	Route 159 Southbound						Violet Street Westbound						Route 159 Northbound						Private Drive Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2022-11-12 11:00AM	0	112	6	0	118	0	5	0	0	0	5	0	1	101	0	0	102	2	0	0	0	0	0	4	225
11:15AM	0	128	6	0	134	0	7	0	2	0	9	0	1	120	0	0	121	0	0	0	0	0	0	1	264
11:30AM	0	159	1	0	160	0	7	0	1	0	8	0	2	122	0	0	124	0	0	0	0	0	0	0	292
11:45AM	2	110	6	0	118	0	7	0	4	0	11	0	1	117	0	0	118	0	1	0	0	0	1	1	248
Hourly Total	2	509	19	0	530	0	26	0	7	0	33	0	5	460	0	0	465	2	1	0	0	0	1	6	1029
12:00PM	0	134	3	0	137	0	6	0	2	0	8	0	1	112	0	0	113	0	0	0	0	0	0	1	258
12:15PM	0	140	5	0	145	0	9	0	2	0	11	0	0	130	0	0	130	0	0	0	0	0	0	2	286
12:30PM	0	160	2	0	162	0	4	0	0	0	4	0	0	125	0	0	125	0	0	0	0	0	0	0	291
12:45PM	0	152	5	0	157	0	10	0	0	0	10	0	1	111	0	0	112	0	0	0	0	0	0	0	279
Hourly Total	0	586	15	0	601	0	29	0	4	0	33	0	2	478	0	0	480	0	0	0	0	0	0	3	1114
1:00PM	0	134	5	0	139	0	11	0	2	0	13	0	0	129	0	0	129	1	0	0	0	0	0	0	281
1:15PM	0	120	6	0	126	0	13	0	2	0	15	0	0	115	0	0	115	0	0	0	0	0	0	1	256
1:30PM	0	127	7	0	134	0	7	0	1	0	8	0	4	114	0	0	118	0	0	0	0	0	0	0	260
1:45PM	0	128	6	0	134	0	12	0	2	0	14	0	2	128	0	0	130	0	0	0	0	0	0	1	278
Hourly Total	0	509	24	0	533	0	43	0	7	0	50	0	6	486	0	0	492	1	0	0	0	0	0	2	1075
Total	2	1604	58	0	1664	0	98	0	18	0	116	0	13	1424	0	0	1437	3	1	0	0	0	1	11	3218
% Approach	0.1%	96.4%	3.5%	0%	-	-	84.5%	0%	15.5%	0%	-	-	0.9%	99.1%	0%	0%	-	-	100%	0%	0%	0%	-	-	-
% Total	0.1%	49.8%	1.8%	0%	51.7%	-	3.0%	0%	0.6%	0%	3.6%	-	0.4%	44.3%	0%	0%	44.7%	-	0%	0%	0%	0%	0%	-	-
Lights	2	1561	56	0	1619	-	97	0	18	0	115	-	13	1393	0	0	1406	-	1	0	0	0	1	-	3141
% Lights	100%	97.3%	96.6%	0%	97.3%	-	99.0%	0%	100%	0%	99.1%	-	100%	97.8%	0%	0%	97.8%	-	100%	0%	0%	0%	100%	-	97.6%
Articulated Trucks and Single-Unit Trucks	0	30	2	0	32	-	1	0	0	0	1	-	0	17	0	0	17	-	0	0	0	0	0	-	50
% Articulated Trucks and Single-Unit Trucks	0%	1.9%	3.4%	0%	1.9%	-	1.0%	0%	0%	0%	0.9%	-	0%	1.2%	0%	0%	1.2%	-	0%	0%	0%	0%	0%	-	1.6%
Buses	0	13	0	0	13	-	0	0	0	0	0	-	0	14	0	0	14	-	0	0	0	0	0	-	27
% Buses	0%	0.8%	0%	0%	0.8%	-	0%	0%	0%	0%	0%	-	0%	1.0%	0%	0%	1.0%	-	0%	0%	0%	0%	0%	-	0.8%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	10	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	90.9%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	9.1%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Route 159 at Violet Street/Private Dr - TMC

Sat Nov 12, 2022

Full Length (11 AM-2 PM)

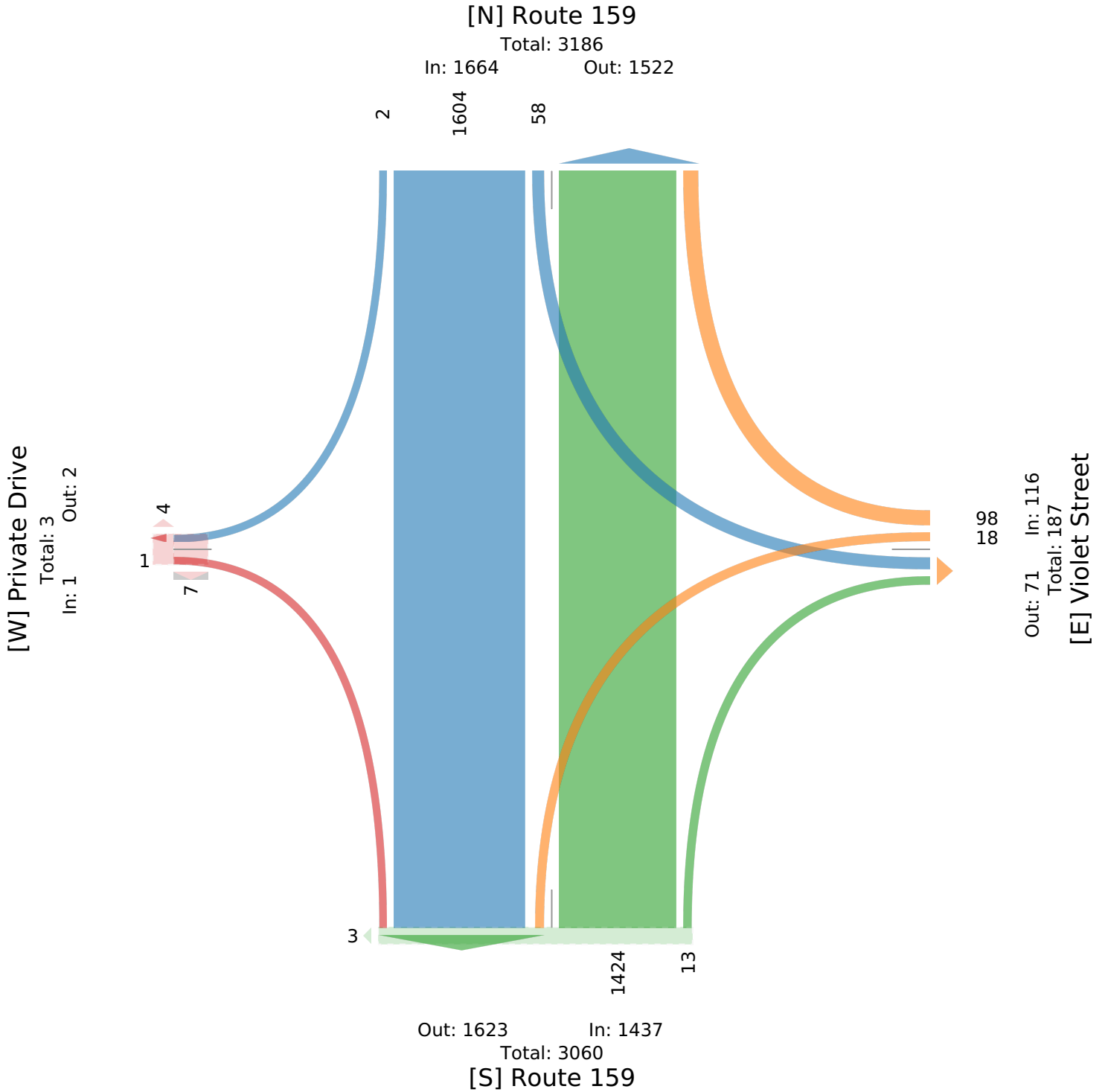
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1018216, Location: 41.802684, -72.659985

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,
Kensington, CT, 12345, US



Route 159 ay Violet Street/Private Dr - TMC

Sat Nov 12, 2022

Midday Peak (WKND) (12:15 PM - 1:15 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1018216, Location: 41.802684, -72.659985

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,
Kensington, CT, 12345, US

Leg Direction	Route 159 Southbound						Violet Street Westbound						Route 159 Northbound						Private Drive Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2022-11-12 12:15PM	0	140	5	0	145	0	9	0	2	0	11	0	0	130	0	0	130	0	0	0	0	0	0	2	286
12:30PM	0	160	2	0	162	0	4	0	0	0	4	0	0	125	0	0	125	0	0	0	0	0	0	0	291
12:45PM	0	152	5	0	157	0	10	0	0	0	10	0	1	111	0	0	112	0	0	0	0	0	0	0	279
1:00PM	0	134	5	0	139	0	11	0	2	0	13	0	0	129	0	0	129	1	0	0	0	0	0	0	281
Total	0	586	17	0	603	0	34	0	4	0	38	0	1	495	0	0	496	1	0	0	0	0	0	2	1137
% Approach	0%	97.2%	2.8%	0%	-	-	89.5%	0%	10.5%	0%	-	-	0.2%	99.8%	0%	0%	-	-	0%	0%	0%	0%	-	-	-
% Total	0%	51.5%	1.5%	0%	53.0%	-	3.0%	0%	0.4%	0%	3.3%	-	0.1%	43.5%	0%	0%	43.6%	-	0%	0%	0%	0%	0%	-	-
PHF	-	0.916	0.850	-	0.931	-	0.773	-	0.500	-	0.731	-	0.250	0.952	-	-	0.954	-	-	-	-	-	-	-	0.977
Lights	0	571	17	0	588	-	33	0	4	0	37	-	1	479	0	0	480	-	0	0	0	0	0	-	1105
% Lights	0%	97.4%	100%	0%	97.5%	-	97.1%	0%	100%	0%	97.4%	-	100%	96.8%	0%	0%	96.8%	-	0%	0%	0%	0%	-	-	97.2%
Articulated Trucks and Single-Unit Trucks	0	11	0	0	11	-	1	0	0	0	1	-	0	9	0	0	9	-	0	0	0	0	0	-	21
% Articulated Trucks and Single-Unit Trucks	0%	1.9%	0%	0%	1.8%	-	2.9%	0%	0%	0%	2.6%	-	0%	1.8%	0%	0%	1.8%	-	0%	0%	0%	0%	-	-	1.8%
Buses	0	4	0	0	4	-	0	0	0	0	0	-	0	7	0	0	7	-	0	0	0	0	0	-	11
% Buses	0%	0.7%	0%	0%	0.7%	-	0%	0%	0%	0%	0%	-	0%	1.4%	0%	0%	1.4%	-	0%	0%	0%	0%	-	-	1.0%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	2	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Route 159 at Violet Street/Private Dr - TMC

Sat Nov 12, 2022

Midday Peak (WKND) (12:15 PM - 1:15 PM) - Overall Peak Hour

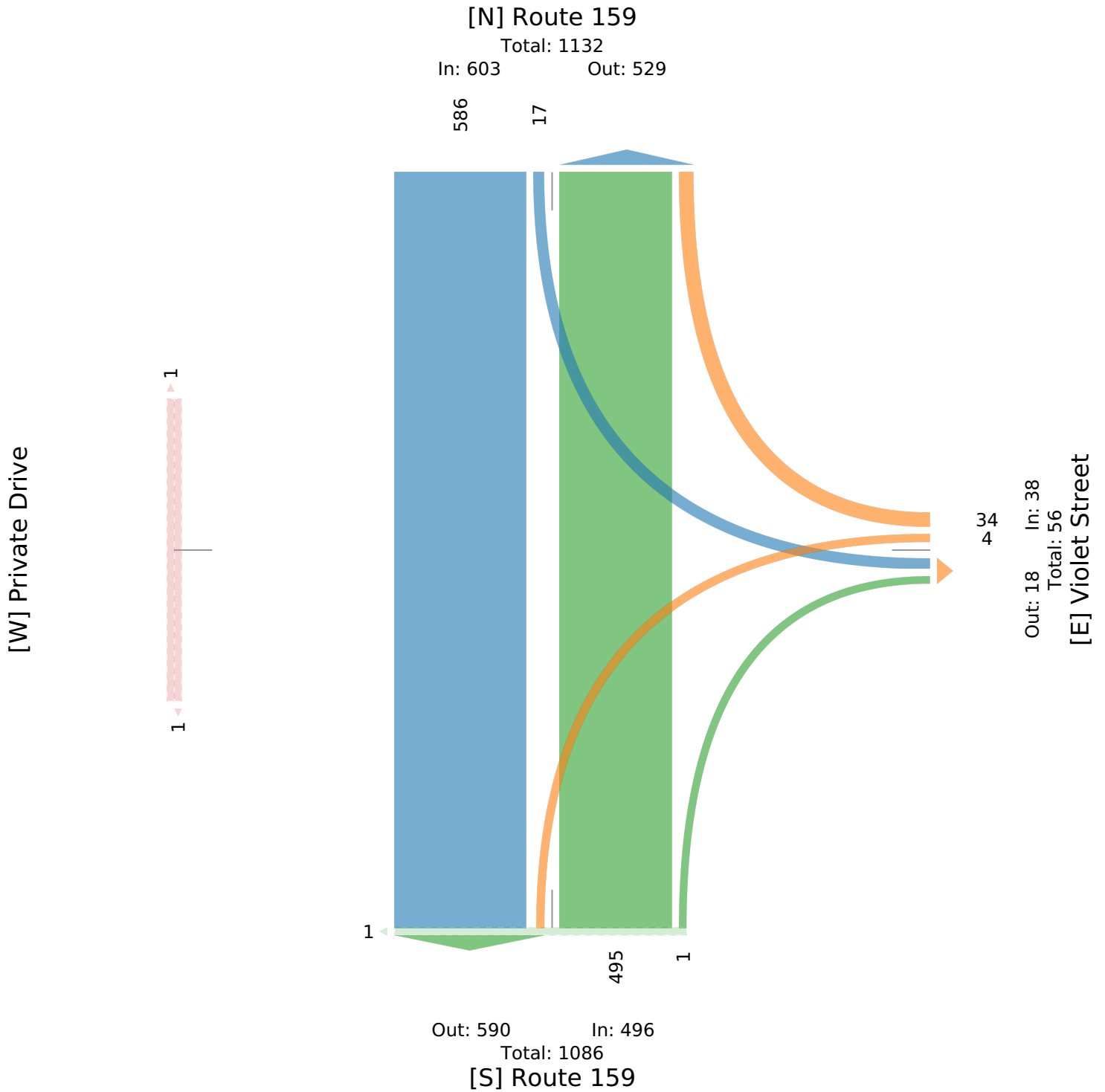
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1018216, Location: 41.802684, -72.659985

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,
Kensington, CT, 12345, US



Route 159 ay Violet Street/Private Dr - TMC

Sat Nov 12, 2022

PM Peak (WKND) (1 PM - 2 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1018216, Location: 41.802684, -72.659985

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,
Kensington, CT, 12345, US

Leg Direction	Route 159 Southbound						Violet Street Westbound						Route 159 Northbound						Private Drive Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2022-11-12 1:00PM	0	134	5	0	139	0	11	0	2	0	13	0	0	129	0	0	129	1	0	0	0	0	0	0	281
1:15PM	0	120	6	0	126	0	13	0	2	0	15	0	0	115	0	0	115	0	0	0	0	0	0	0	256
1:30PM	0	127	7	0	134	0	7	0	1	0	8	0	4	114	0	0	118	0	0	0	0	0	0	0	260
1:45PM	0	128	6	0	134	0	12	0	2	0	14	0	2	128	0	0	130	0	0	0	0	0	0	0	278
Total	0	509	24	0	533	0	43	0	7	0	50	0	6	486	0	0	492	1	0	0	0	0	0	0	1075
% Approach	0%	95.5%	4.5%	0%	-	-	86.0%	0%	14.0%	0%	-	-	1.2%	98.8%	0%	0%	-	-	0%	0%	0%	0%	-	-	-
% Total	0%	47.3%	2.2%	0%	49.6%	-	4.0%	0%	0.7%	0%	4.7%	-	0.6%	45.2%	0%	0%	45.8%	-	0%	0%	0%	0%	0%	0%	-
PHF	-	0.950	0.857	-	0.959	-	0.827	-	0.875	-	0.833	-	0.375	0.942	-	-	0.946	-	-	-	-	-	-	-	0.956
Lights	0	494	23	0	517	-	43	0	7	0	50	-	6	477	0	0	483	-	0	0	0	0	0	0	1050
% Lights	0%	97.1%	95.8%	0%	97.0%	-	100%	0%	100%	0%	100%	-	100%	98.1%	0%	0%	98.2%	-	0%	0%	0%	0%	-	-	97.7%
Articulated Trucks and Single-Unit Trucks	0	11	1	0	12	-	0	0	0	0	0	-	0	5	0	0	5	-	0	0	0	0	0	0	17
% Articulated Trucks and Single-Unit Trucks	0%	2.2%	4.2%	0%	2.3%	-	0%	0%	0%	0%	0%	-	0%	1.0%	0%	0%	1.0%	-	0%	0%	0%	0%	-	-	1.6%
Buses	0	4	0	0	4	-	0	0	0	0	0	-	0	4	0	0	4	-	0	0	0	0	0	0	8
% Buses	0%	0.8%	0%	0%	0.8%	-	0%	0%	0%	0%	0%	-	0%	0.8%	0%	0%	0.8%	-	0%	0%	0%	0%	-	-	0.7%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	1	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	50.0%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	50.0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Route 159 at Violet Street/Private Dr - TMC

Sat Nov 12, 2022

PM Peak (WKND) (1 PM - 2 PM)

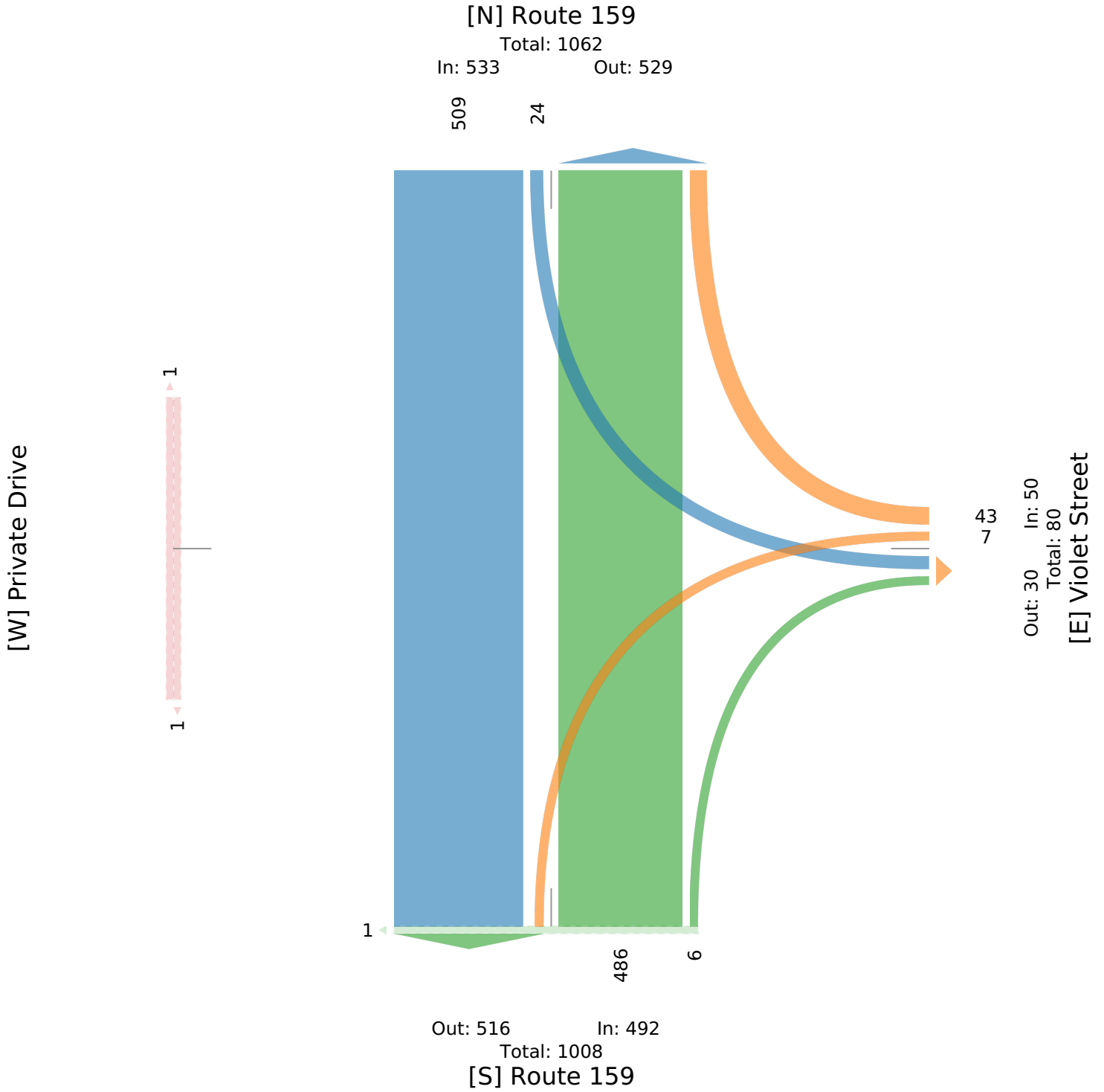
All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1018216, Location: 41.802684, -72.659985

Provided by: Connecticut Counts LLC

63 Sugar Maple Lane,
Kensington, CT, 12345, US



Project Trip Generation

Automated Car Wash (948)

Vehicle Trip Ends vs: Car Wash Tunnels
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: 3

Avg. Num. of Car Wash Tunnels: 1

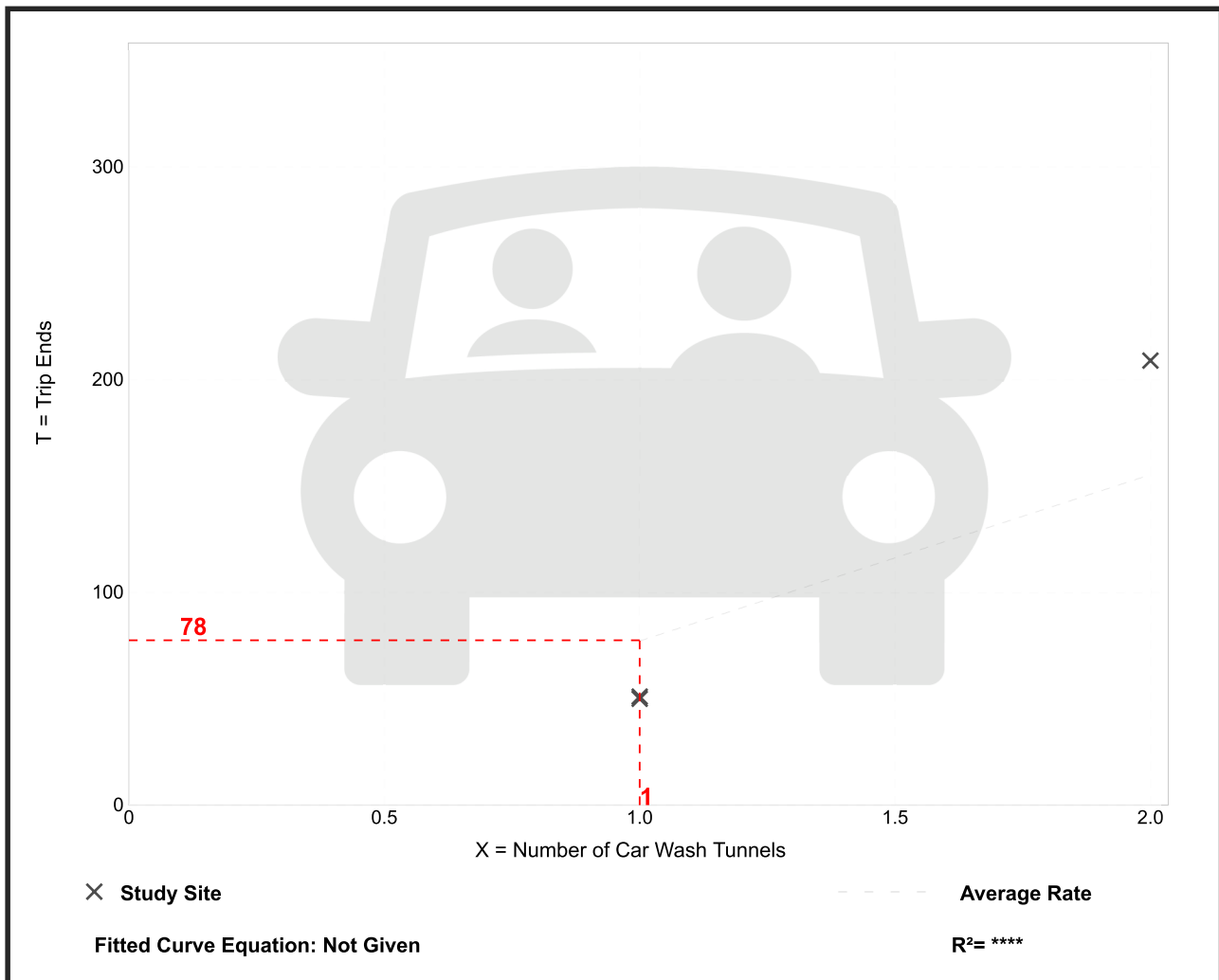
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Car Wash Tunnel

Average Rate	Range of Rates	Standard Deviation
77.50	50.00 - 104.50	33.07

Data Plot and Equation

Caution – Small Sample Size



Automated Car Wash (948)

Vehicle Trip Ends vs: Car Wash Tunnels
On a: Saturday, Peak Hour of Generator

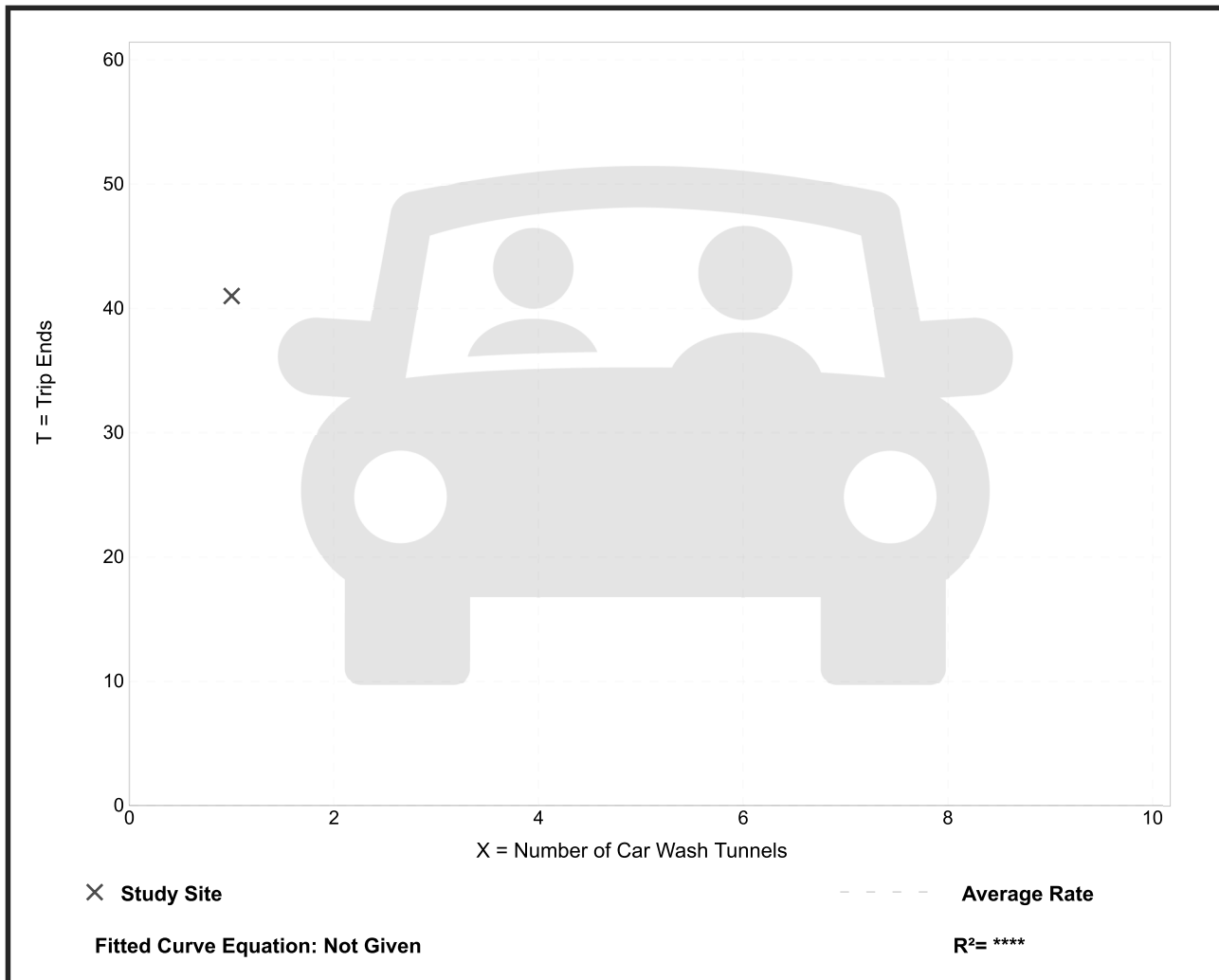
Setting/Location: General Urban/Suburban
Number of Studies: 1
Avg. Num. of Car Wash Tunnels: 1
Directional Distribution: 46% entering, 54% exiting

Vehicle Trip Generation per Car Wash Tunnel

Average Rate	Range of Rates	Standard Deviation
41.00	41.00 - 41.00	*

Data Plot and Equation

Caution – Small Sample Size



Gasoline/Service Station With Convenience Market (945)

Vehicle Trip Ends vs: Vehicle Fueling Positions
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: 14

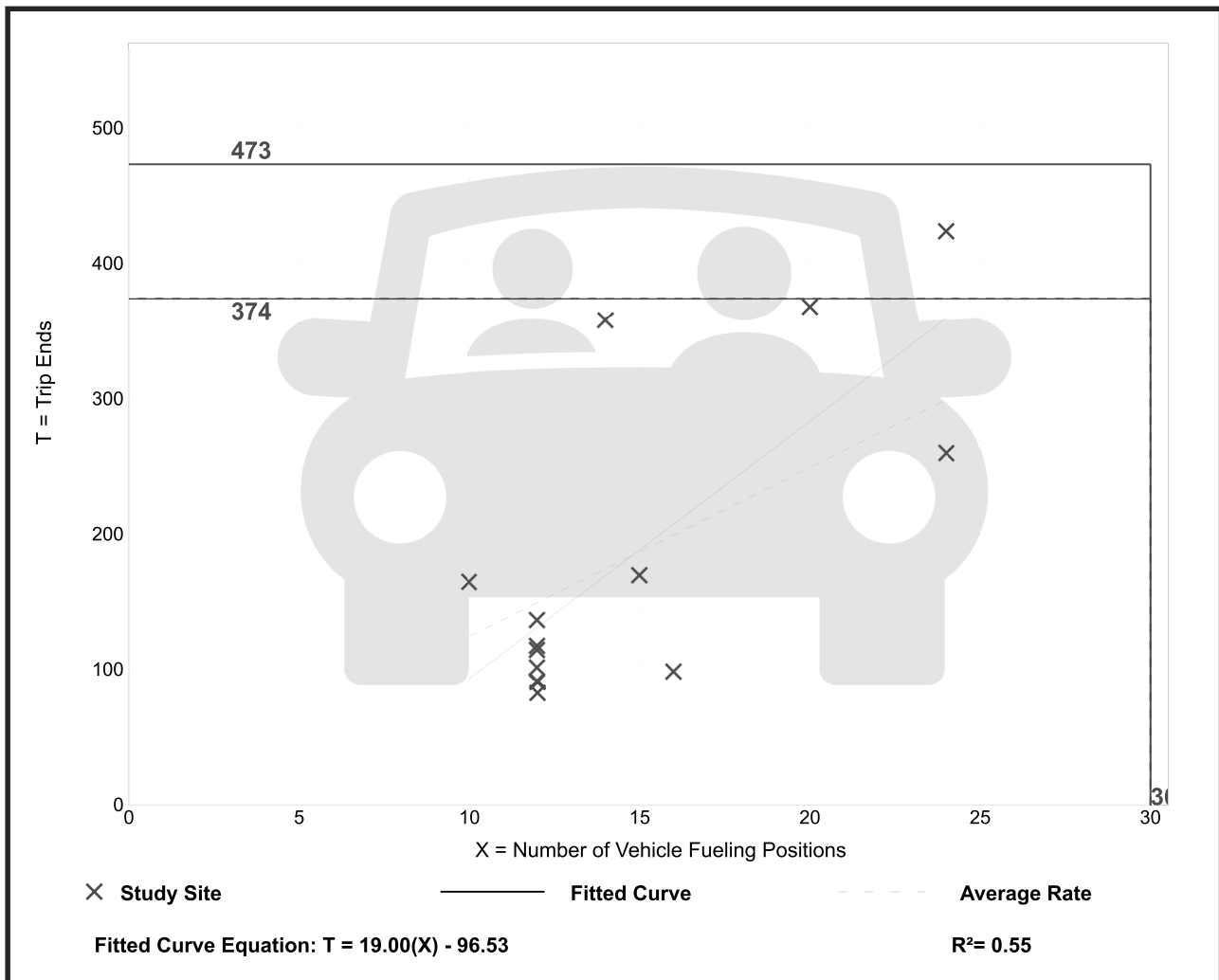
Avg. Num. of Vehicle Fueling Positions: 15

Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per Vehicle Fueling Position

Average Rate	Range of Rates	Standard Deviation
12.47	6.19 - 25.57	5.56

Data Plot and Equation



Gasoline/Service Station With Convenience Market (945)

Vehicle Trip Ends vs: Vehicle Fueling Positions
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

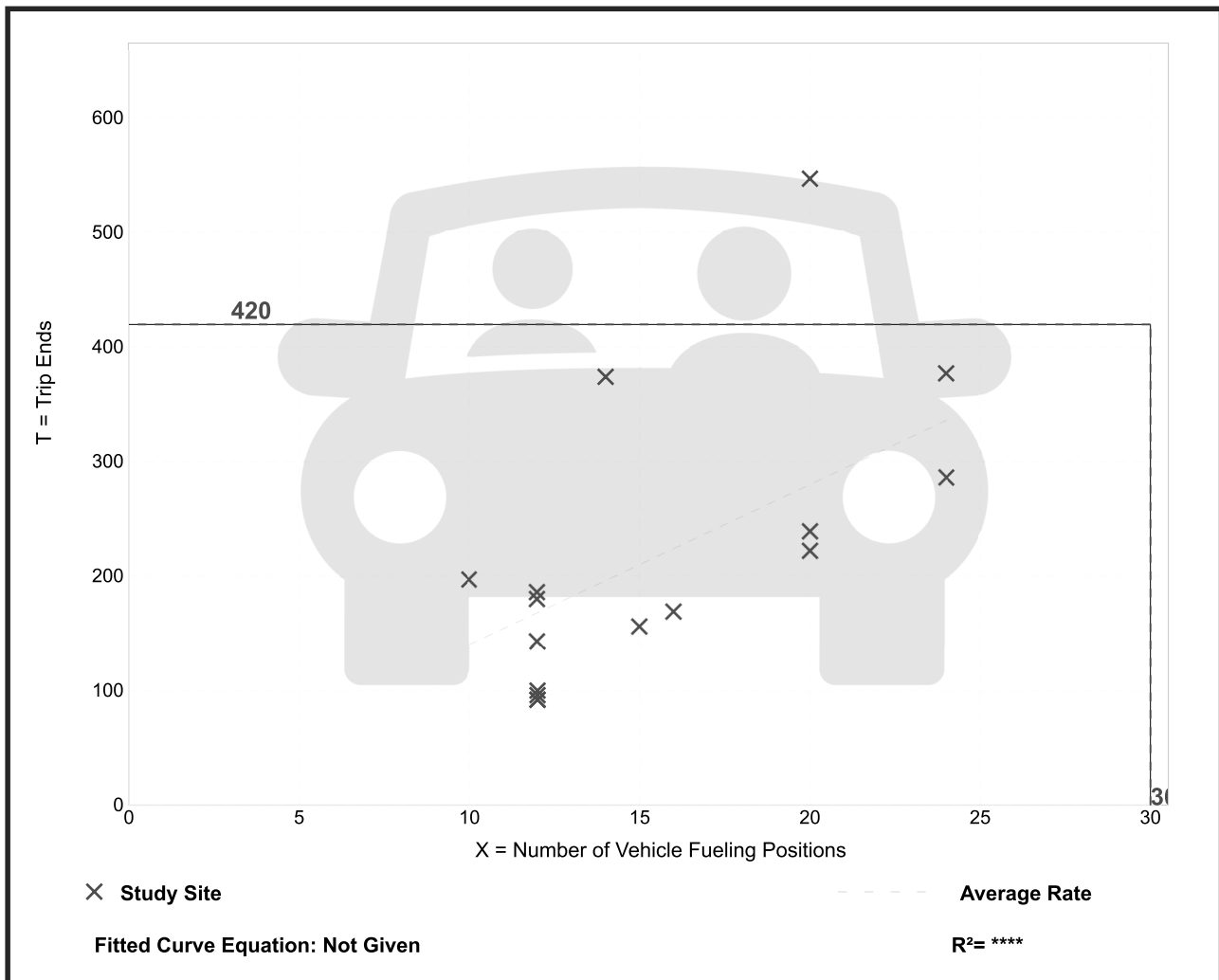
Setting/Location: General Urban/Suburban

Number of Studies: 16
 Avg. Num. of Vehicle Fueling Positions: 15
 Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per Vehicle Fueling Position

Average Rate	Range of Rates	Standard Deviation
13.99	7.67 - 27.35	6.18

Data Plot and Equation



Convenience Store/Gas Station - GFA (5.5-10k) (945)

Vehicle Trip Ends vs: Vehicle Fueling Positions
On a: Saturday, Peak Hour of Generator

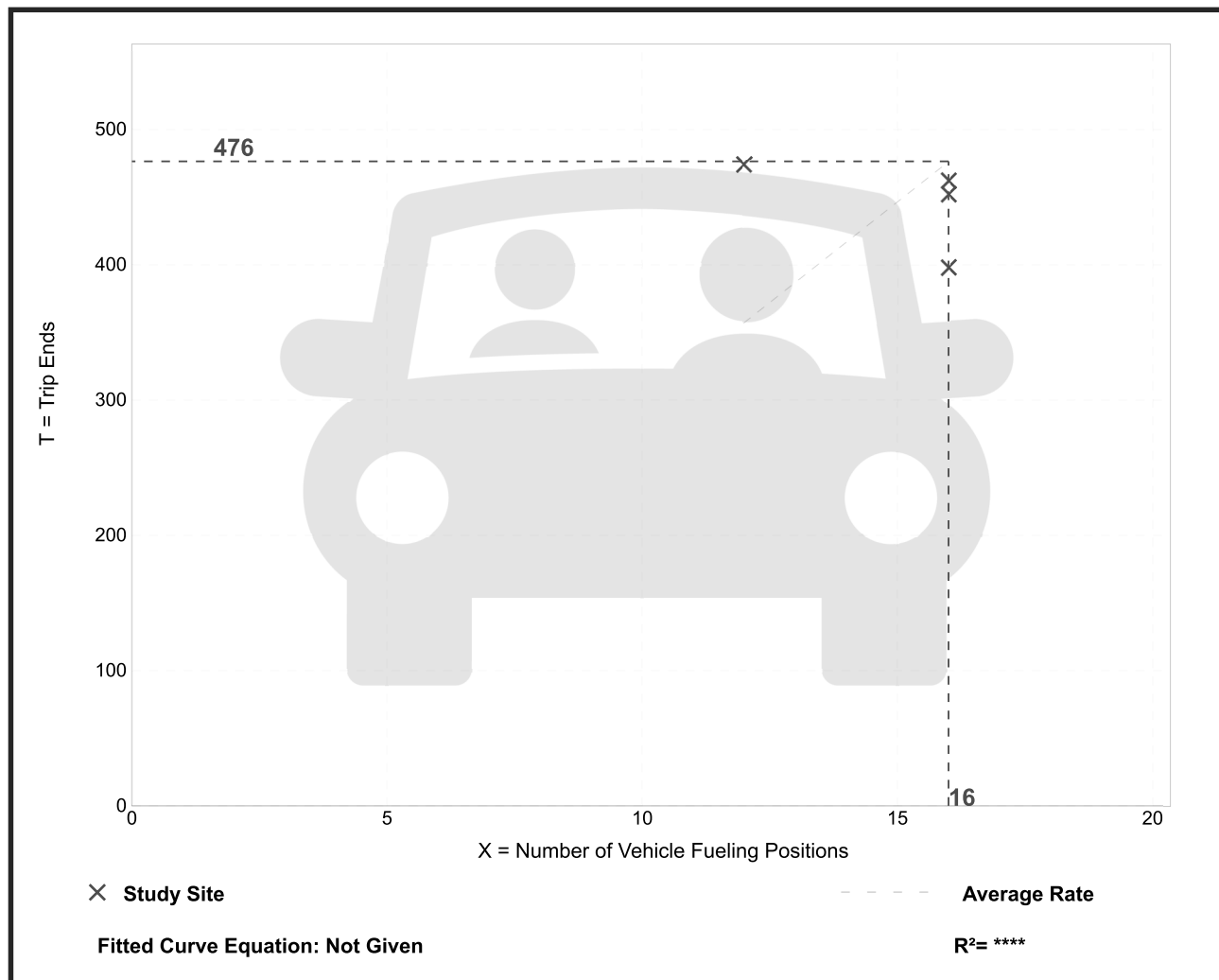
Setting/Location: General Urban/Suburban
Number of Studies: 4
Avg. Num. of Vehicle Fueling Positions: 15
Directional Distribution: 49% entering, 51% exiting

Vehicle Trip Generation per Vehicle Fueling Position

Average Rate	Range of Rates	Standard Deviation
29.77	24.88 - 39.50	5.91

Data Plot and Equation

Caution – Small Sample Size



Client Provided Car Wash Data

Day	Time	Number of Cars	Average AM Peak Number of Cars
Monday	7:00 AM	10	9
	8:00 AM	11	
Tuesday	7:00 AM	7	
	8:00 AM	6	
Wednesday	7:00 AM	8	
	8:00 AM	9	
Thursday	7:00 AM	10	
	8:00 AM	13	
Friday	7:00 AM	4	
	8:00 AM	5	

Data provided by Client from an owned and operational car wash that is of similar size and is located on a similar type roadway.

Values in bolded red are the more conservative of the listed values between 7 AM and 8 AM given that the peak of the roadway is between 7:30 and 8:30 AM

Signal Warrants

2009 MUTCD

TRAFFIC SIGNAL WARRANT ANALYSIS (VOLUME BASED)

Intersection: **Windsor Ave at Violet Street and Site Drive**

Major Street Direction: Northbound-Southbound ▼

Year: **2029** Condition: **Proposed**

Operating speed on major roadway: **35** mph
 Number of approaches: **4**

Required approach volumes

Warrant 1	EIGHT-HOUR VEHICULAR VOLUME	Adjusted	
		Minimum*	Minimum**
Warrant 1A	MINIMUM VEHICULAR VOLUME (8 hours of day)		
	Major Street : 2 Lane(s) on each approach	600	600
	Minor Street : 1 Lane(s) on each approach	150	150
Warrant 1B	INTERRUPTION OF CONTINUOUS TRAFFIC (8 hours of day)		
	Major Street : 2 Lane(s) on each approach	900	900
	Minor Street : 1 Lane(s) on each approach	75	75
80 PERCENT SATISFACTION OF WARRANT 1A AND WARRANT 1B		Warrant 1A	Warrant 1B
	Major Street : 2 Lane(s) on each approach	480	720
	Minor Street : 1 Lane(s) on each approach	120	60

Warrant 2	FOUR HOUR VEHICULAR VOLUME	
	Major Street : 2 Lane(s) on each approach	If "verify" indicated, see Figure 4C-1 or 4C-2.
	Minor Street : 1 Lane(s) on each approach	25 = accuracy of regression equations

Warrant 3	PEAK HOUR VOLUME	
	Major Street : 2 Lane(s) on each approach	If "verify" indicated, see Figure 4C-3 or 4C-4.
	Minor Street : 1 Lane(s) on each approach	25 = accuracy of regression equations

Hour	Entering Vol. Minor Road+	Entering Vol. on Major Road		Tot. Ent. Vol. On Major Rd	Meets the following volume-based warrants?				
		Northbound	Southbound		1A	1B	80%(1A&1B)	2	3
6:00 - 7:00 AM	81	261	376	636	No	No	No	No	No
7:00 - 8:00 AM	105	326	889	1215	No	Yes	No	Yes	No
8:00 - 9:00 AM	97	388	833	1221	No	Yes	No	Yes	No
9:00 - 10:00 AM	91	355	532	887	No	No	No	No	No
10:00 - 11:00 AM	96	388	506	894	No	No	No	No	No
11:00 - 12:00 AM	91	484	483	967	No	Yes	No	No	No
12:00 - 1:00 PM	98	513	559	1071	No	Yes	No	No	No
1:00 - 2:00 PM	98	530	579	1109	No	Yes	No	No	No
2:00 - 3:00 PM	110	539	634	1173	No	Yes	No	Yes	No
3:00 - 4:00 PM	122	616	764	1381	No	Yes	Yes	Yes	No
4:00 - 5:00 PM	130	867	759	1626	No	Yes	Yes	Yes	Yes
5:00 - 6:00 PM	118	733	727	1460	No	Yes	No	Yes	No
6:00 - 7:00 PM	108	447	662	1109	No	Yes	No	Yes	No
					No	Yes	No	Yes	Yes
					Warrants Met?	1		2	3
						Yes		Yes	Yes

*From the criteria described for the warrant in the MUTCD.

**If the operating speed is higher than 40mph then the volumes can be adjusted to 70%. (If no adjusted minimum, the minimum from the previous column is shown)

+If more than one approach, report the approach that has the higher volume.

NON-VOLUME-BASED WARRANTS

Warrant 4, Minimum Pedestrian Volume:
 Peak Four Hour Pedestrian Volumes: 0
 (non-concurrent) 0
 0
 0

Warrant 5, School Crossing:
 See MUTCD for details.

Warrant 6, Coordinated Signal System:
 See MUTCD for details.

Warrant 7, Crash Experience:
 # of accidents "correctable by signalization" occurring in the last 12 months: 6

Warrant 8, Roadway Network:
 See MUTCD for details.

Hourly Distribution of Entering and Exiting Vehicle Trips by Land Use

Time	Gas Station and Market				Car Wash				Retail				Daycare				Total		IC=50% CW		61%
	% of 24-Hour Traffic		Volume		% of 24-Hour Traffic		Volume		% of 24-Hour Traffic		Volume		% of 24-Hour Traffic		Volume		Entering	Exiting	Net External Trips	Left-turn Exiting Traffic	
	Entering	Exiting	Entering	Exiting	Entering	Exiting	Entering	Exiting	Entering	Exiting	Entering	Exiting	Entering	Exiting	Entering	Exiting	Entering	Exiting	Exiting		
12-1 AM	0.8	0.8	22	22	0	0	0	0	0	0.3	0	0	0	0	0	0	22	22	22	22	13
1-2 AM	0.4	0.5	11	14	0	0	0	0	0	0.2	0	0	0	0	0	0	11	14	11	14	8
2-3 AM	0.3	0.4	8	11	0	0	0	0	0	0	0	0	0	0	0	0	8	11	8	11	7
3-4 AM	0.4	0.7	11	19	0	0	0	0	0	0	0	0	0	0	0	0	11	19	11	19	12
4-5 AM	0.8	1.3	22	36	0.1	0.1	0	0	0	0	0	0	0	0	0	0	22	36	22	36	22
5-6 AM	2.3	2.2	64	61	0.3	0.3	0	0	0.1	0.1	0	0	0.7	0.1	0	0	64	61	64	61	37
6-7 AM	4.6	4.8	127	133	0.1	0	0	0	0.3	0.2	0	0	4.3	2.9	0	0	127	133	127	133	81
7-8 AM	6.4	6.2	177	171	4.8	1.7	4	1	1.4	0.9	0	0	26.9	23.5	0	0	180	173	179	172	105
8-9 AM	6	5.7	166	157	6.6	4.4	5	3	2.6	1.5	0	0	9.4	9.3	0	0	171	161	168	159	97
9-10 AM	5.6	5.3	155	146	7.8	6.9	6	5	4.7	2.5	0	0	5	3.2	0	0	161	152	158	149	91
10-11 AM	5.7	5.6	157	155	7.5	7.6	6	6	7.1	4.1	0	0	5.6	5.4	0	0	163	161	160	158	96
11-12 PM	5.5	5.3	152	146	10.4	9	8	7	9.7	6.8	0	0	3.8	3.8	0	0	160	153	156	150	91
12-1 PM	5.9	5.7	163	157	9.8	9.7	8	8	10.6	9.4	0	0	1.7	3	0	0	171	165	167	161	98
1-2 PM	5.9	5.7	163	157	7.9	8.6	6	7	9.2	9.5	0	0	2.4	2.5	0	0	169	164	166	161	98
2-3 PM	6.5	6.4	179	177	9.7	10.2	8	8	8.9	9.2	0	0	10.5	9	0	0	187	185	183	181	110
3-4 PM	7.3	7.1	202	196	9.6	10.4	7	8	8.5	9	0	0	8.1	10.2	0	0	209	204	205	200	122
4-5 PM	7.6	7.6	210	210	8.4	9	7	7	8.9	9.4	0	0	9.2	10.4	0	0	216	217	213	213	130
5-6 PM	7.1	6.9	196	191	7.1	7.3	6	6	9.2	9.4	0	0	11	12.4	0	0	202	196	199	193	118
6-7 PM	6.2	6.3	171	174	7.5	8.8	6	7	7.6	8.5	0	0	1.5	4.2	0	0	177	181	174	177	108
7-8 PM	4.2	4.3	116	119	1.7	5.4	1	4	5.3	6.9	0	0	0	0	0	0	117	123	117	121	74
8-9 PM	3.4	3.7	94	102	0.5	0.5	0	0	3.2	5.6	0	0	0	0	0	0	94	103	94	102	62
9-10 PM	2.9	2.9	80	80	0	0	0	0	1.6	4.3	0	0	0	0	0	0	80	80	80	80	49
10-11 PM	2.4	2.6	66	72	0.1	0.1	0	0	0.7	1.5	0	0	0	0	0	0	66	72	66	72	44
11-12 AM	1.8	1.9	50	52	0	0	0	0	0.3	0.7	0	0	0	0	0	0	50	52	50	52	32

2761.5
5523

78
156

Status: OK

North

Combined

South

WNDS-038 - North

Route 159 - 0.06 mi NE of Sunset Street

		25-Jun	26-Jun
		Tue	Wed
Town.....	Windsor		
Station.....	38		
Location.....	41.802236,-72.660295	12:00am	90
Posted Speed Limit.....	30 MPH	01:00am	54
2015-Principal Arterial - Other 3...2015-Urban		02:00am	40
Start Report.....	25-Jun-2019 05:00AM	03:00am	35
End Report.....	26-Jun-2019 05:00AM	04:00am	58
Axle Correction Factor.....	None	05:00am	
Annualized ADT.....	6900	06:00am	
24-Hour Count.....	7613 * G4(0.91) = 6927.8	07:00am	
UnRounded AADT.....	6927.8 / 1 = 6927.8	08:00am	
OK 2019 Tue 25-Jun -this report-.....	15400	09:00am	
OK 2013 Wed 30-Oct	14800	10:00am	
OK 2010 Thu 18-Feb	16900	11:00am	
OK 2007 Mon 05-Nov	15500	12:00pm	
		01:00pm	
		02:00pm	
		03:00pm	
		04:00pm	
		05:00pm	
		06:00pm	
		07:00pm	
		08:00pm	
		09:00pm	
		10:00pm	
		11:00pm	
		Totals	
		7336	277

Status: OK

North

Combined

South

WNDS-038 - South

Route 159 - 0.06 mi NE of Sunset Street

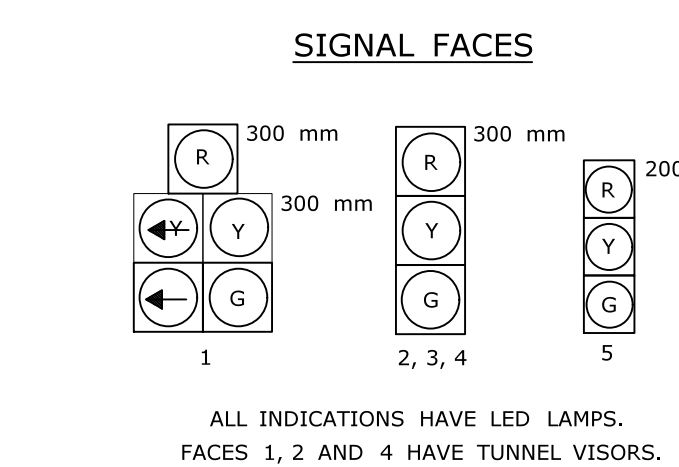
	25-Jun	26-Jun
	Tue	Wed
Town.....Windsor		
Station.....38		
Location..... 41.802236,-72.660295	12:00am	95
Posted Speed Limit.....30 MPH	01:00am	59
2015-Principal Arterial - Other 3...2015-Urban	02:00am	26
Start Report.....25-Jun-2019 05:00AM	03:00am	27
End Report.....26-Jun-2019 05:00AM	04:00am	62
Axle Correction Factor.....None	05:00am	
Annualized ADT.....8500	06:00am	
24-Hour Count..... 9363 * G4(0.91) = 8520.3	07:00am	
UnRounded AADT.....8520.3 / 1 = 8520.3	08:00am	
OK 2019 Tue 25-Jun -this report-.....15400	09:00am	
OK 2013 Wed 30-Oct14800	10:00am	
OK 2010 Thu 18-Feb16900	11:00am	
OK 2007 Mon 05-Nov15500	12:00pm	
	01:00pm	
	02:00pm	
	03:00pm	
	04:00pm	
	05:00pm	
	06:00pm	
	07:00pm	
	08:00pm	
	09:00pm	
	10:00pm	
	11:00pm	
Totals	9094	269

Signal Plans

MOVEMENT DIAGRAM																															
NTOR	PHASE 1 PRE-EMPT 1			PHASE 2			PHASE 3			PHASE 4 PRE-EMPT 2			PHASE 5			PHASE 6			PHASE 7			PHASE 8									
NONE	[Diagram 1]			[Diagram 2]			[Diagram 3]			[Diagram 4]			[Diagram 5]			[Diagram 6]			[Diagram 7]			[Diagram 8]									
F A C E #	FLASH	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL	GRN	CL	CL			
	1	Y	←	G	G	G								R	R	R															
	2	Y		G	←	G	←							R	R	R															
	3	Y	R	R	R	G	Y	R						R	R	R															
	4	R	R	R	R	R	R	R	R						G	Y	R														
	5	R	R	R	R	R	R	R							G	Y	R														
I N T E R V A S	MIN GRN	5			15						7																				
	WALK										21																				
	PED CLR										1																				
	VEH EXT	1.5									1.5																				
	MAX 1	15									18																				
	MAX 2	15									18																				
	YELLOW		3.0			4.2					3.6																				
	RED			1.0		1.0					1.8																				
	ADD INIT																														
	MAX INIT																														
	TBR																														
TTR																															
MODE	NON-LOCK			MAX RECALL			OFF			NON-LOCK			OFF			OFF			OFF			OFF			OFF			OFF			
INT START				THIS PHASE																											

TECHNICAL NOTES
 STANDARD OVERLAP SKIP FEATURES APPLY
 PHASE 2 ON TO OMIT PHASE 1.
 PHASE 2 CHECK TO CALL PHASE 1 THROUGH D1 AMPLIFIER CONTACTS.
 PRE-EMPTION TO BE INOPERATIVE DURING FLASHING OPERATION.
 TIMINGS SHOWN REFLECT FREE OPERATION.
 ACTUAL COORDINATION INFORMATION TO BE DETERMINED BY THE CLOSED LOOP LOCAL COORDINATION UNIT.

REV # 6	OFFICE RECORD	TIR # N/A	SM # 101695	SIGNAL REVISED: 6/3/2019
REVISOR: [Signature]				



PRE-EMPTION SETTINGS

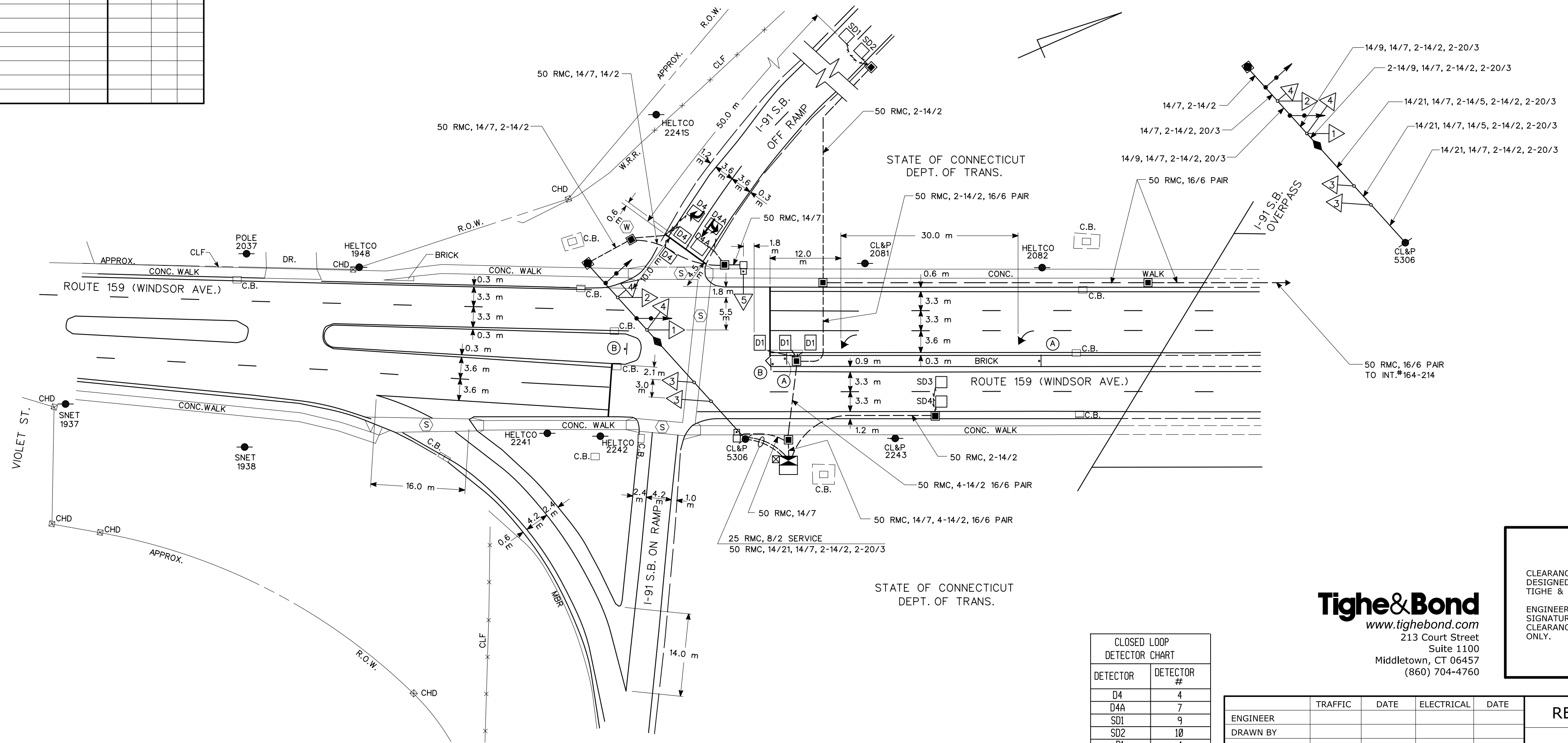
	PRE-EMPT 1	PRE-EMPT 2
PRIORITY	NO	NO
DET. LOCK	YES	YES
DELAY	NO	NO
ALT. MIN. GRN	5	5
ALT. YELLOW	PARENT	PARENT
ALT. RED	PARENT	PARENT
ALT. PED. CLR.	NO	NO
HOLD GREEN	15	15
HOLD YELLOW	3.0	3.6
HOLD RED	1.0	1.8
HOLD PHASE	1	4
EXIT PHASE	2	1
EXIT CALL	NONE	NONE

DETECTORS

IDENT	SIZE (WxL)	TURNS	MODE	SYSTEM LOC	COORDINATION TYPE: CLOSED LOOP	FUNCTION	PROGRAM TIME	DAYS	CYCLE	OFFSET
D1	2.4 m X 1.8 m	4	PRESENCE	164-211 164-244	FLASH	2200 - 0600	DAILY			
D4	2.4 m X 1.8 m	4	PRESENCE	164-218 164-271						
SD1	1.8 m X 1.8 m	4	PRESENCE	164-219						
SD2	1.8 m X 1.8 m	4	PRESENCE	164-220						
SD3	1.8 m X 1.8 m	4	PRESENCE	164-221						
SD4	1.8 m X 1.8 m	4	PRESENCE	164-222						
				164-223						
				164-229						
				164-231						
				164-233						
				164-234						

SIGN LEGEND
 (A) EXIST. 31-0117 (LEFT LANE MUST TURN LEFT)
 (B) EXIST. 31-1526 (KEEP RIGHT)

NOTES:
 STATE TO MAINTAIN ALL SIGNS AND PAVEMENT MARKINGS.
 TOWN OF WINDSOR TO OWN AND MAINTAIN EMERGENCY PRE-EMPTION EQUIPMENT.
 (S) BAR TYPE CROSSWALK (0.4 m X 0.4 m - 2.4 m MIN.) - STATE MAINTAINED.
 (W) 30" X 30" CONCRETE HANDHOLE.



CLOSED LOOP DETECTOR CHART

DETECTOR	DETECTOR #
D4	4
D4A	7
SD1	9
SD2	10
D1	1
D1 REAR	11C 14D
SD3	12
SD4	13

ENGINEER	TRAFFIC	DATE	ELECTRICAL	DATE
DRAWN BY				
CHECKED BY				
SUBMITTED BY				
APPROVED BY				
APPROVED DATE				

REV # 6 INTERSECTION #164-229

ENERGY BY - STATE	ADDRESS #92
MAINT LEVEL 5	SERVICE POLE - CL&P 5306
UNMETERED SERVICE	

TOWN: **WINDSOR**

PROJECT NO. 171-398

DRAWING TITLE: **TRAFFIC CONTROL SIGNAL PLAN**

SHEET NO. [Blank]

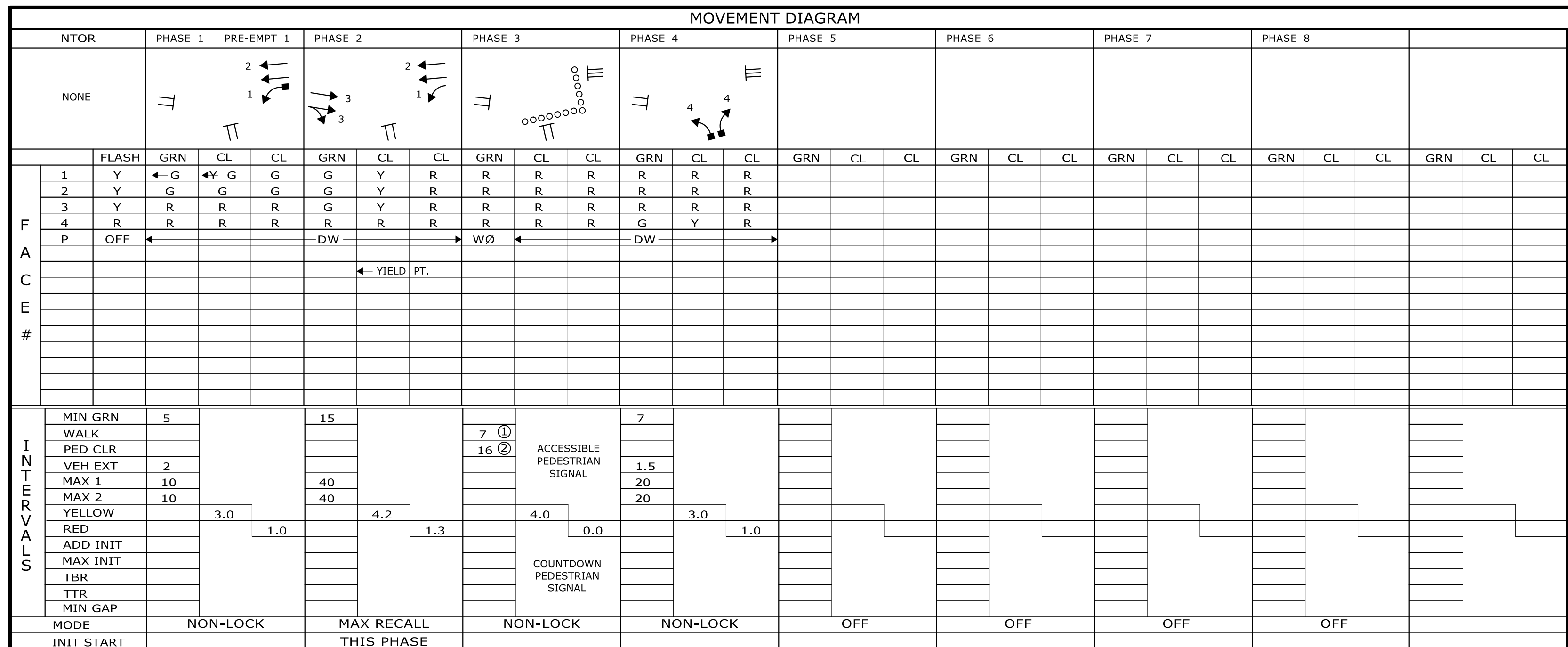
SPAN POLE INFORMATION
 HEIGHT 10 300 mm B.C. 560 mm

- LEGEND:**
- R RED
 - Y YELLOW
 - G GREEN
 - ←R RED ARROW
 - ←Y YELLOW ARROW
 - ←G GREEN ARROW
 - WALK/PED. CLR
 - D.W. DON'T WALK
 - FL. FLASHING
 - PROPOSED WOOD SPAN POLE
 - EXISTING WOOD SPAN POLE
 - PROPOSED STEEL SPAN POLE
 - EXISTING STEEL SPAN POLE
 - PROPOSED UTILITY POLE
 - EXISTING UTILITY POLE
 - PEDESTAL MOUNTING
 - PEDESTRIAN PUSH BUTTON & SIGN
 - DIRECTIONAL ARW. FOR PUSH BUTTON
 - ◻ TRAFFIC SIGNAL FACE
 - ◻ PEDESTRIAN SIGNAL FACE
 - DET. LEADS IN SAW CUT
 - PROPOSED RMC (RIGID METAL CONDUIT)
 - EXISTING RMC (RIGID METAL CONDUIT)
 - AUXILIARY TERMINATION CABINET
 - AUXILIARY EQUIPMENT CABINET
 - VIDEO DETECTION ZONE
 - VIDEO DETECTOR
 - AUDIO DETECTOR
 - ◻ SIDEWALK RAMP
 - ◻ CABLE CLOSURE
 - ◻ WIRELESS SENSOR
 - ◻ WIRELESS RECEIVER
 - ◻ WIRELESS TRANSMITTER
 - ◻ GUY WIRE
 - ◻ PROPOSED HANDHOLE
 - ◻ EXISTING HANDHOLE

STATE OF CONNECTICUT
 DEPARTMENT OF TRANSPORTATION



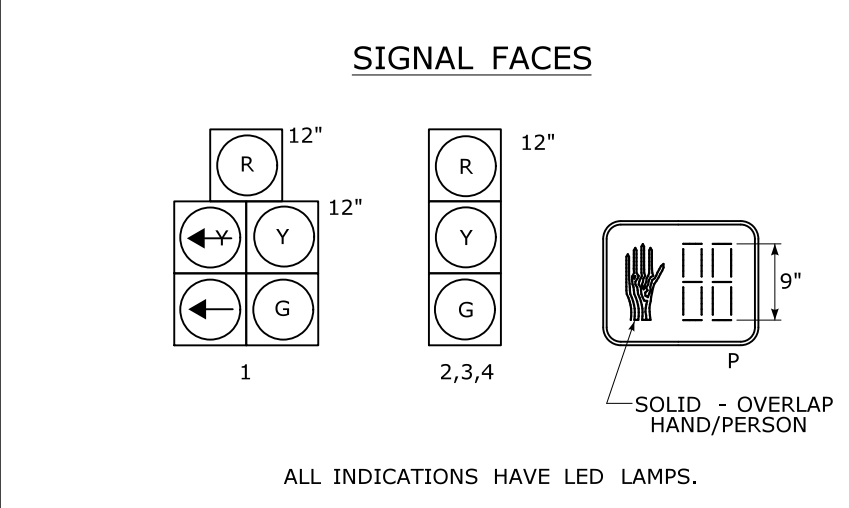
ROUTE 159 (WINDSOR AVE)
 AT I-91 S.B. RAMPS



TECHNICAL NOTES

STANDARD OVERLAP SKIP FEATURES APPLY
 PHASE 2 ON TO OMIT PHASE 1
 PHASE 2 CHECK TO CALL PHASE 1 THROUGH D1 AMPLIFIER CONTACTS.
 SIGNAL MAY DOUBLE CYCLE IF PEDESTRIAN PHASE IS CALLED DURING PATTERNS 1, 2, OR 5.
 (1) PERCUSSIVE TONE ONLY DURING PEDESTRIAN WALK INTERVAL.
 (2) COUNTDOWN ONLY DURING FLASHING PEDESTRIAN CHANGE INTERVAL.
 MANUAL AND INTERVAL ADVANCE TO BE DISCONNECTED DURING PHASE 3 PEDESTRIAN CHANGE INTERVAL.
 TIMINGS SHOWN REFLECT FREE OPERATION.
 ACTUAL COORDINATION INFORMATION TO BE DETERMINED BY THE CLOSED LOOP LOCAL COORDINATION UNIT.

REV #	TIR #	SM #	OFFICE RECORD
17	N/A	101695	SM # 101695
			REVISED TIMINGS UNDER STATE PROJECT NO. 171-398.

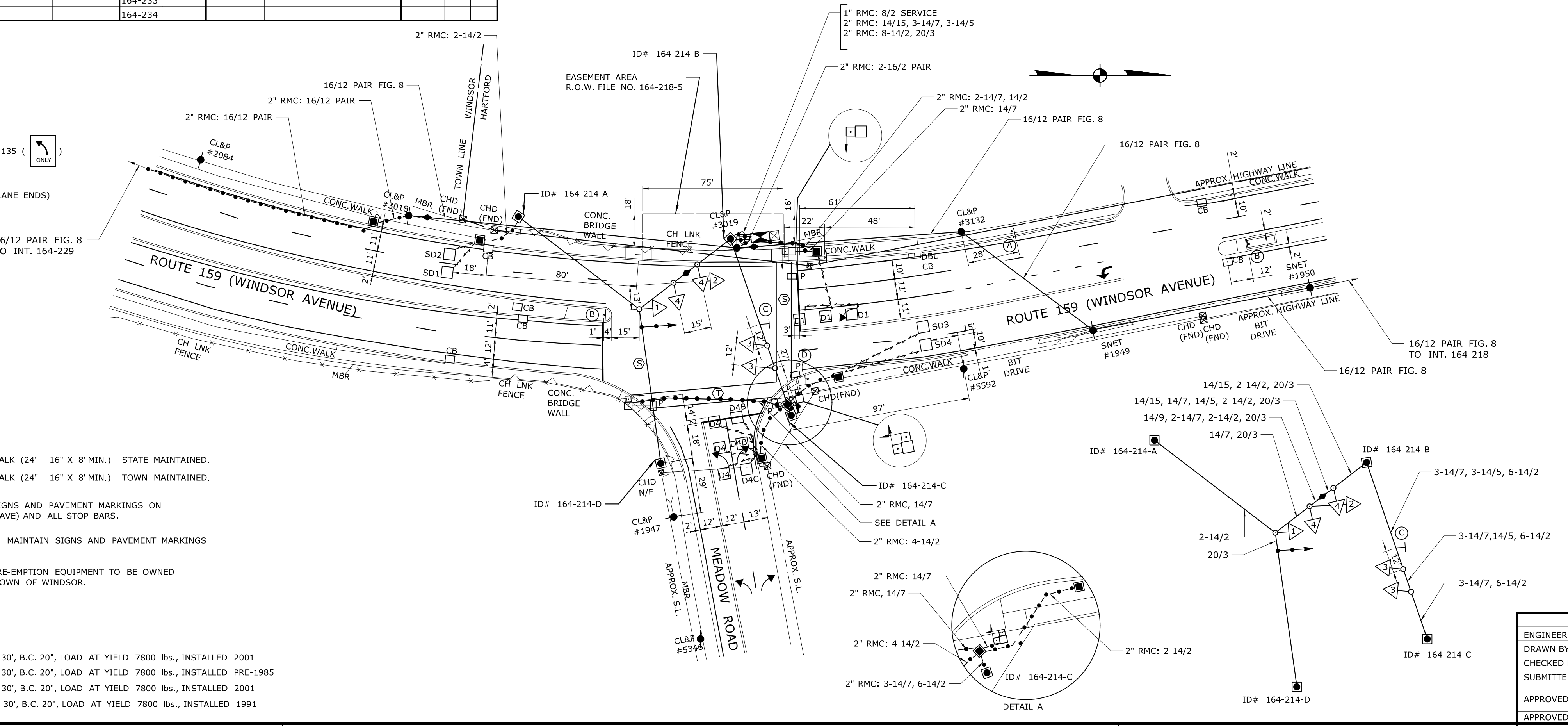
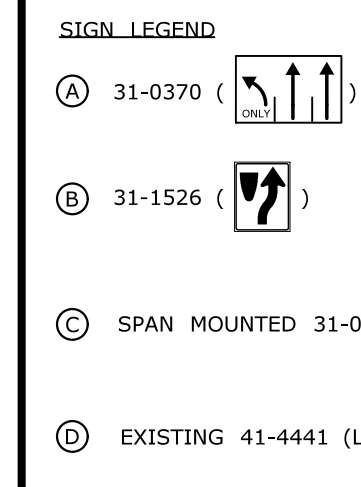


PRE-EMPTION SETTINGS

	PRE-EMPT 1
PRIORITY	NO
DET. LOCK	YES
DELAY	0
ALT. MIN. GRN	5
ALT. YELLOW	PARENT
ALT. RED	PARENT
ALT. PED. CLR.	16
HOLD GREEN	15
HOLD YELLOW	3.0
HOLD RED	1.0
HOLD PHASE	1
EXIT PHASE	2
EXIT CALL	NONE

DETECTORS

IDNT	SIZE (WXL)	TURNS	MODE	SYSTEM LOC	COORDINATION TYPE: CLOSED LOOP	PROGRAM	FUNCTION	TIME	DAYS	CYCLE	OFFSET
D1	6' X 6'	4	PRESENCE	164-211	164-244	FLASH	2200-0600	DAILY			
D4	6' X 6'	4	PRESENCE	164-214	164-255						
D4A	12' X 6'	4	ABANDONED	164-218	164-271						
D4B	6' X 6'	4	DELAY 8"	164-219							
D4C	6' X 6'	4	PRESENCE	164-220							
SD1	6' X 6'	4	PRESENCE	164-221							
SD2	6' X 6'	4	PRESENCE	164-222							
SD3	6' X 6'	4	PRESENCE	164-223							
SD4	6' X 6'	4	PRESENCE	164-229							
				164-231							
				164-233							
				164-234							



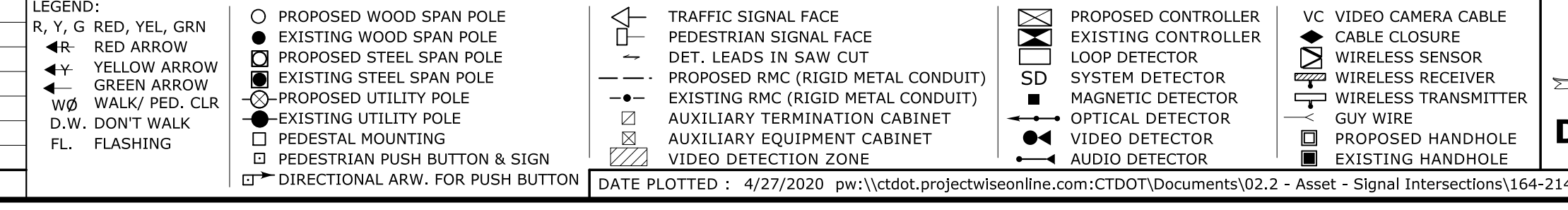
CLOSED LOOP DETECTOR CHART

DETECTOR	LOCAL DETECTOR	SYSTEM DETECTOR
SD1	9	
SD2	10	
SD3	11	
SD4	12	
D1	1	
D1 REAR	13C	16D
D4	4	
D4A,D4B	14	
D4C	7	
D4C	15	

Tighe & Bond
 www.tighebond.com
 213 Court Street
 Suite 1100
 Middletown, CT 06457
 (860) 704-4760

CLEARANCE INTERVALS DESIGNED BY: TIGHE & BOND
 ENGINEER'S SEAL & SIGNATURE APPLY TO CLEARANCE INTERVALS ONLY.

NO.	DATE	REVISION DESCRIPTION



STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

	TRAFFIC DESIGN	ELECTRICAL DESIGN
ENGINEER		
DRAWN BY		
CHECKED BY		
SUBMITTED BY		
APPROVED BY		
APPROVED DATE		

REV #	INTERSECTION #164-214
17	
	ENERGY BY - TOWN
	ADDRESS #
	MAINT LEVEL 5
	SERVICE POLE - CL&P 3019
	UNMETERED SERVICE

ROUTE 159 (WINDSOR AVE) AT MEADOW RD

WINDSOR
TRAFFIC CONTROL SIGNAL PLAN

PROJECT NO.
171-398
DRAWING NO.
SHEET NO.

SCALE 1" = 40'

DATE PLOTTED : 4/27/2020 pw:\cldot.projectwiseonline.com:CTDOT\Documents\02.2 - Asset - Signal Intersections\164-214\017_TR_ASSET_164_214.dgn

TIME-SPACE DIAGRAM COVER SHEET

Windsor N-24 Rte 159 (090M) 2020

ROUTE: 159
 SYSTEM: N-24
 PROJ #: _____

HOURS OF OPERATION: 0640-0915
 DAY(S) OF OPERATION: MON-FRI
 TOWN(S): WINDSOR

CYCLE: 1
 SPLIT: 1
 OFFSET: 1

LENGTH: 60 "
75 "

INT #	ID #	LOCATION	PHASES (sec-%)																		OFFSET		SPEED		DISTANCE
			Φ1		Φ2		Φ3		Φ4		Φ5		Φ6		Φ7		Φ8		Φ9		(sec-%)	LIMIT (mph)	(ft)		
164-229	092	RTE 159 @ 91 SB RAMPS	10	17%	27	45%			23	38%											57	95%	30	30	0
164-214	093	RTE 159 @ MEADOW RD	10	17%	30	50%			20	33%											43	72%	30	30	880
164-218	094	RTE 159 @ BARBER			45	75%			15	25%											51	85%	35	35	3150
164-219	095	RTE 159 @ E. WOLCOTT			44	73%			16	27%											30	50%	35	35	850
164-271	096	RTE 159 @ DEERFIELD	8	13%	30	50%			22	37%											37	62%	35	35	250
164-220	097	RTE 159 @ RTE 218	12	20%	24	40%					10	17%	26	43%	8	13%	16	27%			30	50%	35	35	465
164-221	098	RTE 159 @ SHOP CNTR S.			40	67%			20	33%											30	50%	35	35	575
164-222	099	RTE 159 @ SHOP CNTR N.	8	13%	36	60%			16	27%											27	45%	35	35	510
164-223	100	RTE 159 @ ROOD	15	20%	30	40%			15	20%	17	23%	28	37%			15	20%			17	23%	35	35	0
164-231	101	RTE 159 @ RTE 178	11	15%	39	52%			25	33%											18	24%	35	35	3780
164-233	102	RTE 159 @ BATCHELDER	8	11%	47	63%			20	27%											52	69%	30	30	4285
164-211	103	RTE 159 @ MAPLE			60	80%			15	20%											59	79%	30	30	950
164-234	104	RTE 159 @ RTE 75	18	24%	37	49%			20	27%											52	69%	30	30	550
164-255	105	RTE 75 @ RTE 305			38	51%	15	20%	7	9%			15	20%							36	48%	30	30	310
164-244	106	RTE 75 @ MACK ST			40	53%	9	12%	26	35%											0	0%	30	30	1650
164-227	091ML/107L	RTE 218 @ DEERFIELD*	FREE																		0	0%	35	35	-

TIME-SPACE DIAGRAM COVER SHEET

Windsor N-24 Rte 159 (090M) 2020

ROUTE: 159
 SYSTEM: N-24
 PROJ #: _____

HOURS OF OPERATION: 0600-0640 0915-1515 1830-2200 / 0600-2200
 DAY(S) OF OPERATION: MON-FRI / SAT-SUN
 TOWN(S): WINDSOR

CYCLE: 2
 SPLIT: 2
 OFFSET: 2

LENGTH: 60 "
65 "

INT #	ID #	LOCATION	PHASES (sec-%)																		OFFSET		SPEED		DISTANCE
			Φ1		Φ2		Φ3		Φ4		Φ5		Φ6		Φ7		Φ8		Φ9		(sec-%)	LIMIT (mph)	(ft)		
164-229	092	RTE 159 @ 91 SB RAMPS	10	17%	27	45%			23	38%											36	60%	30	30	0
164-214	093	RTE 159 @ MEADOW RD	10	17%	30	50%			20	33%											36	60%	30	30	880
164-218	094	RTE 159 @ BARBER			45	75%			15	25%											20	33%	35	35	3150
164-219	095	RTE 159 @ E. WOLCOTT			44	73%			16	27%											6	10%	35	35	850
164-271	096	RTE 159 @ DEERFIELD	8	13%	32	53%			20	33%											13	22%	35	35	250
164-220	097	RTE 159 @ RTE 218	11	18%	25	42%					11	18%	25	42%	9	15%	15	25%			6	10%	35	35	465
164-221	098	RTE 159 @ SHOP CNTR S.			38	63%			22	37%											6	10%	35	35	575
164-222	099	RTE 159 @ SHOP CNTR N.	8	13%	36	60%			16	27%											6	10%	35	35	510
164-223	100	RTE 159 @ ROOD	12	18%	22	34%			15	23%	12	18%	22	34%			16	25%			20	31%	35	35	0
164-231	101	RTE 159 @ RTE 178	8	12%	32	49%			25	38%											23	35%	35	35	3780
164-233	102	RTE 159 @ BATCHELDER	8	12%	40	62%			17	26%											23	35%	30	30	4285
164-211	103	RTE 159 @ MAPLE			48	74%			17	26%											24	37%	30	30	950
164-234	104	RTE 159 @ RTE 75	17	26%	30	46%			18	28%											24	37%	30	30	550
164-255	105	RTE 75 @ RTE 305			30	46%	15	23%	7	11%			13	20%							0	0%	30	30	310
164-244	106	RTE 75 @ MACK ST			35	54%	9	14%	21	32%											38	58%	30	30	1650
164-227	091ML/107L	RTE 218 @ DEERFIELD*	FREE																		0	0%	35	35	-
			INT 164-223 & 164-231 RUNS PATTERN 2 MON-FRI 1130-1515 / SAT-SUN 0900-1800																						
			INT 164-233, 211, 234, 255, & 244 ONLY RUNS PATTERN 2 MON-FRI 1130-1515																						

TIME-SPACE DIAGRAM COVER SHEET

Windsor N-24 Rte 159 (090M) 2020

ROUTE: 159
 SYSTEM: N-24
 PROJ #: _____

HOURS OF OPERATION: ALL OTHER HOURS
 DAY(S) OF OPERATION: _____
 TOWN(S): WINDSOR

CYCLE: 3
 SPLIT: 3
 OFFSET: 3

LENGTH: 55 "

INT #	ID #	LOCATION	PHASES (sec-%)														OFFSET (sec-%)		SPEED LIMIT (mph)		DISTANCE (ft)				
			Φ1	Φ2	Φ3	Φ4	Φ5	Φ6	Φ7	Φ8	Φ9														
164-229	092	RTE 159 @ 91 SB RAMPS	FLASH														0	0%	30	30	0				
164-214	093	RTE 159 @ MEADOW RD	FLASH														0	0%	30	30	880				
164-218	094	RTE 159 @ BARBER	FLASH														0	0%	35	35	3150				
164-219	095	RTE 159 @ E. WOLCOTT	FLASH														0	0%	35	35	850				
164-271	096	RTE 159 @ DEERFIELD	FLASH														0	0%	35	35	250				
164-220	097	RTE 159 @ RTE 218	FREE														0	0%	35	35	465				
164-221	098	RTE 159 @ SHOP CNTR S.	FLASH														0	0%	35	35	575				
164-222	099	RTE 159 @ SHOP CNTR N.	FLASH														0	0%	35	35	510				
164-223	100	RTE 159 @ ROOD	10	18%	21	38%			12	22%	10	18%	21	38%			12	22%			19	35%	35	35	0
164-231	101	RTE 159 @ RTE 178	9	16%	22	40%			24	44%											49	89%	35	35	3780
164-233	102	RTE 159 @ BATCHELDER	8	15%	25	45%			22	40%											23	42%	30	30	4285
164-211	103	RTE 159 @ MAPLE			35	64%			20	36%											20	36%	30	30	950
164-234	104	RTE 159 @ RTE 75	15	27%	22	40%			18	33%											19	35%	30	30	550
164-255	105	RTE 75 @ RTE 305			22	40%	13	24%	7	13%			13	24%							4	7%	30	30	310
164-244	106	RTE 75 @ MACK ST			30	55%	9	16%	16	29%											30	55%	30	30	1650
164-227	091ML/107L	RTE 218 @ DEERFIELD*	FREE														0	0%	35	35	-				

TIME-SPACE DIAGRAM COVER SHEET

Windsor N-24 Rte 159 (090M) 2020

ROUTE: 159
 SYSTEM: N-24
 PROJ #: _____

HOURS OF OPERATION: 1515-1830
 DAY(S) OF OPERATION: MON-FRI
 TOWN(S): WINDSOR

CYCLE: 5
 SPLIT: 5
 OFFSET: 5

LENGTH: 65 "
75 "

INT #	ID #	LOCATION	PHASES (sec-%)																		OFFSET (sec-%)		SPEED LIMIT (mph)		DISTANCE (ft)
			Φ1		Φ2		Φ3		Φ4		Φ5		Φ6		Φ7		Φ8		Φ9						
164-229	092	RTE 159 @ 91 SB RAMPS	10	15%	32	49%			23	35%											59	91%	30	30	0
164-214	093	RTE 159 @ MEADOW RD	10	15%	35	54%			20	31%											7	11%	30	30	880
164-218	094	RTE 159 @ BARBER			49	75%			16	25%											3	5%	35	35	3150
164-219	095	RTE 159 @ E. WOLCOTT			49	75%			16	25%											5	8%	35	35	850
164-271	096	RTE 159 @ DEERFIELD	9	14%	36	55%			20	31%											10	15%	35	35	250
164-220	097	RTE 159 @ RTE 218	12	18%	28	43%					12	18%	28	43%	9	14%	16	25%			5	8%	35	35	465
164-221	098	RTE 159 @ SHOP CNTR S.			45	69%			20	31%											5	8%	35	35	575
164-222	099	RTE 159 @ SHOP CNTR N.	8	12%	40	62%			17	26%											5	8%	35	35	510
164-223	100	RTE 159 @ ROOD	15	20%	30	40%			15	20%	17	23%	28	37%			15	20%			0	0%	35	35	0
164-231	101	RTE 159 @ RTE 178	8	11%	37	49%			30	40%											7	9%	35	35	3780
164-233	102	RTE 159 @ BATCHELDER	8	11%	47	63%			20	27%											37	49%	30	30	4285
164-211	103	RTE 159 @ MAPLE			55	73%			20	27%											37	49%	30	30	950
164-234	104	RTE 159 @ RTE 75	18	24%	35	47%			22	29%											37	49%	30	30	550
164-255	105	RTE 75 @ RTE 305			38	51%	15	20%	7	9%			15	20%							14	19%	30	30	310
164-244	106	RTE 75 @ MACK ST			40	53%	9	12%	26	35%											51	68%	30	30	1650
164-227	091ML/107L	RTE 218 @ DEERFIELD*	FREE																		0	0%	35	35	-

TIME-SPACE DIAGRAM COVER SHEET

Windsor N-24 Rte 159 (090M) 2020

ROUTE: 159
 SYSTEM: N-24
 PROJ #: _____

HOURS OF OPERATION: FLASH
 DAY(S) OF OPERATION: _____
 TOWN(S): WINDSOR

INT #	ID #	LOCATION	HOURS			
			MON-FRI	SAT	SUN	DAILY
164-229	092	RTE 159 @ 91 SB RAMPS				ALL OTHER HOURS
164-214	093	RTE 159 @ MEADOW RD				ALL OTHER HOURS
164-218	094	RTE 159 @ BARBER				ALL OTHER HOURS
164-219	095	RTE 159 @ E. WOLCOTT				ALL OTHER HOURS
164-271	096	RTE 159 @ DEERFIELD				ALL OTHER HOURS
164-220	097	RTE 159 @ RTE 218				
164-221	098	RTE 159 @ SHOP CNTR S.				ALL OTHER HOURS
164-222	099	RTE 159 @ SHOP CNTR N.				ALL OTHER HOURS
164-223	100	RTE 159 @ ROOD				
164-231	101	RTE 159 @ RTE 178				2200-0600
164-233	102	RTE 159 @ BATCHELDER				2200-0600
164-211	103	RTE 159 @ MAPLE	2200-0600	2200-0700	2200-0800	
164-234	104	RTE 159 @ RTE 75				2200-0600
164-255	105	RTE 75 @ RTE 305				2200-0600
164-244	106	RTE 75 @ MACK ST				2200-0500
164-227	091ML/107L	RTE 218 @ DEERFIELD*				

TIME-SPACE DIAGRAM COVER SHEET

Windsor N-24 Rte 159 (090M) 2020

ROUTE: 159
 SYSTEM: N-24
 PROJ #: _____

HOURS OF OPERATION: FREE
 DAY(S) OF OPERATION: _____
 TOWN(S): WINDSOR

INT #	ID #	LOCATION	HOURS			
			MON-FRI	SAT	SUN	DAILY
164-229	092	RTE 159 @ 91 SB RAMPS				
164-214	093	RTE 159 @ MEADOW RD				
164-218	094	RTE 159 @ BARBER				
164-219	095	RTE 159 @ E. WOLCOTT				
164-271	096	RTE 159 @ DEERFIELD				
164-220	097	RTE 159 @ RTE 218				ALL OTHER HOURS
164-221	098	RTE 159 @ SHOP CNTR S.				
164-222	099	RTE 159 @ SHOP CNTR N.				
164-223	100	RTE 159 @ ROOD				2000-0600
164-231	101	RTE 159 @ RTE 178				2000-2200
164-233	102	RTE 159 @ BATCHELDER				
164-211	103	RTE 159 @ MAPLE				
164-234	104	RTE 159 @ RTE 75				
164-255	105	RTE 75 @ RTE 305				
164-244	106	RTE 75 @ MACK ST				
164-227	091ML/107L	RTE 218 @ DEERFIELD*				ALL HOURS

TIME OF DAY COVER SHEET

Windsor N-24 Rte 159 (090M) 2020

ROUTE: 159
 SYSTEM: N-24
 PROJ #: _____

HOURS OF OPERATION: SEE BELOW
 DAY(S) OF OPERATION: SEE BELOW
 TOWN(S): WINDSOR

INT #	ID #	LOCATION	PATTERN 1		PATTERN 2		PATTERN 3		PATTERN 4		PATTERN 5		PATTERN 6		FLASH		FREE		
			MON-FRI	SAT-SUN	MON-FRI	SAT-SUN	MON-FRI	SAT-SUN	MON-FRI	SAT-SUN	MON-FRI	SAT-SUN	MON-FRI	SAT-SUN	MON-FRI	SAT-SUN	MON-FRI	SAT-SUN	MON-FRI
164-229	092	RTE 159 @ 91 SB RAMPS	0640-0915		0600-0640 0915-1515 1830-2200	0600-2200					1515-1830					ALL OTHER HOURS	ALL OTHER HOURS		
164-214	093	RTE 159 @ MEADOW RD	0640-0915		0600-0640 0915-1515 1830-2200	0600-2200					1515-1830					ALL OTHER HOURS	ALL OTHER HOURS		
164-218	094	RTE 159 @ BARBER	0640-0915		0600-0640 0915-1515 1830-2200	0600-2200					1515-1830					ALL OTHER HOURS	ALL OTHER HOURS		
164-219	095	RTE 159 @ E. WOLCOTT	0640-0915		0600-0640 0915-1515 1830-2200	0600-2200					1515-1830					ALL OTHER HOURS	ALL OTHER HOURS		
164-271	096	RTE 159 @ DEERFIELD	0640-0915		0600-0640 0915-1515 1830-2200	0600-2200					1515-1830					ALL OTHER HOURS	ALL OTHER HOURS		
164-220	097	RTE 159 @ RTE 218	0640-0915		0600-0640 0915-1515 1830-2200	0600-2200					1515-1830							ALL OTHER HOURS	ALL OTHER HOURS
164-221	098	RTE 159 @ SHOP CNTR S.	0640-0915		0600-0640 0915-1515 1830-2200	0600-2200					1515-1830					ALL OTHER HOURS	ALL OTHER HOURS		
164-222	099	RTE 159 @ SHOP CNTR N.	0640-0915		0600-0640 0915-1515 1830-2200	0600-2200					1515-1830					ALL OTHER HOURS	ALL OTHER HOURS		
164-223	100	RTE 159 @ ROOD	0640-0915		1130-1515	0900-1800	ALL OTHER HOURS	ALL OTHER HOURS			1515-1830							2000-0600	2000-0600
164-231	101	RTE 159 @ RTE 178	0640-0915		1130-1515	0900-1800	ALL OTHER HOURS	ALL OTHER HOURS			1515-1830					2200-0600	2200-0600	2000-2200	2000-2200
164-233	102	RTE 159 @ BATCHELDER	0640-0915		1130-1515		ALL OTHER HOURS	ALL OTHER HOURS			1515-1830					2200-0600	2200-0600		
164-211	103	RTE 159 @ MAPLE	0640-0915		1130-1515		ALL OTHER HOURS	ALL OTHER HOURS			1515-1830					2200-0600	2200-0700/ 2200-0800		
164-234	104	RTE 159 @ RTE 75	0640-0915		1130-1515		ALL OTHER HOURS	ALL OTHER HOURS			1515-1830					2200-0600	2200-0600		
164-255	105	RTE 75 @ RTE 305	0640-0915		1130-1515		ALL OTHER HOURS	ALL OTHER HOURS			1515-1830					2200-0600	2200-0600		
164-244	106	RTE 75 @ MACK ST	0640-0915		1130-1515		ALL OTHER HOURS	ALL OTHER HOURS			1515-1830					2200-0500	2200-0500		
164-227	091ML/107L	RTE 218 @ DEERFIELD*																ALL HOURS	ALL HOURS

Capacity Analysis Reports

Queues
3: Windsor Avenue & 1-91 Off-Ramp/I-91 On Ramp

2023 Existing Conditions
Weekday Morning Peak Hour

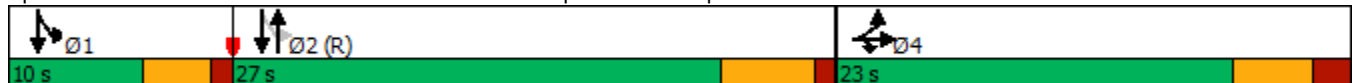


Lane Group	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	↕	↗	↕↕	↗	↖	↕↕
Traffic Volume (vph)	4	326	302	142	287	436
Future Volume (vph)	4	326	302	142	287	436
Lane Group Flow (vph)	48	408	332	156	346	525
Turn Type	NA	Prot	NA	Free	D.P+P	NA
Protected Phases	4	4	2		1	1 2
Permitted Phases				Free	2	
Detector Phase	4	4	2		1	1 2
Switch Phase						
Minimum Initial (s)	7.0	7.0	15.0		5.0	
Minimum Split (s)	12.4	12.4	20.2		10.0	
Total Split (s)	23.0	23.0	27.0		10.0	
Total Split (%)	38.3%	38.3%	45.0%		16.7%	
Yellow Time (s)	3.6	3.6	4.2		3.0	
All-Red Time (s)	1.8	1.8	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.4	5.4	5.2		4.0	
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	C-Max		None	
v/c Ratio	0.15	0.74	0.22	0.10	0.48	0.23
Control Delay	19.2	14.5	12.7	0.1	10.5	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.2	14.5	12.7	0.1	10.5	6.8
Queue Length 50th (ft)	15	30	42	0	58	44
Queue Length 95th (ft)	29	63	70	0	118	80
Internal Link Dist (ft)	479		263			844
Turn Bay Length (ft)				175	400	
Base Capacity (vph)	523	687	1481	1583	721	2330
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.59	0.22	0.10	0.48	0.23

Intersection Summary




















Cycle Length: 60
 Actuated Cycle Length: 60
 Offset: 57 (95%), Referenced to phase 2:NBSB and 6:, Start of Green
 Natural Cycle: 45
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Windsor Avenue & 1-91 Off-Ramp/I-91 On Ramp



HCM Signalized Intersection Capacity Analysis
 3: Windsor Avenue & 1-91 Off-Ramp/I-91 On Ramp

















2023 Existing Conditions
 Weekday Morning Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	4	326	0	0	0	0	302	142	287	436	0
Future Volume (vph)	34	4	326	0	0	0	0	302	142	287	436	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.4					5.2	4.0	4.0	4.0	
Lane Util. Factor		1.00	1.00					0.95	1.00	1.00	0.95	
Frt		1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected		0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1783	1583					3539	1583	1770	3539	
Flt Permitted		0.96	1.00					1.00	1.00	0.55	1.00	
Satd. Flow (perm)		1783	1583					3539	1583	1027	3539	
Peak-hour factor, PHF	0.80	0.80	0.80	0.92	0.92	0.92	0.91	0.91	0.91	0.83	0.83	0.83
Adj. Flow (vph)	42	5	408	0	0	0	0	332	156	346	525	0
RTOR Reduction (vph)	0	0	258	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	48	150	0	0	0	0	332	156	346	525	0
Turn Type	Split	NA	Prot					NA	Free	D.P+P	NA	
Protected Phases	4	4	4					2		1	12	
Permitted Phases									Free	2		
Actuated Green, G (s)		11.1	11.1					25.1	60.0	34.3	38.3	
Effective Green, g (s)		11.1	11.1					25.1	60.0	34.3	38.3	
Actuated g/C Ratio		0.18	0.18					0.42	1.00	0.57	0.64	
Clearance Time (s)		5.4	5.4					5.2		4.0		
Vehicle Extension (s)		3.0	3.0					3.0		3.0		
Lane Grp Cap (vph)		329	292					1480	1583	701	2259	
v/s Ratio Prot		0.03	c0.10					0.09		c0.08	0.15	
v/s Ratio Perm									0.10	c0.21		
v/c Ratio		0.15	0.52					0.22	0.10	0.49	0.23	
Uniform Delay, d1		20.5	22.0					11.2	0.0	6.8	4.6	
Progression Factor		1.00	1.00					1.00	1.00	1.27	1.34	
Incremental Delay, d2		0.2	1.5					0.4	0.1	0.5	0.1	
Delay (s)		20.7	23.6					11.6	0.1	9.2	6.2	
Level of Service		C	C					B	A	A	A	
Approach Delay (s)		23.3			0.0			7.9			7.4	
Approach LOS		C			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			11.5		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				14.6			
Intersection Capacity Utilization			46.4%		ICU Level of Service				A			
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 6: Windsor Avenue & Private Driveway/Violet Street

2023 Existing Conditions
 Weekday Morning Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	0	13	0	22	1	421	0	8	754	0
Future Volume (Veh/h)	1	0	0	13	0	22	1	421	0	8	754	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.42	0.42	0.42	0.65	0.65	0.65	0.93	0.93	0.93	0.87	0.87	0.87
Hourly flow rate (vph)	2	0	0	20	0	34	1	453	0	9	867	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)											343	
pX, platoon unblocked	0.96	0.96	0.96	0.96	0.96		0.96					
vC, conflicting volume	1148	1340	434	906	1340	226	867			453		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1073	1273	330	822	1273	226	781			453		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	92	100	96	100			99		
cM capacity (veh/h)	159	158	640	254	158	776	800			1104		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	2	54	228	226	442	434						
Volume Left	2	20	1	0	9	0						
Volume Right	0	34	0	0	0	0						
cSH	159	440	800	1700	1104	1700						
Volume to Capacity	0.01	0.12	0.00	0.13	0.01	0.26						
Queue Length 95th (ft)	1	10	0	0	1	0						
Control Delay (s)	27.9	14.3	0.1	0.0	0.3	0.0						
Lane LOS	D	B	A		A							
Approach Delay (s)	27.9	14.3	0.0		0.1							
Approach LOS	D	B										
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			36.5%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
9: Windsor Avenue & Meadow Road

2023 Existing Conditions
Weekday Morning Peak Hour

	↙	↖	↑	↘	↓
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations	↙	↖	↑↔	↘	↑↑
Traffic Volume (vph)	172	90	167	26	551
Future Volume (vph)	172	90	167	26	551
Lane Group Flow (vph)	212	111	386	29	605
Turn Type	Prot	Prot	NA	D,P+P	NA
Protected Phases	4	4	2	1	1 2
Permitted Phases				2	
Detector Phase	4	4	2	1	1 2
Switch Phase					
Minimum Initial (s)	7.0	7.0	15.0	5.0	
Minimum Split (s)	11.0	11.0	23.5	9.5	
Total Split (s)	20.0	20.0	30.0	10.0	
Total Split (%)	33.3%	33.3%	50.0%	16.7%	
Yellow Time (s)	3.0	3.0	4.2	3.0	
All-Red Time (s)	1.0	1.0	1.3	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	5.5	4.0	
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Max	None	
v/c Ratio	0.65	0.29	0.26	0.04	0.26
Control Delay	31.6	6.7	1.3	4.5	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	31.6	6.7	1.3	4.5	4.6
Queue Length 50th (ft)	72	0	0	3	35
Queue Length 95th (ft)	105	24	0	12	71
Internal Link Dist (ft)	573		844		411
Turn Bay Length (ft)				170	
Base Capacity (vph)	458	491	1487	681	2350
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.46	0.23	0.26	0.04	0.26

Intersection Summary












Cycle Length: 60
 Actuated Cycle Length: 60
 Offset: 42 (70%), Referenced to phase 2:NBSB, Start of Yellow
 Natural Cycle: 45
 Control Type: Actuated-Coordinated

Splits and Phases: 9: Windsor Avenue & Meadow Road



HCM Signalized Intersection Capacity Analysis
9: Windsor Avenue & Meadow Road

2023 Existing Conditions
Weekday Morning Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	172	90	167	169	26	551
Future Volume (vph)	172	90	167	169	26	551
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.5		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.92		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1719	1538	3007		1736	3471
Flt Permitted	0.95	1.00	1.00		0.52	1.00
Satd. Flow (perm)	1719	1538	3007		956	3471
Peak-hour factor, PHF	0.81	0.81	0.87	0.87	0.91	0.91
Adj. Flow (vph)	212	111	192	194	29	605
RTOR Reduction (vph)	0	90	105	0	0	0
Lane Group Flow (vph)	212	21	281	0	29	605
Heavy Vehicles (%)	5%	5%	11%	11%	4%	4%
Turn Type	Prot	Prot	NA		D.P+P	NA
Protected Phases	4	4	2		1	1 2
Permitted Phases					2	
Actuated Green, G (s)	11.4	11.4	27.5		35.1	39.1
Effective Green, g (s)	11.4	11.4	27.5		35.1	39.1
Actuated g/C Ratio	0.19	0.19	0.46		0.59	0.65
Clearance Time (s)	4.0	4.0	5.5		4.0	
Vehicle Extension (s)	1.5	1.5	3.0		2.0	
Lane Grp Cap (vph)	326	292	1378		658	2261
v/s Ratio Prot	c0.12	0.01	0.09		0.01	c0.17
v/s Ratio Perm					0.02	
v/c Ratio	0.65	0.07	0.20		0.04	0.27
Uniform Delay, d1	22.5	20.0	9.7		5.3	4.4
Progression Factor	1.00	1.00	0.16		1.00	1.00
Incremental Delay, d2	3.5	0.0	0.3		0.0	0.0
Delay (s)	26.0	20.0	1.9		5.3	4.4
Level of Service	C	B	A		A	A
Approach Delay (s)	23.9		1.9			4.5
Approach LOS	C		A			A
Intersection Summary						
HCM 2000 Control Delay			8.4		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.38			
Actuated Cycle Length (s)			60.0		Sum of lost time (s)	13.5
Intersection Capacity Utilization			37.4%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Queues
3: Windsor Avenue & 1-91 Off-Ramp/I-91 On Ramp

2023 Existing Conditions
Weekday Evening Peak Hour

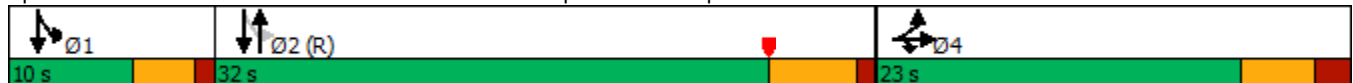


Lane Group	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	↕	↗	↕↕	↗	↖	↕↕
Traffic Volume (vph)	5	390	623	174	226	455
Future Volume (vph)	5	390	623	174	226	455
Lane Group Flow (vph)	40	476	716	200	251	506
Turn Type	NA	Prot	NA	Free	D.P+P	NA
Protected Phases	4	4	2		1	1 2
Permitted Phases				Free	2	
Detector Phase	4	4	2		1	1 2
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	
Minimum Split (s)	10.4	10.4	11.2		10.0	
Total Split (s)	23.0	23.0	32.0		10.0	
Total Split (%)	35.4%	35.4%	49.2%		15.4%	
Yellow Time (s)	3.6	3.6	4.2		3.0	
All-Red Time (s)	1.8	1.8	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.4	5.4	5.2		4.0	
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	C-Max		None	
v/c Ratio	0.12	0.82	0.43	0.13	0.49	0.21
Control Delay	20.3	19.0	13.5	0.2	11.0	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.3	19.0	13.5	0.2	11.0	3.9
Queue Length 50th (ft)	13	42	105	0	24	25
Queue Length 95th (ft)	29	95	143	0	96	49
Internal Link Dist (ft)	479		263			844
Turn Bay Length (ft)				175	400	
Base Capacity (vph)	483	688	1666	1583	517	2379
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.69	0.43	0.13	0.49	0.21

Intersection Summary

Cycle Length: 65
 Actuated Cycle Length: 65
 Offset: 59 (91%), Referenced to phase 2:NBSB and 6:, Start of Yellow
 Natural Cycle: 50
 Control Type: Actuated-Coordinated




















Splits and Phases: 3: Windsor Avenue & 1-91 Off-Ramp/I-91 On Ramp



HCM Signalized Intersection Capacity Analysis

3: Windsor Avenue & 1-91 Off-Ramp/I-91 On Ramp

















2023 Existing Conditions
Weekday Evening Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	5	390	0	0	0	0	623	174	226	455	0
Future Volume (vph)	28	5	390	0	0	0	0	623	174	226	455	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.4					5.2	4.0	4.0	4.0	
Lane Util. Factor		1.00	1.00					0.95	1.00	1.00	0.95	
Frt		1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected		0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1787	1583					3539	1583	1770	3539	
Flt Permitted		0.96	1.00					1.00	1.00	0.33	1.00	
Satd. Flow (perm)		1787	1583					3539	1583	617	3539	
Peak-hour factor, PHF	0.82	0.82	0.82	0.92	0.92	0.92	0.87	0.87	0.87	0.90	0.90	0.90
Adj. Flow (vph)	34	6	476	0	0	0	0	716	200	251	506	0
RTOR Reduction (vph)	0	0	291	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	40	185	0	0	0	0	716	200	251	506	0
Turn Type	Split	NA	Prot					NA	Free	D.P+P	NA	
Protected Phases	4	4	4					2		1	12	
Permitted Phases									Free	2		
Actuated Green, G (s)		11.9	11.9					30.6	65.0	38.5	42.5	
Effective Green, g (s)		11.9	11.9					30.6	65.0	38.5	42.5	
Actuated g/C Ratio		0.18	0.18					0.47	1.00	0.59	0.65	
Clearance Time (s)		5.4	5.4					5.2		4.0		
Vehicle Extension (s)		3.0	3.0					3.0		3.0		
Lane Grp Cap (vph)		327	289					1666	1583	505	2313	
v/s Ratio Prot		0.02	c0.12					0.20		c0.06	0.14	
v/s Ratio Perm									0.13	c0.23		
v/c Ratio		0.12	0.64					0.43	0.13	0.50	0.22	
Uniform Delay, d1		22.2	24.6					11.4	0.0	6.5	4.5	
Progression Factor		1.00	1.00					1.00	1.00	1.30	0.74	
Incremental Delay, d2		0.2	4.8					0.8	0.2	0.8	0.0	
Delay (s)		22.4	29.4					12.2	0.2	9.2	3.4	
Level of Service		C	C					B	A	A	A	
Approach Delay (s)		28.8			0.0			9.6			5.3	
Approach LOS		C			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			12.6		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			65.0		Sum of lost time (s)				14.6			
Intersection Capacity Utilization			46.1%		ICU Level of Service				A			
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
6: Windsor Avenue & Private Driveway/Violet Street

2023 Existing Conditions
Weekday Evening Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	4	0	41	0	756	7	12	833	0
Future Volume (Veh/h)	0	0	0	4	0	41	0	756	7	12	833	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.25	0.25	0.25	0.73	0.73	0.73	0.89	0.89	0.89	0.91	0.91	0.91
Hourly flow rate (vph)	0	0	0	5	0	56	0	849	8	13	915	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
								None				None
Median storage (veh)												
Upstream signal (ft)												
												343
pX, platoon unblocked	0.96	0.96	0.96	0.96	0.96		0.96					
vC, conflicting volume	1422	1798	458	1336	1794	428	915			857		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1363	1754	363	1275	1749	428	838			857		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	96	100	90	100			98		
cM capacity (veh/h)	92	80	611	118	81	575	764			779		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	0	61	424	432	470	458						
Volume Left	0	5	0	0	13	0						
Volume Right	0	56	0	8	0	0						
cSH	1700	436	764	1700	779	1700						
Volume to Capacity	0.00	0.14	0.00	0.25	0.02	0.27						
Queue Length 95th (ft)	0	12	0	0	1	0						
Control Delay (s)	0.0	14.6	0.0	0.0	0.5	0.0						
Lane LOS	A	B			A							
Approach Delay (s)	0.0	14.6	0.0		0.2							
Approach LOS	A	B										
Intersection Summary												
Average Delay			0.6									
Intersection Capacity Utilization			41.5%	ICU Level of Service	A							
Analysis Period (min)			15									

Queues
10: Windsor Avenue & Meadow Road

2023 Existing Conditions
Weekday Evening Peak Hour

	↙	↖	↑	↘	↓
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations	↙	↖	↑↓	↘	↑↑
Traffic Volume (vph)	165	214	425	18	516
Future Volume (vph)	165	214	425	18	516
Lane Group Flow (vph)	185	240	723	21	607
Turn Type	Prot	Prot	NA	D,P+P	NA
Protected Phases	4	4	2	1	1 2
Permitted Phases				2	
Detector Phase	4	4	2	1	1 2
Switch Phase					
Minimum Initial (s)	7.0	7.0	15.0	5.0	
Minimum Split (s)	11.5	11.5	23.5	9.5	
Total Split (s)	20.0	20.0	35.0	10.0	
Total Split (%)	30.8%	30.8%	53.8%	15.4%	
Yellow Time (s)	3.0	3.0	4.2	3.0	
All-Red Time (s)	1.0	1.0	1.3	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	5.5	4.0	
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Max	None	
v/c Ratio	0.63	0.52	0.41	0.04	0.24
Control Delay	34.4	7.9	2.8	4.0	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	34.4	7.9	2.8	4.0	4.1
Queue Length 50th (ft)	69	0	4	2	34
Queue Length 95th (ft)	115	48	6	8	63
Internal Link Dist (ft)	573		844		411
Turn Bay Length (ft)				170	
Base Capacity (vph)	427	563	1758	544	2505
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.43	0.43	0.41	0.04	0.24

Intersection Summary














Cycle Length: 65
 Actuated Cycle Length: 65
 Offset: 7 (11%), Referenced to phase 2:NBSB, Start of Yellow
 Natural Cycle: 45
 Control Type: Actuated-Coordinated

Splits and Phases: 10: Windsor Avenue & Meadow Road



HCM Signalized Intersection Capacity Analysis
 10: Windsor Avenue & Meadow Road

2023 Existing Conditions
 Weekday Evening Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	165	214	425	226	18	516
Future Volume (vph)	165	214	425	226	18	516
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.5		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.95		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1736	1553	3290		1770	3539
Flt Permitted	0.95	1.00	1.00		0.34	1.00
Satd. Flow (perm)	1736	1553	3290		635	3539
Peak-hour factor, PHF	0.89	0.89	0.90	0.90	0.85	0.85
Adj. Flow (vph)	185	240	472	251	21	607
RTOR Reduction (vph)	0	199	97	0	0	0
Lane Group Flow (vph)	185	41	626	0	21	607
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Turn Type	Prot	Prot	NA		D.P+P	NA
Protected Phases	4	4	2		1	1 2
Permitted Phases					2	
Actuated Green, G (s)	11.0	11.0	32.8		40.5	44.5
Effective Green, g (s)	11.0	11.0	32.8		40.5	44.5
Actuated g/C Ratio	0.17	0.17	0.50		0.62	0.68
Clearance Time (s)	4.0	4.0	5.5		4.0	
Vehicle Extension (s)	1.5	1.5	3.0		2.0	
Lane Grp Cap (vph)	293	262	1660		530	2422
v/s Ratio Prot	c0.11	0.03	c0.19		0.00	c0.17
v/s Ratio Perm					0.02	
v/c Ratio	0.63	0.16	0.38		0.04	0.25
Uniform Delay, d1	25.1	23.0	9.8		4.8	3.9
Progression Factor	1.00	1.00	0.28		1.00	1.00
Incremental Delay, d2	3.2	0.1	0.6		0.0	0.0
Delay (s)	28.4	23.1	3.3		4.8	3.9
Level of Service	C	C	A		A	A
Approach Delay (s)	25.4		3.3			4.0
Approach LOS	C		A			A
Intersection Summary						
HCM 2000 Control Delay			8.8		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.42			
Actuated Cycle Length (s)			65.0		Sum of lost time (s)	13.5
Intersection Capacity Utilization			40.2%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Queues
3: Windsor Avenue & 1-91 Off-Ramp/I-91 On Ramp

2023 Existing Conditions
Saturday Midday Peak Hour

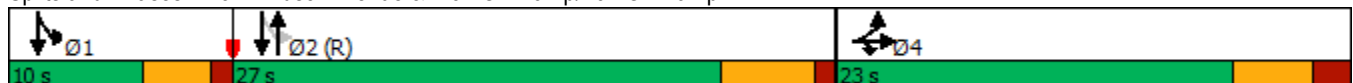


Lane Group	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	↕	↗	↕↕	↗	↖	↕↕
Traffic Volume (vph)	1	253	420	138	175	357
Future Volume (vph)	1	253	420	138	175	357
Lane Group Flow (vph)	22	275	447	147	192	392
Turn Type	NA	Prot	NA	Free	D.P+P	NA
Protected Phases	4	4	2		1	1 2
Permitted Phases				Free	2	
Detector Phase	4	4	2		1	1 2
Switch Phase						
Minimum Initial (s)	7.0	7.0	15.0		5.0	
Minimum Split (s)	12.4	12.4	20.2		10.0	
Total Split (s)	23.0	23.0	27.0		10.0	
Total Split (%)	38.3%	38.3%	45.0%		16.7%	
Yellow Time (s)	3.6	3.6	4.2		3.0	
All-Red Time (s)	1.8	1.8	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.4	5.4	5.2		4.0	
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	C-Max		None	
v/c Ratio	0.09	0.60	0.27	0.09	0.27	0.16
Control Delay	21.4	9.2	11.1	0.1	4.9	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.4	9.2	11.1	0.1	4.9	3.8
Queue Length 50th (ft)	7	0	45	0	16	17
Queue Length 95th (ft)	22	51	92	0	44	27
Internal Link Dist (ft)	479		263			844
Turn Bay Length (ft)				175	400	
Base Capacity (vph)	521	658	1655	1568	701	2477
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.42	0.27	0.09	0.27	0.16

Intersection Summary




















Cycle Length: 60
 Actuated Cycle Length: 60
 Offset: 36 (60%), Referenced to phase 2:NBSB and 6:, Start of Green
 Natural Cycle: 45
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Windsor Avenue & 1-91 Off-Ramp/I-91 On Ramp



















HCM Signalized Intersection Capacity Analysis
 3: Windsor Avenue & 1-91 Off-Ramp/I-91 On Ramp

2023 Existing Conditions
 Saturday Midday Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	1	253	0	0	0	0	420	138	175	357	0
Future Volume (vph)	19	1	253	0	0	0	0	420	138	175	357	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.4					5.2	4.0	4.0	4.0	
Lane Util. Factor		1.00	1.00					0.95	1.00	1.00	0.95	
Frt		1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1778	1583					3505	1568	1770	3539	
Flt Permitted		0.95	1.00					1.00	1.00	0.49	1.00	
Satd. Flow (perm)		1778	1583					3505	1568	919	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.91	0.91	0.91
Adj. Flow (vph)	21	1	275	0	0	0	0	447	147	192	392	0
RTOR Reduction (vph)	0	0	236	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	22	39	0	0	0	0	447	147	192	392	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Turn Type	Split	NA	Prot					NA	Free	D.P+P	NA	
Protected Phases	4	4	4					2		1	12	
Permitted Phases									Free	2		
Actuated Green, G (s)		8.6	8.6					28.3	60.0	36.8	40.8	
Effective Green, g (s)		8.6	8.6					28.3	60.0	36.8	40.8	
Actuated g/C Ratio		0.14	0.14					0.47	1.00	0.61	0.68	
Clearance Time (s)		5.4	5.4					5.2		4.0		
Vehicle Extension (s)		3.0	3.0					3.0		3.0		
Lane Grp Cap (vph)		254	226					1653	1568	684	2406	
v/s Ratio Prot		0.01	c0.02					0.13		c0.04	0.11	
v/s Ratio Perm									0.09	c0.13		
v/c Ratio		0.09	0.17					0.27	0.09	0.28	0.16	
Uniform Delay, d1		22.3	22.6					9.6	0.0	5.0	3.5	
Progression Factor		1.00	1.00					1.00	1.00	1.05	1.07	
Incremental Delay, d2		0.1	0.4					0.4	0.1	0.2	0.0	
Delay (s)		22.4	23.0					10.0	0.1	5.5	3.7	
Level of Service		C	C					B	A	A	A	
Approach Delay (s)		22.9			0.0			7.6			4.3	
Approach LOS		C			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			9.4		HCM 2000 Level of Service					A		
HCM 2000 Volume to Capacity ratio			0.26									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				14.6			
Intersection Capacity Utilization			40.2%		ICU Level of Service				A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
 6: Windsor Avenue & Private Driveway/Violet Street

2023 Existing Conditions
 Saturday Midday Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	4	0	34	0	524	1	17	593	0
Future Volume (Veh/h)	0	0	0	4	0	34	0	524	1	17	593	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.25	0.25	0.25	0.73	0.73	0.73	0.95	0.95	0.95	0.93	0.93	0.93
Hourly flow rate (vph)	0	0	0	5	0	47	0	552	1	18	638	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
								None				None
Median storage veh												
Upstream signal (ft)												
												343
pX, platoon unblocked	0.99	0.99	0.99	0.99	0.99		0.99					
vC, conflicting volume	997	1227	319	908	1226	276	638			553		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	981	1213	297	890	1212	276	619			553		
tC, single (s)	7.5	6.5	6.9	7.6	6.6	7.0	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	98	100	93	100			98		
cM capacity (veh/h)	186	176	693	231	175	718	943			1006		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	0	52	276	277	337	319						
Volume Left	0	5	0	0	18	0						
Volume Right	0	47	0	1	0	0						
cSH	1700	597	943	1700	1006	1700						
Volume to Capacity	0.00	0.09	0.00	0.16	0.02	0.19						
Queue Length 95th (ft)	0	7	0	0	1	0						
Control Delay (s)	0.0	11.6	0.0	0.0	0.6	0.0						
Lane LOS	A	B			A							
Approach Delay (s)	0.0	11.6	0.0		0.3							
Approach LOS	A	B										
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			38.6%	ICU Level of Service	A							
Analysis Period (min)			15									

Queues
9: Windsor Avenue & Meadow Road

2023 Existing Conditions
Saturday Midday Peak Hour



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	101	148	297	21	431
Future Volume (vph)	101	148	297	21	431
Lane Group Flow (vph)	119	174	472	23	463
Turn Type	Prot	Prot	NA	D,P+P	NA
Protected Phases	4	4	2	1	1 2
Permitted Phases				2	
Detector Phase	4	4	2	1	1 2
Switch Phase					
Minimum Initial (s)	7.0	7.0	15.0	5.0	
Minimum Split (s)	11.0	11.0	23.5	9.5	
Total Split (s)	20.0	20.0	30.0	10.0	
Total Split (%)	33.3%	33.3%	50.0%	16.7%	
Yellow Time (s)	3.0	3.0	4.2	3.0	
All-Red Time (s)	1.0	1.0	1.3	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	5.5	4.0	
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Max	None	
v/c Ratio	0.47	0.46	0.27	0.03	0.18
Control Delay	29.4	8.6	10.4	3.1	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	29.4	8.6	10.4	3.1	3.0
Queue Length 50th (ft)	41	0	65	2	18
Queue Length 95th (ft)	74	37	124	8	40
Internal Link Dist (ft)	573		844		411
Turn Bay Length (ft)				170	
Base Capacity (vph)	476	554	1769	707	2544
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.25	0.31	0.27	0.03	0.18

Intersection Summary














Cycle Length: 60
 Actuated Cycle Length: 60
 Offset: 36 (60%), Referenced to phase 2:NBSB, Start of Yellow
 Natural Cycle: 45
 Control Type: Actuated-Coordinated

Splits and Phases: 9: Windsor Avenue & Meadow Road



HCM Signalized Intersection Capacity Analysis
9: Windsor Avenue & Meadow Road

2023 Existing Conditions
Saturday Midday Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	101	148	297	142	21	431
Future Volume (vph)	101	148	297	142	21	431
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.5		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.95		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1787	1599	3334		1787	3574
Flt Permitted	0.95	1.00	1.00		0.48	1.00
Satd. Flow (perm)	1787	1599	3334		906	3574
Peak-hour factor, PHF	0.85	0.85	0.93	0.93	0.93	0.93
Adj. Flow (vph)	119	174	319	153	23	463
RTOR Reduction (vph)	0	149	75	0	0	0
Lane Group Flow (vph)	119	25	397	0	23	463
Heavy Vehicles (%)	1%	1%	3%	3%	1%	1%
Turn Type	Prot	Prot	NA		D.P+P	NA
Protected Phases	4	4	2		1	1 2
Permitted Phases					2	
Actuated Green, G (s)	8.6	8.6	30.5		37.9	41.9
Effective Green, g (s)	8.6	8.6	30.5		37.9	41.9
Actuated g/C Ratio	0.14	0.14	0.51		0.63	0.70
Clearance Time (s)	4.0	4.0	5.5		4.0	
Vehicle Extension (s)	1.5	1.5	3.0		2.0	
Lane Grp Cap (vph)	256	229	1694		680	2495
v/s Ratio Prot	c0.07	0.02	c0.12		0.00	c0.13
v/s Ratio Perm					0.02	
v/c Ratio	0.46	0.11	0.23		0.03	0.19
Uniform Delay, d1	23.6	22.4	8.2		4.1	3.1
Progression Factor	1.00	1.00	1.60		1.00	1.00
Incremental Delay, d2	0.5	0.1	0.3		0.0	0.0
Delay (s)	24.1	22.4	13.5		4.1	3.1
Level of Service	C	C	B		A	A
Approach Delay (s)	23.1		13.5			3.2
Approach LOS	C		B			A
Intersection Summary						
HCM 2000 Control Delay			11.7		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.27			
Actuated Cycle Length (s)			60.0		Sum of lost time (s)	13.5
Intersection Capacity Utilization			30.0%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Queues
3: Windsor Avenue & 1-91 Off-Ramp/I-91 On Ramp

2029 No-Build Condition
Weekday Morning Peak Hour

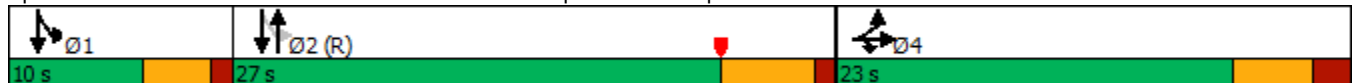


Lane Group	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	↕	↗	↕↕	↗	↖	↕↕
Traffic Volume (vph)	4	346	321	151	305	463
Future Volume (vph)	4	346	321	151	305	463
Lane Group Flow (vph)	50	433	353	166	367	558
Turn Type	NA	Prot	NA	Free	D.P+P	NA
Protected Phases	4	4	2		1	1 2
Permitted Phases				Free	2	
Detector Phase	4	4	2		1	1 2
Switch Phase						
Minimum Initial (s)	7.0	7.0	15.0		5.0	
Minimum Split (s)	12.4	12.4	20.2		10.0	
Total Split (s)	23.0	23.0	27.0		10.0	
Total Split (%)	38.3%	38.3%	45.0%		16.7%	
Yellow Time (s)	3.6	3.6	4.2		3.0	
All-Red Time (s)	1.8	1.8	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.4	5.4	5.2		4.0	
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	C-Max		None	
v/c Ratio	0.14	0.78	0.24	0.10	0.54	0.25
Control Delay	18.1	17.6	13.2	0.1	9.6	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.1	17.6	13.2	0.1	9.6	4.5
Queue Length 50th (ft)	15	45	46	0	52	41
Queue Length 95th (ft)	30	85	73	0	75	54
Internal Link Dist (ft)	479		263			846
Turn Bay Length (ft)				175	400	
Base Capacity (vph)	523	670	1441	1583	685	2260
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.65	0.24	0.10	0.54	0.25

Intersection Summary




















Cycle Length: 60
 Actuated Cycle Length: 60
 Offset: 57 (95%), Referenced to phase 2:NBSB and 6:, Start of Yellow
 Natural Cycle: 45
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Windsor Avenue & 1-91 Off-Ramp/I-91 On Ramp



HCM Signalized Intersection Capacity Analysis
 3: Windsor Avenue & 1-91 Off-Ramp/I-91 On Ramp

















2029 No-Build Condition
 Weekday Morning Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	4	346	0	0	0	0	321	151	305	463	0
Future Volume (vph)	36	4	346	0	0	0	0	321	151	305	463	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.4					5.2	4.0	4.0	4.0	
Lane Util. Factor		1.00	1.00					0.95	1.00	1.00	0.95	
Frt		1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected		0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1783	1583					3539	1583	1770	3539	
Flt Permitted		0.96	1.00					1.00	1.00	0.54	1.00	
Satd. Flow (perm)		1783	1583					3539	1583	1007	3539	
Peak-hour factor, PHF	0.80	0.80	0.80	0.92	0.92	0.92	0.91	0.91	0.91	0.83	0.83	0.83
Adj. Flow (vph)	45	5	432	0	0	0	0	353	166	367	558	0
RTOR Reduction (vph)	0	0	232	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	50	201	0	0	0	0	353	166	367	558	0
Turn Type	Split	NA	Prot					NA	Free	D.P+P	NA	
Protected Phases	4	4	4					2		1	12	
Permitted Phases									Free	2		
Actuated Green, G (s)		12.3	12.3					24.4	60.0	33.1	37.1	
Effective Green, g (s)		12.3	12.3					24.4	60.0	33.1	37.1	
Actuated g/C Ratio		0.21	0.21					0.41	1.00	0.55	0.62	
Clearance Time (s)		5.4	5.4					5.2		4.0		
Vehicle Extension (s)		3.0	3.0					3.0		3.0		
Lane Grp Cap (vph)		365	324					1439	1583	666	2188	
v/s Ratio Prot		0.03	c0.13					0.10		c0.08	0.16	
v/s Ratio Perm									0.10	c0.22		
v/c Ratio		0.14	0.62					0.25	0.10	0.55	0.26	
Uniform Delay, d1		19.5	21.7					11.7	0.0	7.6	5.2	
Progression Factor		1.00	1.00					1.00	1.00	0.89	0.77	
Incremental Delay, d2		0.2	3.5					0.4	0.1	1.0	0.1	
Delay (s)		19.7	25.2					12.1	0.1	7.7	4.1	
Level of Service		B	C					B	A	A	A	
Approach Delay (s)		24.7			0.0			8.3			5.5	
Approach LOS		C			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			11.1		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)				14.6			
Intersection Capacity Utilization			47.4%		ICU Level of Service				A			
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
6: Windsor Avenue & Private Driveway/Violet Street

2029 No-Build Condition
Weekday Morning Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	0	0	14	0	24	1	447	0	9	800	0
Future Volume (Veh/h)	1	0	0	14	0	24	1	447	0	9	800	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.42	0.42	0.42	0.65	0.65	0.65	0.93	0.93	0.93	0.87	0.87	0.87
Hourly flow rate (vph)	2	0	0	22	0	37	1	481	0	10	920	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
								None				None
Median storage veh												
Upstream signal (ft)												
												343
pX, platoon unblocked	0.95	0.95	0.95	0.95	0.95		0.95					
vC, conflicting volume	1220	1423	460	963	1423	240	920			481		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1126	1340	326	856	1340	240	811			481		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	91	100	95	100			99		
cM capacity (veh/h)	143	142	636	237	142	760	771			1078		
Direction, Lane #												
	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	2	59	242	240	470	460						
Volume Left	2	22	1	0	10	0						
Volume Right	0	37	0	0	0	0						
cSH	143	417	771	1700	1078	1700						
Volume to Capacity	0.01	0.14	0.00	0.14	0.01	0.27						
Queue Length 95th (ft)	1	12	0	0	1	0						
Control Delay (s)	30.5	15.1	0.1	0.0	0.3	0.0						
Lane LOS	D	C	A		A							
Approach Delay (s)	30.5	15.1	0.0		0.1							
Approach LOS	D	C										
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			38.4%		ICU Level of Service					A		
Analysis Period (min)			15									

Queues
10: Windsor Avenue & Meadow Road

2029 No-Build Condition
Weekday Morning Peak Hour

	↙	↖	↑	↘	↓
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations	↙	↖	↑↔	↘	↑↑
Traffic Volume (vph)	183	96	178	28	585
Future Volume (vph)	183	96	178	28	585
Lane Group Flow (vph)	226	119	411	31	643
Turn Type	Prot	Prot	NA	D,P+P	NA
Protected Phases	4	4	2	1	1 2
Permitted Phases				2	
Detector Phase	4	4	2	1	1 2
Switch Phase					
Minimum Initial (s)	7.0	7.0	15.0	5.0	
Minimum Split (s)	11.5	11.5	22.5	9.5	
Total Split (s)	20.0	20.0	30.0	10.0	
Total Split (%)	33.3%	33.3%	50.0%	16.7%	
Yellow Time (s)	3.0	3.0	4.2	3.0	
All-Red Time (s)	1.0	1.0	1.3	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	5.5	4.0	
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Max	None	
v/c Ratio	0.68	0.30	0.28	0.05	0.28
Control Delay	32.5	6.5	14.8	4.6	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	32.5	6.5	14.8	4.6	4.8
Queue Length 50th (ft)	77	0	62	3	39
Queue Length 95th (ft)	112	25	94	12	76
Internal Link Dist (ft)	573		846		411
Turn Bay Length (ft)				170	
Base Capacity (vph)	458	497	1478	668	2335
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.49	0.24	0.28	0.05	0.28

Intersection Summary














Cycle Length: 60
 Actuated Cycle Length: 60
 Offset: 43 (72%), Referenced to phase 2:NBSB, Start of Yellow
 Natural Cycle: 45
 Control Type: Actuated-Coordinated

Splits and Phases: 10: Windsor Avenue & Meadow Road



HCM Signalized Intersection Capacity Analysis
 10: Windsor Avenue & Meadow Road

2029 No-Build Condition
 Weekday Morning Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	183	96	178	179	28	585
Future Volume (vph)	183	96	178	179	28	585
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.5		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.92		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1719	1538	3008		1736	3471
Flt Permitted	0.95	1.00	1.00		0.51	1.00
Satd. Flow (perm)	1719	1538	3008		933	3471
Peak-hour factor, PHF	0.81	0.81	0.87	0.87	0.91	0.91
Adj. Flow (vph)	226	119	205	206	31	643
RTOR Reduction (vph)	0	96	112	0	0	0
Lane Group Flow (vph)	226	23	299	0	31	643
Heavy Vehicles (%)	5%	5%	11%	11%	4%	4%
Turn Type	Prot	Prot	NA		D.P+P	NA
Protected Phases	4	4	2		1	1 2
Permitted Phases					2	
Actuated Green, G (s)	11.6	11.6	27.3		34.9	38.9
Effective Green, g (s)	11.6	11.6	27.3		34.9	38.9
Actuated g/C Ratio	0.19	0.19	0.46		0.58	0.65
Clearance Time (s)	4.0	4.0	5.5		4.0	
Vehicle Extension (s)	1.5	1.5	3.0		2.0	
Lane Grp Cap (vph)	332	297	1368		644	2250
v/s Ratio Prot	c0.13	0.01	0.10		0.01	c0.19
v/s Ratio Perm					0.02	
v/c Ratio	0.68	0.08	0.22		0.05	0.29
Uniform Delay, d1	22.5	19.8	9.9		5.3	4.6
Progression Factor	1.00	1.00	2.54		1.00	1.00
Incremental Delay, d2	4.5	0.0	0.4		0.0	0.0
Delay (s)	27.0	19.9	25.5		5.4	4.6
Level of Service	C	B	C		A	A
Approach Delay (s)	24.5		25.5			4.6
Approach LOS	C		C			A
Intersection Summary						
HCM 2000 Control Delay			15.4		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.41			
Actuated Cycle Length (s)			60.0		Sum of lost time (s)	13.5
Intersection Capacity Utilization			38.1%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Queues
3: Windsor Avenue & 1-91 Off-Ramp/I-91 On Ramp

2029 No-Build Condition
Weekday Evening Peak Hour

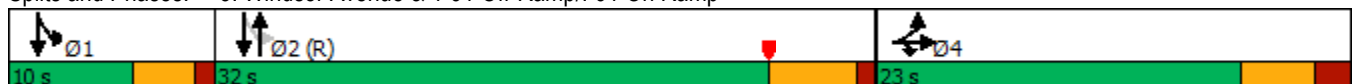


Lane Group	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	↕	↗	↕↕	↗	↖	↕↕
Traffic Volume (vph)	5	414	661	185	240	483
Future Volume (vph)	5	414	661	185	240	483
Lane Group Flow (vph)	43	505	760	213	267	537
Turn Type	NA	Prot	NA	Free	D.P+P	NA
Protected Phases	4	4	2		1	1 2
Permitted Phases				Free	2	
Detector Phase	4	4	2		1	1 2
Switch Phase						
Minimum Initial (s)	7.0	7.0	15.0		5.0	
Minimum Split (s)	12.4	12.4	24.2		10.0	
Total Split (s)	23.0	23.0	32.0		10.0	
Total Split (%)	35.4%	35.4%	49.2%		15.4%	
Yellow Time (s)	3.6	3.6	4.2		3.0	
All-Red Time (s)	1.8	1.8	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.4	5.4	5.2		4.0	
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	C-Max		None	
v/c Ratio	0.11	0.85	0.48	0.13	0.57	0.24
Control Delay	19.4	23.2	14.5	0.2	14.9	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.4	23.2	14.5	0.2	14.9	4.8
Queue Length 50th (ft)	13	59	114	0	31	32
Queue Length 95th (ft)	31	126	153	0	#118	62
Internal Link Dist (ft)	479		263			848
Turn Bay Length (ft)				175	400	
Base Capacity (vph)	483	670	1595	1583	467	2285
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.75	0.48	0.13	0.57	0.24

Intersection Summary




















Cycle Length: 65
 Actuated Cycle Length: 65
 Offset: 59 (91%), Referenced to phase 2:NBSB and 6:, Start of Yellow
 Natural Cycle: 50
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Windsor Avenue & 1-91 Off-Ramp/I-91 On Ramp



HCM Signalized Intersection Capacity Analysis
3: Windsor Avenue & 1-91 Off-Ramp/I-91 On Ramp

















2029 No-Build Condition
Weekday Evening Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	5	414	0	0	0	0	661	185	240	483	0
Future Volume (vph)	30	5	414	0	0	0	0	661	185	240	483	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.4					5.2	4.0	4.0	4.0	
Lane Util. Factor		1.00	1.00					0.95	1.00	1.00	0.95	
Frt		1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected		0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1786	1583					3539	1583	1770	3539	
Flt Permitted		0.96	1.00					1.00	1.00	0.30	1.00	
Satd. Flow (perm)		1786	1583					3539	1583	561	3539	
Peak-hour factor, PHF	0.82	0.82	0.82	0.92	0.92	0.92	0.87	0.87	0.87	0.90	0.90	0.90
Adj. Flow (vph)	37	6	505	0	0	0	0	760	213	267	537	0
RTOR Reduction (vph)	0	0	263	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	43	242	0	0	0	0	760	213	267	537	0
Turn Type	Split	NA	Prot					NA	Free	D.P+P	NA	
Protected Phases	4	4	4					2		1	12	
Permitted Phases									Free	2		
Actuated Green, G (s)		13.6	13.6					29.3	65.0	36.8	40.8	
Effective Green, g (s)		13.6	13.6					29.3	65.0	36.8	40.8	
Actuated g/C Ratio		0.21	0.21					0.45	1.00	0.57	0.63	
Clearance Time (s)		5.4	5.4					5.2		4.0		
Vehicle Extension (s)		3.0	3.0					3.0		3.0		
Lane Grp Cap (vph)		373	331					1595	1583	457	2221	
v/s Ratio Prot		0.02	c0.15					0.21		c0.07	0.15	
v/s Ratio Perm									0.13	c0.26		
v/c Ratio		0.12	0.73					0.48	0.13	0.58	0.24	
Uniform Delay, d1		20.8	24.0					12.5	0.0	7.5	5.3	
Progression Factor		1.00	1.00					1.00	1.00	1.36	0.81	
Incremental Delay, d2		0.1	8.1					1.0	0.2	1.8	0.1	
Delay (s)		21.0	32.1					13.5	0.2	12.1	4.4	
Level of Service		C	C					B	A	B	A	
Approach Delay (s)		31.2			0.0			10.6			6.9	
Approach LOS		C			A			B			A	
Intersection Summary												
HCM 2000 Control Delay			14.2		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			65.0		Sum of lost time (s)				14.6			
Intersection Capacity Utilization			49.6%		ICU Level of Service				A			
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
6: Windsor Avenue & Private Driveway/Violet Street

2029 No-Build Condition
Weekday Evening Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	4	0	44	0	802	8	13	884	0
Future Volume (Veh/h)	0	0	0	4	0	44	0	802	8	13	884	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.25	0.25	0.25	0.73	0.73	0.73	0.89	0.89	0.89	0.91	0.91	0.91
Hourly flow rate (vph)	0	0	0	5	0	60	0	901	9	14	971	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
								None				None
Median storage veh												
Upstream signal (ft)												
												343
pX, platoon unblocked	0.95	0.95	0.95	0.95	0.95		0.95					
vC, conflicting volume	1510	1909	486	1419	1904	455	971			910		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1435	1855	360	1340	1850	455	870			910		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	95	100	89	100			98		
cM capacity (veh/h)	79	68	606	104	69	552	734			744		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	0	65	450	460	500	486						
Volume Left	0	5	0	0	14	0						
Volume Right	0	60	0	9	0	0						
cSH	1700	415	734	1700	744	1700						
Volume to Capacity	0.00	0.16	0.00	0.27	0.02	0.29						
Queue Length 95th (ft)	0	14	0	0	1	0						
Control Delay (s)	0.0	15.3	0.0	0.0	0.5	0.0						
Lane LOS	A	C			A							
Approach Delay (s)	0.0	15.3	0.0		0.3							
Approach LOS	A	C										
Intersection Summary												
Average Delay			0.6									
Intersection Capacity Utilization			43.6%	ICU Level of Service	A							
Analysis Period (min)			15									

Queues
10: Windsor Avenue & Meadow Road

2029 No-Build Condition
Weekday Evening Peak Hour

	↙	↖	↑	↘	↓
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations	↙	↖	↑↔	↘	↑↑
Traffic Volume (vph)	175	227	451	19	548
Future Volume (vph)	175	227	451	19	548
Lane Group Flow (vph)	197	255	768	22	645
Turn Type	Prot	Prot	NA	D,P+P	NA
Protected Phases	4	4	2	1	1 2
Permitted Phases				2	
Detector Phase	4	4	2	1	1 2
Switch Phase					
Minimum Initial (s)	7.0	7.0	15.0	5.0	
Minimum Split (s)	11.5	11.5	22.5	9.5	
Total Split (s)	20.0	20.0	35.0	10.0	
Total Split (%)	30.8%	30.8%	53.8%	15.4%	
Yellow Time (s)	3.0	3.0	4.2	3.0	
All-Red Time (s)	1.0	1.0	1.3	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	5.5	4.0	
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Max	None	
v/c Ratio	0.65	0.53	0.44	0.04	0.26
Control Delay	34.7	7.7	3.0	4.2	4.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	34.7	7.7	3.0	4.2	4.3
Queue Length 50th (ft)	74	0	5	2	37
Queue Length 95th (ft)	121	48	7	9	69
Internal Link Dist (ft)	573		848		411
Turn Bay Length (ft)				170	
Base Capacity (vph)	427	574	1743	517	2486
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.46	0.44	0.44	0.04	0.26

Intersection Summary














Cycle Length: 65
 Actuated Cycle Length: 65
 Offset: 7 (11%), Referenced to phase 2:NBSB, Start of Yellow
 Natural Cycle: 45
 Control Type: Actuated-Coordinated

Splits and Phases: 10: Windsor Avenue & Meadow Road



HCM Signalized Intersection Capacity Analysis
10: Windsor Avenue & Meadow Road

2029 No-Build Condition
Weekday Evening Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	175	227	451	240	19	548
Future Volume (vph)	175	227	451	240	19	548
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.5		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.95		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1736	1553	3290		1770	3539
Flt Permitted	0.95	1.00	1.00		0.32	1.00
Satd. Flow (perm)	1736	1553	3290		591	3539
Peak-hour factor, PHF	0.89	0.89	0.90	0.90	0.85	0.85
Adj. Flow (vph)	197	255	501	267	22	645
RTOR Reduction (vph)	0	211	99	0	0	0
Lane Group Flow (vph)	197	44	669	0	22	645
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Turn Type	Prot	Prot	NA		D.P+P	NA
Protected Phases	4	4	2		1	1 2
Permitted Phases					2	
Actuated Green, G (s)	11.3	11.3	32.5		40.2	44.2
Effective Green, g (s)	11.3	11.3	32.5		40.2	44.2
Actuated g/C Ratio	0.17	0.17	0.50		0.62	0.68
Clearance Time (s)	4.0	4.0	5.5		4.0	
Vehicle Extension (s)	1.5	1.5	3.0		2.0	
Lane Grp Cap (vph)	301	269	1645		505	2406
v/s Ratio Prot	c0.11	0.03	c0.20		0.01	c0.18
v/s Ratio Perm					0.02	
v/c Ratio	0.65	0.16	0.41		0.04	0.27
Uniform Delay, d1	25.0	22.8	10.2		4.9	4.1
Progression Factor	1.00	1.00	0.28		1.00	1.00
Incremental Delay, d2	3.9	0.1	0.7		0.0	0.0
Delay (s)	28.9	22.9	3.6		4.9	4.1
Level of Service	C	C	A		A	A
Approach Delay (s)	25.5		3.6			4.1
Approach LOS	C		A			A
Intersection Summary						
HCM 2000 Control Delay			9.0		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.45			
Actuated Cycle Length (s)			65.0		Sum of lost time (s)	13.5
Intersection Capacity Utilization			42.1%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Queues
3: Windsor Avenue & 1-91 Off-Ramp/I-91 On Ramp

2029 No-Build Conditions
Saturday Midday Peak Hour

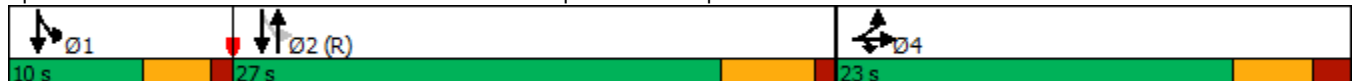


Lane Group	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	↕	↗	↕↕	↗	↖	↕↕
Traffic Volume (vph)	1	269	446	146	186	379
Future Volume (vph)	1	269	446	146	186	379
Lane Group Flow (vph)	23	292	474	155	204	416
Turn Type	NA	Prot	NA	Free	D.P+P	NA
Protected Phases	4	4	2		1	1 2
Permitted Phases				Free	2	
Detector Phase	4	4	2		1	1 2
Switch Phase						
Minimum Initial (s)	7.0	7.0	15.0		5.0	
Minimum Split (s)	12.4	12.4	20.2		10.0	
Total Split (s)	23.0	23.0	27.0		10.0	
Total Split (%)	38.3%	38.3%	45.0%		16.7%	
Yellow Time (s)	3.6	3.6	4.2		3.0	
All-Red Time (s)	1.8	1.8	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.4	5.4	5.2		4.0	
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	C-Max		None	
v/c Ratio	0.09	0.61	0.29	0.10	0.29	0.17
Control Delay	21.4	9.2	11.4	0.1	5.1	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.4	9.2	11.4	0.1	5.1	3.9
Queue Length 50th (ft)	8	0	48	0	18	18
Queue Length 95th (ft)	22	52	98	0	48	32
Internal Link Dist (ft)	479		263			844
Turn Bay Length (ft)				175	400	
Base Capacity (vph)	521	670	1635	1568	693	2472
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.44	0.29	0.10	0.29	0.17

Intersection Summary




















Cycle Length: 60
 Actuated Cycle Length: 60
 Offset: 36 (60%), Referenced to phase 2:NBSB and 6:, Start of Green
 Natural Cycle: 45
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Windsor Avenue & 1-91 Off-Ramp/I-91 On Ramp



















HCM Signalized Intersection Capacity Analysis
 3: Windsor Avenue & 1-91 Off-Ramp/I-91 On Ramp

2029 No-Build Conditions
 Saturday Midday Peak Hour

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	20	1	269	0	0	0	0	446	146	186	379	0		
Future Volume (vph)	20	1	269	0	0	0	0	446	146	186	379	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)		5.4	5.4					5.2	4.0	4.0	4.0			
Lane Util. Factor		1.00	1.00					0.95	1.00	1.00	0.95			
Frt		1.00	0.85					1.00	0.85	1.00	1.00			
Flt Protected		0.95	1.00					1.00	1.00	0.95	1.00			
Satd. Flow (prot)		1778	1583					3505	1568	1770	3539			
Flt Permitted		0.95	1.00					1.00	1.00	0.48	1.00			
Satd. Flow (perm)		1778	1583					3505	1568	895	3539			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.91	0.91	0.91		
Adj. Flow (vph)	22	1	292	0	0	0	0	474	155	204	416	0		
RTOR Reduction (vph)	0	0	250	0	0	0	0	0	0	0	0	0		
Lane Group Flow (vph)	0	23	42	0	0	0	0	474	155	204	416	0		
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%		
Turn Type	Split	NA	Prot					NA	Free	D.P+P	NA			
Protected Phases	4	4	4					2		1	12			
Permitted Phases									Free	2				
Actuated Green, G (s)		8.7	8.7					28.0	60.0	36.7	40.7			
Effective Green, g (s)		8.7	8.7					28.0	60.0	36.7	40.7			
Actuated g/C Ratio		0.14	0.14					0.47	1.00	0.61	0.68			
Clearance Time (s)		5.4	5.4					5.2		4.0				
Vehicle Extension (s)		3.0	3.0					3.0		3.0				
Lane Grp Cap (vph)		257	229					1635	1568	674	2400			
v/s Ratio Prot		0.01	c0.03					0.14		c0.04	0.12			
v/s Ratio Perm									0.10	c0.14				
v/c Ratio		0.09	0.18					0.29	0.10	0.30	0.17			
Uniform Delay, d1		22.2	22.5					9.9	0.0	5.1	3.5			
Progression Factor		1.00	1.00					1.00	1.00	1.03	1.05			
Incremental Delay, d2		0.2	0.4					0.4	0.1	0.3	0.0			
Delay (s)		22.4	22.9					10.3	0.1	5.5	3.7			
Level of Service		C	C					B	A	A	A			
Approach Delay (s)		22.9			0.0			7.8			4.3			
Approach LOS		C			A			A			A			
Intersection Summary														
HCM 2000 Control Delay			9.5									HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio			0.28											
Actuated Cycle Length (s)			60.0								14.6			
Intersection Capacity Utilization			40.8%										ICU Level of Service	A
Analysis Period (min)			15											
c Critical Lane Group														

HCM Unsignalized Intersection Capacity Analysis
6: Windsor Avenue & Private Driveway/Violet Street

2029 No-Build Conditions
Saturday Midday Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	4	0	36	0	556	1	18	630	0
Future Volume (Veh/h)	0	0	0	4	0	36	0	556	1	18	630	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.25	0.25	0.25	0.73	0.73	0.73	0.95	0.95	0.95	0.93	0.93	0.93
Hourly flow rate (vph)	0	0	0	5	0	49	0	585	1	19	677	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
								None				None
Median storage veh												
Upstream signal (ft)												
												343
pX, platoon unblocked	0.99	0.99	0.99	0.99	0.99		0.99					
vC, conflicting volume	1056	1301	338	962	1300	293	677			586		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1030	1278	303	935	1278	293	646			586		
tC, single (s)	7.5	6.5	6.9	7.6	6.6	7.0	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	98	100	93	100			98		
cM capacity (veh/h)	170	160	684	213	158	700	916			978		
Direction, Lane #												
	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2						
Volume Total	0	54	292	294	358	338						
Volume Left	0	5	0	0	19	0						
Volume Right	0	49	0	1	0	0						
cSH	1700	578	916	1700	978	1700						
Volume to Capacity	0.00	0.09	0.00	0.17	0.02	0.20						
Queue Length 95th (ft)	0	8	0	0	1	0						
Control Delay (s)	0.0	11.9	0.0	0.0	0.7	0.0						
Lane LOS	A	B			A							
Approach Delay (s)	0.0	11.9	0.0		0.3							
Approach LOS	A	B										
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			40.4%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
9: Windsor Avenue & Meadow Road

2029 No-Build Conditions
Saturday Midday Peak Hour



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	107	157	315	22	458
Future Volume (vph)	107	157	315	22	458
Lane Group Flow (vph)	126	185	501	24	492
Turn Type	Prot	Prot	NA	D,P+P	NA
Protected Phases	4	4	2	1	1 2
Permitted Phases				2	
Detector Phase	4	4	2	1	1 2
Switch Phase					
Minimum Initial (s)	7.0	7.0	15.0	5.0	
Minimum Split (s)	11.0	11.0	23.5	9.5	
Total Split (s)	20.0	20.0	30.0	10.0	
Total Split (%)	33.3%	33.3%	50.0%	16.7%	
Yellow Time (s)	3.0	3.0	4.2	3.0	
All-Red Time (s)	1.0	1.0	1.3	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	5.5	4.0	
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Max	None	
v/c Ratio	0.49	0.47	0.29	0.03	0.19
Control Delay	29.6	8.5	10.7	3.2	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	29.6	8.5	10.7	3.2	3.1
Queue Length 50th (ft)	43	0	70	2	21
Queue Length 95th (ft)	77	38	132	8	44
Internal Link Dist (ft)	573		844		411
Turn Bay Length (ft)				170	
Base Capacity (vph)	476	562	1754	693	2533
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.26	0.33	0.29	0.03	0.19

Intersection Summary














Cycle Length: 60
 Actuated Cycle Length: 60
 Offset: 36 (60%), Referenced to phase 2:NBSB, Start of Yellow
 Natural Cycle: 45
 Control Type: Actuated-Coordinated

Splits and Phases: 9: Windsor Avenue & Meadow Road



HCM Signalized Intersection Capacity Analysis
9: Windsor Avenue & Meadow Road

2029 No-Build Conditions
Saturday Midday Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	107	157	315	151	22	458
Future Volume (vph)	107	157	315	151	22	458
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.5		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.95		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1787	1599	3335		1787	3574
Flt Permitted	0.95	1.00	1.00		0.47	1.00
Satd. Flow (perm)	1787	1599	3335		881	3574
Peak-hour factor, PHF	0.85	0.85	0.93	0.93	0.93	0.93
Adj. Flow (vph)	126	185	339	162	24	492
RTOR Reduction (vph)	0	158	80	0	0	0
Lane Group Flow (vph)	126	27	421	0	24	492
Heavy Vehicles (%)	1%	1%	3%	3%	1%	1%
Turn Type	Prot	Prot	NA		D.P+P	NA
Protected Phases	4	4	2		1	1 2
Permitted Phases					2	
Actuated Green, G (s)	8.7	8.7	30.2		37.8	41.8
Effective Green, g (s)	8.7	8.7	30.2		37.8	41.8
Actuated g/C Ratio	0.14	0.14	0.50		0.63	0.70
Clearance Time (s)	4.0	4.0	5.5		4.0	
Vehicle Extension (s)	1.5	1.5	3.0		2.0	
Lane Grp Cap (vph)	259	231	1678		669	2489
v/s Ratio Prot	c0.07	0.02	c0.13		0.00	c0.14
v/s Ratio Perm					0.02	
v/c Ratio	0.49	0.12	0.25		0.04	0.20
Uniform Delay, d1	23.6	22.3	8.5		4.2	3.2
Progression Factor	1.00	1.00	1.58		1.00	1.00
Incremental Delay, d2	0.5	0.1	0.4		0.0	0.0
Delay (s)	24.1	22.4	13.7		4.2	3.2
Level of Service	C	C	B		A	A
Approach Delay (s)	23.1		13.7			3.3
Approach LOS	C		B			A
Intersection Summary						
HCM 2000 Control Delay			11.9		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.29			
Actuated Cycle Length (s)			60.0		Sum of lost time (s)	13.5
Intersection Capacity Utilization			31.2%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Queues
3: Windsor Avenue & 1-91 Off-Ramp/I-91 On Ramp

2029 Build Condition
Weekday Morning Peak Hour

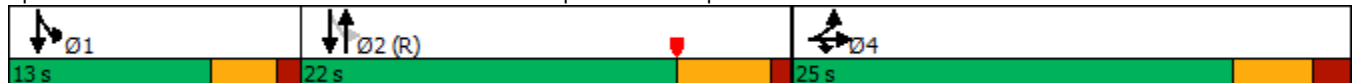


Lane Group	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	↕	↗	↕↕	↗	↖	↕↕
Traffic Volume (vph)	4	366	337	171	305	479
Future Volume (vph)	4	366	337	171	305	479
Lane Group Flow (vph)	50	458	370	188	367	577
Turn Type	NA	Prot	NA	Free	D.P+P	NA
Protected Phases	4	4	2		1	1 2
Permitted Phases				Free	2	
Detector Phase	4	4	2		1	1 2
Switch Phase						
Minimum Initial (s)	7.0	7.0	15.0		5.0	
Minimum Split (s)	12.4	12.4	20.2		10.0	
Total Split (s)	25.0	25.0	22.0		13.0	
Total Split (%)	41.7%	41.7%	36.7%		21.7%	
Yellow Time (s)	3.6	3.6	4.2		3.0	
All-Red Time (s)	1.8	1.8	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.4	5.4	5.2		4.0	
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	C-Max		None	
v/c Ratio	0.12	0.80	0.30	0.12	0.55	0.27
Control Delay	16.2	20.3	16.7	0.2	10.5	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.2	20.3	16.7	0.2	10.5	5.6
Queue Length 50th (ft)	14	63	56	0	55	45
Queue Length 95th (ft)	29	108	89	0	78	58
Internal Link Dist (ft)	479		108			844
Turn Bay Length (ft)				175	400	
Base Capacity (vph)	582	688	1227	1583	673	2107
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.67	0.30	0.12	0.55	0.27

Intersection Summary




















Cycle Length: 60
 Actuated Cycle Length: 60
 Offset: 57 (95%), Referenced to phase 2:NBSB and 6:, Start of Yellow
 Natural Cycle: 45
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Windsor Avenue & 1-91 Off-Ramp/I-91 On Ramp



HCM Signalized Intersection Capacity Analysis
 3: Windsor Avenue & 1-91 Off-Ramp/I-91 On Ramp

2029 Build Condition
 Weekday Morning Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	36	4	366	0	0	0	0	337	171	305	479	0	
Future Volume (vph)	36	4	366	0	0	0	0	337	171	305	479	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		5.4	5.4					5.2	4.0	4.0	4.0		
Lane Util. Factor		1.00	1.00					0.95	1.00	1.00	0.95		
Frt		1.00	0.85					1.00	0.85	1.00	1.00		
Flt Protected		0.96	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (prot)		1783	1583					3539	1583	1770	3539		
Flt Permitted		0.96	1.00					1.00	1.00	0.53	1.00		
Satd. Flow (perm)		1783	1583					3539	1583	990	3539		
Peak-hour factor, PHF	0.80	0.80	0.80	0.92	0.92	0.92	0.91	0.91	0.91	0.83	0.83	0.83	
Adj. Flow (vph)	45	5	458	0	0	0	0	370	188	367	577	0	
RTOR Reduction (vph)	0	0	195	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	50	263	0	0	0	0	370	188	367	577	0	
Turn Type	Split	NA	Prot					NA	Free	D.P+P	NA		
Protected Phases	4	4	4					2		1	12		
Permitted Phases									Free	2			
Actuated Green, G (s)		14.2	14.2					20.8	60.0	31.2	35.2		
Effective Green, g (s)		14.2	14.2					20.8	60.0	31.2	35.2		
Actuated g/C Ratio		0.24	0.24					0.35	1.00	0.52	0.59		
Clearance Time (s)		5.4	5.4					5.2		4.0			
Vehicle Extension (s)		3.0	3.0					3.0		3.0			
Lane Grp Cap (vph)		421	374					1226	1583	650	2076		
v/s Ratio Prot		0.03	c0.17					0.10		c0.10	0.16		
v/s Ratio Perm									0.12	c0.20			
v/c Ratio		0.12	0.70					0.30	0.12	0.56	0.28		
Uniform Delay, d1		18.0	21.0					14.3	0.0	8.7	6.1		
Progression Factor		1.00	1.00					1.00	1.00	0.90	0.81		
Incremental Delay, d2		0.1	5.9					0.6	0.2	1.1	0.1		
Delay (s)		18.1	26.9					14.9	0.2	8.9	5.0		
Level of Service		B	C					B	A	A	A		
Approach Delay (s)		26.0			0.0			10.0			6.5		
Approach LOS		C			A			A			A		
Intersection Summary													
HCM 2000 Control Delay			12.4		HCM 2000 Level of Service						B		
HCM 2000 Volume to Capacity ratio			0.61										
Actuated Cycle Length (s)			60.0		Sum of lost time (s)						14.6		
Intersection Capacity Utilization			47.4%		ICU Level of Service						A		
Analysis Period (min)			15										

c Critical Lane Group

Queues
6: Windsor Avenue & Site Driveway/Violet Street

2029 Build Condition
Weekday Morning Peak Hour

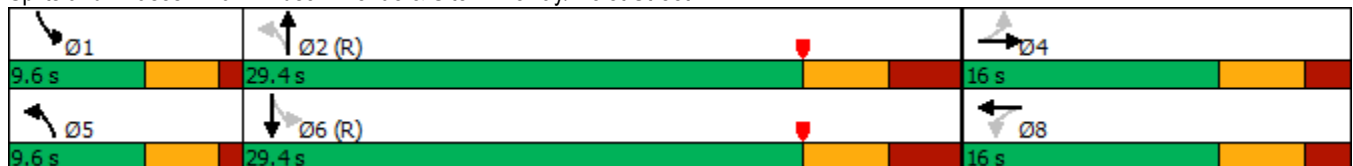


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	76	0	14	0	56	408	9	761
Future Volume (vph)	76	0	14	0	56	408	9	761
Lane Group Flow (vph)	84	61	0	59	60	439	10	955
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.5	10.5	10.5	10.5	9.5	11.5	9.5	11.5
Total Split (s)	16.0	16.0	16.0	16.0	9.6	29.4	9.6	29.4
Total Split (%)	29.1%	29.1%	29.1%	29.1%	17.5%	53.5%	17.5%	53.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.0	3.5	3.0	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	1.0	3.0	1.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5		5.5	4.0	6.5	4.0	6.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
v/c Ratio	0.41	0.13		0.17	0.13	0.19	0.01	0.47
Control Delay	26.6	0.6		1.1	4.3	6.4	3.8	10.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.1
Total Delay	26.6	0.6		1.1	4.3	6.4	3.8	10.7
Queue Length 50th (ft)	25	0		0	5	26	1	116
Queue Length 95th (ft)	58	0		0	16	75	5	168
Internal Link Dist (ft)		97		467		405		75
Turn Bay Length (ft)								
Base Capacity (vph)	255	518		397	449	2326	704	2051
Starvation Cap Reductn	0	0		0	0	0	0	141
Spillback Cap Reductn	0	0		0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0
Reduced v/c Ratio	0.33	0.12		0.15	0.13	0.19	0.01	0.50

Intersection Summary






















Cycle Length: 55
 Actuated Cycle Length: 55
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Natural Cycle: 50
 Control Type: Actuated-Coordinated

Splits and Phases: 6: Windsor Avenue & Site Driveway/Violet Street



HCM Signalized Intersection Capacity Analysis
6: Windsor Avenue & Site Driveway/Violet Street

2029 Build Condition
Weekday Morning Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	76	0	55	14	0	24	56	408	0	9	761	70
Future Volume (vph)	76	0	55	14	0	24	56	408	0	9	761	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5		4.0	6.5		4.0	6.5	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.85			0.92		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1583			1674		1770	3539		1770	3495	
Flt Permitted	0.72	1.00			0.85		0.24	1.00		0.50	1.00	
Satd. Flow (perm)	1338	1583			1452		444	3539		926	3495	
Peak-hour factor, PHF	0.90	0.90	0.90	0.65	0.65	0.65	0.93	0.93	0.93	0.87	0.87	0.87
Adj. Flow (vph)	84	0	61	22	0	37	60	439	0	10	875	80
RTOR Reduction (vph)	0	53	0	0	51	0	0	0	0	0	10	0
Lane Group Flow (vph)	84	8	0	0	8	0	60	439	0	10	945	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	7.3	7.3			7.3		34.1	30.6		29.3	28.2	
Effective Green, g (s)	7.3	7.3			7.3		34.1	30.6		29.3	28.2	
Actuated g/C Ratio	0.13	0.13			0.13		0.62	0.56		0.53	0.51	
Clearance Time (s)	5.5	5.5			5.5		4.0	6.5		4.0	6.5	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	177	210			192		359	1968		510	1791	
v/s Ratio Prot		0.01					c0.01	0.12		0.00	c0.27	
v/s Ratio Perm	c0.06				0.01		0.09			0.01		
v/c Ratio	0.47	0.04			0.04		0.17	0.22		0.02	0.53	
Uniform Delay, d1	22.1	20.8			20.8		4.5	6.2		6.0	9.0	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	0.1			0.1		0.2	0.3		0.0	1.1	
Delay (s)	24.1	20.9			20.9		4.7	6.4		6.1	10.1	
Level of Service	C	C			C		A	A		A	B	
Approach Delay (s)		22.7			20.9			6.2			10.0	
Approach LOS		C			C			A			B	

Intersection Summary

HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 9: Windsor Avenue & R-in Only

2029 Build Condition
 Weekday Morning Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↑↑	↑↑	
Traffic Volume (veh/h)	0	0	0	508	840	5
Future Volume (Veh/h)	0	0	0	508	840	5
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	552	913	5
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				155	188	
pX, platoon unblocked	0.96	0.93	0.93			
vC, conflicting volume	1192	459	918			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	855	275	767			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	286	674	785			
Direction, Lane #	NB 1	NB 2	SB 1	SB 2		
Volume Total	276	276	609	309		
Volume Left	0	0	0	0		
Volume Right	0	0	0	5		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.16	0.16	0.36	0.18		
Queue Length 95th (ft)	0	0	0	0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS						
Approach Delay (s)	0.0		0.0			
Approach LOS						
Intersection Summary						
Average Delay	0.0					
Intersection Capacity Utilization	26.7%			ICU Level of Service	A	
Analysis Period (min)	15					

Queues
12: Windsor Avenue & Meadow Road

2029 Build Condition
Weekday Morning Peak Hour

	↙	↖	↑	↘	↓
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations	↙	↖	↑↔	↘	↑↑
Traffic Volume (vph)	196	96	181	28	588
Future Volume (vph)	196	96	181	28	588
Lane Group Flow (vph)	242	119	429	31	646
Turn Type	Prot	Prot	NA	D,P+P	NA
Protected Phases	4	4	2	1	1 2
Permitted Phases				2	
Detector Phase	4	4	2	1	1 2
Switch Phase					
Minimum Initial (s)	7.0	7.0	15.0	5.0	
Minimum Split (s)	11.5	11.5	22.5	9.5	
Total Split (s)	20.0	20.0	30.0	10.0	
Total Split (%)	33.3%	33.3%	50.0%	16.7%	
Yellow Time (s)	3.0	3.0	4.2	3.0	
All-Red Time (s)	1.0	1.0	1.3	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	5.5	4.0	
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Max	None	
v/c Ratio	0.71	0.30	0.29	0.05	0.28
Control Delay	33.5	6.4	13.1	4.7	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.5	6.4	13.1	4.7	5.0
Queue Length 50th (ft)	82	0	68	3	41
Queue Length 95th (ft)	119	25	102	12	76
Internal Link Dist (ft)	573		844		411
Turn Bay Length (ft)				170	
Base Capacity (vph)	458	497	1474	653	2316
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.53	0.24	0.29	0.05	0.28

Intersection Summary














Cycle Length: 60
 Actuated Cycle Length: 60
 Offset: 43 (72%), Referenced to phase 2:NBSB, Start of Yellow
 Natural Cycle: 45
 Control Type: Actuated-Coordinated

Splits and Phases: 12: Windsor Avenue & Meadow Road



HCM Signalized Intersection Capacity Analysis
 12: Windsor Avenue & Meadow Road

2029 Build Condition
 Weekday Morning Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	196	96	181	192	28	588
Future Volume (vph)	196	96	181	192	28	588
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.5		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.92		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1719	1538	3001		1736	3471
Flt Permitted	0.95	1.00	1.00		0.50	1.00
Satd. Flow (perm)	1719	1538	3001		917	3471
Peak-hour factor, PHF	0.81	0.81	0.87	0.87	0.91	0.91
Adj. Flow (vph)	242	119	208	221	31	646
RTOR Reduction (vph)	0	95	122	0	0	0
Lane Group Flow (vph)	242	24	307	0	31	646
Heavy Vehicles (%)	5%	5%	11%	11%	4%	4%
Turn Type	Prot	Prot	NA		D.P+P	NA
Protected Phases	4	4	2		1	1 2
Permitted Phases					2	
Actuated Green, G (s)	12.0	12.0	27.0		34.5	38.5
Effective Green, g (s)	12.0	12.0	27.0		34.5	38.5
Actuated g/C Ratio	0.20	0.20	0.45		0.58	0.64
Clearance Time (s)	4.0	4.0	5.5		4.0	
Vehicle Extension (s)	1.5	1.5	3.0		2.0	
Lane Grp Cap (vph)	343	307	1350		629	2227
v/s Ratio Prot	c0.14	0.02	0.10		0.01	c0.19
v/s Ratio Perm					0.02	
v/c Ratio	0.71	0.08	0.23		0.05	0.29
Uniform Delay, d1	22.4	19.5	10.1		5.5	4.7
Progression Factor	1.00	1.00	2.25		1.00	1.00
Incremental Delay, d2	5.3	0.0	0.4		0.0	0.0
Delay (s)	27.7	19.5	23.2		5.5	4.8
Level of Service	C	B	C		A	A
Approach Delay (s)	25.0		23.2			4.8
Approach LOS	C		C			A
Intersection Summary						
HCM 2000 Control Delay			15.1		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.42			
Actuated Cycle Length (s)			60.0		Sum of lost time (s)	13.5
Intersection Capacity Utilization			38.8%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Queues
3: Windsor Avenue & 1-91 Off-Ramp/I-91 On Ramp

2029 Build Condition
Weekday Evening Peak Hour

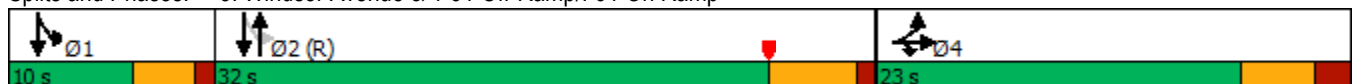


Lane Group	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	↕	↗	↕↕	↗	↖	↕↕
Traffic Volume (vph)	5	441	681	213	240	503
Future Volume (vph)	5	441	681	213	240	503
Lane Group Flow (vph)	43	538	783	245	267	559
Turn Type	NA	Prot	NA	Free	D.P+P	NA
Protected Phases	4	4	2		1	1 2
Permitted Phases				Free	2	
Detector Phase	4	4	2		1	1 2
Switch Phase						
Minimum Initial (s)	7.0	7.0	15.0		5.0	
Minimum Split (s)	12.4	12.4	24.2		10.0	
Total Split (s)	23.0	23.0	32.0		10.0	
Total Split (%)	35.4%	35.4%	49.2%		15.4%	
Yellow Time (s)	3.6	3.6	4.2		3.0	
All-Red Time (s)	1.8	1.8	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.4	5.4	5.2		4.0	
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max		None	
v/c Ratio	0.11	0.90	0.50	0.15	0.61	0.25
Control Delay	18.8	29.5	15.1	0.2	16.7	4.9
Queue Delay	0.0	0.0	0.3	0.0	0.0	0.0
Total Delay	18.8	29.5	15.4	0.2	16.7	4.9
Queue Length 50th (ft)	13	77	118	0	35	36
Queue Length 95th (ft)	31	#169	159	0	#123	62
Internal Link Dist (ft)	479		122			846
Turn Bay Length (ft)				175	400	
Base Capacity (vph)	483	658	1561	1583	438	2231
Starvation Cap Reductn	0	0	266	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.82	0.60	0.15	0.61	0.25

Intersection Summary




















Cycle Length: 65
 Actuated Cycle Length: 65
 Offset: 59 (91%), Referenced to phase 2:NBSB and 6:, Start of Yellow
 Natural Cycle: 55
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Windsor Avenue & 1-91 Off-Ramp/I-91 On Ramp



HCM Signalized Intersection Capacity Analysis
 3: Windsor Avenue & 1-91 Off-Ramp/I-91 On Ramp

2029 Build Condition
 Weekday Evening Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	5	441	0	0	0	0	681	213	240	503	0
Future Volume (vph)	30	5	441	0	0	0	0	681	213	240	503	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.4	5.4					5.2	4.0	4.0	4.0	
Lane Util. Factor		1.00	1.00					0.95	1.00	1.00	0.95	
Frt		1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected		0.96	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1786	1583					3539	1583	1770	3539	
Flt Permitted		0.96	1.00					1.00	1.00	0.29	1.00	
Satd. Flow (perm)		1786	1583					3539	1583	533	3539	
Peak-hour factor, PHF	0.82	0.82	0.82	0.92	0.92	0.92	0.87	0.87	0.87	0.90	0.90	0.90
Adj. Flow (vph)	37	6	538	0	0	0	0	783	245	267	559	0
RTOR Reduction (vph)	0	0	244	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	43	294	0	0	0	0	783	245	267	559	0
Turn Type	Split	NA	Prot					NA	Free	D.P+P	NA	
Protected Phases	4	4	4					2		1	12	
Permitted Phases									Free	2		
Actuated Green, G (s)		14.6	14.6					28.7	65.0	35.8	39.8	
Effective Green, g (s)		14.6	14.6					28.7	65.0	35.8	39.8	
Actuated g/C Ratio		0.22	0.22					0.44	1.00	0.55	0.61	
Clearance Time (s)		5.4	5.4					5.2		4.0		
Vehicle Extension (s)		3.0	3.0					3.0		3.0		
Lane Grp Cap (vph)		401	355					1562	1583	428	2166	
v/s Ratio Prot		0.02	c0.19					0.22		c0.07	0.16	
v/s Ratio Perm									0.15	c0.27		
v/c Ratio		0.11	0.83					0.50	0.15	0.62	0.26	
Uniform Delay, d1		20.0	24.0					13.0	0.0	8.1	5.8	
Progression Factor		1.00	1.00					1.00	1.00	1.34	0.78	
Incremental Delay, d2		0.1	14.6					1.2	0.2	2.7	0.1	
Delay (s)		20.1	38.6					14.2	0.2	13.6	4.6	
Level of Service		C	D					B	A	B	A	
Approach Delay (s)		37.2			0.0			10.8			7.5	
Approach LOS		D			A			B			A	
Intersection Summary												
HCM 2000 Control Delay			16.0		HCM 2000 Level of Service					B		
HCM 2000 Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			65.0		Sum of lost time (s)				14.6			
Intersection Capacity Utilization			50.1%		ICU Level of Service				A			
Analysis Period (min)			15									

c Critical Lane Group

Queues
6: Windsor Avenue & Private Driveway/Violet Street

2029 Build Condition
Weekday Evening Peak Hour

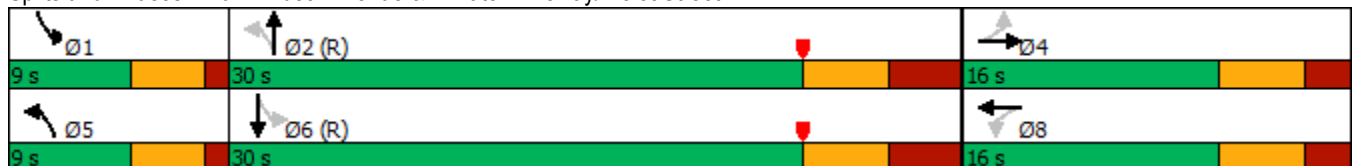


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	98	0	4	0	70	752	13	833
Future Volume (vph)	98	0	4	0	70	752	13	833
Lane Group Flow (vph)	109	77	0	65	79	854	14	1015
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.5	10.5	10.5	10.5	9.0	11.5	9.0	11.5
Total Split (s)	16.0	16.0	16.0	16.0	9.0	30.0	9.0	30.0
Total Split (%)	29.1%	29.1%	29.1%	29.1%	16.4%	54.5%	16.4%	54.5%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.0	3.5	3.0	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	1.0	3.0	1.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5		5.5	4.0	6.5	4.0	6.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
v/c Ratio	0.51	0.17		0.17	0.19	0.37	0.03	0.50
Control Delay	29.3	0.8		1.0	4.9	7.4	3.9	10.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.1
Total Delay	29.3	0.8		1.0	4.9	7.4	3.9	10.9
Queue Length 50th (ft)	32	0		0	8	64	1	129
Queue Length 95th (ft)	72	0		0	19	150	6	187
Internal Link Dist (ft)		402		467		405		61
Turn Bay Length (ft)								
Base Capacity (vph)	254	498		421	414	2303	519	2045
Starvation Cap Reductn	0	0		0	0	0	0	120
Spillback Cap Reductn	0	0		0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0
Reduced v/c Ratio	0.43	0.15		0.15	0.19	0.37	0.03	0.53

Intersection Summary






















Cycle Length: 55
 Actuated Cycle Length: 55
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Natural Cycle: 55
 Control Type: Actuated-Coordinated

Splits and Phases: 6: Windsor Avenue & Private Driveway/Violet Street



HCM Signalized Intersection Capacity Analysis
6: Windsor Avenue & Private Driveway/Violet Street

2029 Build Condition
Weekday Evening Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	0	69	4	0	44	70	752	8	13	833	91
Future Volume (vph)	98	0	69	4	0	44	70	752	8	13	833	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5		4.0	6.5		4.0	6.5	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.85			0.88		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1583			1624		1770	3534		1770	3487	
Flt Permitted	0.71	1.00			0.97		0.22	1.00		0.33	1.00	
Satd. Flow (perm)	1331	1583			1579		404	3534		617	3487	
Peak-hour factor, PHF	0.90	0.90	0.90	0.73	0.73	0.73	0.89	0.89	0.89	0.91	0.91	0.91
Adj. Flow (vph)	109	0	77	5	0	60	79	845	9	14	915	100
RTOR Reduction (vph)	0	66	0	0	56	0	0	1	0	0	13	0
Lane Group Flow (vph)	109	11	0	0	9	0	79	853	0	14	1002	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	7.7	7.7			7.7		33.5	30.3		29.1	28.1	
Effective Green, g (s)	7.7	7.7			7.7		33.5	30.3		29.1	28.1	
Actuated g/C Ratio	0.14	0.14			0.14		0.61	0.55		0.53	0.51	
Clearance Time (s)	5.5	5.5			5.5		4.0	6.5		4.0	6.5	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	186	221			221		325	1946		347	1781	
v/s Ratio Prot		0.01					c0.01	0.24		0.00	c0.29	
v/s Ratio Perm	c0.08				0.01		0.13			0.02		
v/c Ratio	0.59	0.05			0.04		0.24	0.44		0.04	0.56	
Uniform Delay, d1	22.2	20.5			20.5		4.9	7.3		6.1	9.2	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.7	0.1			0.1		0.4	0.7		0.0	1.3	
Delay (s)	26.8	20.6			20.5		5.3	8.0		6.2	10.5	
Level of Service	C	C			C		A	A		A	B	
Approach Delay (s)		24.2			20.5			7.8			10.5	
Approach LOS		C			C			A			B	

Intersection Summary		
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service B
HCM 2000 Volume to Capacity ratio	0.54	
Actuated Cycle Length (s)	55.0	Sum of lost time (s) 16.0
Intersection Capacity Utilization	55.5%	ICU Level of Service B
Analysis Period (min)	15	

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
9: Windsor Avenue

2029 Build Condition
Weekday Evening Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↑↑	↑↑	
Traffic Volume (veh/h)	0	0	0	894	937	7
Future Volume (Veh/h)	0	0	0	894	937	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	972	1018	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				141	202	
pX, platoon unblocked	0.89	0.94	0.94			
vC, conflicting volume	1508	513	1026			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1007	344	892			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	212	610	708			
Direction, Lane #	NB 1	NB 2	SB 1	SB 2		
Volume Total	486	486	679	347		
Volume Left	0	0	0	0		
Volume Right	0	0	0	8		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.29	0.29	0.40	0.20		
Queue Length 95th (ft)	0	0	0	0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS						
Approach Delay (s)	0.0		0.0			
Approach LOS						
Intersection Summary						
Average Delay	0.0					
Intersection Capacity Utilization	29.5%			ICU Level of Service	A	
Analysis Period (min)	15					

Queues
12: Windsor Avenue & Meadow Road

2029 Build Condition
Weekday Evening Peak Hour

	↙	↖	↑	↘	↓
Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations	↙	↖	↑↔	↘	↑↑
Traffic Volume (vph)	192	227	454	19	551
Future Volume (vph)	192	227	454	19	551
Lane Group Flow (vph)	216	255	790	22	648
Turn Type	Prot	Prot	NA	D,P+P	NA
Protected Phases	4	4	2	1	1 2
Permitted Phases				2	
Detector Phase	4	4	2	1	1 2
Switch Phase					
Minimum Initial (s)	7.0	7.0	15.0	5.0	
Minimum Split (s)	11.5	11.5	22.5	9.5	
Total Split (s)	20.0	20.0	35.0	10.0	
Total Split (%)	30.8%	30.8%	53.8%	15.4%	
Yellow Time (s)	3.0	3.0	4.2	3.0	
All-Red Time (s)	1.0	1.0	1.3	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	5.5	4.0	
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?					
Recall Mode	None	None	C-Max	None	
v/c Ratio	0.69	0.52	0.45	0.04	0.26
Control Delay	36.1	7.5	2.8	4.3	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	36.1	7.5	2.8	4.3	4.4
Queue Length 50th (ft)	81	0	4	2	40
Queue Length 95th (ft)	132	48	7	9	70
Internal Link Dist (ft)	573		846		411
Turn Bay Length (ft)				170	
Base Capacity (vph)	427	574	1737	501	2464
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.51	0.44	0.45	0.04	0.26

Intersection Summary













Cycle Length: 65
 Actuated Cycle Length: 65
 Offset: 7 (11%), Referenced to phase 2:NBSB, Start of Yellow
 Natural Cycle: 45
 Control Type: Actuated-Coordinated

Splits and Phases: 12: Windsor Avenue & Meadow Road



HCM Signalized Intersection Capacity Analysis
12: Windsor Avenue & Meadow Road

2029 Build Condition
Weekday Evening Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	192	227	454	257	19	551
Future Volume (vph)	192	227	454	257	19	551
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.5		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.95		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1736	1553	3283		1770	3539
Flt Permitted	0.95	1.00	1.00		0.31	1.00
Satd. Flow (perm)	1736	1553	3283		568	3539
Peak-hour factor, PHF	0.89	0.89	0.90	0.90	0.85	0.85
Adj. Flow (vph)	216	255	504	286	22	648
RTOR Reduction (vph)	0	209	113	0	0	0
Lane Group Flow (vph)	216	46	677	0	22	648
Heavy Vehicles (%)	4%	4%	4%	4%	2%	2%
Turn Type	Prot	Prot	NA		D.P+P	NA
Protected Phases	4	4	2		1	1 2
Permitted Phases					2	
Actuated Green, G (s)	11.7	11.7	32.2		39.8	43.8
Effective Green, g (s)	11.7	11.7	32.2		39.8	43.8
Actuated g/C Ratio	0.18	0.18	0.50		0.61	0.67
Clearance Time (s)	4.0	4.0	5.5		4.0	
Vehicle Extension (s)	1.5	1.5	3.0		2.0	
Lane Grp Cap (vph)	312	279	1626		488	2384
v/s Ratio Prot	c0.12	0.03	c0.21		0.01	c0.18
v/s Ratio Perm					0.02	
v/c Ratio	0.69	0.16	0.42		0.05	0.27
Uniform Delay, d1	25.0	22.5	10.4		5.1	4.2
Progression Factor	1.00	1.00	0.26		1.00	1.00
Incremental Delay, d2	5.3	0.1	0.7		0.0	0.0
Delay (s)	30.2	22.6	3.4		5.1	4.3
Level of Service	C	C	A		A	A
Approach Delay (s)	26.1		3.4			4.3
Approach LOS	C		A			A
Intersection Summary						
HCM 2000 Control Delay			9.2		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.47			
Actuated Cycle Length (s)			65.0		Sum of lost time (s)	13.5
Intersection Capacity Utilization			42.8%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

Queues
3: Windsor Avenue & 1-91 Off-Ramp/I-91 On Ramp

2029 Build Conditions
Saturday Midday Peak Hour

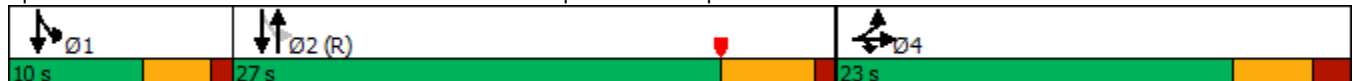


Lane Group	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations	↕	↗	↕↕	↗	↖	↕↕
Traffic Volume (vph)	1	308	478	190	186	408
Future Volume (vph)	1	308	478	190	186	408
Lane Group Flow (vph)	23	335	509	202	204	448
Turn Type	NA	Prot	NA	Free	D.P+P	NA
Protected Phases	4	4	2		1	1 2
Permitted Phases				Free	2	
Detector Phase	4	4	2		1	1 2
Switch Phase						
Minimum Initial (s)	7.0	7.0	15.0		5.0	
Minimum Split (s)	12.4	12.4	20.2		10.0	
Total Split (s)	23.0	23.0	27.0		10.0	
Total Split (%)	38.3%	38.3%	45.0%		16.7%	
Yellow Time (s)	3.6	3.6	4.2		3.0	
All-Red Time (s)	1.8	1.8	1.0		1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	5.4	5.4	5.2		4.0	
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max		None	
v/c Ratio	0.09	0.64	0.32	0.13	0.30	0.18
Control Delay	20.9	9.2	12.0	0.2	4.5	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.9	9.2	12.0	0.2	4.5	2.8
Queue Length 50th (ft)	8	0	55	0	12	14
Queue Length 95th (ft)	22	54	106	0	39	37
Internal Link Dist (ft)	479		108			844
Turn Bay Length (ft)				175	400	
Base Capacity (vph)	521	701	1601	1568	672	2458
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.48	0.32	0.13	0.30	0.18

Intersection Summary




















Cycle Length: 60
 Actuated Cycle Length: 60
 Offset: 36 (60%), Referenced to phase 2:NBSB and 6:, Start of Yellow
 Natural Cycle: 45
 Control Type: Actuated-Coordinated

Splits and Phases: 3: Windsor Avenue & 1-91 Off-Ramp/I-91 On Ramp



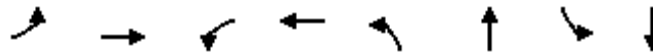
HCM Signalized Intersection Capacity Analysis
 3: Windsor Avenue & 1-91 Off-Ramp/I-91 On Ramp

2029 Build Conditions
 Saturday Midday Peak Hour

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	20	1	308	0	0	0	0	478	190	186	408	0		
Future Volume (vph)	20	1	308	0	0	0	0	478	190	186	408	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)		5.4	5.4					5.2	4.0	4.0	4.0			
Lane Util. Factor		1.00	1.00					0.95	1.00	1.00	0.95			
Frt		1.00	0.85					1.00	0.85	1.00	1.00			
Flt Protected		0.95	1.00					1.00	1.00	0.95	1.00			
Satd. Flow (prot)		1778	1583					3505	1568	1770	3539			
Flt Permitted		0.95	1.00					1.00	1.00	0.46	1.00			
Satd. Flow (perm)		1778	1583					3505	1568	850	3539			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.91	0.91	0.91		
Adj. Flow (vph)	22	1	335	0	0	0	0	509	202	204	448	0		
RTOR Reduction (vph)	0	0	285	0	0	0	0	0	0	0	0	0		
Lane Group Flow (vph)	0	23	50	0	0	0	0	509	202	204	448	0		
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	3%	2%	2%	2%		
Turn Type	Split	NA	Prot					NA	Free	D.P+P	NA			
Protected Phases	4	4	4					2		1	1 2			
Permitted Phases									Free	2				
Actuated Green, G (s)		8.9	8.9					27.4	60.0	36.5	40.5			
Effective Green, g (s)		8.9	8.9					27.4	60.0	36.5	40.5			
Actuated g/C Ratio		0.15	0.15					0.46	1.00	0.61	0.68			
Clearance Time (s)		5.4	5.4					5.2		4.0				
Vehicle Extension (s)		3.0	3.0					3.0		3.0				
Lane Grp Cap (vph)		263	234					1600	1568	656	2388			
v/s Ratio Prot		0.01	c0.03					c0.15		c0.05	0.13			
v/s Ratio Perm									0.13	0.14				
v/c Ratio		0.09	0.21					0.32	0.13	0.31	0.19			
Uniform Delay, d1		22.0	22.5					10.4	0.0	5.2	3.6			
Progression Factor		1.00	1.00					1.00	1.00	0.84	0.72			
Incremental Delay, d2		0.1	0.5					0.5	0.2	0.3	0.0			
Delay (s)		22.2	22.9					10.9	0.2	4.6	2.7			
Level of Service		C	C					B	A	A	A			
Approach Delay (s)		22.9			0.0			7.8			3.3			
Approach LOS		C			A			A			A			
Intersection Summary														
HCM 2000 Control Delay			9.2									HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio			0.30											
Actuated Cycle Length (s)			60.0								14.6			
Intersection Capacity Utilization			41.5%										ICU Level of Service	A
Analysis Period (min)			15											
c	Critical Lane Group													

Queues
6: Windsor Avenue & Site Driveway/Violet Street

2029 Build Conditions
Saturday Midday Peak Hour

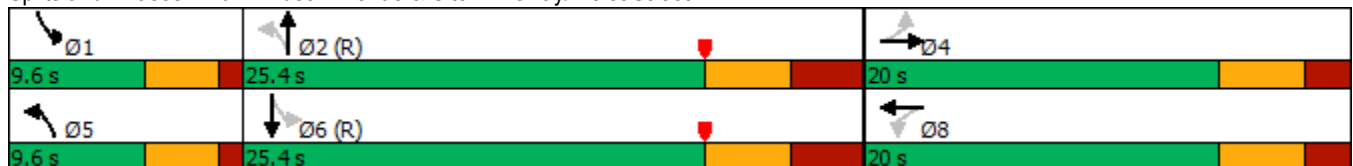


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖	↗		↕	↖	↗	↖	↗
Traffic Volume (vph)	149	0	4	0	102	483	18	557
Future Volume (vph)	149	0	4	0	102	483	18	557
Lane Group Flow (vph)	162	114	0	54	107	509	19	740
Turn Type	Perm	NA	Perm	NA	pm+pt	NA	pm+pt	NA
Protected Phases		4		8	5	2	1	6
Permitted Phases	4		8		2		6	
Detector Phase	4	4	8	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.5	10.5	10.5	10.5	9.5	11.5	9.5	11.5
Total Split (s)	20.0	20.0	20.0	20.0	9.6	25.4	9.6	25.4
Total Split (%)	36.4%	36.4%	36.4%	36.4%	17.5%	46.2%	17.5%	46.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.0	3.5	3.0	3.5
All-Red Time (s)	2.0	2.0	2.0	2.0	1.0	3.0	1.0	3.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.5	5.5		5.5	4.0	6.5	4.0	6.5
Lead/Lag					Lead	Lag	Lead	Lag
Lead-Lag Optimize?								
Recall Mode	None	None	None	None	None	C-Max	None	C-Max
v/c Ratio	0.59	0.19		0.12	0.22	0.24	0.03	0.43
Control Delay	28.1	0.7		0.6	6.3	8.4	5.4	12.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0
Total Delay	28.1	0.7		0.6	6.3	8.4	5.4	12.7
Queue Length 50th (ft)	48	0		0	12	38	2	90
Queue Length 95th (ft)	92	0		0	32	101	9	143
Internal Link Dist (ft)		97		467		405		75
Turn Bay Length (ft)								
Base Capacity (vph)	354	662		521	484	2136	607	1715
Starvation Cap Reductn	0	0		0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0
Reduced v/c Ratio	0.46	0.17		0.10	0.22	0.24	0.03	0.43

Intersection Summary





















Cycle Length: 55
 Actuated Cycle Length: 55
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
 Natural Cycle: 50
 Control Type: Actuated-Coordinated

Splits and Phases: 6: Windsor Avenue & Site Driveway/Violet Street



HCM Signalized Intersection Capacity Analysis
6: Windsor Avenue & Site Driveway/Violet Street

2029 Build Conditions
Saturday Midday Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	149	0	105	4	0	36	102	483	1	18	557	131
Future Volume (vph)	149	0	105	4	0	36	102	483	1	18	557	131
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5			5.5		4.0	6.5		4.0	6.5	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.85			0.88		1.00	1.00		1.00	0.97	
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1583			1611		1752	3504		1752	3405	
Flt Permitted	0.72	1.00			0.97		0.29	1.00		0.46	1.00	
Satd. Flow (perm)	1345	1583			1563		538	3504		857	3405	
Peak-hour factor, PHF	0.92	0.92	0.92	0.73	0.73	0.73	0.95	0.95	0.95	0.93	0.93	0.93
Adj. Flow (vph)	162	0	114	5	0	49	107	508	1	19	599	141
RTOR Reduction (vph)	0	93	0	0	44	0	0	0	0	0	32	0
Lane Group Flow (vph)	162	21	0	0	10	0	107	509	0	19	708	0
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	10.0	10.0			10.0		32.9	27.9		25.1	24.0	
Effective Green, g (s)	10.0	10.0			10.0		32.9	27.9		25.1	24.0	
Actuated g/C Ratio	0.18	0.18			0.18		0.60	0.51		0.46	0.44	
Clearance Time (s)	5.5	5.5			5.5		4.0	6.5		4.0	6.5	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	244	287			284		432	1777		409	1485	
v/s Ratio Prot		0.01					c0.02	0.15		0.00	c0.21	
v/s Ratio Perm	c0.12				0.01		0.13			0.02		
v/c Ratio	0.66	0.07			0.03		0.25	0.29		0.05	0.48	
Uniform Delay, d1	20.9	18.7			18.5		5.1	7.8		8.2	11.0	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.6	0.1			0.0		0.3	0.4		0.0	1.1	
Delay (s)	27.6	18.8			18.6		5.4	8.2		8.3	12.1	
Level of Service	C	B			B		A	A		A	B	
Approach Delay (s)		23.9			18.6			7.7			12.0	
Approach LOS		C			B			A			B	
Intersection Summary												
HCM 2000 Control Delay			12.6				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			55.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			53.5%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
 9: Windsor Avenue & R-in Only

2029 Build Conditions
 Saturday Midday Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↑↑	↑↑	
Traffic Volume (veh/h)	0	0	0	668	706	10
Future Volume (Veh/h)	0	0	0	668	706	10
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	726	767	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)				155	188	
pX, platoon unblocked	0.94	0.96	0.96			
vC, conflicting volume	1136	389	778			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	836	287	691			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	287	683	866			
Direction, Lane #	NB 1	NB 2	SB 1	SB 2		
Volume Total	363	363	511	267		
Volume Left	0	0	0	0		
Volume Right	0	0	0	11		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.21	0.21	0.30	0.16		
Queue Length 95th (ft)	0	0	0	0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS						
Approach Delay (s)	0.0		0.0			
Approach LOS						
Intersection Summary						
Average Delay	0.0					
Intersection Capacity Utilization	23.2%			ICU Level of Service	A	
Analysis Period (min)	15					

Queues
12: Windsor Avenue & Meadow Road

2029 Build Conditions
Saturday Midday Peak Hour



Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	131	157	320	22	463
Future Volume (vph)	131	157	320	22	463
Lane Group Flow (vph)	154	185	535	24	498
Turn Type	Prot	Prot	NA	D,P+P	NA
Protected Phases	4	4	2	1	1 2
Permitted Phases				2	
Detector Phase	4	4	2	1	1 2
Switch Phase					
Minimum Initial (s)	7.0	7.0	15.0	5.0	
Minimum Split (s)	11.5	11.5	22.5	9.5	
Total Split (s)	20.0	20.0	30.0	10.0	
Total Split (%)	33.3%	33.3%	50.0%	16.7%	
Yellow Time (s)	3.0	3.0	4.2	3.0	
All-Red Time (s)	1.0	1.0	1.3	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	5.5	4.0	
Lead/Lag			Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	
Recall Mode	None	None	C-Max	None	
v/c Ratio	0.55	0.45	0.31	0.04	0.20
Control Delay	30.3	7.8	13.7	3.5	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	30.3	7.8	13.7	3.5	3.5
Queue Length 50th (ft)	53	0	20	2	23
Queue Length 95th (ft)	88	37	132	8	48
Internal Link Dist (ft)	573		844		411
Turn Bay Length (ft)				170	
Base Capacity (vph)	476	562	1731	663	2490
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.32	0.33	0.31	0.04	0.20

Intersection Summary














Cycle Length: 60
 Actuated Cycle Length: 60
 Offset: 36 (60%), Referenced to phase 2:NBSB, Start of Yellow
 Natural Cycle: 45
 Control Type: Actuated-Coordinated

Splits and Phases: 12: Windsor Avenue & Meadow Road



HCM Signalized Intersection Capacity Analysis
 12: Windsor Avenue & Meadow Road

2029 Build Conditions
 Saturday Midday Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (vph)	131	157	320	178	22	463
Future Volume (vph)	131	157	320	178	22	463
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	5.5		4.0	4.0
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	0.95		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1787	1599	3317		1787	3574
Flt Permitted	0.95	1.00	1.00		0.45	1.00
Satd. Flow (perm)	1787	1599	3317		848	3574
Peak-hour factor, PHF	0.85	0.85	0.93	0.93	0.93	0.93
Adj. Flow (vph)	154	185	344	191	24	498
RTOR Reduction (vph)	0	156	97	0	0	0
Lane Group Flow (vph)	154	29	438	0	24	498
Heavy Vehicles (%)	1%	1%	3%	3%	1%	1%
Turn Type	Prot	Prot	NA		D.P+P	NA
Protected Phases	4	4	2		1	1 2
Permitted Phases					2	
Actuated Green, G (s)	9.5	9.5	29.5		37.0	41.0
Effective Green, g (s)	9.5	9.5	29.5		37.0	41.0
Actuated g/C Ratio	0.16	0.16	0.49		0.62	0.68
Clearance Time (s)	4.0	4.0	5.5		4.0	
Vehicle Extension (s)	1.5	1.5	3.0		2.0	
Lane Grp Cap (vph)	282	253	1630		640	2442
v/s Ratio Prot	c0.09	0.02	c0.13		0.00	c0.14
v/s Ratio Perm					0.02	
v/c Ratio	0.55	0.12	0.27		0.04	0.20
Uniform Delay, d1	23.3	21.6	8.9		4.5	3.5
Progression Factor	1.00	1.00	2.05		1.00	1.00
Incremental Delay, d2	1.2	0.1	0.4		0.0	0.0
Delay (s)	24.4	21.7	18.7		4.5	3.5
Level of Service	C	C	B		A	A
Approach Delay (s)	23.0		18.7			3.6
Approach LOS	C		B			A
Intersection Summary						
HCM 2000 Control Delay			14.1		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.32			
Actuated Cycle Length (s)			60.0		Sum of lost time (s)	13.5
Intersection Capacity Utilization			32.2%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						