Transportation Impact Assessment

Proposed Residential Development
Littleton Drive
Wareham, Massachusetts

Prepared for:

PENNROSE
Bricks & Mortar | Heart & Soul
Boston, Massachusetts

December 2020

Prepared by:

Vanasse & Associates inc
Transportation Engineers & Planners

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Dear Reviewer:

This letter shall certify that this *Transportation Impact Assessment* has been prepared under my direct supervision and responsible charge. I am a Registered Professional Engineer (P.E.) in the Commonwealth of Massachusetts (Massachusetts P.E. No. 38871, Civil) and hold Certification as a Professional Traffic Operations Engineer (PTOE) from the Transportation Professional Certification Board, Inc. (TPCB), an independent affiliate of the Institute of Transportation Engineers (ITE) (PTOE Certificate No. 993). I am also a Fellow of the Institute of Transportation Engineers (FITE).

Sincerely,

VANASSE & ASSOCIATES, INC.

Jeffrey S. Dirk

Jeffrey S. Dirk, P.E., PTOE, FITE
Managing Partner

CONTENTS

FIGURES

TABLES

EXECUTIVE SUMMARY

Vanasse & Associates, Inc. (VAI) has conducted a Transportation Impact Assessment (TIA) in order to determine the potential impacts on the transportation infrastructure associated with the proposed construction of a multifamily residential community to be located off Littleton Drive in Wareham, Massachusetts (hereafter referred to as the Project). This assessment was prepared in consultation with the Town of Wareham and the Massachusetts Department of Transportation (MassDOT), and was performed in accordance with MassDOT's *Transportation Impact Assessment (TIA) Guidelines* and the standards of the Traffic Engineering and Transportation Planning professions for the preparation of such reports.

Based on this assessment, we have concluded the following with respect to the Project:

1. Using trip-generation statistics published by the Institute of Transportation Engineers (ITE),[1] the Project is expected to generate approximately 496 vehicle trips on an average weekday (two-way 24-hour volume), with 33 vehicle trips expected during the weekday morning peak-hour and 42 vehicle trips expected during the weekday evening peak-hour;

2. The Project will not result in a significant impact (increase) on motorist delays or vehicle queuing over Existing or anticipated future conditions without the Project (No-Build conditions), with all movements at the study intersections shown to operate at a level-of-service (LOS) of C or better under all analysis conditions, where an LOS of "D" or better is defined as "acceptable" traffic operations;

3. No apparent safety deficiencies were noted with respect to the motor vehicle crash history at the study area intersections; and

4. Lines of sight to and from Littleton Drive at its intersection with Swifts Beach Road were found to exceed or could be made to exceed the recommended minimum distances for safe and efficient operation based on the appropriate approach speed.

In consideration of the above, we have concluded that the Project can be accommodated within the confines of the existing transportation infrastructure in a safe and efficient manner with implementation of the recommendations that follow.

[1] *Trip Generation*, 10th Edition; Institute of Transportation Engineers; Washington, DC; 2017.

RECOMMENDATIONS

A detailed transportation improvement program has been developed that is designed to provide safe and efficient access to the Project site and address any deficiencies identified at off-site locations evaluated in conjunction with this study. The following improvements have been recommended as a part of this evaluation and, where applicable, will be completed in conjunction with the Project subject to receipt of all necessary rights, permits, and approvals.

Project Access

Access to the Project site will be provided by way of a new roadway that will connect to Littleton Drive, with secondary access for emergency vehicles to be provided by way of a connection to Nicholas Drive. The following recommendations are offered with respect to the design and operation of the Project site access and internal circulation, many of which are reflected on the Site Plans:

- Circulating drives and roadways within the Project site should be a minimum of 24-feet in width and designed to accommodate the turning and maneuvering requirements of the largest anticipated responding emergency vehicle.

- The emergency vehicle access should be a minimum of 20-feet in width and constructed of bituminous asphaltic concrete or other stabilized surface material that can support travel by the largest anticipated responding emergency vehicle under all weather conditions, and gated or otherwise secured in a manner to restrict use by general traffic.

- All signs and pavement markings to be installed within the Project site should conform to the applicable standards of the *Manual on Uniform Traffic Control Devices* (MUTCD).[2]

- A sidewalk should be provided along at least one side of the Project site roadway within the Project site and should extend to Littleton Drive and Swifts Beach Road to the extent that right-of-way is available for such an extension.

- Americans with Disabilities Act (ADA) compliant wheelchair ramps should be provided at all pedestrian crossings that are constructed or modified as a part of the Project.

- Signs and landscaping to be installed as a part of the Project within the intersection sight triangle areas of the Project site roadway or at the Swifts Beach Road/Littleton Drive intersection should be designed and maintained so as not to restrict lines of sight.

- The existing vegetation (hedge) situated along the south side of Swifts Beach Road and west of Littleton Drive should be selectively trimmed or removed in order to provide the required line of sight. To the extent that the subject vegetation cannot be altered, it is recommended that an "Intersection Ahead" warning sign (graphic symbol) and radar speed feedback sign be installed on Swifts Beach Road west of Littleton Drive to inform motorists traveling along Swifts Beach Road of the potential for vehicles to be entering the roadway from Littleton Drive and of the regulated speed limit (35 miles per hour).

- Bicycle parking should be provided at appropriate locations within the Project site.

[2] *Manual on Uniform Traffic Control Devices (MUTCD)*; Federal Highway Administration; Washington, D.C.; 2009.

- Snow windrows within sight triangle areas of the Project site roadway and at the Swifts Beach Road/Littleton Drive intersection should be promptly removed where such accumulations would impede sight lines.

Transportation Demand Management

Public transportation services are provided within the study area by the Greater Attleboro-Taunton Regional Transit Authority (GATRA) by way of the Link 1, *Wareham/Onset/Wareham*, bus route. The Link 1 bus provides service along Swifts Beach Road and operates in a passenger demand mode ("flag stop") and will stop anywhere along the regular service route where it is safe to pick-up or discharge a passenger when requested. In addition, GATRA provides Dial-a-Ride paratransit services to eligible persons that cannot use fixed-route transit all or some of the time due to a physical, cognitive or mental disability in compliance with the ADA.

In an effort to encourage the use of alternative modes of transportation to single-occupant vehicles, the following Transportation Demand Management (TDM) measures will be implemented as a part of the Project:

- A transportation coordinator will be designated for the Project to coordinate the elements of the TDM program;
- Information regarding public transportation services, maps, schedules and fare information will be posted in a central location and/or otherwise made available to residents;
- A "welcome packet" will be provided to residents detailing available public transportation services, bicycle and walking alternatives, and commuter options available;
- Pedestrian accommodations will be incorporated into the Project site;
- A mail drop will be provided within the building; and
- Bicycle parking will be provided within the Project site.

With implementation of the aforementioned recommendations, safe and efficient access will be provided to the Project site and the Project can be accommodated within the confines of the existing and improved transportation system.

INTRODUCTION

Vanasse & Associates, Inc. (VAI) has conducted a Transportation Impact Assessment (TIA) in order to determine the potential impacts on the transportation infrastructure associated with the proposed construction of a multifamily residential community to be located off Littleton Drive in Wareham, Massachusetts (hereafter referred to as the Project). This study evaluates the following specific areas as they relate to the Project: i) access requirements; ii) potential off-site improvements; and iii) safety considerations; and identifies and analyzes existing traffic conditions and future traffic conditions, both with and without the Project, along Swifts Beach Road and Littleton Drive, and at the following specific intersections: Marion Road (Route 6) at Swifts Beach Road; and Swifts Beach Road at Littleton Drive.

PROJECT DESCRIPTION

The Project will entail the construction of a multifamily residential community consisting of 49-units of conventional multifamily housing and 44-units of age-restricted (55+) multifamily housing. The Project site encompasses approximately 16.33± acres of land that consists predominantly of areas of open and wooded space and is bounded by residential properties. Figure 1 depicts the Project site location in relation to the existing roadway network.

Access to the Project site will be provided by way of a new roadway that will connect to Littleton Drive, with secondary access for emergency vehicles to be provided by way of a connection to Nicholas Drive. Off-street parking will be provided for 125 vehicles, which is below the parking requirements of Article 9, *Parking*, of the Town of Wareham Zoning By-Laws; however the parking ratio is within the range of values documented by the Institute of Transportation Engineers (ITE) for similar multifamily residential communities.[3]

[3] *Parking Generation Manual*, 5th Edition; Institute of Transportation Engineers; Washington D.C.; 2019. Observed parking demand ratios for a multifamily housing (low-rise) residential community were found to range from 0.58 to 2.50 spaces per dwelling unit, with an average parking demand of 1.21 spaces per dwelling unit and an 85th percentile peak parking demand of 1.52 spaces per dwelling unit. Observed parking demand ratios for a senior adult housing – attached residential community were found to range from 0.45 to 0.67 spaces per dwelling unit, with an average parking demand of 0.61 spaces per dwelling unit and an 85th percentile peak parking demand of 0.67 spaces per dwelling unit.

Figure 1

Site Location Map

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STUDY METHODOLOGY

This study was prepared in consultation with the Town of Wareham and the Massachusetts Department of Transportation (MassDOT); was performed in accordance with MassDOT's *Transportation Impact Assessment (TIA) Guidelines* and the standards of the Traffic Engineering and Transportation Planning professions for the preparation of such reports; and was conducted in three distinct stages.

The first stage involved an assessment of existing conditions in the study area and included an inventory of roadway geometrics; pedestrian and bicycle facilities; on-street parking; public transportation services; observations of traffic flow; and collection of pedestrian, bicycle and vehicle counts.

In the second stage of the study, future traffic conditions were projected and analyzed. Specific travel demand forecasts for the Project were assessed along with future traffic demands due to expected traffic growth independent of the Project. A seven-year time horizon was selected for analyses consistent with MassDOT's *Transportation Impact Assessment (TIA) Guidelines*. The traffic analysis conducted in stage two identifies existing or projected future roadway capacity, traffic safety, and site access issues.

The third stage of the study presents and evaluates measures to address traffic and safety issues, if any, identified in stage two of the study.

EXISTING CONDITIONS

A comprehensive field inventory of existing conditions within the study area was conducted in November 2020. The field investigation consisted of an inventory of existing roadway geometrics; pedestrian and bicycle facilities; public transportation services; traffic volumes; and operating characteristics; as well as posted speed limits and land use information within the study area. The study area that was assessed for the Project consisted of Swifts Beach Road and Littleton Drive, and the following specific intersections: Route 6 at Swifts Beach Road; and Swifts Beach Road at Littleton Drive.

The following describes the study area roadways and intersections.

Roadways

Swifts Beach Road

- Two-lane local collector roadway under Town jurisdiction
- Traverses study area in a general northwest-southeast alignment for a distance of approximately 1.4-miles south of Route 6
- Provides two 12± foot wide travel lanes that are separated by a double-yellow centerline
- The posted speed limit is 35 miles per hour (mph)
- A sidewalk is provided along the east side of the roadway
- Illumination is provided by way of street lights mounted on wood poles
- Land use within the study area consists of the Project site, residential properties and areas of open wooded space

Littleton Drive

- Two-lane private roadway
- Traverses study area in a general northeast-southwest alignment for a distance of approximately 225-feet west of Swifts Beach Road
- Provides an approximate 20-foot wide traveled way (paved area) with no marked centerline or shoulders
- A posted speed limit is not provided
- Sidewalks are not provided along the roadway

- Illumination is provided by way of street lights mounted on wood poles
- Land use within the study area consists of the Project site, residential properties and areas of open and wooded space

Intersections

Table 1 and Figure 2 summarize existing lane use, traffic control, and pedestrian and bicycle accommodations at the study area intersections as observed in November 2020.

Table 1
STUDY AREA INTERSECTION DESCRIPTION

Intersection	Traffic Control Type[a]	No. of Travel Lanes Provided	Shoulder Provided? (Yes/No/Width)	Pedestrian Accommodations? (Yes/No/Description)	Bicycle Accommodations? (Yes/No/Description)
Rte. 6/ Swifts Beach Rd.	S	2 general purpose travel lanes on Rte. 6; 1 general purpose travel lane on Swift's Beach Rd.	Yes, 1-foot on Rte. 6 and Swifts Beach Rd.	Yes, both sides of Rte. 6 and east side of Swifts Beach Rd.	No
Swifts Beach Rd./ Littleton Dr.	S	1 general purpose travel lane on all approaches;	No	Yes, north side of Swifts Beach Rd.	No

[a]S = STOP-sign control.

TRAFFIC VOLUMES

In order to determine existing traffic-volume demands and flow patterns within the study area, automatic traffic recorder (ATR) counts, manual turning movement counts (TMCs) and vehicle classification counts were completed in November 2020. The ATR counts were conducted on November 11th through November 12th, 2020 (Wednesday through Thursday, inclusive) on Swifts Beach Road in the vicinity of the Project site in order to record weekday traffic conditions over an extended period, with weekday morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak period manual TMCs performed at the study intersections on November 12, 2020 (Thursday). These time periods were selected for analysis purposes as they are representative of the peak-traffic-volume hours for both the Project and the adjacent roadway network.

Traffic-Volume Adjustments

In order to evaluate the potential for seasonal fluctuation of traffic volumes within the study area, traffic volume data from MassDOT Continuous Count Station No. 7116 located on Interstate 495 in Wareham were reviewed.[4] Based on a review of this data it was determined that traffic volumes for the month of November are approximately 17.0 percent below average-month conditions. As such, the November traffic volumes were adjusted upward by 17.0 percent in order to be representative of average-month conditions.

[4]MassDOT Traffic Volumes for the Commonwealth of Massachusetts; 2020.

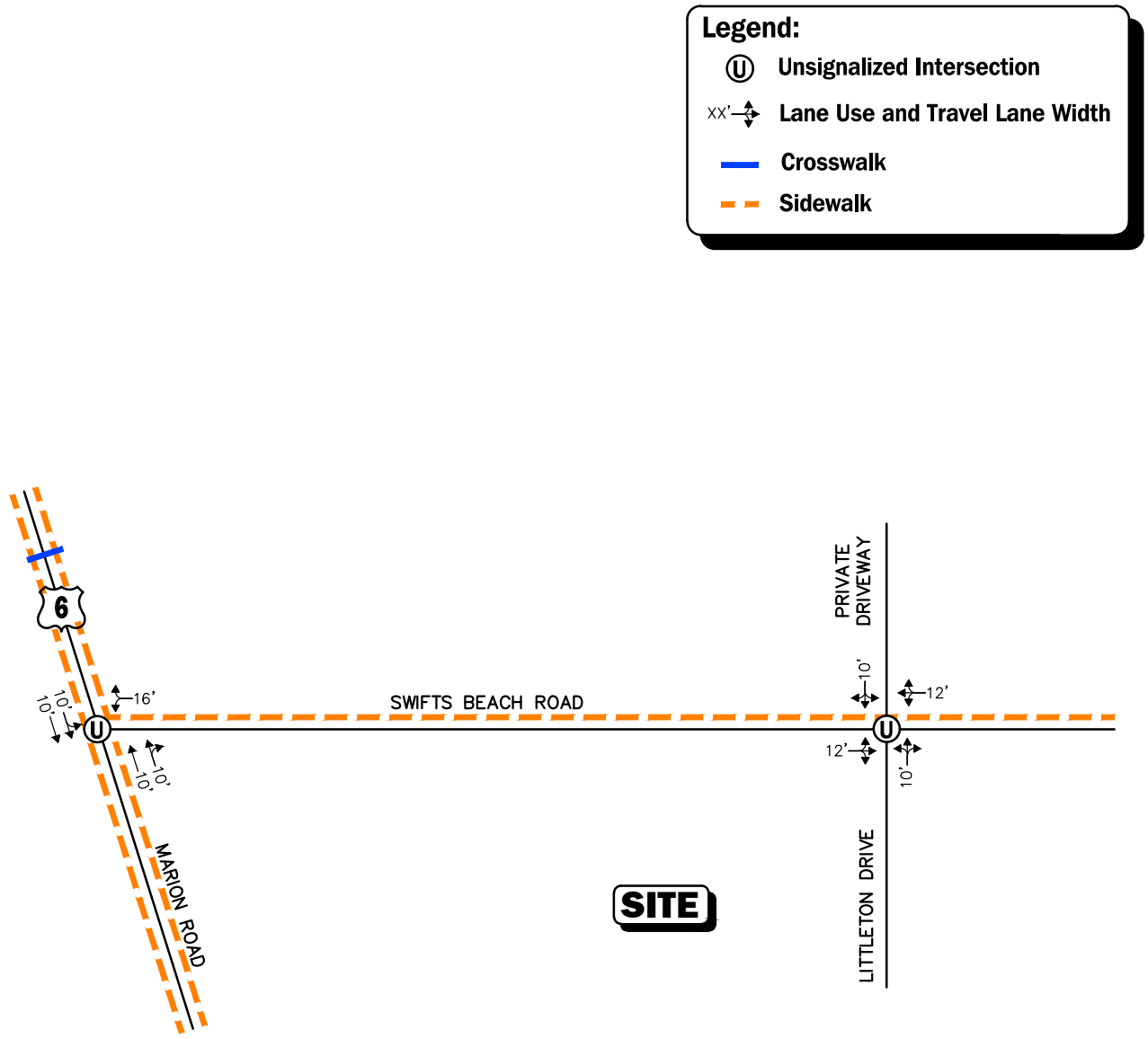

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Figure 2

Existing Intersection Lane Use, Travel Lane Width Pedestrian Facilities

Vanasse & Associates inc

In order to account for the impact on traffic volumes and trip patterns resulting from the "safer-at-home" order and the phased "Reopening Massachusetts" plan that was issued by the Governor on May 18, 2020, in response to the COVID-19 pandemic, the November 2020 traffic volumes that were collected as a part of this assessment were adjusted upward by an additional 9.4 percent based on a comparison of November 2019 and November 2020 traffic volume data obtained from MassDOT Continuous Count Station No. 7116.

The 2020 Existing traffic volumes are summarized in Table 2, with the weekday morning and evening peak-hour traffic volumes graphically depicted on Figure 3. Note that the peak-hour traffic volumes presented in Table 2 were obtained from the TMCs and are reflected on the aforementioned figure.

Table 2
2020 EXISTING TRAFFIC VOLUMES

Location/Peak Hour	AWT[a]	VPH[b]	K Factor[c]	Directional Distribution[d]
Swifts Beach Road, northwest of Littleton Drive	4,400	--	--	--
Weekday Morning (7:00 – 8:00 AM)	--	234	5.3	60.7% NWB
Weekday Evening (4:00 – 5:00 PM)	--	373	8.5	66.0% SEB

[a]Average weekday traffic in vehicles per day.
[b]Vehicles per hour.
[c]Percent of daily traffic occurring during the peak hour.
[d]Percent traveling in peak direction.
SEB=southeastbound; NWB=northwestbound

As can be seen in Table 2, Swifts Beach Road in the vicinity of the Project site was found to accommodate approximately 4,400 vehicles on an average weekday (two-way, 24-hour volume), with approximately 234 vehicles per hour (vph) during the weekday morning peak-hour and 373 vph during the weekday evening peak-hour.

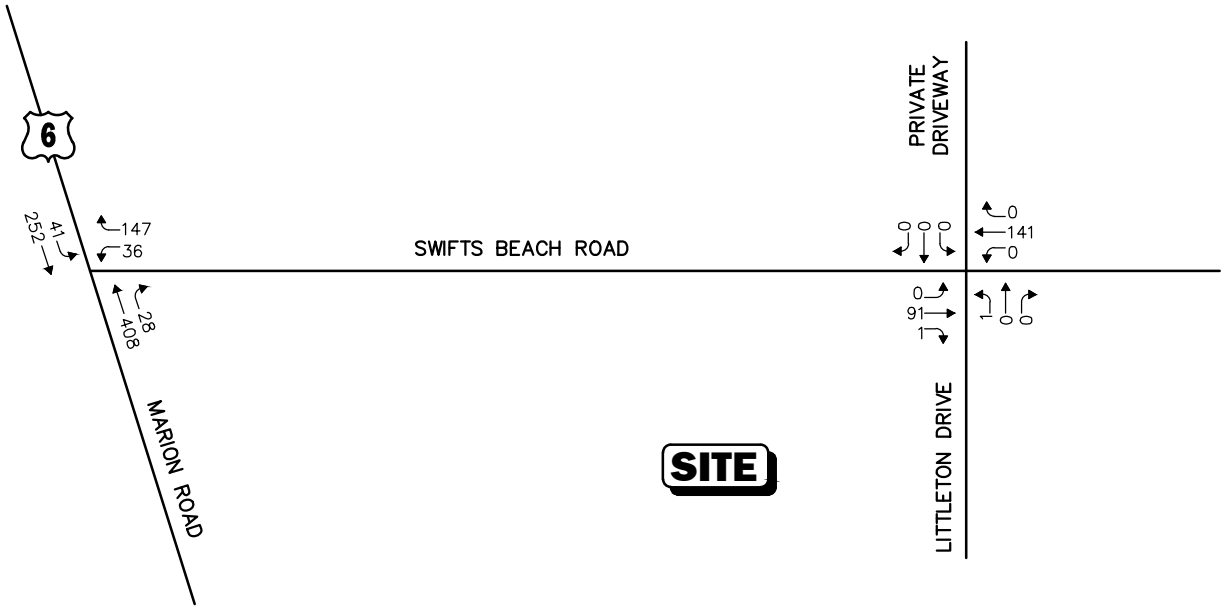
PEDESTRIAN AND BICYCLE FACILITIES

A comprehensive field inventory of pedestrian and bicycle facilities within the study area was undertaken in November 2020. The field inventory consisted of a review of the location of sidewalks and pedestrian crossing locations along the study roadways and at the study area intersections. As detailed on Figure 2, sidewalks are provided along both sides Route 6 and along the east side of Swifts Beach Road, with a mid-block crosswalk provided across Route 6 north of Swifts Beach Road.

Formal bicycle facilities were not identified within the immediate study area and the study area roadways do not provide sufficient width on a continuous basis to accommodate bicycle travel in a shared traveled-way configuration (i.e., bicyclists and motor vehicles sharing the traveled-way).[5]

[5]A minimum combined travel lane and paved shoulder width of 14-feet is required to support bicycle travel in a shared traveled-way condition.

WEEKDAY MORNING PEAK HOUR (7:00 - 8:00 AM)



WEEKDAY EVENING PEAK HOUR (4:00 - 5:00 PM)

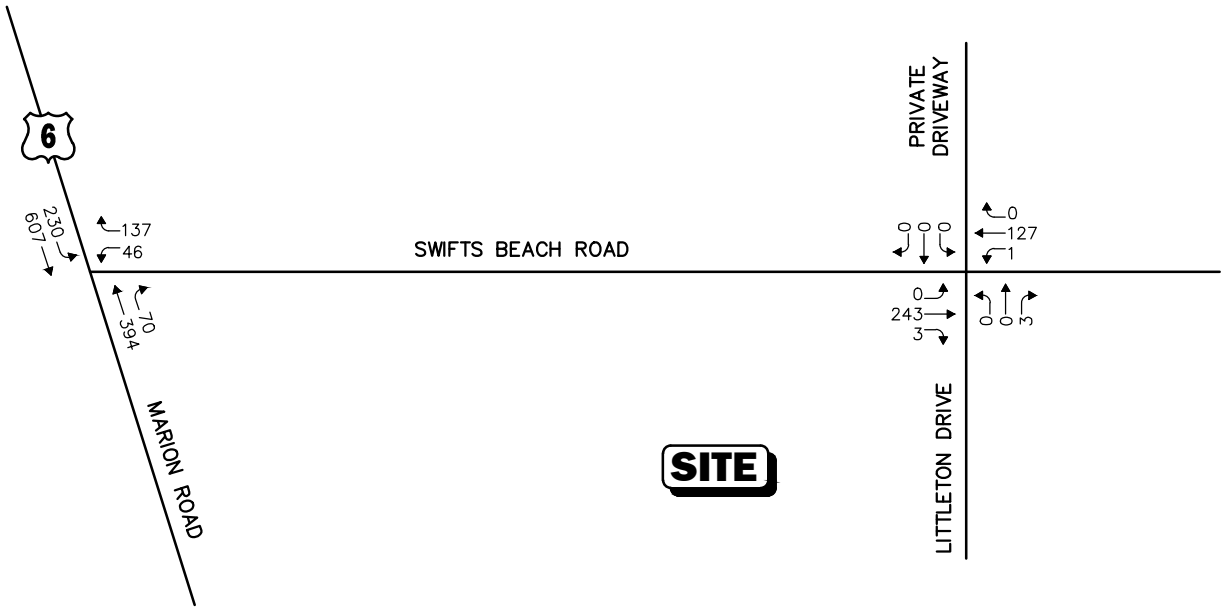


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Figure 3

2020 Existing
Peak Hour Traffic Volumes

Vanasse & Associates inc

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PUBLIC TRANSPORTATION

Public transportation services are provided within the study area by the Greater Attleboro-Taunton Regional Transit Authority (GATRA) by way of the Link 1, *Wareham/Onset/Wareham*, bus route. The Link 1 bus provides service along Swifts Beach Road and operates in a passenger demand mode ("flag stop") and will stop anywhere along the regular service route where it is safe to pick-up or discharge a passenger when requested. In addition, GATRA provides Dial-a-Ride paratransit services to eligible persons that cannot use fixed-route transit all or some of the time due to a physical, cognitive or mental disability in compliance with the Americans with Disabilities Act (ADA).

The public transportation schedules and fare information are provided in the Appendix.

SPOT SPEED MEASUREMENTS

Vehicle travel speed measurements were performed on Swifts Beach Road in the vicinity of the Project site in conjunction with the ATR counts. Table 3 summarizes the vehicle travel speed measurements.

Table 3
VEHICLE TRAVEL SPEED MEASUREMENTS

	Swifts Beach Road	
	Southeastbound	Northwestbound
Mean Travel Speed (mph)	35	35
85th Percentile Speed (mph)	39	40
Posted Speed Limit (mph)	35	35

mph = miles per hour.

As can be seen in Table 3, the mean vehicle travel speed along Swifts Beach Road in the vicinity of the Project site was found to be 35 mph in both the southeastbound and northwestbound directions. The measured 85th percentile vehicle travel speed, or the speed at which 85 percent of the observed vehicles traveled at or below, was found to be 39 mph southeastbound and 40 mph northwestbound, which is 4 to 5 mph above the posted speed limit (35 mph). The 85th percentile speed is used as the basis of engineering design and in the evaluation of sight distances, and is often used in establishing posted speed limits.

MOTOR VEHICLE CRASH DATA

Motor vehicle crash information for the study area intersections was provided by the MassDOT Highway Division Safety Management/Traffic Operations Unit for the most recent five-year period available (2013 through 2017, inclusive) in order to examine motor vehicle crash trends occurring within the study area. The data is summarized by intersection, type, severity, roadway and weather conditions, and day of occurrence, and presented in Table 4.

Table 4
MOTOR VEHICLE CRASH DATA SUMMARY[a]

	Rte. 6/ Swifts Beach Rd..	Swifts Beach Rd/ Littleton Dr.
Traffic Control Type:[b]	U	U
Year:		
2013	1	0
2014	6	0
2015	2	0
2016	1	0
2017	3	0
Total	13	0
Average	2.60	0.00
Rate[c]	0.43	0.00
MassDOT Crash Rate:[d]	0.57/0.57	0.57/0.57
Significant?[e]	No	No
Type:		
Angle	5	0
Rear-End	3	0
Head-On	0	0
Sideswipe	2	0
Fixed Object	2	0
Pedestrian/Bicycle	0	0
Unknown/Other	1	0
Total	13	0
Conditions:		
Clear	8	0
Cloudy	1	0
Rain	3	0
Snow/Ice	1	0
Total	13	0
Lighting:		
Daylight	9	0
Dawn/Dusk	1	0
Dark (Road Lit)	3	0
Dark (Road Unlit)	0	0
Total	13	0
Day of Week:		
Monday through Friday	10	0
Saturday	3	0
Sunday	0	0
Total	13	0
Severity:		
Property Damage Only	8	0
Personal Injury	5	0
Fatality	0	0
Total	13	0

[a]Source: MassDOT Safety Management/Traffic Operations Unit records, 2013 through 2017.
[b]Traffic Control Type: U = unsignalized.
[c]Crash rate per million vehicles entering the intersection.
[d]Statewide/District crash rate.
[e]The intersection crash rate is significant if it is found to exceed the MassDOT crash rate for the MassDOT Highway Division District in which the Project is located (District 5).

As can be seen in Table 4, the Route 6/Swifts Beach Road intersection was found to have experienced a total of 13 reported motor vehicle crashes over the five-year review period, or an average of 2.6 crashes per year, the majority of which occurred on a weekday; under clear weather conditions; during daylight; and were reported as angle type collisions that resulted in property damage only. The intersection was found to have a motor vehicle crash rate that was below the MassDOT Statewide and District 5 average crash rates for an unsignalized intersection. No (0) motor vehicle crashes were reported to have occurred at the Swifts Beach Road/Littleton Drive intersection over the five-year review period.

A review of the MassDOT statewide High Crash Location List indicated that there were no locations within the study area that were included on MassDOT's Highway Safety Improvement Program (HSIP) listing as a high crash location. In addition, no fatal motor vehicle crashes were reported to have occurred at the study area intersections over the five-year review period. The detailed MassDOT Crash Rate Worksheets are provided in the Appendix.

FUTURE CONDITIONS

Traffic volumes in the study area were projected to the year 2027, which reflects a seven-year planning horizon consistent with MassDOT's *Transportation Impact Assessment (TIA) Guidelines*. Independent of the Project, traffic volumes on the roadway network in the year 2027 under No-Build conditions include all existing traffic and new traffic resulting from background traffic growth. Anticipated Project-generated traffic volumes superimposed upon the 2027 No-Build traffic volumes reflect 2027 Build traffic volume conditions with the Project.

FUTURE TRAFFIC GROWTH

Future traffic growth is a function of the expected land development in the immediate area and the surrounding region. Several methods can be used to estimate this growth. A procedure frequently employed estimates an annual percentage increase in traffic growth and applies that percentage to all traffic volumes under study. The drawback to such a procedure is that some turning volumes may actually grow at either a higher or a lower rate at particular intersections.

An alternative procedure identifies the location and type of planned development, estimates the traffic to be generated, and assigns it to the area roadway network. This procedure produces a more realistic estimate of growth for local traffic; however, potential population growth and development external to the study area would not be accounted for in the resulting traffic projections.

To provide a conservative analysis framework, both procedures were used, the salient components of which are described below.

Specific Development by Others

The Town of Wareham was consulted in order to determine if there were any projects planned within the study area that would have an impact on future traffic volumes at the study intersections. Based on this consultation, no developments were identified at this time that are expected to result in an increase in traffic within the study area beyond the general background traffic growth rate.

General Background Traffic Growth

Traffic-volume data compiled by MassDOT from permanent count stations located in Wareham and Marion were reviewed in order to determine general traffic growth trends in the area. This data indicates that traffic volumes have fluctuated over the past several years, with the average growth rate found to be approximately 0.6 percent per year. As such, a slightly higher 1.0 percent per year compounded annual background traffic growth rate was used in order to account for future traffic growth and presently unforeseen development within the study area.

Roadway Improvement Projects

The Town of Wareham and MassDOT were contacted in order to determine if there were any planned future roadway improvement projects expected to be complete by 2027 within the study area. Based on these discussions, the following roadway improvement project was identified:

- **Corridor Improvements on Route 6 at Swifts Beach Road, Wareham (MassDOT Project No. 610647)**. This project is being undertaken by MassDOT to improve traffic operations, safety and mobility along the Route 6 corridor, and will include the installation of a traffic control signal at the Route 6/Swifts Beach Road intersection, as well as bicycle and pedestrian improvements. The project is in the preliminary design stage and is included for funding on the 2021-2025 Transportation Improvement Program (TIP) list for the Southeastern Massachusetts Metropolitan Planning Organization (MPO) in the 2024 program year. For the purpose of this assessment, it was assumed that a traffic control signal would be installed at the Route 6/Swift's Beach Road intersection under future year (both 2027 No Build and Build) conditions.

No other roadway improvement projects aside from routine maintenance activities were identified to be planned within the study area at this time.

No-Build Traffic Volumes

The 2027 No-Build condition peak-hour traffic-volumes were developed by applying the 1.0 percent per year compounded annual background traffic growth rate to the 2020 Existing peak-hour traffic volumes. The resulting 2027 No-Build weekday morning and evening peak-hour traffic volumes are shown on Figure 4.

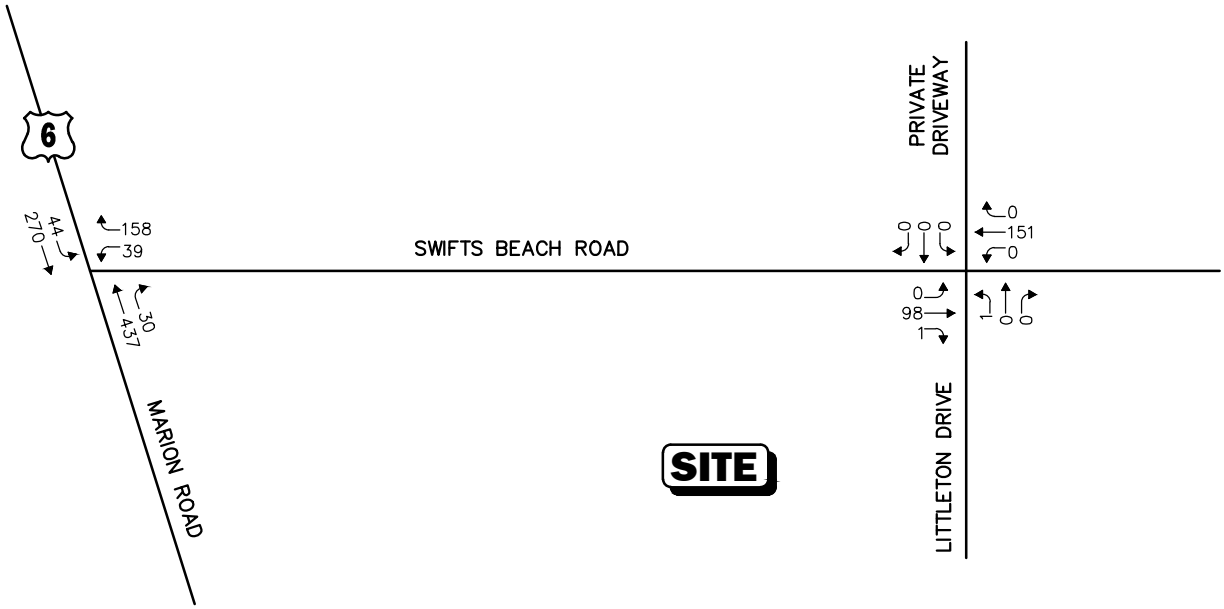
PROJECT-GENERATED TRAFFIC

Design year (2027 Build) traffic volumes for the study area roadways were determined by estimating Project-generated traffic volumes and assigning those volumes on the study roadways. The following sections describe the methodology used to develop the anticipated traffic characteristics of the Project.

As proposed, the Project will entail the construction of a multifamily residential community consisting of 49-units of conventional multifamily housing and 44-units of age-restricted (55+) multifamily housing. In order to develop the traffic characteristics of the Project, trip-generation statistics published by the ITE[6] for similar land uses as those proposed were used. ITE Land Use Codes (LUCs) 220, *Multifamily Housing (Low-Rise)*, and 252, *Senior Adult Housing – Attached*,

[6]Ibid 1.

WEEKDAY MORNING PEAK HOUR (7:00 - 8:00 AM)



WEEKDAY EVENING PEAK HOUR (4:00 - 5:00 PM)

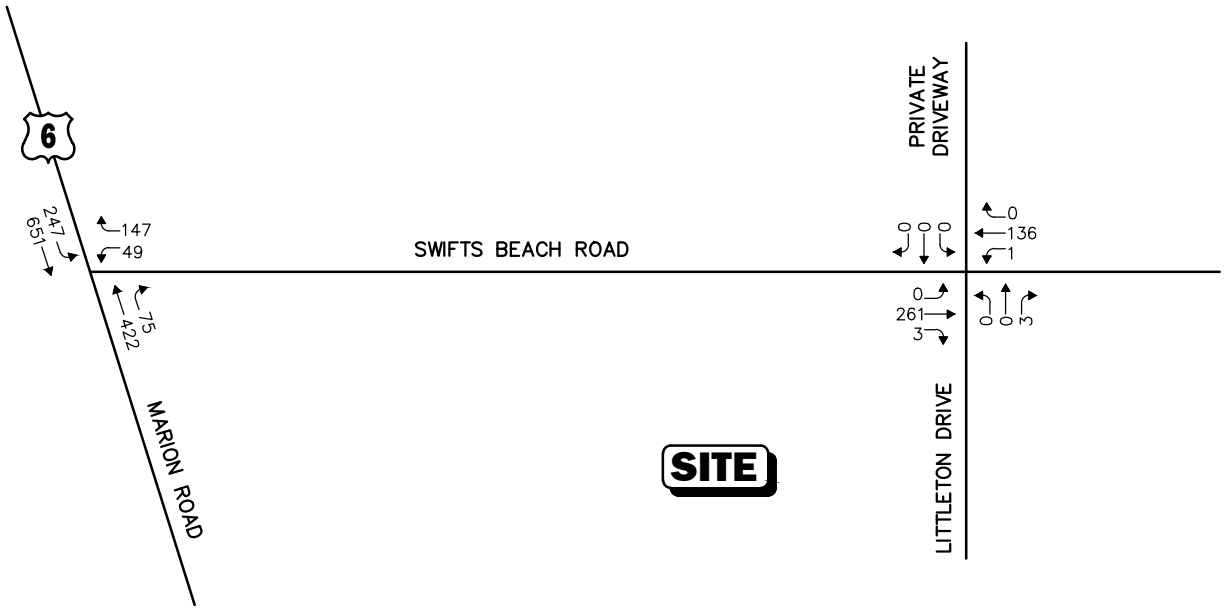


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Figure 4

2027 No Build
Peak Hour Traffic Volumes

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were used to develop the traffic characteristics of the Project, the results of which are summarized in Table 5, with detailed trip calculations provided in the Appendix.

Table 5
TRIP GENERATION SUMMARY

Time Period/Direction	Vehicle Trips (A) Multifamily Residential Community (49 Units)[a]	(B) Age-Restricted (55+) Residential Community (44 Units)[b]	(C=A+B) Total New Trips
Average Weekday Daily:			
Entering	166	82	248
Exiting	166	82	248
Total	332	164	496
Weekday Morning Peak Hour:			
Entering	6	3	9
Exiting	18	6	24
Total	24	9	33
Weekday Evening Peak Hour:			
Entering	20	6	26
Exiting	11	5	16
Total	31	11	42

[a]Based on ITE LUC 220, *Multifamily Housing (Low-Rise).*
[b]Based on ITE LUC 252, *Senior Adult Housing – Attached.*

Project-Generated Traffic Volume Summary

As can be seen in Table 5, the Project is expected to generate approximately 496 vehicle trips on an average weekday (two-way, 24-hour volume, or 248 vehicles entering and 248 exiting), with 33 vehicle trips (9 vehicles entering and 24 exiting) expected during the weekday morning peak-hour and 42 vehicle trips (26 vehicles entering and 16 exiting) expected during the weekday evening peak-hour.

TRIP DISTRIBUTION AND ASSIGNMENT

The directional distribution of generated trips to and from the Project site was determined based on a review of Journey-to-Work data obtained from the U.S. Census for persons residing in the Town of Wareham and then refined based on existing traffic patterns within the study area. The general trip distribution for the Project is graphically depicted on Figure 5. The additional traffic expected to be generated by the Project was assigned on the study area roadway network as shown on Figure 6 for the weekday morning and evening peak hours.

Legend:

XX	Entering Trips
(XX)	Exiting Trips

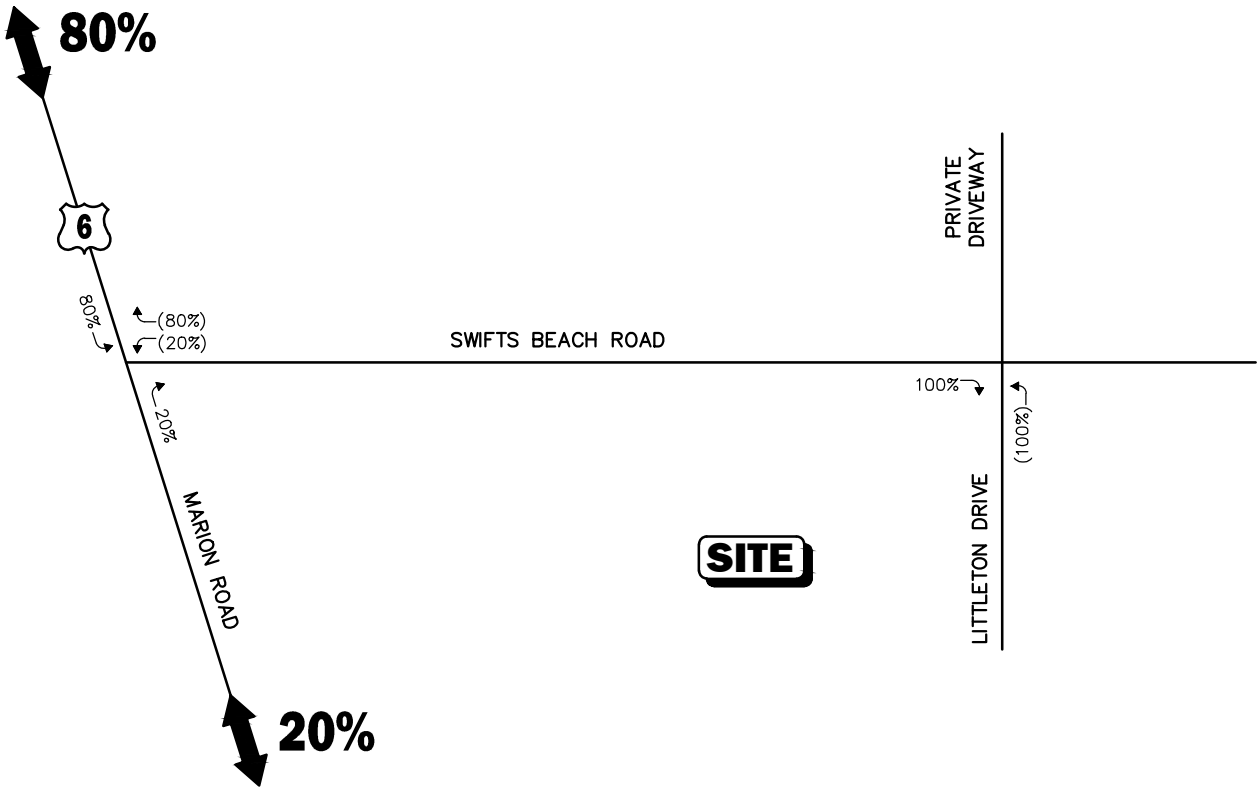

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Figure 5

Trip Distribution Map

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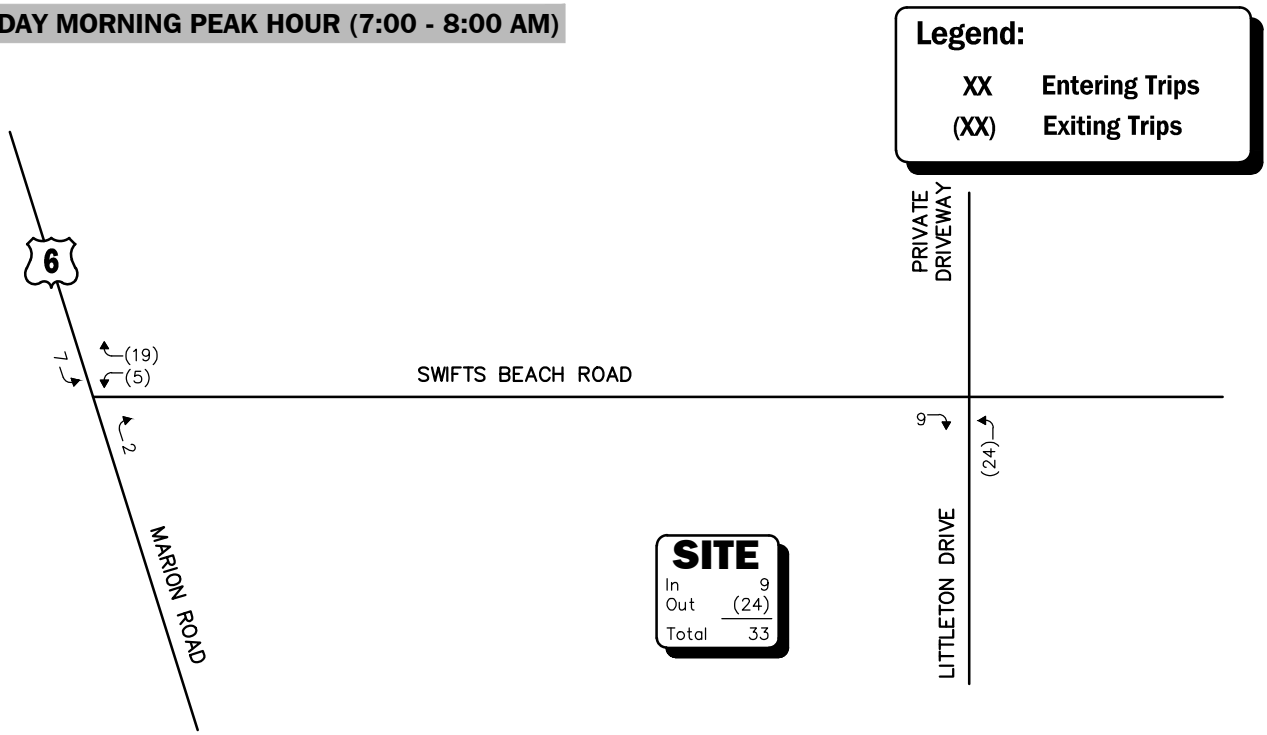
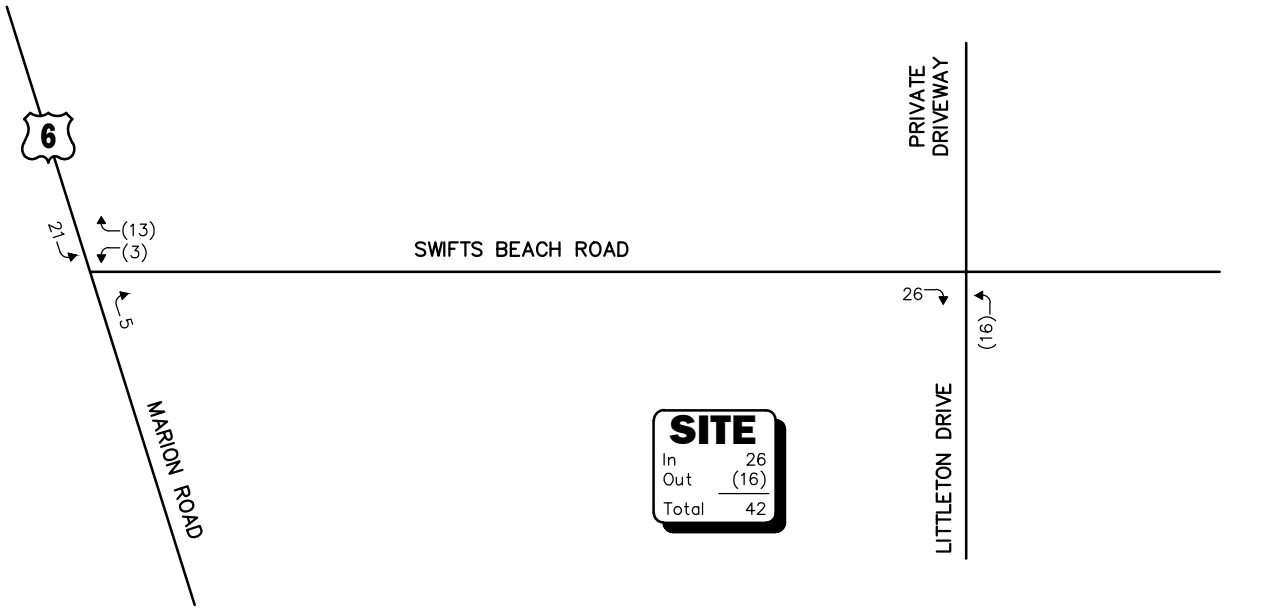
WEEKDAY MORNING PEAK HOUR (7:00 - 8:00 AM)



WEEKDAY EVENING PEAK HOUR (4:00 - 5:00 PM)



N

Not To Scale

Figure 6

Project Generated Trips

Vanasse & Associates inc

FUTURE TRAFFIC VOLUMES - BUILD CONDITION

The 2027 Build condition traffic volumes consist of the 2027 No-Build traffic volumes with the additional traffic expected to be generated by the Project added to them. The 2027 Build weekday morning and evening peak-hour traffic-volumes are graphically depicted on Figure 7.

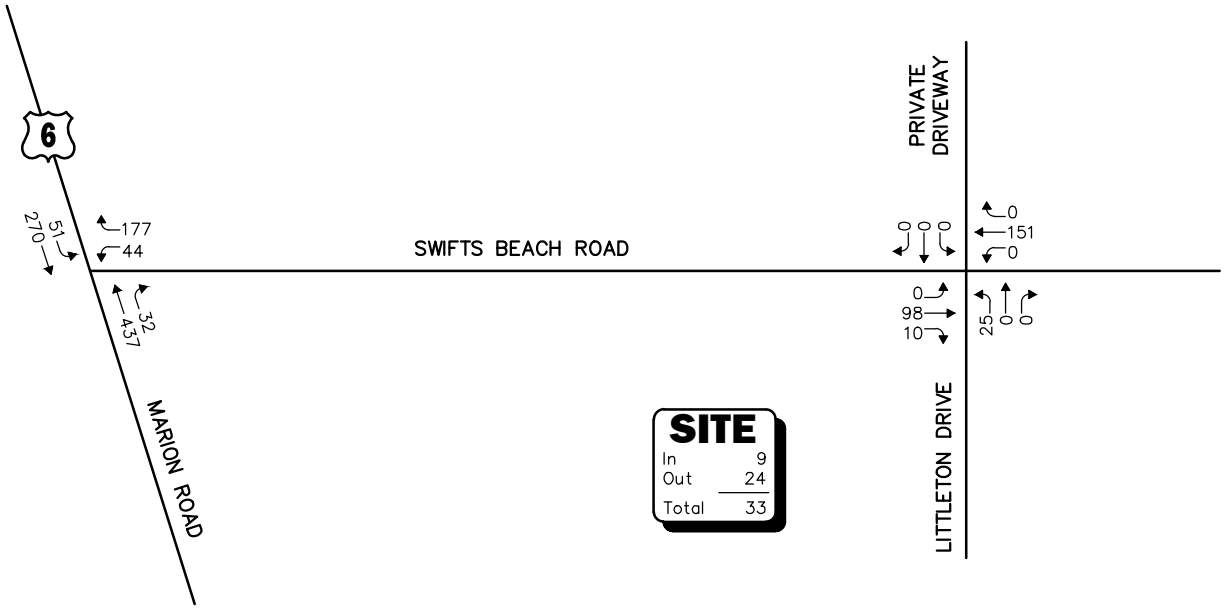
A summary of peak-hour projected traffic-volume changes outside of the study area that is the subject of this assessment is shown in Table 6. These changes are a result of the construction of the Project.

Table 6
PEAK-HOUR TRAFFIC-VOLUME INCREASES

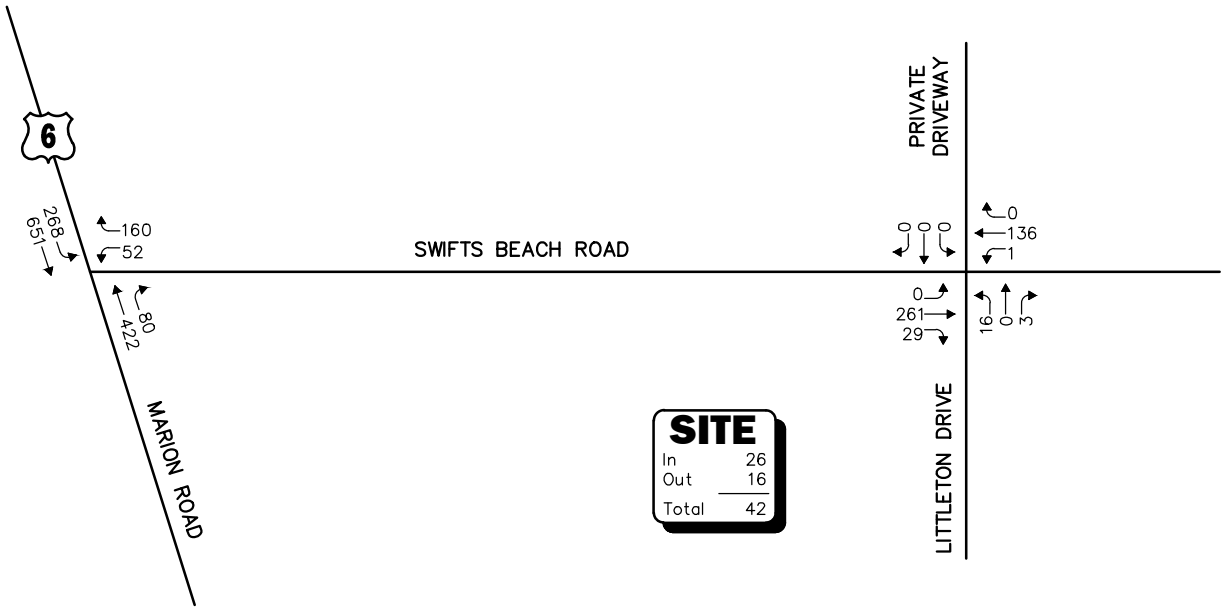
Location/Peak Hour	2020 Existing	2027 No-Build	2027 Build	Traffic Volume Increase Over No-Build	Percent Increase Over No-Build
Route 6, north of Swifts Beach Road:					
Weekday Morning	848	909	935	26	2.9
Weekday Evening	1,368	1,467	1,501	34	2.3
Route 6, south of Swifts Beach Road:					
Weekday Morning	724	776	783	7	0.9
Weekday Evening	1,117	1,197	1,205	8	0.7
Swifts Beach Road, east of Littleton Drive:					
Weekday Morning	232	249	249	0	0.0
Weekday Evening	374	401	401	0	0.0

As shown in Table 6, Project-related traffic-volume increases outside of the study area relative to 2027 No-Build conditions are anticipated to range from 0.0 to 2.9 percent during the peak periods, with vehicle increases shown to range from 0 to 34 vehicles. ***When distributed over the peak-hour, the predicted traffic volume increases would not result in a significant impact (increase) on motorist delays or vehicle queuing outside of the immediate study area that is the subject of this assessment.***

WEEKDAY MORNING PEAK HOUR (7:00 - 8:00 AM)



WEEKDAY EVENING PEAK HOUR (4:00 - 5:00 PM)



Not To Scale

Figure 7

2027 Build
Peak Hour Traffic Volumes

Vanasse & Associates inc

R:\8800\8800NT1.dwg, Fig 7, 12/4/2020 4:46:18 PM

TRAFFIC OPERATIONS ANALYSIS

Measuring existing and future traffic volumes quantifies traffic flow within the study area. To assess quality of flow, roadway capacity and vehicle queue analyses were conducted under Existing, No-Build and Build traffic volume conditions. Capacity analyses provide an indication of how well the roadway facilities serve the traffic demands placed upon them, with vehicle queue analyses providing a secondary measure of the operational characteristics of an intersection or section of roadway under study.

METHODOLOGY

Levels of Service

A primary result of capacity analyses is the assignment of level of service to traffic facilities under various traffic-flow conditions.[7] The concept of level of service is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A level-of-service definition provides an index to quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

Six levels of service are defined for each type of facility. They are given letter designations from A to F, with level-of-service (LOS) A representing the best operating conditions and LOS F representing congested or constrained operating conditions.

Since the level of service of a traffic facility is a function of the traffic flows placed upon it, such a facility may operate at a wide range of levels of service, depending on the time of day, day of week, or period of year.

[7]The capacity analysis methodology is based on the concepts and procedures presented in the *Highway Capacity Manual;* Transportation Research Board; Washington, DC; 2010.

Signalized Intersections

The six levels of service for signalized intersections may be described as follows:

- *LOS A* describes operations with very low control delay; most vehicles do not stop at all.
- *LOS B* describes operations with relatively low control delay. However, more vehicles stop than LOS A.
- *LOS C* describes operations with higher control delays. Individual cycle failures may begin to appear. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
- *LOS D* describes operations with control delay in the range where the influence of congestion becomes more noticeable. Many vehicles stop and individual cycle failures are noticeable.
- *LOS E* describes operations with high control delay values. Individual cycle failures are frequent occurrences.
- *LOS F* describes operations with high control delay values that often occur with over-saturation. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Levels of service for signalized intersections are calculated using the operational analysis methodology of the 2000 Highway Capacity Manual and implemented as a part of the Synchro® 10 software as recommended by MassDOT. This method assesses the effects of signal type, timing, phasing, and progression; vehicle mix; and geometrics on delay. Level-of-service designations are based on the criterion of control or signal delay per vehicle. Control or signal delay is a measure of driver discomfort, frustration, and fuel consumption, and includes initial deceleration delay approaching the traffic signal, queue move-up time, stopped delay and final acceleration delay. Table 7 summarizes the relationship between level of service and control delay. The tabulated control delay criterion may be applied in assigning level-of-service designations to individual lane groups, to individual intersection approaches, or to entire intersections.

Table 7
LEVEL-OF-SERVICE CRITERIA
FOR SIGNALIZED INTERSECTIONS[a]

Level of Service	Control (Signal) Delay Per Vehicle (Seconds)
A	≤10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	>80.0

[a]Source: *Highway Capacity Manual*, Transportation Research Board; Washington, DC; 2000; page 16-2.

Unsignalized Intersections

The six levels of service for unsignalized intersections may be described as follows:

- *LOS A* represents a condition with little or no control delay to minor street traffic.
- *LOS B* represents a condition with short control delays to minor street traffic.
- *LOS C* represents a condition with average control delays to minor street traffic.
- *LOS D* represents a condition with long control delays to minor street traffic.
- *LOS E* represents operating conditions at or near capacity level, with very long control delays to minor street traffic.
- *LOS F* represents a condition where minor street demand volume exceeds capacity of an approach lane, with extreme control delays resulting.

The levels of service of unsignalized intersections are determined by application of a procedure described in the 2010 *Highway Capacity Manual.*[8] Level of service is measured in terms of average control delay. Mathematically, control delay is a function of the capacity and degree of saturation of the lane group and/or approach under study and is a quantification of motorist delay associated with traffic control devices such as traffic signals and STOP signs. Control delay includes the effects of initial deceleration delay approaching a STOP sign, stopped delay, queue move-up time, and final acceleration delay from a stopped condition. Definitions for level of service at unsignalized intersections are also given in the 2010 *Highway Capacity Manual*. Table 8 summarizes the relationship between level of service and average control delay for two-way stop controlled and all-way stop controlled intersections.

Table 8
LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS[a]

Level-Of-Service by Volume-to-Capacity Ratio		Average Control Delay
v/c ≤ 1.0	v/c > 1.0	(Seconds Per Vehicle)
A	F	≤10.0
B	F	10.1 to 15.0
C	F	15.1 to 25.0
D	F	25.1 to 35.0
E	F	35.1 to 50.0
F	F	>50.0

[a]Source: *Highway Capacity Manual*; Transportation Research Board; Washington, DC; 2010; page 19-2.

[8]*Highway Capacity Manual*; Transportation Research Board; Washington, DC; 2010.

Vehicle Queue Analysis

Vehicle queue analyses are a direct measurement of an intersection's ability to process vehicles under various traffic control and volume scenarios and lane use arrangements. The vehicle queue analysis was performed using the Synchro® intersection capacity analysis software which is based upon the methodology and procedures presented in the 2010 *Highway Capacity Manual*. The Synchro® vehicle queue analysis methodology is a simulation based model which reports the number of vehicles that experience a delay of six seconds or more at an intersection. For signalized intersections, Synchro® reports both the average (50th percentile) the 95th percentile vehicle queue. For unsignalized intersections, Synchro® reports the 95th percentile vehicle queue. Vehicle queue lengths are a function of the capacity of the movement under study and the volume of traffic being processed by the intersection during the analysis period. The 95th percentile vehicle queue is the vehicle queue length that will be exceeded only 5 percent of the time, or approximately three minutes out of sixty minutes during the peak one hour of the day (during the remaining fifty-seven minutes, the vehicle queue length will be less than the 95th percentile queue length).

ANALYSIS RESULTS

Level-of-service and vehicle queue analyses were conducted for 2020 Existing, 2027 No-Build and 2027 Build conditions for the intersections within the study area. The results of the intersection capacity and vehicle queue analyses are summarized in Tables 9 and 10, with the detailed analysis results presented in the Appendix.

The following is a summary of the level-of-service and vehicle queue analyses for the intersections within the study area. For context, we note that an LOS of "D" or better is generally defined as "acceptable" operating conditions.

As can be seen in Tables 9 and 10, ***the study area intersections were shown to continue to operate under acceptable conditions (LOS "D" or better) with the addition of Project-related traffic.*** Project-related impacts at the study area intersections were identified as follows:

Route 6 at Swifts Beach Road – As an unsignalized intersection (Table 10), motorists delays were identified during the weekday evening peak-hour for all movements on the Swifts Beach Road approach under 2020 Existing conditions and independent of the Project resulting in LOS F operating conditions. With the planned installation of a traffic control signal (Table 9), overall operating conditions are expected to improve to LOS A during both the weekday morning and evening peak-hours under 2027 No-Build conditions, with operating conditions predicted to degrade slightly from LOS A to a LOS B during the weekday evening peak-hour with the addition of Project-related traffic as a result of an increase in overall average motorist delay of less than 1.0 seconds. Vehicle queuing at the intersection was shown to increase by up to one (1) vehicle as a result of the Project.

Swifts Beach Road at Littleton Drive – No-change in LOS is predicted to occur for any movement over No-Build conditions, with all movements continuing to operate at LOS B or better, and Project-related impacts defined as an increase in average motorist delay of up to 2.6 seconds and in vehicle queuing of up to one (1) vehicle. All movements along Swifts Beach Road were shown to operate at LOS A during both the weekday morning and evening peak hours with negligible vehicle queuing predicted.

Table 9
SIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY

Signalized Intersection/Peak-hour/Movement	2020 Existing V/C[a]	2020 Existing Delay[b]	2020 Existing LOS[c]	2020 Existing Queue[d] 50th/95th	2027 No-Build V/C	2027 No-Build Delay	2027 No-Build LOS	2027 No-Build Queue 50th/95th	2027 Build V/C	2027 Build Delay	2027 Build LOS	2027 Build Queue 50th/95th
Route 6 at Swifts Beach Road												
Weekday Morning:												
Swifts Beach Road WB LT/RT					0.18	12.3	B	0/3	0.20	12.0	B	0/3
Route 6 NB TH/RT					0.34	7.1	A	1/5	0.35	7.3	A	1/5
Route 6 SB LT/TH	**See Unsignalized Intersection Analysis (Table 10)**				0.30	7.0	A	1/4	0.32	7.2	A	1/4
Overall					**--**	**8.0**	**A**	**--**	**--**	**8.2**	**A**	**--**
Weekday Evening:												
Swifts Beach Road WB LT/RT					0.25	22.1	C	1/3	0.26	21.9	C	1/3
Route 6 NB TH/RT					0.29	5.3	A	1/5	0.29	5.4	A	1/5
Route 6 SB LT/TH					0.73	9.8	A	3/16	0.76	10.7	B	3/17
Overall					**--**	**9.7**	**A**	**--**	**--**	**10.3**	**B**	**--**

[a]Volume-to-capacity ratio.
[b]Control (signal) delay per vehicle in seconds.
[c]Level-of-Service.
[d]Queue length in vehicles.
NB = northbound SB = southbound; WB = westbound; LT = left-turning movements; TH = through movements; RT = right-turning movements.

Table 10
UNSIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY

Unsignalized Intersection/ Peak Hour/Movement	2020 Existing				2027 No-Build				2027 Build			
	Demand[a]	Delay[b]	LOS[c]	Queue[d] 95th	Demand	Delay	LOS	Queue 95th	Demand	Delay	LOS	Queue 95th
Route 6 at Swifts Beach Road												
Weekday Morning:												
Swifts Beach Road WB LT/RT	183	13.4	B	2								
Route 6 NB TH/RT	436	0.0	A	0	**See Signalized Intersection Analysis (Table 9)**				**See Signalized Intersection Analysis (Table 9)**			
Route 6 SB LT/TH	293	1.4	A	0								
Weekday Evening:												
Swifts Beach Road WB LT/RT	183	>50.0	F	6								
Route 6 NB TH/RT	464	0.0	A	0								
Route 6 SB LT/TH	837	3.5	A	1								
Swifts Beach Road at Littleton Drive												
Weekday Morning:												
Swifts Beach Road EB LT/TH/RT	92	0.0	A	0	99	0.0	A	0	108	0.0	A	0
Swifts Beach Road WB LT/TH/RT	141	0.0	A	0	151	0.0	A	0	151	0.0	A	0
Littleton Drive NB LT/TH/RT	1	10.5	B	0	1	10.7	B	0	25	11.8	B	1
Private Driveway SB LT/TH/RT	0	0.0	A	0	0	0.0	A	0	0	0.0	A	0
Weekday Evening:												
Swifts Beach Road EB LT/TH/RT	246	0.0	A	0	264	0.0	A	0	290	0.0	A	0
Swifts Beach Road WB LT/TH/RT	128	0.1	A	0	137	0.1	A	0	137	0.1	A	0
Littleton Drive NB LT/TH/RT	3	9.9	A	0	3	10.0	B	0	19	12.6	B	0
Private Driveway SB LT/TH/RT	0	0.0	A	0	0	0.0	A	0	0	0.0	A	0

[a]Demand in vehicles per hour.
[b]Average control delay per vehicle (in seconds).
[c]Level-of-Service.
[d]Queue length in vehicles.
NB = northbound; SB = southbound; EB = eastbound; WB = westbound; LT = left-turning movements; TH = through movements; RT = right-turning movements.

SIGHT DISTANCE EVALUATION

Sight distance measurements were performed at the Swifts Beach Road/Littleton Drive intersection in accordance with MassDOT and American Association of State Highway and Transportation Officials (AASHTO)[9] requirements. Both stopping sight distance (SSD) and intersection sight distance (ISD) measurements were performed. In brief, SSD is the distance required by a vehicle traveling at the design speed of a roadway, on wet pavement, to stop prior to striking an object in its travel path. ISD or corner sight distance (CSD) is the sight distance required by a driver entering or crossing an intersecting roadway to perceive an on-coming vehicle and safely complete a turning or crossing maneuver with on-coming traffic. In accordance with AASHTO standards, if the measured ISD is at least equal to the required SSD value for the appropriate design speed, the intersection can operate in a safe manner. Table 11 presents the measured SSD and ISD at the subject intersection.

Table 11
SIGHT DISTANCE MEASUREMENTS[a]

	Feet		
Intersection/Sight Distance Measurement	Required Minimum (SSD)	Desirable (ISD)[b]	Measured
Swifts Beach Road at Littleton Drive			
Stopping Sight Distance:			
Swifts Beach Road approaching from the southeast	305	--	500+
Swifts Beach Road approaching from the northwest	305	--	483
Intersection Sight Distance:			
Looking to the southeast from Littleton Drive	305	445	500+
Looking to the northwest from Littleton Drive	305	385	200+/385[c]

[a]Recommended minimum values obtained from *A Policy on Geometric Design of Highways and Streets,* 7th Edition; American Association of State Highway and Transportation Officials (AASHTO); 2018; and based on a 40 mph approach speed along Swift's Beach Road.

[b]Values shown are the intersection sight distance for a vehicle turning right or left exiting a roadway under STOP control such that motorists approaching the intersection on the major street should not need to adjust their travel speed to less than 70 percent of their initial approach speed.

[c]With the removal of vegetation along the west side of Swifts Beach Road and adjacent to Littleton Drive.

[9]*A Policy on Geometric Design of Highway and Streets,* 7th Edition; American Association of State Highway and Transportation Officials (AASHTO); Washington D.C.; 2018.

As can be seen in Table 11, with the selective trimming or removal of trees and vegetation located along the west side of Swifts Beach Road within the sight triangle area of Littleton Drive, the available lines of sight exceed or can be made to meet or exceed the recommended minimum sight distance to function in a safe (SSD) and efficient (ISD) manner based on the measured 85th percentile travel speed along Swifts Beach Road (39/40 mph), which was found to be 4 to 5 mph above the posted speed limit in this area (35 mph).

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

VAI has conducted a TIA in order to determine the potential impacts on the transportation infrastructure associated with the proposed construction of a multifamily residential community to be located off Littleton Drive in Wareham, Massachusetts. The following specific areas have been evaluated as they relate to the Project: i) access requirements; ii) potential off-site improvements; and iii) safety considerations; under existing and future conditions, both with and without the Project. Based on this assessment, we have concluded the following with respect to the Project:

1. Using trip-generation statistics published by the ITE,[10] the Project is expected to generate approximately 496 vehicle trips on an average weekday (two-way 24-hour volume), with 33 vehicle trips expected during the weekday morning peak-hour and 42 vehicle trips expected during the weekday evening peak-hour;

2. The Project will not result in a significant impact (increase) on motorist delays or vehicle queuing over Existing or anticipated future conditions without the Project (No-Build conditions), with all movements at the study intersections shown to operate at LOS C or better under all analysis conditions, where an LOS of "D" or better is defined as "acceptable" traffic operations;

3. No apparent safety deficiencies were noted with respect to the motor vehicle crash history at the study area intersections; and

4. Lines of sight to and from Littleton Drive at its intersection with Swifts Beach Road were found to exceed or could be made to exceed the recommended minimum distances for safe and efficient operation based on the appropriate approach speed.

In consideration of the above, we have concluded that the Project can be accommodated within the confines of the existing transportation infrastructure in a safe and efficient manner with implementation of the recommendations that follow.

[10] Ibid 1.

RECOMMENDATIONS

A detailed transportation improvement program has been developed that is designed to provide safe and efficient access to the Project site and address any deficiencies identified at off-site locations evaluated in conjunction with this study. The following improvements have been recommended as a part of this evaluation and, where applicable, will be completed in conjunction with the Project subject to receipt of all necessary rights, permits, and approvals.

Project Access

Access to the Project site will be provided by way of a new roadway that will connect to Littleton Drive, with secondary access for emergency vehicles to be provided by way of a connection to Nicholas Drive. The following recommendations are offered with respect to the design and operation of the Project site access and internal circulation, many of which are reflected on the Site Plans:

- Circulating drives and roadways within the Project site should be a minimum of 24-feet in width and designed to accommodate the turning and maneuvering requirements of the largest anticipated responding emergency vehicle.

- The emergency vehicle access should be a minimum of 20-feet in width and constructed of bituminous asphaltic concrete or other stabilized surface material that can support travel by the largest anticipated responding emergency vehicle under all weather conditions, and gated or otherwise secured in a manner to restrict use by general traffic.

- All signs and pavement markings to be installed within the Project site should conform to the applicable standards of the *Manual on Uniform Traffic Control Devices* (MUTCD).[11]

- A sidewalk should be provided along at least one side of the Project site roadway within the Project site and should extend to Littleton Drive and Swifts Beach Road to the extent that right-of-way is available for such an extension.

- Americans with Disabilities Act (ADA) compliant wheelchair ramps should be provided at all pedestrian crossings that are constructed or modified as a part of the Project.

- Signs and landscaping to be installed as a part of the Project within the intersection sight triangle areas of the Project site roadway or at the Swifts Beach Road/Littleton Drive intersection should be designed and maintained so as not to restrict lines of sight.

- The existing vegetation (hedge) situated along the south side of Swifts Beach Road and west of Littleton Drive should be selectively trimmed or removed in order to provide the required line of sight. To the extent that the subject vegetation cannot be altered, it is recommended that an "Intersection Ahead" warning sign (graphic symbol) and radar speed feedback sign be installed on Swifts Beach Road west of Littleton Drive to inform motorists traveling along Swifts Beach Road of the potential for vehicles to be entering the roadway from Littleton Drive and of the regulated speed limit (35 mph).

- Bicycle parking should be provided at appropriate locations within the Project site.

[11] *Manual on Uniform Traffic Control Devices (MUTCD)*; Federal Highway Administration; Washington, D.C.; 2009.

- Snow windrows within sight triangle areas of the Project site roadway and at the Swifts Beach Road/Littleton Drive intersection should be promptly removed where such accumulations would impede sight lines.

Transportation Demand Management

Public transportation services are provided within the study area by GATRA by way of the Link 1, *Wareham/Onset/Wareham*, bus route. The Link 1 bus provides service along Swifts Beach Road and operates in a passenger demand mode ("flag stop") and will stop anywhere along the regular service route where it is safe to pick-up or discharge a passenger when requested. In addition, GATRA provides Dial-a-Ride paratransit services to eligible persons that cannot use fixed-route transit all or some of the time due to a physical, cognitive or mental disability in compliance with the ADA.

In an effort to encourage the use of alternative modes of transportation to single-occupant vehicles, the following Transportation Demand Management (TDM) measures will be implemented as a part of the Project:

- A transportation coordinator will be designated for the Project to coordinate the elements of the TDM program;
- Information regarding public transportation services, maps, schedules and fare information will be posted in a central location and/or otherwise made available to residents;
- A "welcome packet" will be provided to residents detailing available public transportation services, bicycle and walking alternatives, and commuter options available;
- Pedestrian accommodations will be incorporated into the Project site;
- A mail drop will be provided within the building; and
- Bicycle parking will be provided within the Project site.

With implementation of the aforementioned recommendations, safe and efficient access will be provided to the Project site and the Project can be accommodated within the confines of the existing and improved transportation system.

APPENDIX

PROJECT SITE PLAN
AUTOMATIC TRAFFIC RECORDER COUNT DATA
MANUAL TURNING MOVEMENT COUNT DATA
SEASONAL ADJUSTMENT DATA
COVID-19 ADJUSTMENT DATA
VEHICLE TRAVEL SPEED DATA
MASSDOT CRASH RATE WORKSHEETS AND HIGH CRASH LOCATION MAPPING
GENERAL BACKGROUND TRAFFIC GROWTH
TRIP-GENERATION CALCULATIONS
JOURNEY TO WORK TRIP DISTRIBUTION
CAPACITY ANALYSIS WORKSHEETS

PROJECT SITE PLAN

NOT FOR CONSTRUCTION

GRAPHIC SCALE

40 0 20 40 80 160

(in feet)

1 INCH = 40 FEET

tat

50 Commandant's Way at Admiral's Hill
Chelsea MA 02150
O 617.889.4402
F 617.884.4329
architecturalteam.com

Consultant:

Horsley Witten Group
www.horsleywitten.com
508-833-6600
90 Route 6A
Sandwich, MA

Revision:

Architect of Record:

COMMONWEALTH OF MASSACHUSETTS
RICHARD A. CLAYTOR
CIVIL
NO. 45116
REGISTERED PROFESSIONAL ENGINEER

11-18-2020

Drawn: MCL

Checked: JEH

Scale: 1" = 40'

Key Plan:

Project Name:

Littleton Drive

WAREHAM,MA

Sheet Name:

CONCEPT CIVIL SITE PLAN

Project Number:

20018

Issue Date:

11/18/2020

Sheet Number:

C-1

AUTOMATIC TRAFFIC RECORDER COUNT DATA

Accurate Counts
978-664-2565

Location : Swifts Beach Road
Location : West of Littleton Drive
City/State: Wareham, MA

8800VL01

Start Time	11/11/202 Wed	EB Morning	EB Afternoon	Hour Totals Morning	Hour Totals Afternoon	WB Morning	WB Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		4	36			1	46				
12:15		0	28			4	34				
12:30		5	36			1	31				
12:45		2	40	11	140	1	35	7	146	18	286
01:00		1	36			1	37				
01:15		3	27			0	35				
01:30		0	35			3	22				
01:45		2	33	6	131	1	36	5	130	11	261
02:00		0	37			0	41				
02:15		1	33			1	41				
02:30		0	35			2	33				
02:45		1	37	2	142	1	35	4	150	6	292
03:00		0	39			2	30				
03:15		1	34			0	20				
03:30		0	45			2	31				
03:45		1	33	2	151	2	29	6	110	8	261
04:00		0	52			2	33				
04:15		1	50			4	35				
04:30		2	42			5	32				
04:45		0	53	3	197	7	31	18	131	21	328
05:00		0	47			9	27				
05:15		7	46			19	28				
05:30		3	41			15	32				
05:45		4	36	14	170	20	32	63	119	77	289
06:00		6	42			30	18				
06:15		8	27			19	15				
06:30		9	30			20	18				
06:45		7	22	30	121	24	19	93	70	123	191
07:00		8	26			28	7				
07:15		9	20			18	10				
07:30		9	14			36	5				
07:45		16	13	42	73	26	9	108	31	150	104
08:00		9	23			30	11				
08:15		15	15			27	12				
08:30		20	11			27	11				
08:45		22	14	66	63	28	11	112	45	178	108
09:00		21	12			22	6				
09:15		15	12			29	8				
09:30		20	13			35	6				
09:45		24	6	80	43	36	3	122	23	202	66
10:00		28	5			34	5				
10:15		20	9			37	4				
10:30		26	4			35	4				
10:45		38	4	112	22	40	5	146	18	258	40
11:00		24	6			33	2				
11:15		30	4			31	2				
11:30		34	6			39	7				
11:45		40	3	128	19	35	1	138	12	266	31
Total		496	1272			822	985			1318	2257
Percent		28.1%	71.9%			45.5%	54.5%			36.9%	63.1%

Location : Swifts Beach Road
Location : West of Littleton Drive
City/State: Wareham, MA

8800VL01

Start Time	11/12/202 Thu	EB Morning	EB Afternoon	Hour Totals Morning	Hour Totals Afternoon	WB Morning	WB Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		1	33			3	43				
12:15		4	23			1	31				
12:30		3	24			0	31				
12:45		2	33	10	113	0	22	4	127	14	240
01:00		0	26			0	29				
01:15		0	32			0	18				
01:30		0	18			2	24				
01:45		3	26	3	102	2	21	4	92	7	194
02:00		2	29			0	25				
02:15		1	32			0	18				
02:30		0	32			2	37				
02:45		0	33	3	126	2	40	4	120	7	246
03:00		0	32			1	37				
03:15		0	39			0	28				
03:30		0	41			1	20				
03:45		2	40	2	152	3	29	5	114	7	266
04:00		0	53			3	27				
04:15		1	45			3	30				
04:30		0	44			4	26				
04:45		0	39	1	181	8	25	18	108	19	289
05:00		1	58			9	24				
05:15		3	46			11	28				
05:30		2	37			19	22				
05:45		3	35	9	176	18	15	57	89	66	265
06:00		3	37			19	22				
06:15		3	33			24	16				
06:30		8	28			22	9				
06:45		8	30	22	128	37	23	102	70	124	198
07:00		9	24			31	16				
07:15		6	22			33	16				
07:30		12	22			33	14				
07:45		15	15	42	83	31	12	128	58	170	141
08:00		16	12			30	5				
08:15		12	21			30	10				
08:30		22	10			25	9				
08:45		24	9	74	52	27	8	112	32	186	84
09:00		19	16			26	12				
09:15		16	16			26	10				
09:30		26	8			27	0				
09:45		22	10	83	50	24	5	103	27	186	77
10:00		12	14			36	4				
10:15		22	4			30	6				
10:30		24	7			19	1				
10:45		22	3	80	28	25	5	110	16	190	44
11:00		29	2			23	4				
11:15		32	9			26	5				
11:30		19	3			38	5				
11:45		38	3	118	17	34	3	121	17	239	34
Total		447	1208			768	870			1215	2078
Percent		27.0%	73.0%			46.9%	53.1%			36.9%	63.1%
Grand Total		943	2480			1590	1855			2533	4335
Percent		27.5%	72.5%			46.2%	53.8%			36.9%	63.1%

ADT ADT 3,434 AADT 3,434

Accurate Counts
978-664-2565

Location : Swifts Beach Road
Location : West of Littleton Drive
City/State: Wareham, MA

8800VL01

Start	11/9/2020		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	*	*	11	7	10	4	*	*	*	*	*	*	10	6
01:00	*	*	*	*	6	5	3	4	*	*	*	*	*	*	4	4
02:00	*	*	*	*	2	4	3	4	*	*	*	*	*	*	2	4
03:00	*	*	*	*	2	6	2	5	*	*	*	*	*	*	2	6
04:00	*	*	*	*	3	18	1	18	*	*	*	*	*	*	2	18
05:00	*	*	*	*	14	63	9	57	*	*	*	*	*	*	12	60
06:00	*	*	*	*	30	93	22	102	*	*	*	*	*	*	26	98
07:00	*	*	*	*	42	108	42	**128**	*	*	*	*	*	*	42	118
08:00	*	*	*	*	66	112	74	112	*	*	*	*	*	*	70	112
09:00	*	*	*	*	80	122	83	103	*	*	*	*	*	*	82	112
10:00	*	*	*	*	112	**146**	80	110	*	*	*	*	*	*	96	128
11:00	*	*	*	*	**128**	138	**118**	121	*	*	*	*	*	*	**123**	**130**
12:00 PM	*	*	*	*	140	146	113	**127**	*	*	*	*	*	*	126	**136**
01:00	*	*	*	*	131	130	102	92	*	*	*	*	*	*	116	111
02:00	*	*	*	*	142	**150**	126	120	*	*	*	*	*	*	134	135
03:00	*	*	*	*	151	110	152	114	*	*	*	*	*	*	152	112
04:00	*	*	*	*	**197**	131	**181**	108	*	*	*	*	*	*	**189**	120
05:00	*	*	*	*	170	119	176	89	*	*	*	*	*	*	173	104
06:00	*	*	*	*	121	70	128	70	*	*	*	*	*	*	124	70
07:00	*	*	*	*	73	31	83	58	*	*	*	*	*	*	78	44
08:00	*	*	*	*	63	45	52	32	*	*	*	*	*	*	58	38
09:00	*	*	*	*	43	23	50	27	*	*	*	*	*	*	46	25
10:00	*	*	*	*	22	18	28	16	*	*	*	*	*	*	25	17
11:00	*	*	*	*	19	12	17	17	*	*	*	*	*	*	18	14
Lane	0	0	0	0	1768	1807	1655	1638	0	0	0	0	0	0	1710	1722
Day	0		0		3575		3293		0		0		0		3432	
AM Peak	-	-	-	-	11:00	10:00	11:00	07:00	-	-	-	-	-	-	11:00	11:00
Vol.	-	-	-	-	128	146	118	128	-	-	-	-	-	-	123	130
PM Peak	-	-	-	-	16:00	14:00	16:00	12:00	-	-	-	-	-	-	16:00	12:00
Vol.	-	-	-	-	197	150	181	127	-	-	-	-	-	-	189	136

Comb. Total	0	0	3575	3293	0	0	0	3432

ADT ADT 3,434 AADT 3,434

MANUAL TURNING MOVEMENT COUNT DATA

Accurate Counts

978-664-2565

N/S Street : Marion Road (Route 6)
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000001
Site Code : 88000001
Start Date : 11/12/2020
Page No : 1

Groups Printed- Cars - Trucks

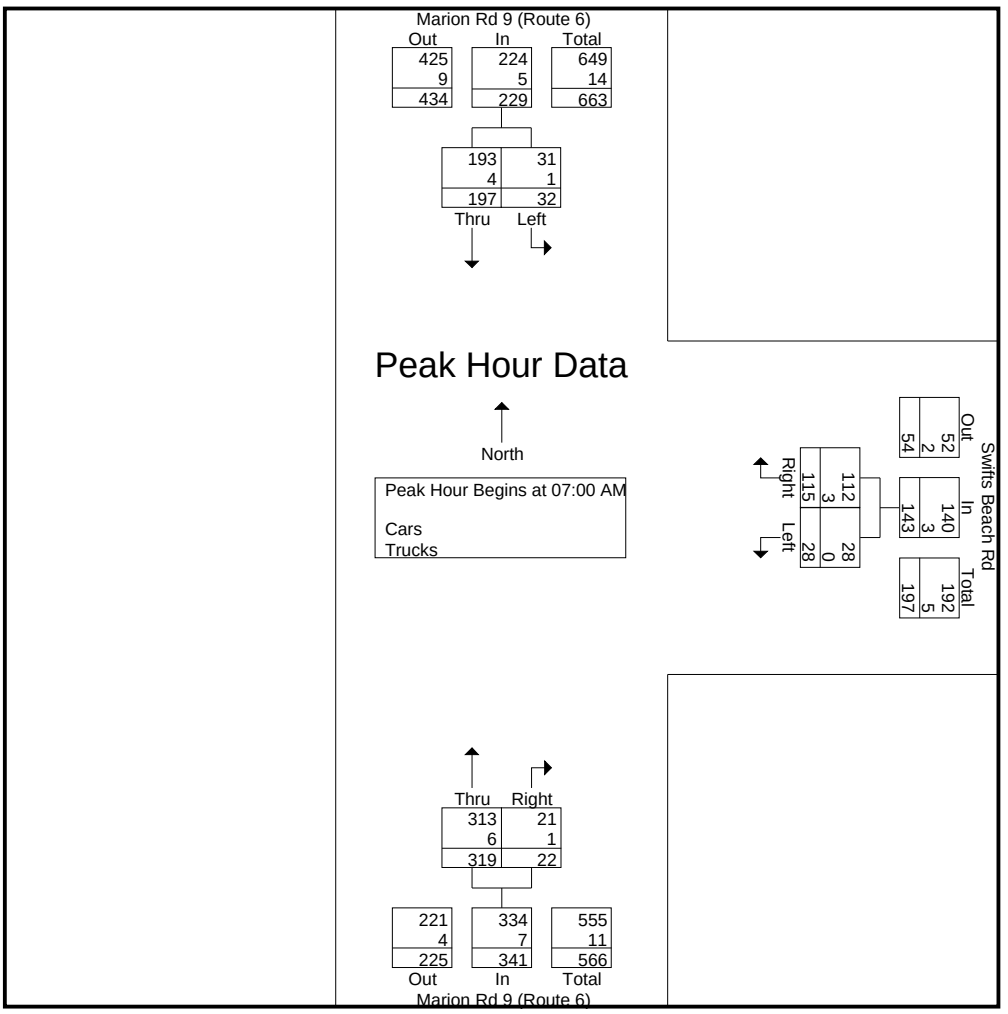
	Marion Rd 9 (Route 6) From North		Swifts Beach Rd From East		Marion Rd 9 (Route 6) From South		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00 AM	3	42	6	31	79	8	169
07:15 AM	8	52	6	28	92	2	188
07:30 AM	12	42	11	24	66	6	161
07:45 AM	9	61	5	32	82	6	195
Total	32	197	28	115	319	22	713
08:00 AM	14	43	6	33	67	5	168
08:15 AM	12	45	4	32	58	2	153
08:30 AM	22	57	8	26	82	2	197
08:45 AM	19	54	5	25	79	9	191
Total	67	199	23	116	286	18	709
Grand Total	99	396	51	231	605	40	1422
Apprch %	20	80	18.1	81.9	93.8	6.2	
Total %	7	27.8	3.6	16.2	42.5	2.8	
Cars	95	390	49	226	593	39	1392
% Cars	96	98.5	96.1	97.8	98	97.5	97.9
Trucks	4	6	2	5	12	1	30
% Trucks	4	1.5	3.9	2.2	2	2.5	2.1

	Marion Rd 9 (Route 6) From North			Swifts Beach Rd From East			Marion Rd 9 (Route 6) From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	3	42	45	6	31	**37**	79	**8**	87	169
07:15 AM	8	52	60	6	28	34	**92**	2	**94**	188
07:30 AM	**12**	42	54	**11**	24	35	66	6	72	161
07:45 AM	9	**61**	**70**	5	**32**	37	82	6	88	**195**
Total Volume	32	197	229	28	115	143	319	22	341	713
% App. Total	14	86		19.6	80.4		93.5	6.5		
PHF	.667	.807	.818	.636	.898	.966	.867	.688	.907	.914
Cars	31	193	224	28	112	140	313	21	334	698
% Cars	96.9	98.0	97.8	100	97.4	97.9	98.1	95.5	97.9	97.9
Trucks	1	4	5	0	3	3	6	1	7	15
% Trucks	3.1	2.0	2.2	0	2.6	2.1	1.9	4.5	2.1	2.1

Accurate Counts
978-664-2565

N/S Street : Marion Road (Route 6)
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000001
Site Code : 88000001
Start Date : 11/12/2020
Page No : 2



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

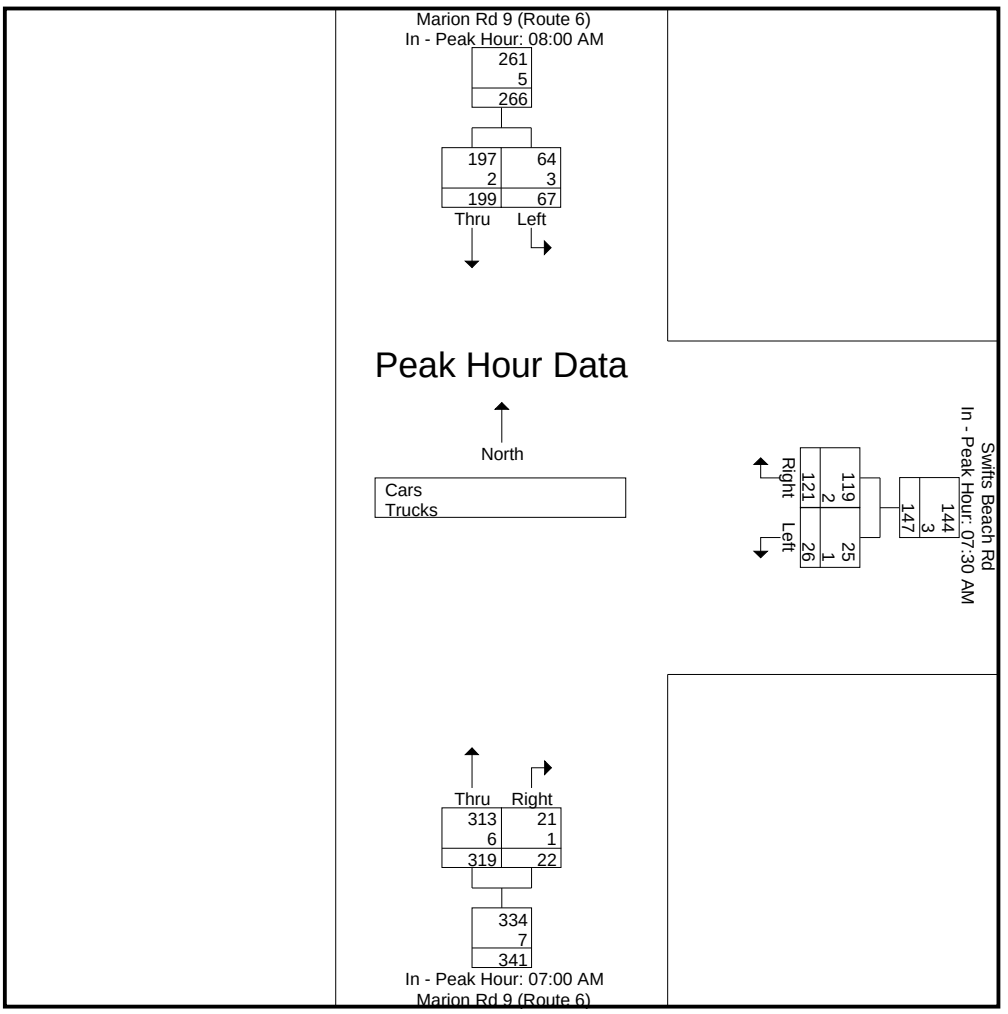
	08:00 AM			07:30 AM			07:00 AM		
+0 mins.	14	43	57	**11**	24	35	79	**8**	87
+15 mins.	12	45	57	5	32	37	**92**	2	**94**
+30 mins.	**22**	**57**	**79**	6	**33**	**39**	66	6	72
+45 mins.	19	54	73	4	32	36	82	6	88
Total Volume	67	199	266	26	121	147	319	22	341
% App. Total	25.2	74.8		17.7	82.3		93.5	6.5	
PHF	.761	.873	.842	.591	.917	.942	.867	.688	.907
Cars	64	197	261	25	119	144	313	21	334
% Cars	95.5	99	98.1	96.2	98.3	98	98.1	95.5	97.9
Trucks	3	2	5	1	2	3	6	1	7
% Trucks	4.5	1	1.9	3.8	1.7	2	1.9	4.5	2.1

Accurate Counts

978-664-2565

N/S Street : Marion Road (Route 6)
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000001
Site Code : 88000001
Start Date : 11/12/2020
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Marion Road (Route 6)
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000001
Site Code : 88000001
Start Date : 11/12/2020
Page No : 4

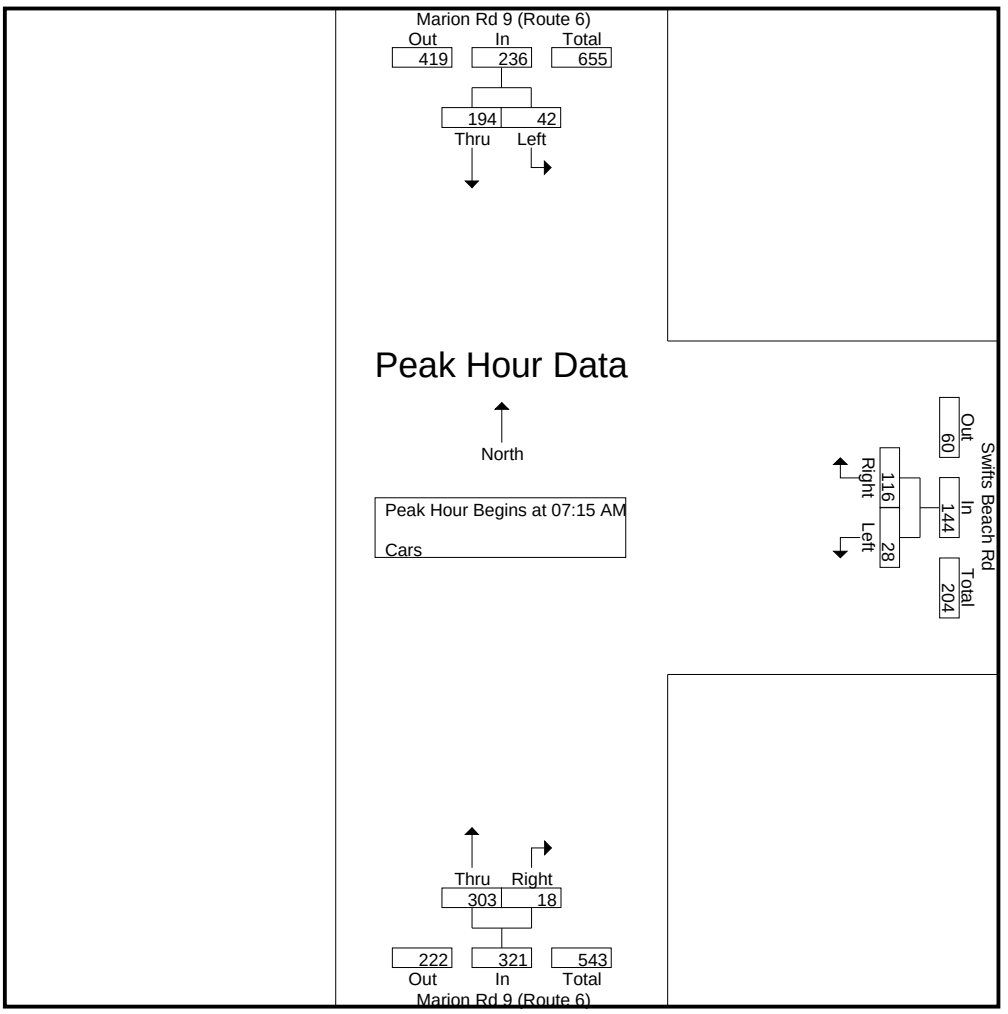
Groups Printed- Cars

	Marion Rd 9 (Route 6) From North		Swifts Beach Rd From East		Marion Rd 9 (Route 6) From South		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00 AM	2	42	6	29	75	8	162
07:15 AM	8	51	6	28	92	2	187
07:30 AM	12	41	11	23	66	5	158
07:45 AM	9	59	5	32	80	6	191
Total	31	193	28	112	313	21	698
08:00 AM	13	43	6	33	65	5	165
08:15 AM	10	44	3	31	57	2	147
08:30 AM	22	57	8	25	81	2	195
08:45 AM	19	53	4	25	77	9	187
Total	64	197	21	114	280	18	694
Grand Total	95	390	49	226	593	39	1392
Apprch %	19.6	80.4	17.8	82.2	93.8	6.2	
Total %	6.8	28	3.5	16.2	42.6	2.8	

	Marion Rd 9 (Route 6) From North			Swifts Beach Rd From East			Marion Rd 9 (Route 6) From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	8	51	59	6	28	34	**92**	2	**94**	187
07:30 AM	12	41	53	**11**	23	34	66	5	71	158
07:45 AM	9	**59**	**68**	5	32	37	80	**6**	86	**191**
08:00 AM	**13**	43	56	6	**33**	**39**	65	5	70	165
Total Volume	42	194	236	28	116	144	303	18	321	701
% App. Total	17.8	82.2		19.4	80.6		94.4	5.6		
PHF	.808	.822	.868	.636	.879	.923	.823	.750	.854	.918

N/S Street : Marion Road (Route 6)
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000001
Site Code : 88000001
Start Date : 11/12/2020
Page No : 5



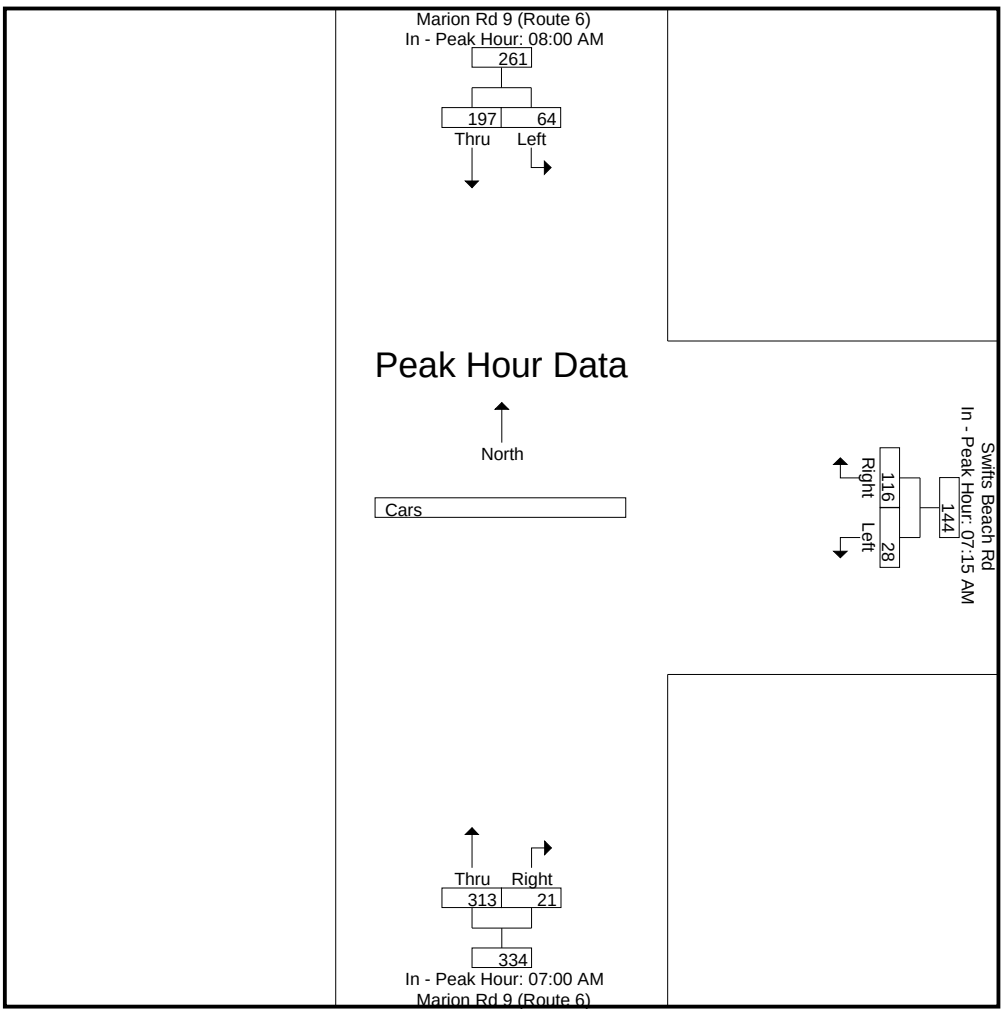
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	08:00 AM			07:15 AM			07:00 AM		
+0 mins.	13	43	56	6	28	34	75	**8**	83
+15 mins.	10	44	54	**11**	23	34	**92**	2	**94**
+30 mins.	**22**	**57**	**79**	5	32	37	66	5	71
+45 mins.	19	53	72	6	**33**	**39**	80	6	86
Total Volume	64	197	261	28	116	144	313	21	334
% App. Total	24.5	75.5		19.4	80.6		93.7	6.3	
PHF	.727	.864	.826	.636	.879	.923	.851	.656	.888

Accurate Counts
978-664-2565

N/S Street : Marion Road (Route 6)
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000001
Site Code : 88000001
Start Date : 11/12/2020
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Marion Road (Route 6)
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000001
Site Code : 88000001
Start Date : 11/12/2020
Page No : 7

Groups Printed- Trucks

	Marion Rd 9 (Route 6) From North		Swifts Beach Rd From East		Marion Rd 9 (Route 6) From South		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00 AM	1	0	0	2	4	0	7
07:15 AM	0	1	0	0	0	0	1
07:30 AM	0	1	0	1	0	1	3
07:45 AM	0	2	0	0	2	0	4
Total	1	4	0	3	6	1	15
08:00 AM	1	0	0	0	2	0	3
08:15 AM	2	1	1	1	1	0	6
08:30 AM	0	0	0	1	1	0	2
08:45 AM	0	1	1	0	2	0	4
Total	3	2	2	2	6	0	15
Grand Total	4	6	2	5	12	1	30
Apprch %	40	60	28.6	71.4	92.3	7.7	
Total %	13.3	20	6.7	16.7	40	3.3	

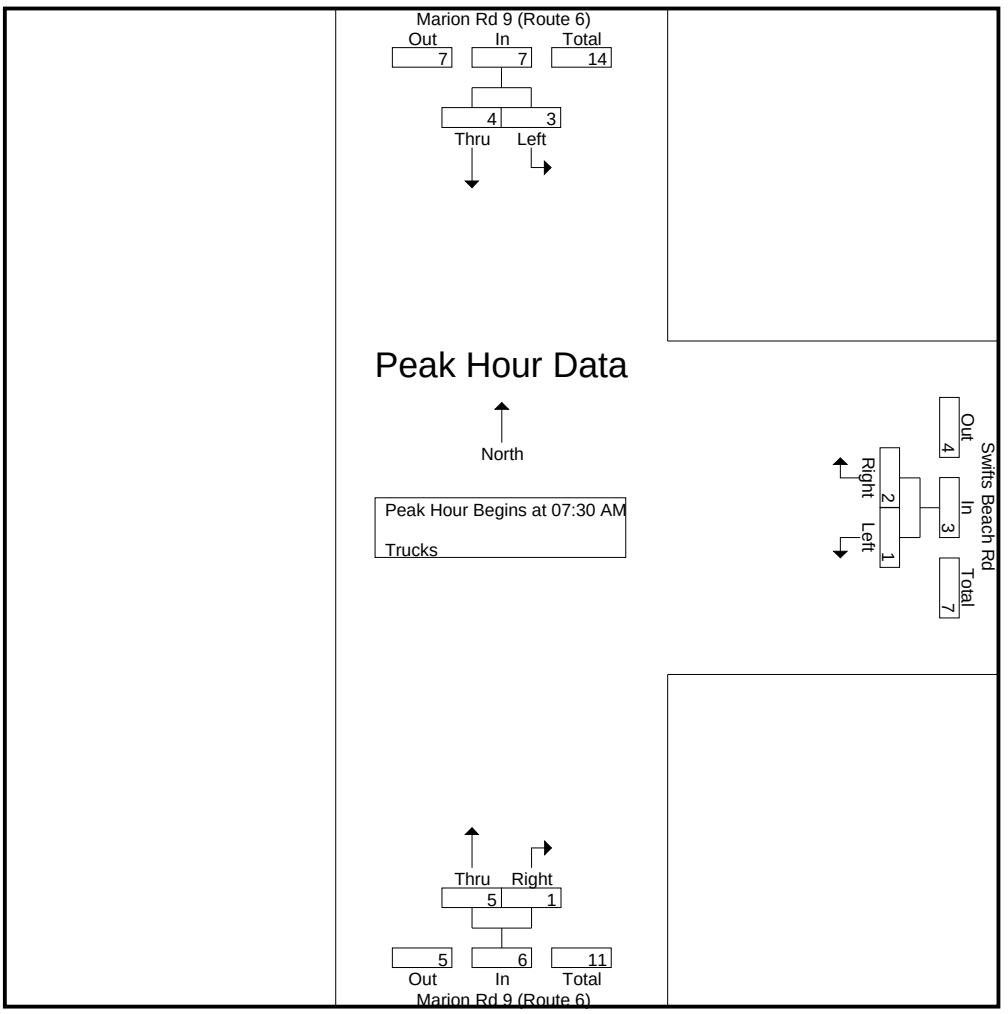
	Marion Rd 9 (Route 6) From North			Swifts Beach Rd From East			Marion Rd 9 (Route 6) From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	0	1	1	0	**1**	1	0	**1**	1	3
07:45 AM	0	**2**	2	0	0	0	**2**	0	**2**	4
08:00 AM	1	0	1	0	0	0	2	0	2	3
08:15 AM	**2**	1	**3**	**1**	1	**2**	1	0	1	**6**
Total Volume	3	4	7	1	2	3	5	1	6	16
% App. Total	42.9	57.1		33.3	66.7		83.3	16.7		
PHF	.375	.500	.583	.250	.500	.375	.625	.250	.750	.667

Accurate Counts

978-664-2565

N/S Street : Marion Road (Route 6)
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000001
Site Code : 88000001
Start Date : 11/12/2020
Page No : 8

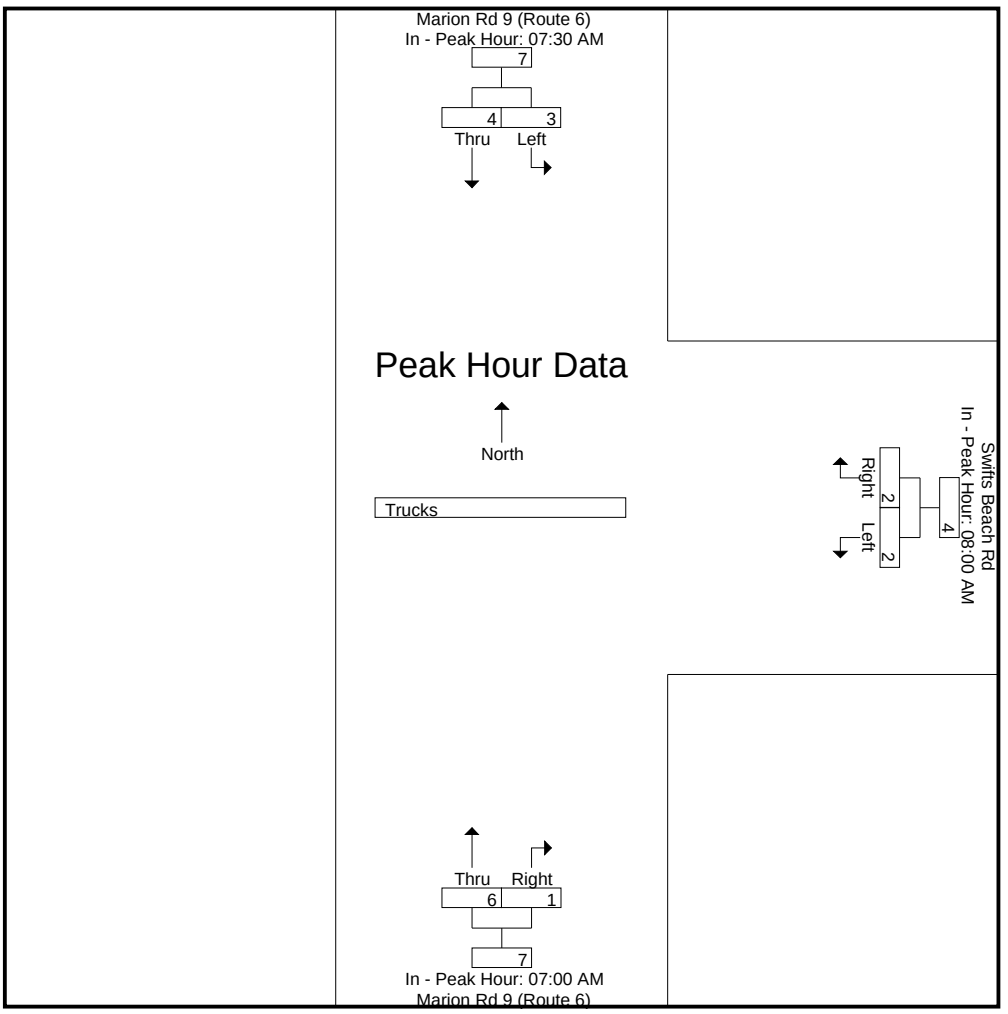


Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM			08:00 AM			07:00 AM		
+0 mins.	0	1	1	0	0	0	**4**	0	**4**
+15 mins.	0	**2**	2	**1**	**1**	**2**	0	0	0
+30 mins.	1	0	1	0	1	1	0	**1**	1
+45 mins.	**2**	1	**3**	1	0	1	2	0	2
Total Volume	3	4	7	2	2	4	6	1	7
% App. Total	42.9	57.1		50	50		85.7	14.3	
PHF	.375	.500	.583	.500	.500	.500	.375	.250	.438

N/S Street : Marion Road (Route 6)
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000001
Site Code : 88000001
Start Date : 11/12/2020
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Marion Road (Route 6)
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000001
Site Code : 88000001
Start Date : 11/12/2020
Page No : 10

Groups Printed- Bikes Peds

	Marion Rd 9 (Route 6) From North			Swifts Beach Rd From East			Marion Rd 9 (Route 6) From South					
Start Time	Left	Thru	Peds	Left	Right	Peds	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	1	0	0	0	1	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	0	0	1	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	1	0	0	0	1	0	1
Apprch %	0	0		0	0		0	0				
Total %										100	0	

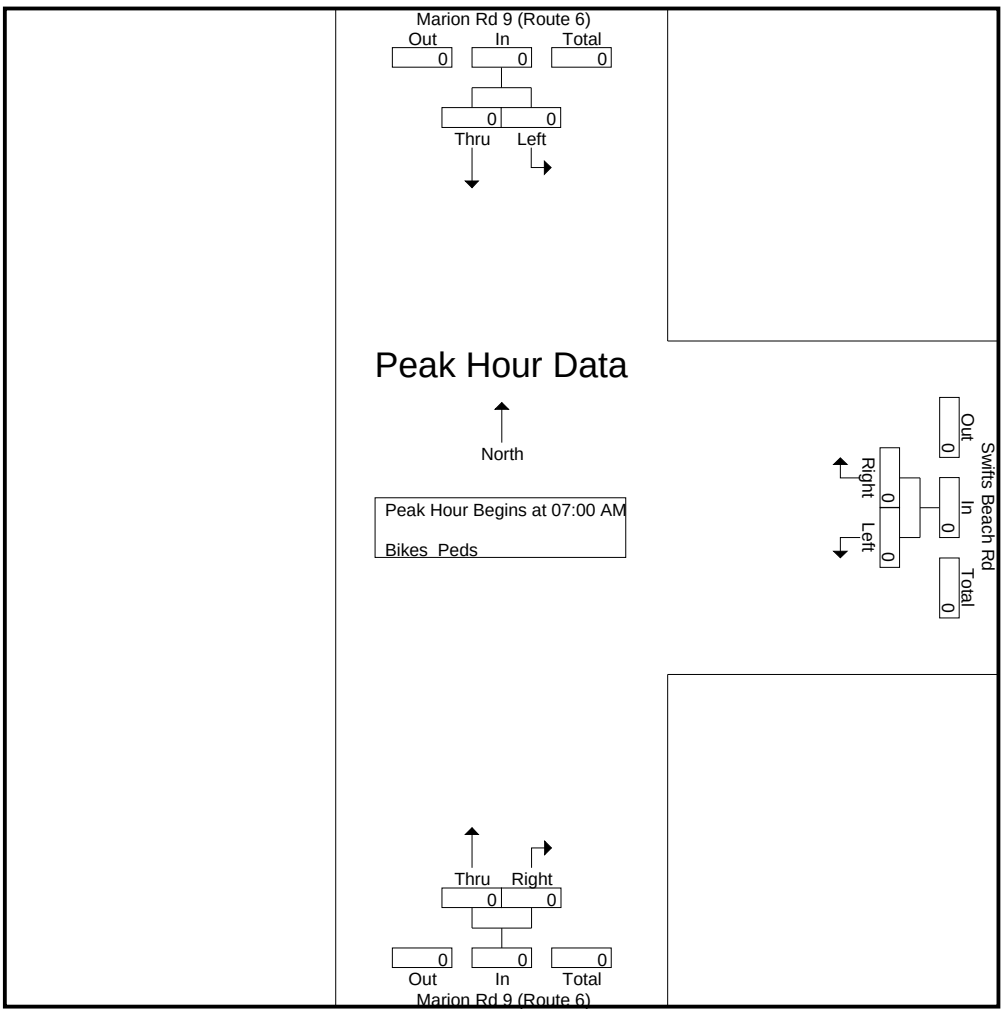
	Marion Rd 9 (Route 6) From North			Swifts Beach Rd From East			Marion Rd 9 (Route 6) From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:00 AM										
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts

978-664-2565

N/S Street : Marion Road (Route 6)
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000001
Site Code : 88000001
Start Date : 11/12/2020
Page No : 11

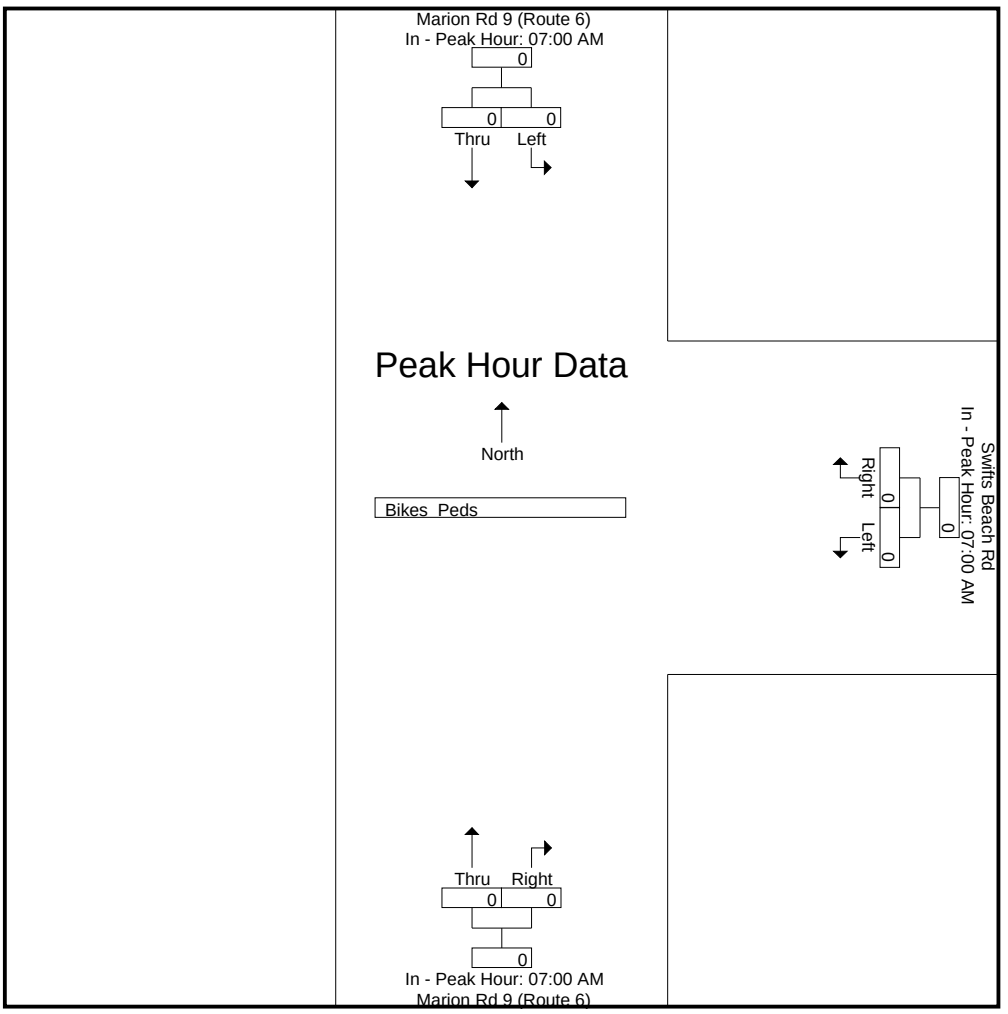


Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM			07:00 AM			07:00 AM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0
% App. Total	0	0		0	0		0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000

N/S Street : Marion Road (Route 6)
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000001
Site Code : 88000001
Start Date : 11/12/2020
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Marion Road (Route 6)
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000001
Site Code : 88000001
Start Date : 11/12/2020
Page No : 1

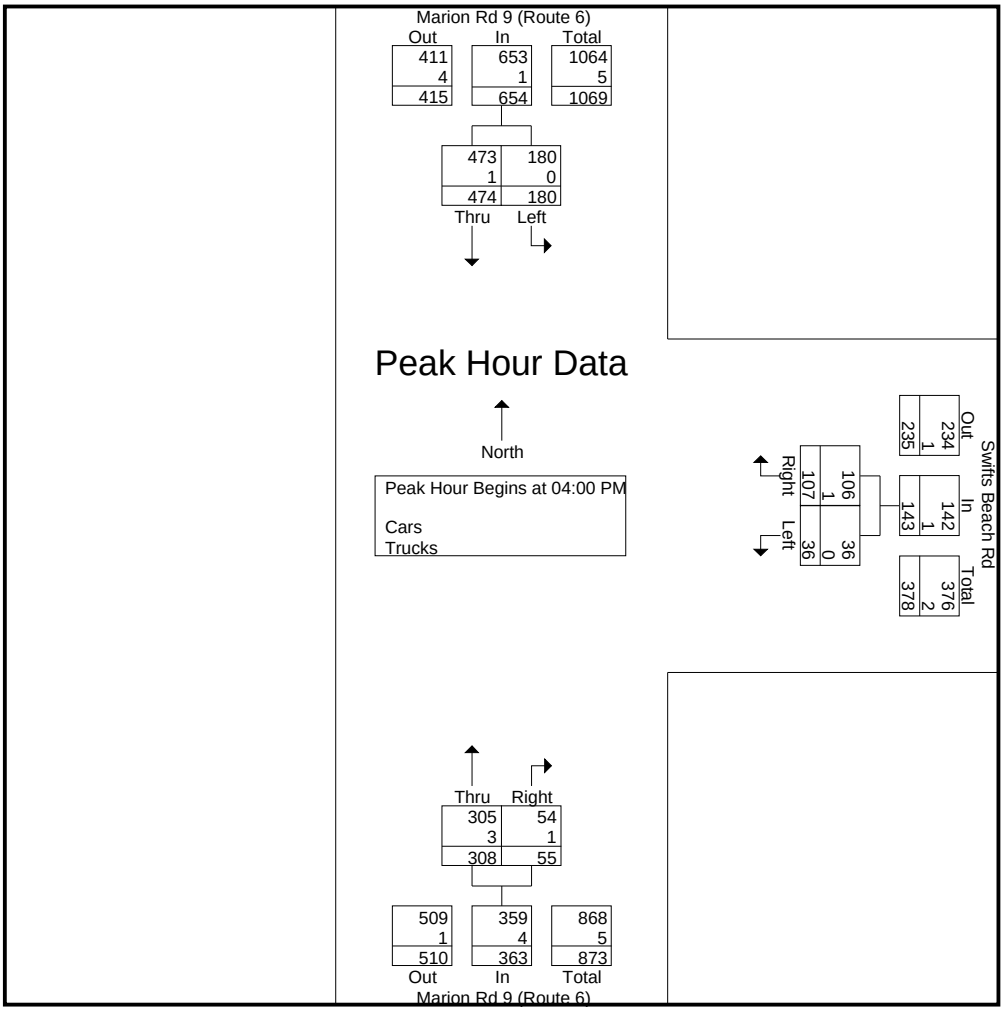
Groups Printed- Cars - Trucks

	Marion Rd 9 (Route 6) From North		Swifts Beach Rd From East		Marion Rd 9 (Route 6) From South		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
04:00 PM	51	132	12	22	93	15	325
04:15 PM	43	120	8	29	79	12	291
04:30 PM	41	102	8	26	69	15	261
04:45 PM	45	120	8	30	67	13	283
Total	180	474	36	107	308	55	1160
05:00 PM	53	113	11	19	61	15	272
05:15 PM	50	89	8	23	74	8	252
05:30 PM	29	85	3	27	73	13	230
05:45 PM	33	73	6	13	50	10	185
Total	165	360	28	82	258	46	939
Grand Total	345	834	64	189	566	101	2099
Apprch %	29.3	70.7	25.3	74.7	84.9	15.1	
Total %	16.4	39.7	3	9	27	4.8	
Cars	345	832	64	188	561	100	2090
% Cars	100	99.8	100	99.5	99.1	99	99.6
Trucks	0	2	0	1	5	1	9
% Trucks	0	0.2	0	0.5	0.9	1	0.4

	Marion Rd 9 (Route 6) From North			Swifts Beach Rd From East			Marion Rd 9 (Route 6) From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	**51**	**132**	**183**	**12**	22	34	**93**	**15**	**108**	**325**
04:15 PM	43	120	163	8	29	37	79	12	91	291
04:30 PM	41	102	143	8	26	34	69	15	84	261
04:45 PM	45	120	165	8	**30**	**38**	67	13	80	283
Total Volume	180	474	654	36	107	143	308	55	363	1160
% App. Total	27.5	72.5		25.2	74.8		84.8	15.2		
PHF	.882	.898	.893	.750	.892	.941	.828	.917	.840	.892
Cars	180	473	653	36	106	142	305	54	359	1154
% Cars	100	99.8	99.8	100	99.1	99.3	99.0	98.2	98.9	99.5
Trucks	0	1	1	0	1	1	3	1	4	6
% Trucks	0	0.2	0.2	0	0.9	0.7	1.0	1.8	1.1	0.5

N/S Street : Marion Road (Route 6)
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000001
Site Code : 88000001
Start Date : 11/12/2020
Page No : 2



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

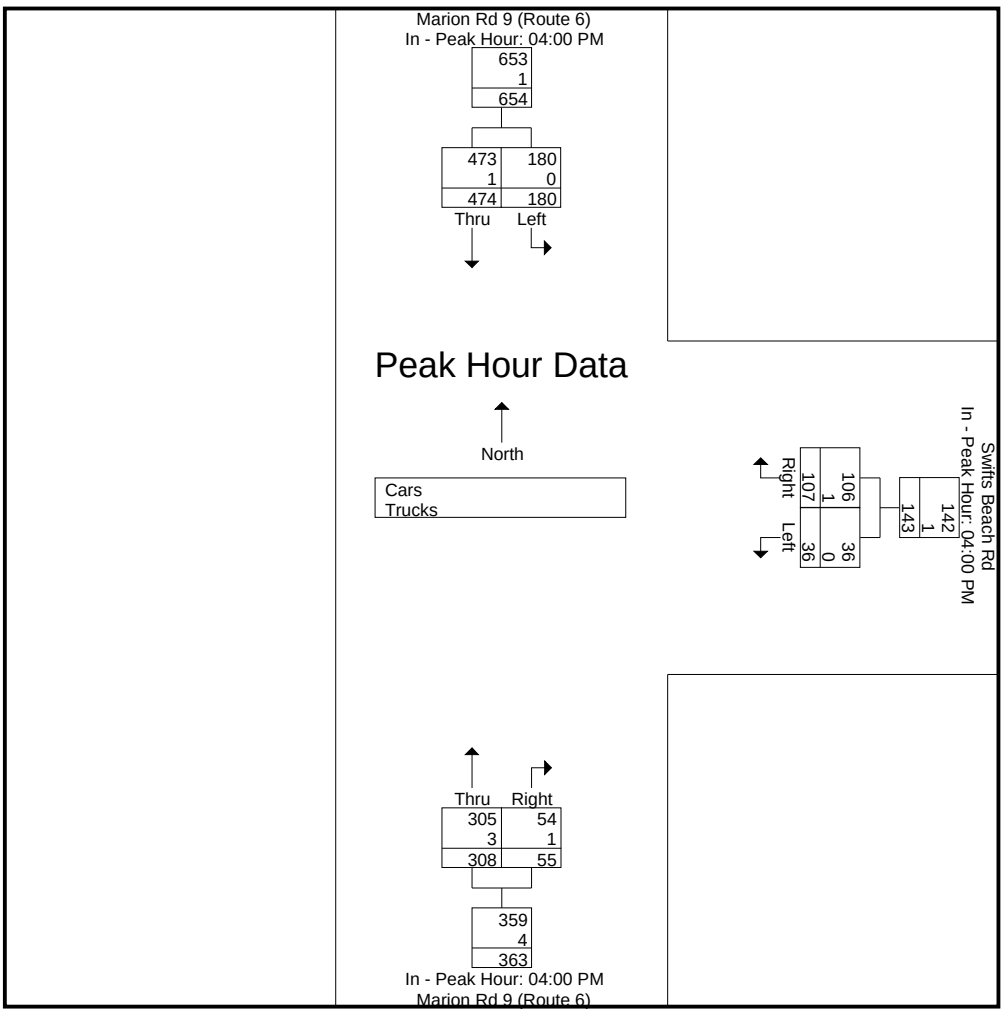
	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	**51**	**132**	**183**	**12**	22	34	**93**	**15**	**108**
+15 mins.	43	120	163	8	29	37	79	12	91
+30 mins.	41	102	143	8	26	34	69	15	84
+45 mins.	45	120	165	8	**30**	**38**	67	13	80
Total Volume	180	474	654	36	107	143	308	55	363
% App. Total	27.5	72.5		25.2	74.8		84.8	15.2	
PHF	.882	.898	.893	.750	.892	.941	.828	.917	.840
Cars	180	473	653	36	106	142	305	54	359
% Cars	100	99.8	99.8	100	99.1	99.3	99	98.2	98.9
Trucks	0	1	1	0	1	1	3	1	4
% Trucks	0	0.2	0.2	0	0.9	0.7	1	1.8	1.1

Accurate Counts

978-664-2565

N/S Street : Marion Road (Route 6)
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000001
Site Code : 88000001
Start Date : 11/12/2020
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Marion Road (Route 6)
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000001
Site Code : 88000001
Start Date : 11/12/2020
Page No : 4

Groups Printed- Cars

	Marion Rd 9 (Route 6) From North		Swifts Beach Rd From East		Marion Rd 9 (Route 6) From South		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
04:00 PM	51	131	12	21	91	14	320
04:15 PM	43	120	8	29	79	12	291
04:30 PM	41	102	8	26	68	15	260
04:45 PM	45	120	8	30	67	13	283
Total	180	473	36	106	305	54	1154
05:00 PM	53	112	11	19	60	15	270
05:15 PM	50	89	8	23	73	8	251
05:30 PM	29	85	3	27	73	13	230
05:45 PM	33	73	6	13	50	10	185
Total	165	359	28	82	256	46	936
Grand Total	345	832	64	188	561	100	2090
Apprch %	29.3	70.7	25.4	74.6	84.9	15.1	
Total %	16.5	39.8	3.1	9	26.8	4.8	

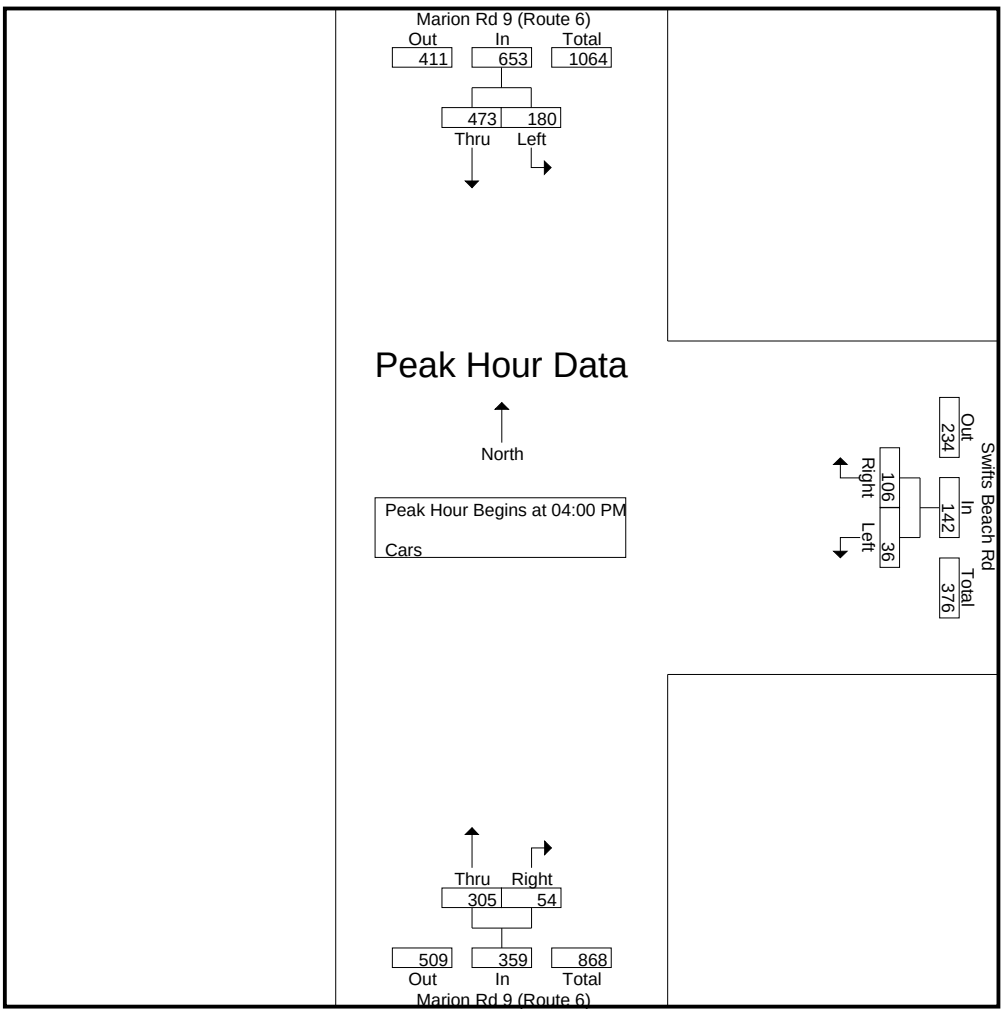
	Marion Rd 9 (Route 6) From North			Swifts Beach Rd From East			Marion Rd 9 (Route 6) From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	**51**	**131**	**182**	**12**	21	33	**91**	14	**105**	**320**
04:15 PM	43	120	163	8	29	37	79	12	91	291
04:30 PM	41	102	143	8	26	34	68	**15**	83	260
04:45 PM	45	120	165	8	**30**	**38**	67	13	80	283
Total Volume	180	473	653	36	106	142	305	54	359	1154
% App. Total	27.6	72.4		25.4	74.6		85	15		
PHF	.882	.903	.897	.750	.883	.934	.838	.900	.855	.902

Accurate Counts

978-664-2565

N/S Street : Marion Road (Route 6)
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000001
Site Code : 88000001
Start Date : 11/12/2020
Page No : 5



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

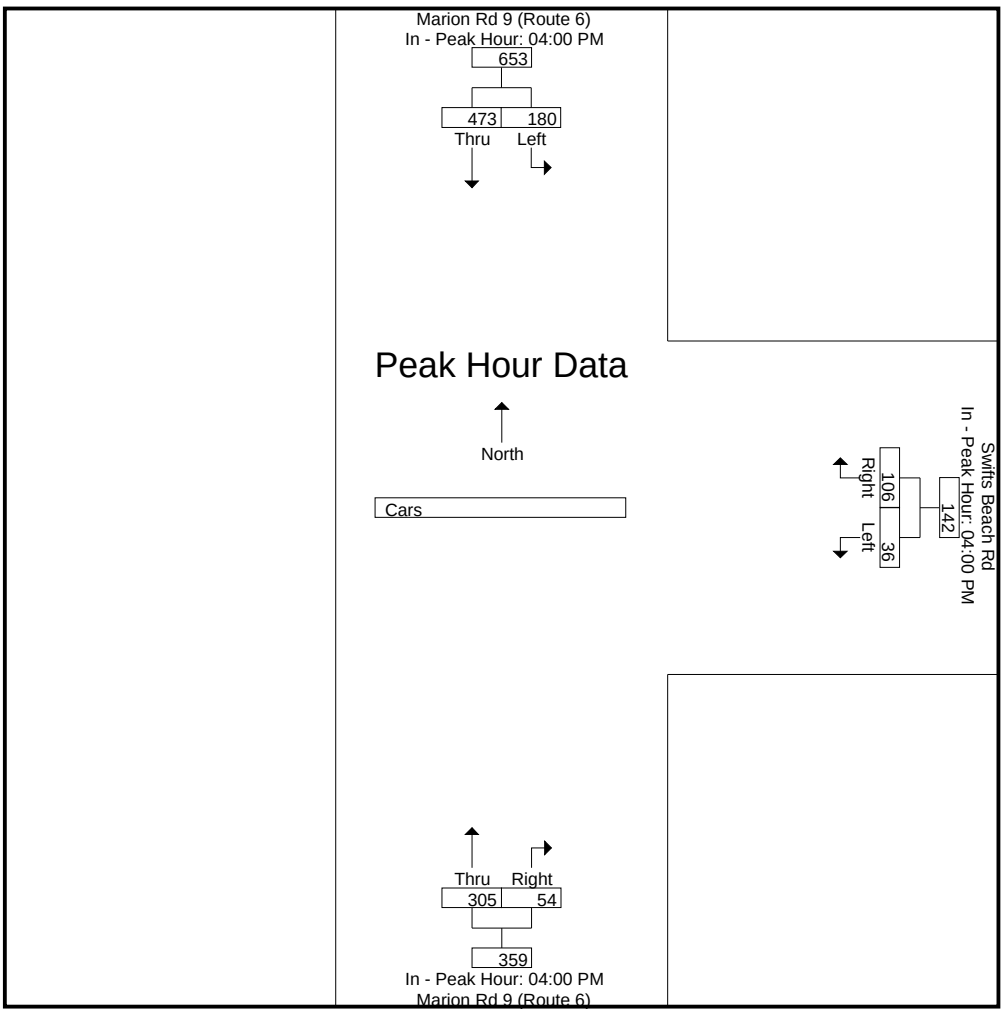
	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	**51**	**131**	**182**	**12**	21	33	**91**	14	**105**
+15 mins.	43	120	163	8	29	37	79	12	91
+30 mins.	41	102	143	8	26	34	68	**15**	83
+45 mins.	45	120	165	8	**30**	**38**	67	13	80
Total Volume	180	473	653	36	106	142	305	54	359
% App. Total	27.6	72.4		25.4	74.6		85	15	
PHF	.882	.903	.897	.750	.883	.934	.838	.900	.855

Accurate Counts

978-664-2565

N/S Street : Marion Road (Route 6)
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000001
Site Code : 88000001
Start Date : 11/12/2020
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Marion Road (Route 6)
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000001
Site Code : 88000001
Start Date : 11/12/2020
Page No : 7

Groups Printed- Trucks

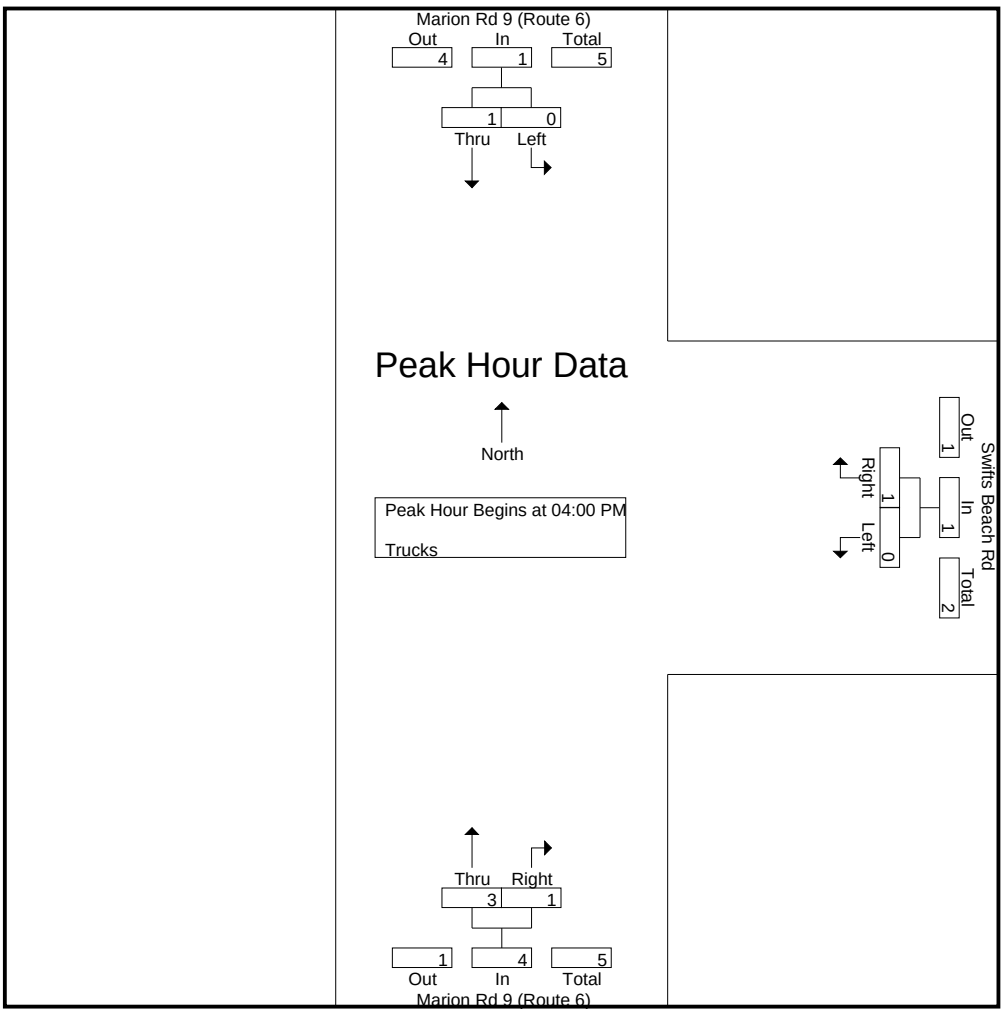
	Marion Rd 9 (Route 6) From North		Swifts Beach Rd From East		Marion Rd 9 (Route 6) From South		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
04:00 PM	0	1	0	1	2	1	5
04:15 PM	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	1	0	1
04:45 PM	0	0	0	0	0	0	0
Total	0	1	0	1	3	1	6
05:00 PM	0	1	0	0	1	0	2
05:15 PM	0	0	0	0	1	0	1
05:30 PM	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0
Total	0	1	0	0	2	0	3
Grand Total	0	2	0	1	5	1	9
Apprch %	0	100	0	100	83.3	16.7	
Total %	0	22.2	0	11.1	55.6	11.1	

	Marion Rd 9 (Route 6) From North			Swifts Beach Rd From East			Marion Rd 9 (Route 6) From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	**1**	**1**	0	**1**	**1**	**2**	**1**	**3**	**5**
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	1	0	1	1
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	1	1	3	1	4	6
% App. Total	0	100		0	100		75	25		
PHF	.000	.250	.250	.000	.250	.250	.375	.250	.333	.300

Accurate Counts
978-664-2565

N/S Street : Marion Road (Route 6)
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000001
Site Code : 88000001
Start Date : 11/12/2020
Page No : 8

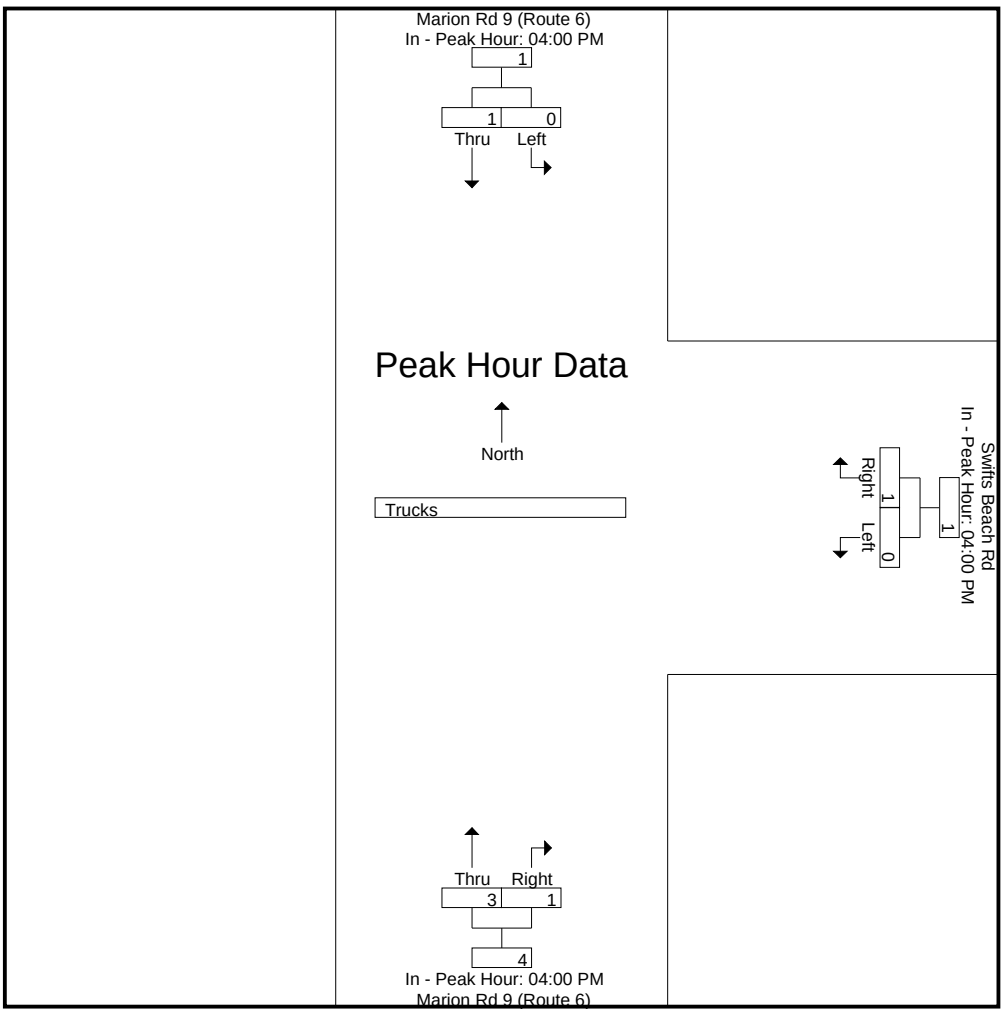


Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	0	**1**	**1**	0	**1**	**1**	**2**	**1**	**3**
+15 mins.	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	1	0	1
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	1	1	3	1	4
% App. Total	0	100		0	100		75	25	
PHF	.000	.250	.250	.000	.250	.250	.375	.250	.333

N/S Street : Marion Road (Route 6)
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000001
Site Code : 88000001
Start Date : 11/12/2020
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Marion Road (Route 6)
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000001
Site Code : 88000001
Start Date : 11/12/2020
Page No : 10

Groups Printed- Bikes Peds

	Marion Rd 9 (Route 6) From North			Swifts Beach Rd From East			Marion Rd 9 (Route 6) From South					
Start Time	Left	Thru	Peds	Left	Right	Peds	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	1	0	0	0	1	0	1
04:15 PM	0	0	0	1	0	1	0	0	0	1	1	2
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	1	0	2	0	0	0	2	1	3
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	1	0	2	0	0	0	2	1	3
Apprch %	0	0		100	0		0	0				
Total %	0	0		100	0		0	0		66.7	33.3	

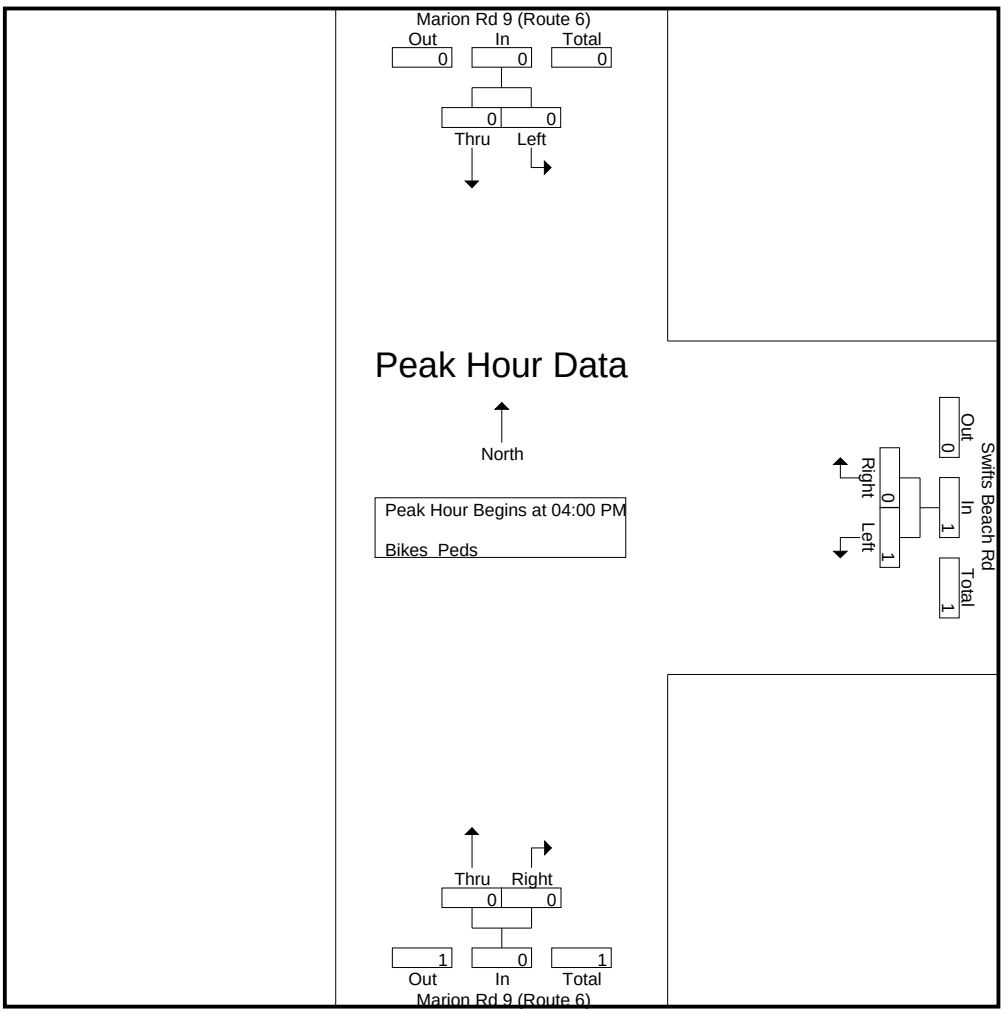
	Marion Rd 9 (Route 6) From North			Swifts Beach Rd From East			Marion Rd 9 (Route 6) From South			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	**1**	0	**1**	0	0	0	**1**
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	1	0	1	0	0	0	1
% App. Total	0	0		100	0		0	0		
PHF	.000	.000	.000	.250	.000	.250	.000	.000	.000	.250

Accurate Counts

978-664-2565

N/S Street : Marion Road (Route 6)
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000001
Site Code : 88000001
Start Date : 11/12/2020
Page No : 11

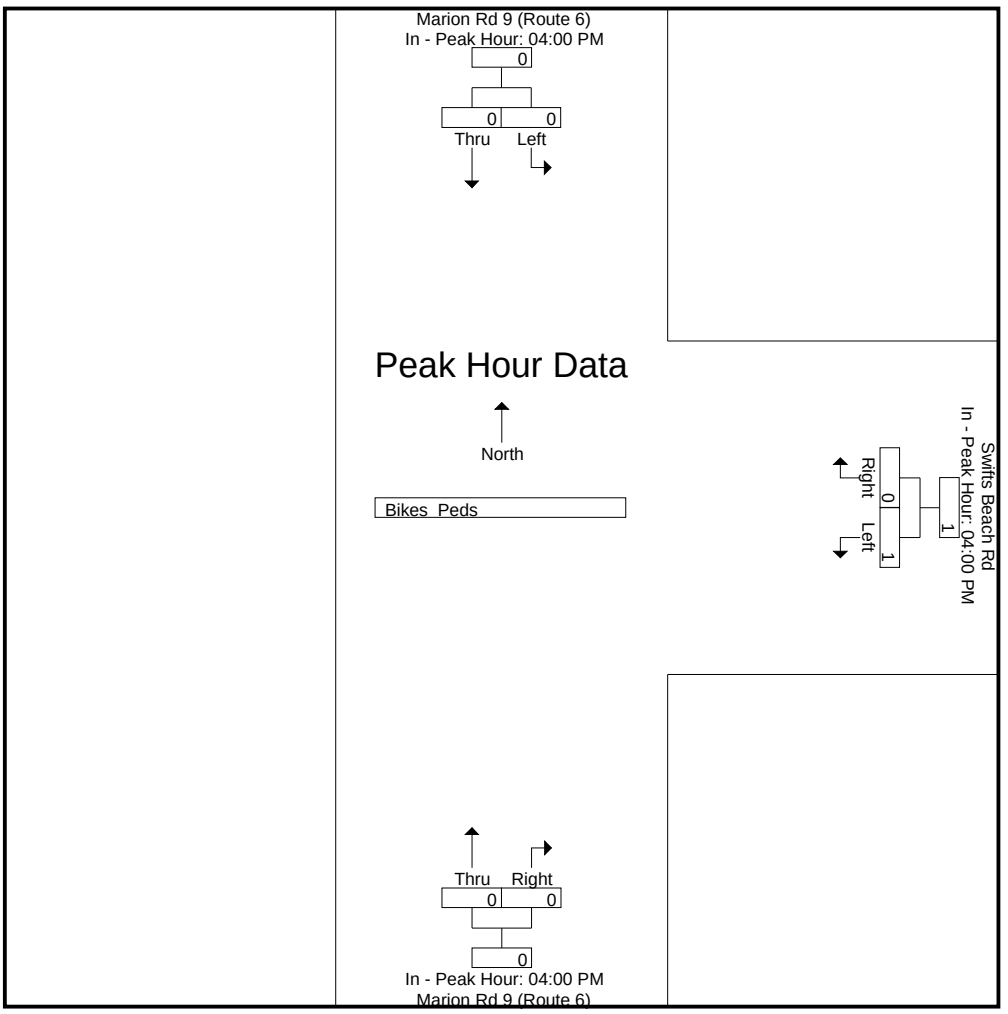


Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM			04:00 PM			04:00 PM		
+0 mins.	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	**1**	0	**1**	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	1	0	1	0	0	0
% App. Total	0	0		100	0		0	0	
PHF	.000	.000	.000	.250	.000	.250	.000	.000	.000

N/S Street : Marion Road (Route 6)
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000001
Site Code : 88000001
Start Date : 11/12/2020
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Littleton Drive
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000002
Site Code : 88000002
Start Date : 11/12/2020
Page No : 1

Groups Printed- Cars - Trucks

	Littleton Dr From North			Swifts Beach Rd From East			Littleton Dr From South			Swifts Beach Rd From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	0	0	0	0	30	0	1	0	0	0	9	0	40
07:15 AM	0	0	0	0	31	0	1	0	0	0	7	0	39
07:30 AM	0	0	0	0	30	0	0	0	0	0	13	0	43
07:45 AM	0	0	0	0	32	0	1	0	0	0	15	0	48
Total	0	0	0	0	123	0	3	0	0	0	44	0	170
08:00 AM	0	0	0	0	29	0	0	0	0	0	15	0	44
08:15 AM	0	0	0	0	30	0	1	0	0	0	11	0	42
08:30 AM	0	0	0	0	24	0	0	0	0	0	18	0	42
08:45 AM	0	0	0	0	27	0	0	0	0	0	27	1	55
Total	0	0	0	0	110	0	1	0	0	0	71	1	183
Grand Total	0	0	0	0	233	0	4	0	0	0	115	1	353
Apprch %	0	0	0	0	100	0	100	0	0	0	99.1	0.9	
Total %	0	0	0	0	66	0	1.1	0	0	0	32.6	0.3	
Cars	0	0	0	0	229	0	4	0	0	0	112	1	346
% Cars	0	0	0	0	98.3	0	100	0	0	0	97.4	100	98
Trucks	0	0	0	0	4	0	0	0	0	0	3	0	7
% Trucks	0	0	0	0	1.7	0	0	0	0	0	2.6	0	2

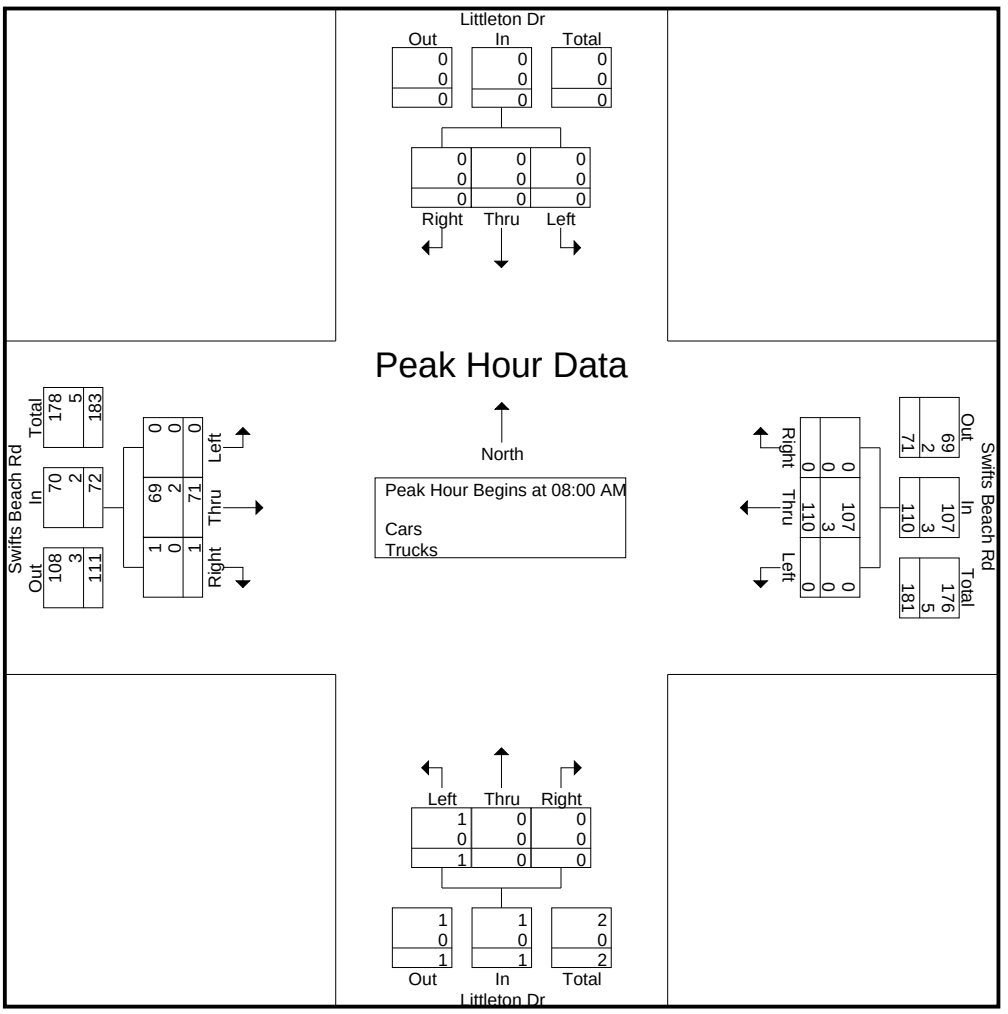
	Littleton Dr From North				Swifts Beach Rd From East				Littleton Dr From South				Swifts Beach Rd From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	0	0	0	0	29	0	29	0	0	0	0	0	15	0	15	44
08:15 AM	0	0	0	0	0	**30**	0	**30**	**1**	0	0	**1**	0	11	0	11	42
08:30 AM	0	0	0	0	0	24	0	24	0	0	0	0	0	18	0	18	42
08:45 AM	0	0	0	0	0	27	0	27	0	0	0	0	0	**27**	**1**	**28**	**55**
Total Volume	0	0	0	0	0	110	0	110	1	0	0	1	0	71	1	72	183
% App. Total	0	0	0		0	100	0		100	0	0		0	98.6	1.4		
PHF	.000	.000	.000	.000	.000	.917	.000	.917	.250	.000	.000	.250	.000	.657	.250	.643	.832
Cars	0	0	0	0	0	107	0	107	1	0	0	1	0	69	1	70	178
% Cars	0	0	0	0	0	97.3	0	97.3	100	0	0	100	0	97.2	100	97.2	97.3
Trucks	0	0	0	0	0	3	0	3	0	0	0	0	0	2	0	2	5
% Trucks	0	0	0	0	0	2.7	0	2.7	0	0	0	0	0	2.8	0	2.8	2.7

Accurate Counts

978-664-2565

N/S Street : Littleton Drive
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000002
Site Code : 88000002
Start Date : 11/12/2020
Page No : 2



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

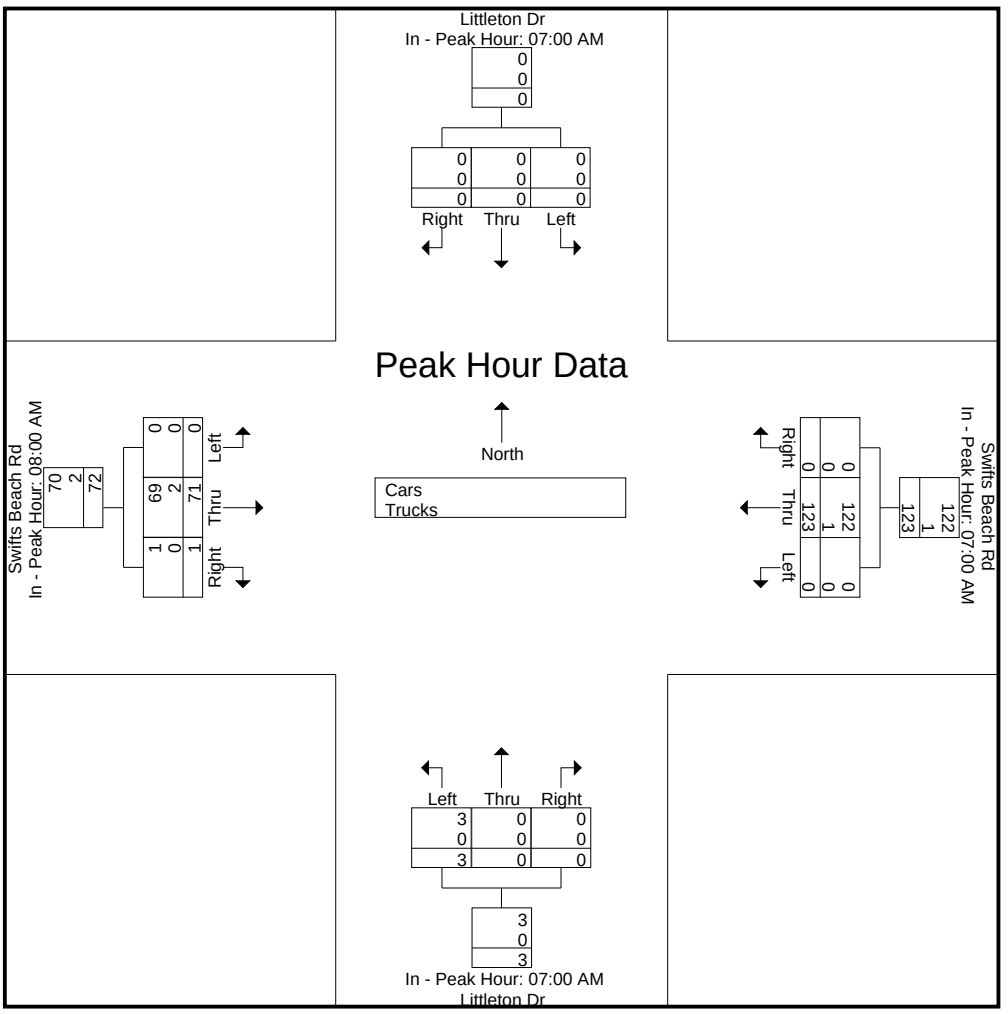
	07:00 AM				07:00 AM				07:00 AM				08:00 AM			
+0 mins.	0	0	0	0	0	30	0	30	**1**	0	0	**1**	0	15	0	15
+15 mins.	0	0	0	0	0	31	0	31	1	0	0	1	0	11	0	11
+30 mins.	0	0	0	0	0	30	0	30	0	0	0	0	0	18	0	18
+45 mins.	0	0	0	0	0	**32**	0	**32**	1	0	0	1	0	**27**	**1**	**28**
Total Volume	0	0	0	0	0	123	0	123	3	0	0	3	0	71	1	72
% App. Total	0	0	0		0	100	0		100	0	0		0	98.6	1.4	
PHF	.000	.000	.000	.000	.000	.961	.000	.961	.750	.000	.000	.750	.000	.657	.250	.643
Cars	0	0	0	0	0	122	0	122	3	0	0	3	0	69	1	70
% Cars	0	0	0	0	0	99.2	0	99.2	100	0	0	100	0	97.2	100	97.2
Trucks	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2
% Trucks	0	0	0	0	0	0.8	0	0.8	0	0	0	0	0	2.8	0	2.8

Accurate Counts

978-664-2565

N/S Street : Littleton Drive
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000002
Site Code : 88000002
Start Date : 11/12/2020
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Littleton Drive
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000002
Site Code : 88000002
Start Date : 11/12/2020

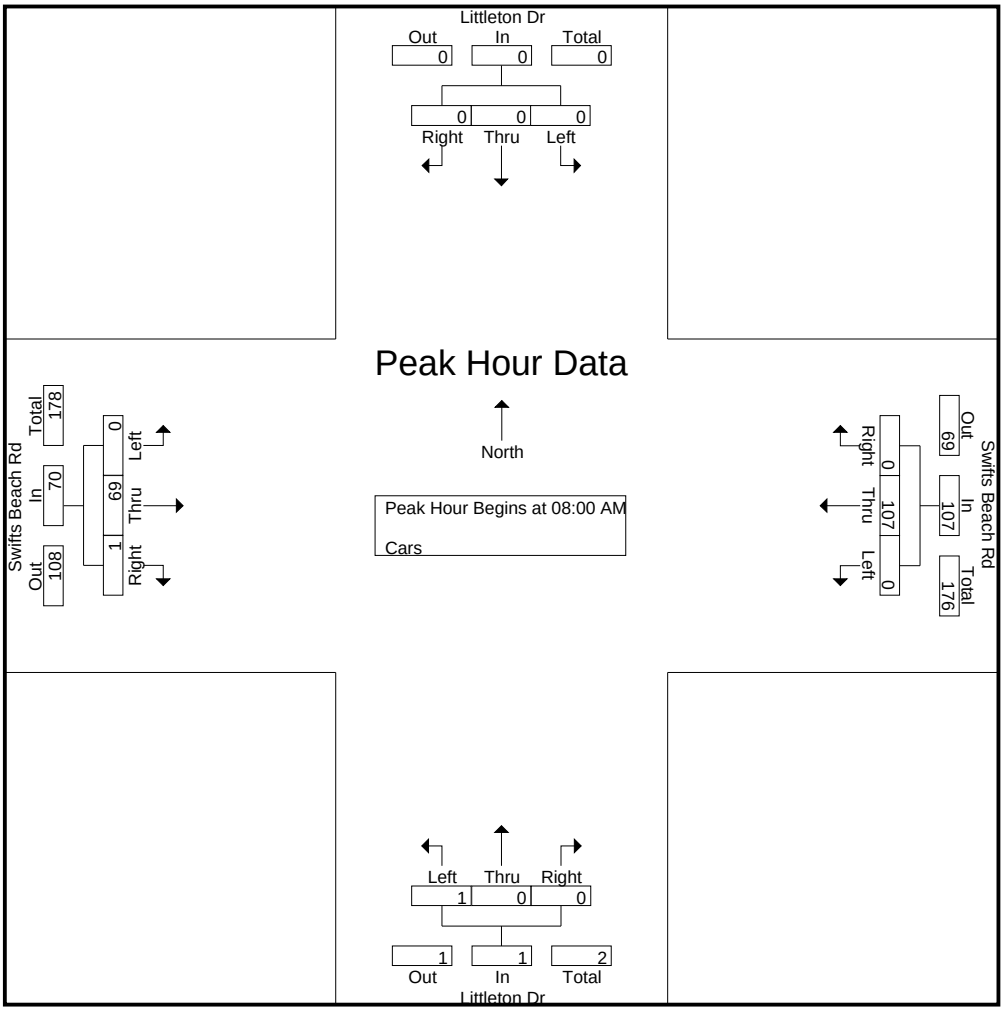
Groups Printed- Cars

	Littleton Dr From North			Swifts Beach Rd From East			Littleton Dr From South			Swifts Beach Rd From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	0	0	0	0	29	0	1	0	0	0	8	0	38
07:15 AM	0	0	0	0	31	0	1	0	0	0	7	0	39
07:30 AM	0	0	0	0	30	0	0	0	0	0	13	0	43
07:45 AM	0	0	0	0	32	0	1	0	0	0	15	0	48
Total	0	0	0	0	122	0	3	0	0	0	43	0	168
08:00 AM	0	0	0	0	29	0	0	0	0	0	14	0	43
08:15 AM	0	0	0	0	27	0	1	0	0	0	10	0	38
08:30 AM	0	0	0	0	24	0	0	0	0	0	18	0	42
08:45 AM	0	0	0	0	27	0	0	0	0	0	27	1	55
Total	0	0	0	0	107	0	1	0	0	0	69	1	178
Grand Total	0	0	0	0	229	0	4	0	0	0	112	1	346
Apprch %	0	0	0	0	100	0	100	0	0	0	99.1	0.9	
Total %	0	0	0	0	66.2	0	1.2	0	0	0	32.4	0.3	

	Littleton Dr From North				Swifts Beach Rd From East				Littleton Dr From South				Swifts Beach Rd From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	0	0	0	0	**29**	0	**29**	0	0	0	0	0	14	0	14	43
08:15 AM	0	0	0	0	0	27	0	27	**1**	0	0	**1**	0	10	0	10	38
08:30 AM	0	0	0	0	0	24	0	24	0	0	0	0	0	18	0	18	42
08:45 AM	0	0	0	0	0	27	0	27	0	0	0	0	0	**27**	**1**	**28**	**55**
Total Volume	0	0	0	0	0	107	0	107	1	0	0	1	0	69	1	70	178
% App. Total	0	0	0		0	100	0		100	0	0		0	98.6	1.4		
PHF	.000	.000	.000	.000	.000	.922	.000	.922	.250	.000	.000	.250	.000	.639	.250	.625	.809

N/S Street : Littleton Drive
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000002
Site Code : 88000002
Start Date : 11/12/2020
Page No : 5



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

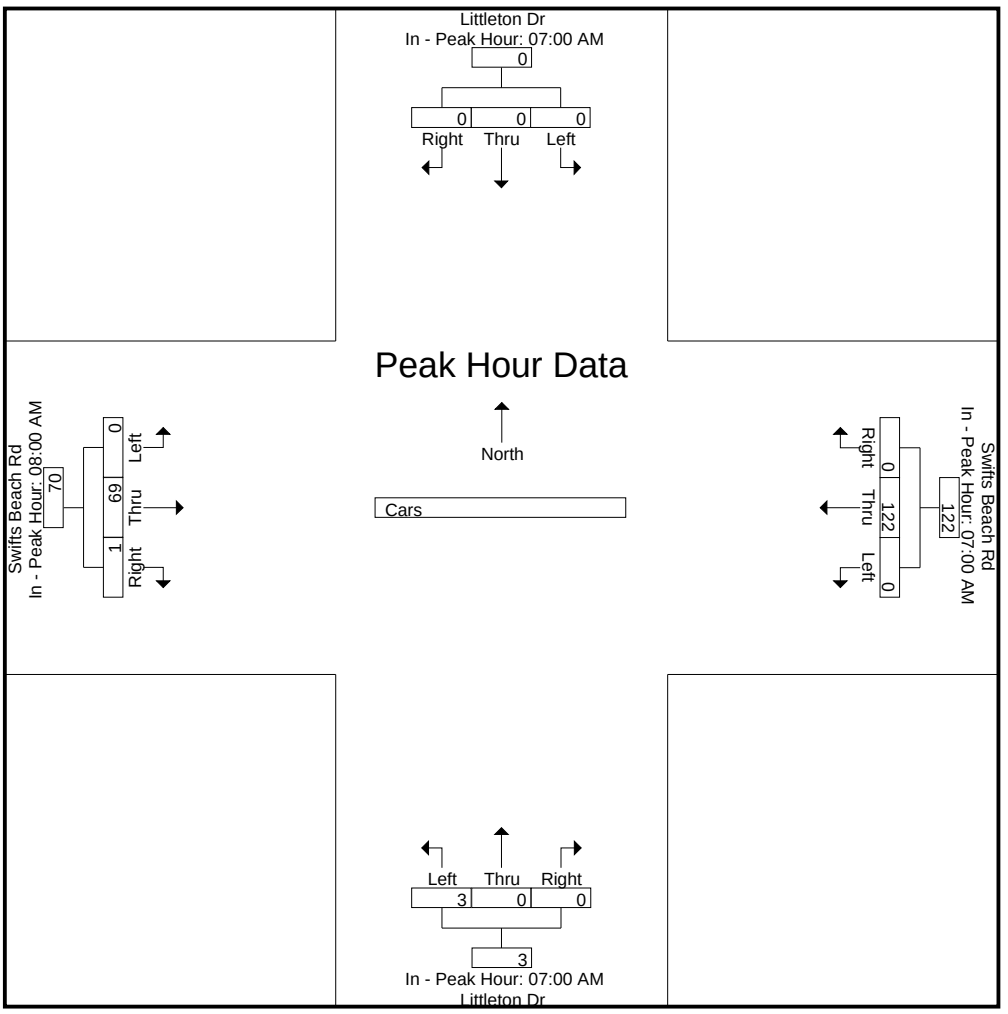
	07:00 AM				07:00 AM				07:00 AM				08:00 AM			
+0 mins.	0	0	0	0	0	29	0	29	**1**	0	0	**1**	0	14	0	14
+15 mins.	0	0	0	0	0	31	0	31	1	0	0	1	0	10	0	10
+30 mins.	0	0	0	0	0	30	0	30	0	0	0	0	0	18	0	18
+45 mins.	0	0	0	0	0	**32**	0	**32**	1	0	0	1	0	**27**	**1**	**28**
Total Volume	0	0	0	0	0	122	0	122	3	0	0	3	0	69	1	70
% App. Total	0	0	0		0	100	0		100	0	0		0	98.6	1.4	
PHF	.000	.000	.000	.000	.000	.953	.000	.953	.750	.000	.000	.750	.000	.639	.250	.625

Accurate Counts

978-664-2565

N/S Street : Littleton Drive
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000002
Site Code : 88000002
Start Date : 11/12/2020
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Littleton Drive
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000002
Site Code : 88000002
Start Date : 11/12/2020

Groups Printed- Trucks

	Littleton Dr From North			Swifts Beach Rd From East			Littleton Dr From South			Swifts Beach Rd From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00 AM	0	0	0	0	1	0	0	0	0	0	1	0	2
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	0	0	0	0	0	1	0	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
08:15 AM	0	0	0	0	3	0	0	0	0	0	1	0	4
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	3	0	0	0	0	0	2	0	5
Grand Total	0	0	0	0	4	0	0	0	0	0	3	0	7
Apprch %	0	0	0	0	100	0	0	0	0	0	100	0	
Total %	0	0	0	0	57.1	0	0	0	0	0	42.9	0	

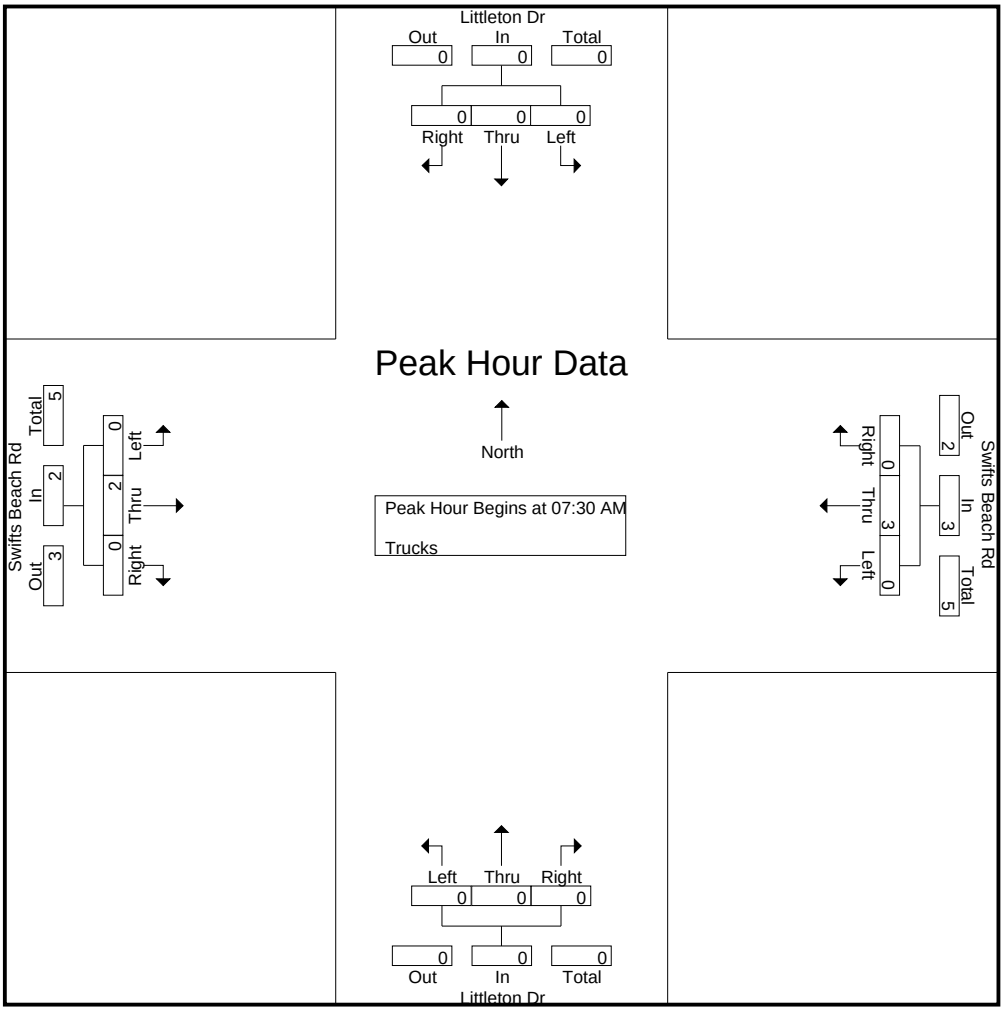
	Littleton Dr From North				Swifts Beach Rd From East				Littleton Dr From South				Swifts Beach Rd From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**	1
08:15 AM	0	0	0	0	0	**3**	0	**3**	0	0	0	0	0	1	0	1	**4**
Total Volume	0	0	0	0	0	3	0	3	0	0	0	0	0	2	0	2	5
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.500	.000	.500	.313

Accurate Counts

978-664-2565

N/S Street : Littleton Drive
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000002
Site Code : 88000002
Start Date : 11/12/2020
Page No : 8



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

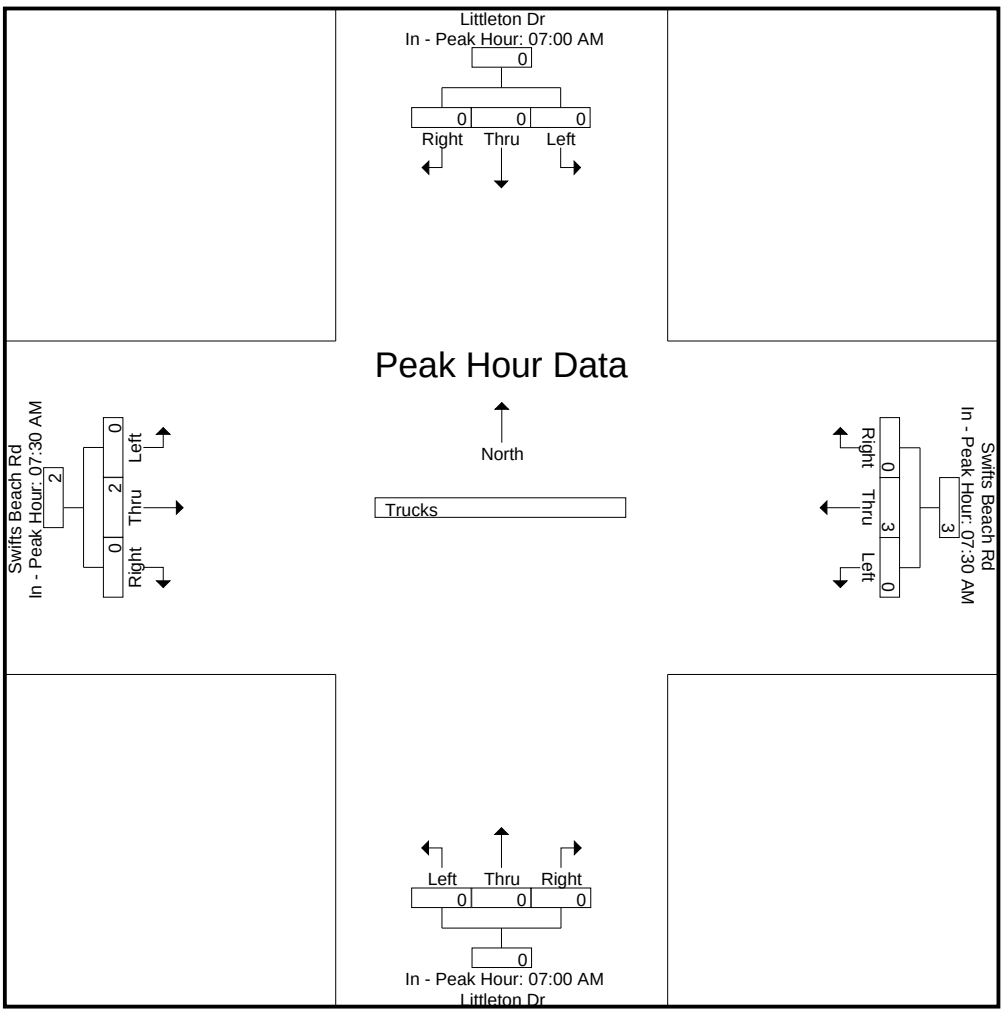
	07:00 AM				07:30 AM				07:00 AM				07:30 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**
+45 mins.	0	0	0	0	0	**3**	0	**3**	0	0	0	0	0	1	0	1
Total Volume	0	0	0	0	0	3	0	3	0	0	0	0	0	2	0	2
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0	
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.500	.000	.500

Accurate Counts

978-664-2565

N/S Street : Littleton Drive
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000002
Site Code : 88000002
Start Date : 11/12/2020
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Littleton Drive
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000002
Site Code : 88000002
Start Date : 11/12/2020

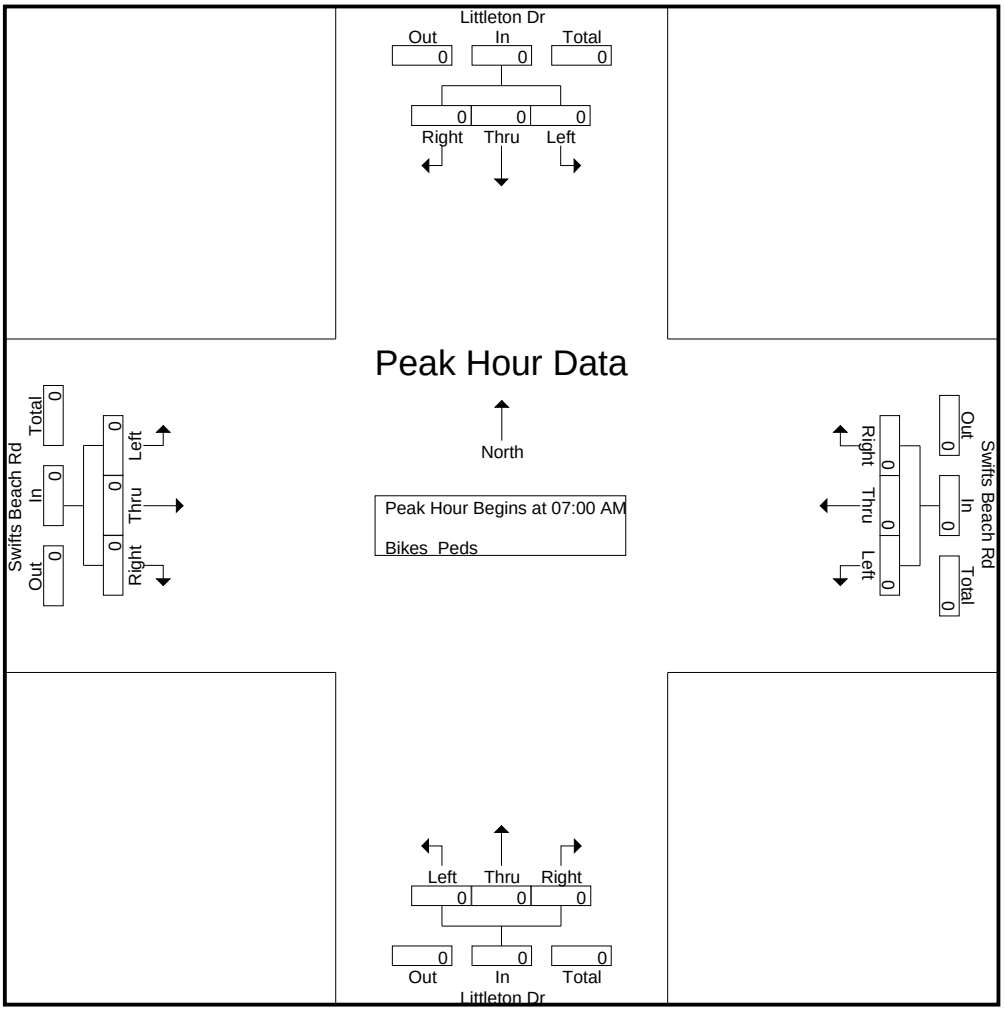
Groups Printed- Bikes Peds

	Littleton Dr From North				Swifts Beach Rd From East				Littleton Dr From South				Swifts Beach Rd From West						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
Apprch %	0	0	0		0	0	0		0	0	0		0	0	0				
Total %																	100	0	

	Littleton Dr From North				Swifts Beach Rd From East				Littleton Dr From South				Swifts Beach Rd From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

N/S Street : Littleton Drive
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000002
Site Code : 88000002
Start Date : 11/12/2020
Page No : 11



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

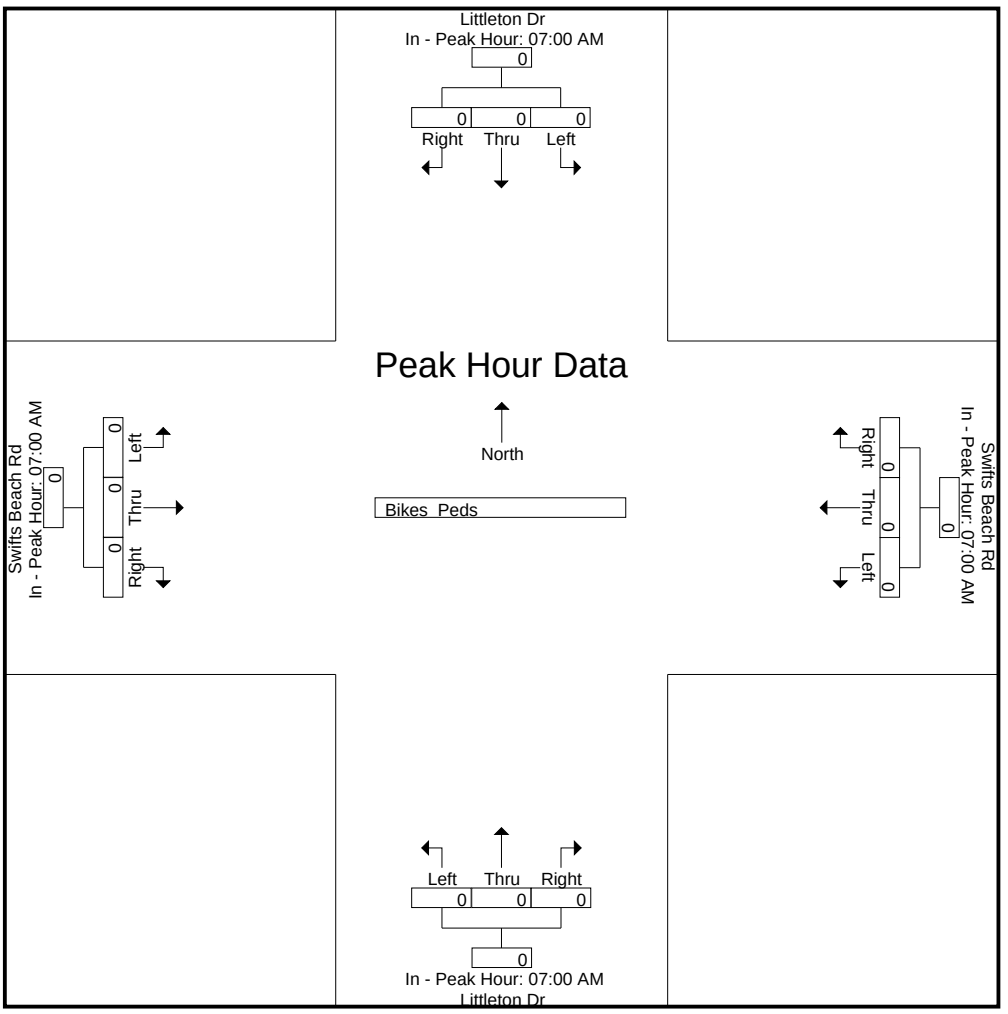
	07:00 AM				07:00 AM				07:00 AM				07:00 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Accurate Counts

978-664-2565

N/S Street : Littleton Drive
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000002
Site Code : 88000002
Start Date : 11/12/2020
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Littleton Drive
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000002
Site Code : 88000002
Start Date : 11/12/2020
Page No : 1

Groups Printed- Cars - Trucks

	Littleton Dr From North			Swifts Beach Rd From East			Littleton Dr From South			Swifts Beach Rd From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
04:00 PM	0	0	0	0	28	0	0	0	0	0	49	1	78
04:15 PM	0	0	0	0	28	0	0	0	0	1	38	1	68
04:30 PM	0	0	0	0	25	0	0	0	0	0	45	1	71
04:45 PM	0	0	0	0	24	0	0	0	0	0	35	1	60
Total	0	0	0	0	105	0	0	0	0	1	167	4	277
05:00 PM	0	0	0	0	22	0	0	0	1	0	59	0	82
05:15 PM	0	0	0	1	28	0	0	0	1	0	51	0	81
05:30 PM	0	0	0	0	26	0	0	0	0	0	30	0	56
05:45 PM	0	0	0	0	13	0	0	0	0	0	36	0	49
Total	0	0	0	1	89	0	0	0	2	0	176	0	268
Grand Total	0	0	0	1	194	0	0	0	2	1	343	4	545
Apprch %	0	0	0	0.5	99.5	0	0	0	100	0.3	98.6	1.1	
Total %	0	0	0	0.2	35.6	0	0	0	0.4	0.2	62.9	0.7	
Cars	0	0	0	1	194	0	0	0	2	1	342	4	544
% Cars	0	0	0	100	100	0	0	0	100	100	99.7	100	99.8
Trucks	0	0	0	0	0	0	0	0	0	0	1	0	1
% Trucks	0	0	0	0	0	0	0	0	0	0	0.3	0	0.2

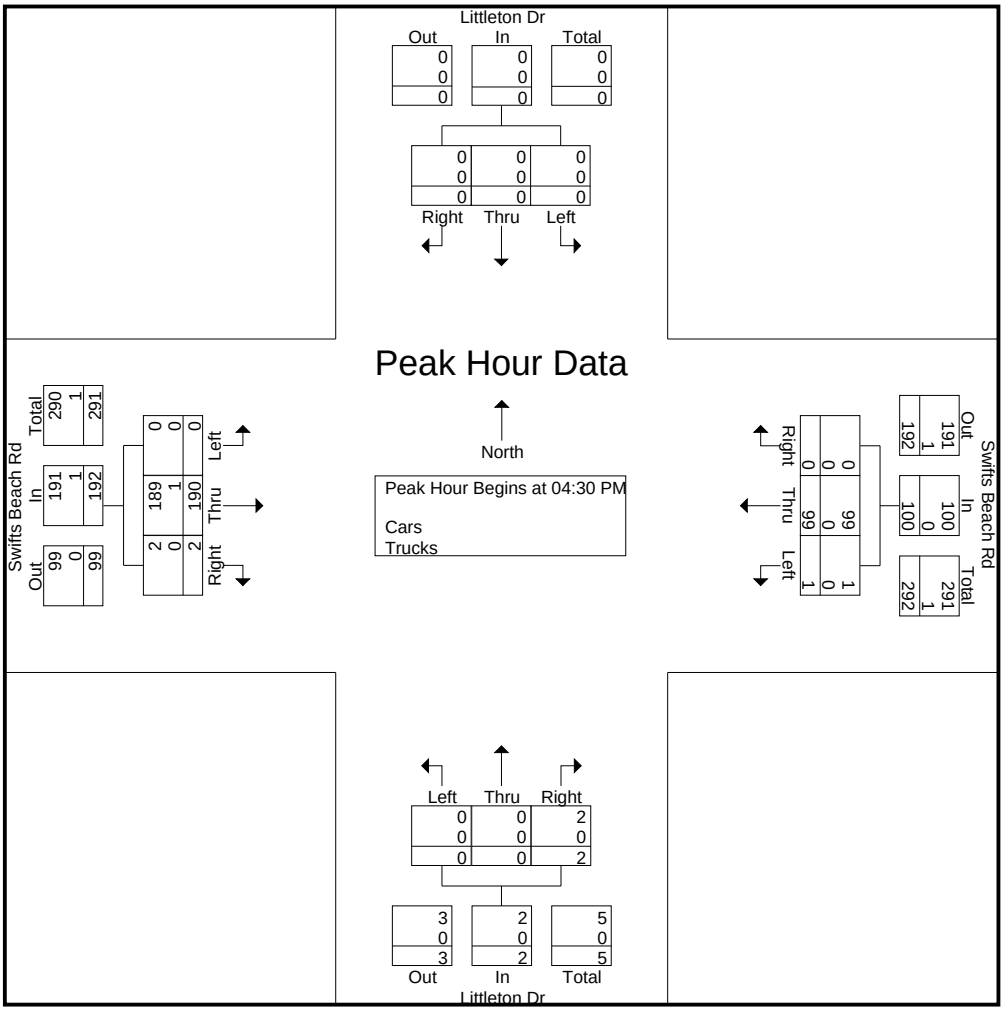
	Littleton Dr From North				Swifts Beach Rd From East				Littleton Dr From South				Swifts Beach Rd From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	25	0	25	0	0	0	0	0	45	**1**	46	71
04:45 PM	0	0	0	0	0	24	0	24	0	0	0	0	0	35	1	36	60
05:00 PM	0	0	0	0	0	22	0	22	0	0	**1**	**1**	0	**59**	0	**59**	**82**
05:15 PM	0	0	0	0	**1**	**28**	0	**29**	0	0	1	1	0	51	0	51	81
Total Volume	0	0	0	0	1	99	0	100	0	0	2	2	0	190	2	192	294
% App. Total	0	0	0		1	99	0		0	0	100		0	99	1		
PHF	.000	.000	.000	.000	.250	.884	.000	.862	.000	.000	.500	.500	.000	.805	.500	.814	.896
Cars	0	0	0	0	1	99	0	100	0	0	2	2	0	189	2	191	293
% Cars	0	0	0	0	100	100	0	100	0	0	100	100	0	99.5	100	99.5	99.7
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0	0.5	0.3

Accurate Counts

978-664-2565

N/S Street : Littleton Drive
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000002
Site Code : 88000002
Start Date : 11/12/2020
Page No : 2



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

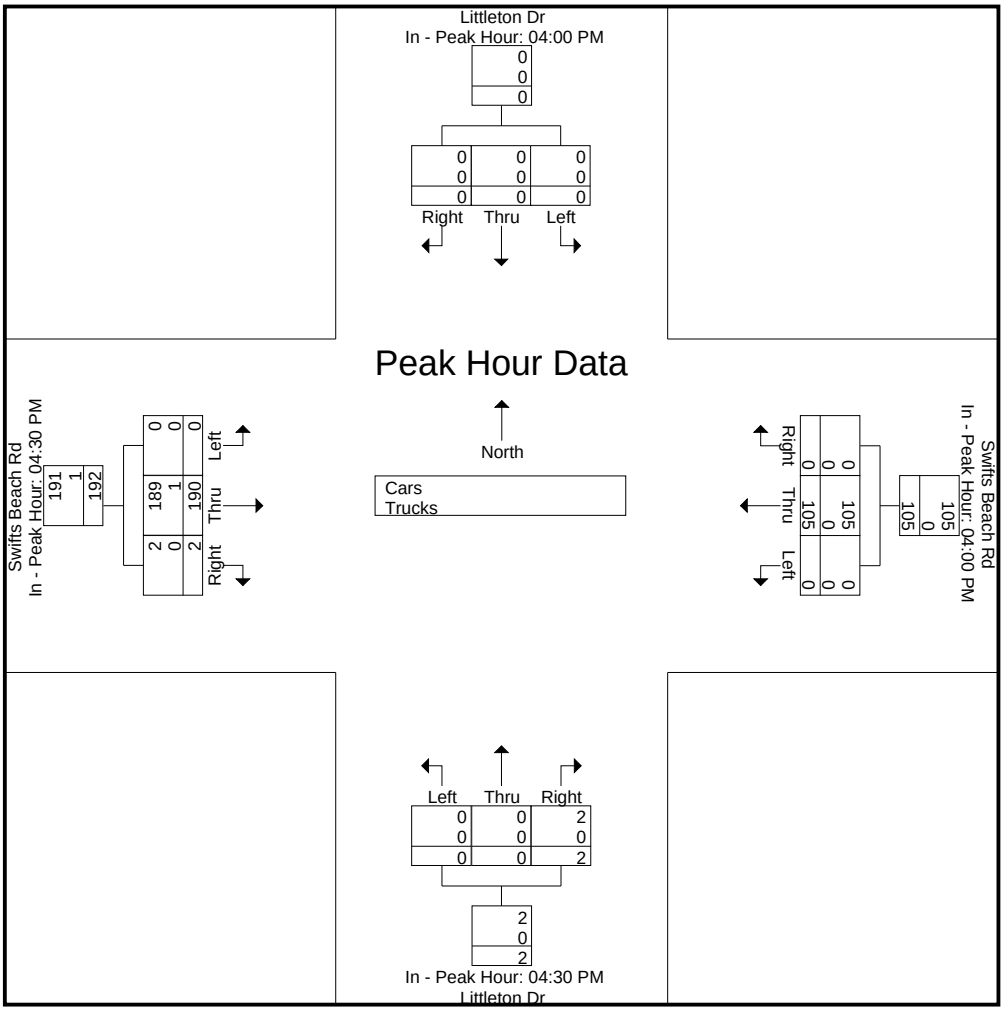
	04:00 PM				04:00 PM				04:30 PM				04:30 PM			
+0 mins.	0	0	0	0	0	**28**	0	**28**	0	0	0	0	0	45	**1**	46
+15 mins.	0	0	0	0	0	28	0	28	0	0	0	0	0	35	1	36
+30 mins.	0	0	0	0	0	25	0	25	0	0	**1**	**1**	0	**59**	0	**59**
+45 mins.	0	0	0	0	0	24	0	24	0	0	1	1	0	51	0	51
Total Volume	0	0	0	0	0	105	0	105	0	0	2	2	0	190	2	192
% App. Total	0	0	0		0	100	0		0	0	100		0	99	1	
PHF	.000	.000	.000	.000	.000	.938	.000	.938	.000	.000	.500	.500	.000	.805	.500	.814
Cars	0	0	0	0	0	105	0	105	0	0	2	2	0	189	2	191
% Cars	0	0	0	0	0	100	0	100	0	0	100	100	0	99.5	100	99.5
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0	0.5

Accurate Counts

978-664-2565

N/S Street : Littleton Drive
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000002
Site Code : 88000002
Start Date : 11/12/2020
Page No : 3



Accurate Counts

978-664-2565

N/S Street : Littleton Drive
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000002
Site Code : 88000002
Start Date : 11/12/2020
Page No : 4

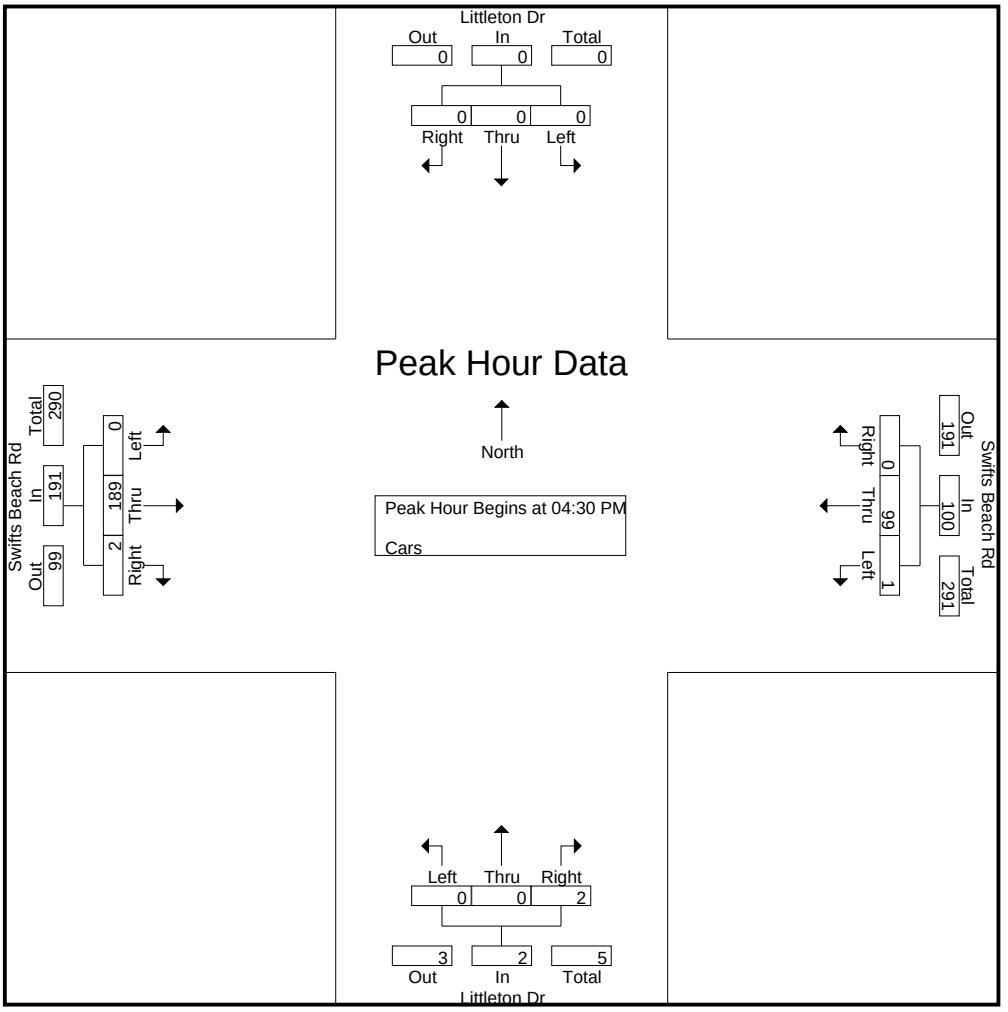
Groups Printed- Cars

	Littleton Dr From North			Swifts Beach Rd From East			Littleton Dr From South			Swifts Beach Rd From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
04:00 PM	0	0	0	0	28	0	0	0	0	0	49	1	78
04:15 PM	0	0	0	0	28	0	0	0	0	1	38	1	68
04:30 PM	0	0	0	0	25	0	0	0	0	0	45	1	71
04:45 PM	0	0	0	0	24	0	0	0	0	0	34	1	59
Total	0	0	0	0	105	0	0	0	0	1	166	4	276
05:00 PM	0	0	0	0	22	0	0	0	1	0	59	0	82
05:15 PM	0	0	0	1	28	0	0	0	1	0	51	0	81
05:30 PM	0	0	0	0	26	0	0	0	0	0	30	0	56
05:45 PM	0	0	0	0	13	0	0	0	0	0	36	0	49
Total	0	0	0	1	89	0	0	0	2	0	176	0	268
Grand Total	0	0	0	1	194	0	0	0	2	1	342	4	544
Apprch %	0	0	0	0.5	99.5	0	0	0	100	0.3	98.6	1.2	
Total %	0	0	0	0.2	35.7	0	0	0	0.4	0.2	62.9	0.7	

	Littleton Dr From North				Swifts Beach Rd From East				Littleton Dr From South				Swifts Beach Rd From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	25	0	25	0	0	0	0	0	45	**1**	46	71
04:45 PM	0	0	0	0	0	24	0	24	0	0	0	0	0	34	1	35	59
05:00 PM	0	0	0	0	0	22	0	22	0	0	**1**	**1**	0	**59**	0	**59**	**82**
05:15 PM	0	0	0	0	**1**	**28**	0	**29**	0	0	1	1	0	51	0	51	81
Total Volume	0	0	0	0	1	99	0	100	0	0	2	2	0	189	2	191	293
% App. Total	0	0	0		1	99	0		0	0	100		0	99	1		
PHF	.000	.000	.000	.000	.250	.884	.000	.862	.000	.000	.500	.500	.000	.801	.500	.809	.893

N/S Street : Littleton Drive
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000002
Site Code : 88000002
Start Date : 11/12/2020
Page No : 5



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

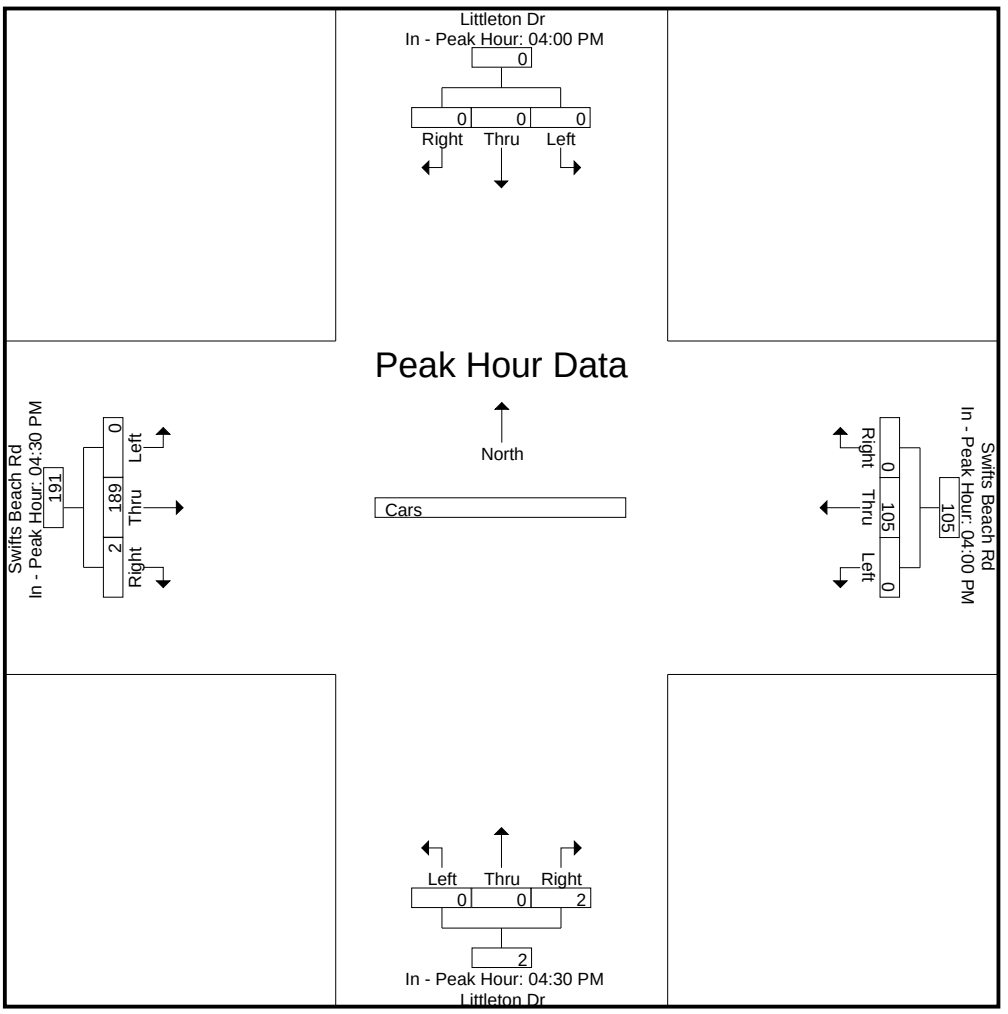
	04:00 PM				04:00 PM				04:30 PM				04:30 PM			
+0 mins.	0	0	0	0	0	**28**	0	**28**	0	0	0	0	0	45	**1**	46
+15 mins.	0	0	0	0	0	28	0	28	0	0	0	0	0	34	1	35
+30 mins.	0	0	0	0	0	25	0	25	0	0	**1**	**1**	0	**59**	0	**59**
+45 mins.	0	0	0	0	0	24	0	24	0	0	1	1	0	51	0	51
Total Volume	0	0	0	0	0	105	0	105	0	0	2	2	0	189	2	191
% App. Total	0	0	0		0	100	0		0	0	100		0	99	1	
PHF	.000	.000	.000	.000	.000	.938	.000	.938	.000	.000	.500	.500	.000	.801	.500	.809

Accurate Counts

978-664-2565

N/S Street : Littleton Drive
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000002
Site Code : 88000002
Start Date : 11/12/2020
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Littleton Drive
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000002
Site Code : 88000002
Start Date : 11/12/2020

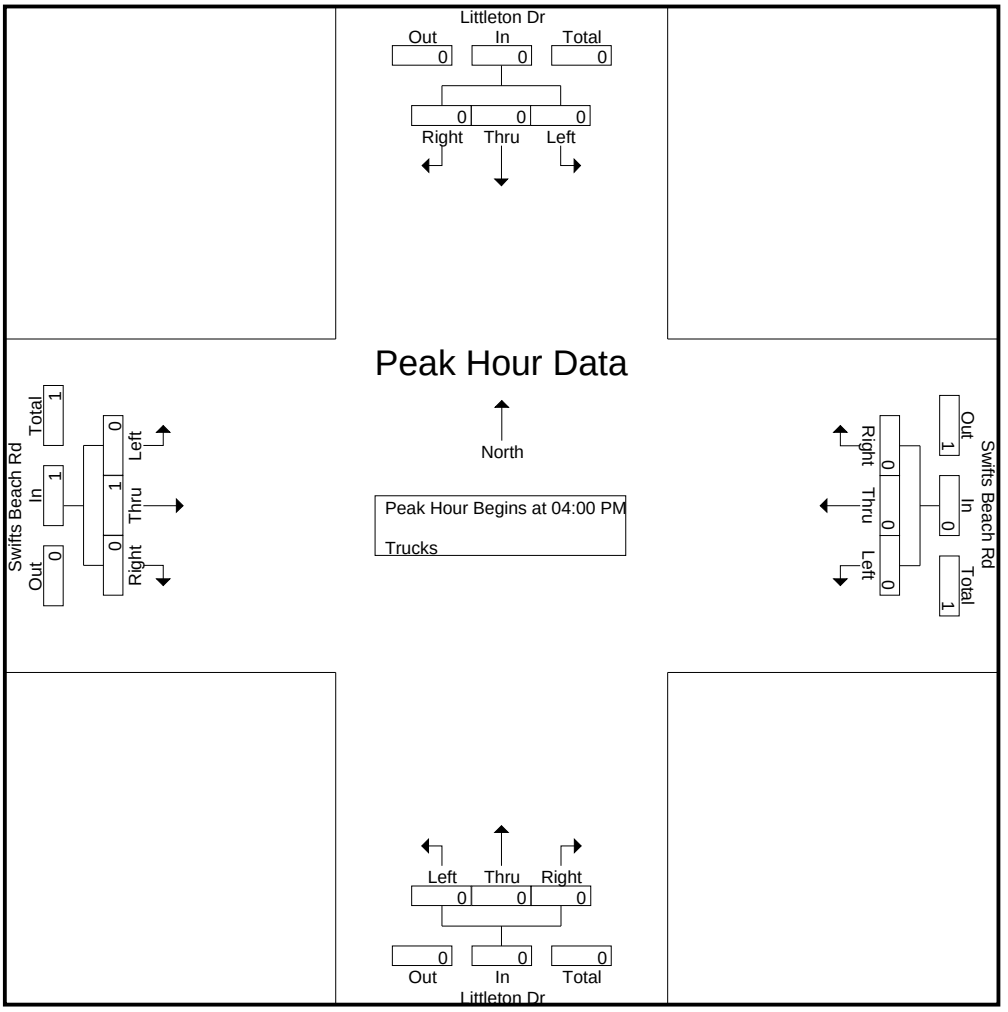
Groups Printed- Trucks

	Littleton Dr From North			Swifts Beach Rd From East			Littleton Dr From South			Swifts Beach Rd From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
Total	0	0	0	0	0	0	0	0	0	0	1	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	1	0	1
Apprch %	0	0	0	0	0	0	0	0	0	0	100	0	
Total %	0	0	0	0	0	0	0	0	0	0	100	0	

	Littleton Dr From North				Swifts Beach Rd From East				Littleton Dr From South				Swifts Beach Rd From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**	**1**
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
% App. Total	0	0	0		0	0	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.250

N/S Street : Littleton Drive
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000002
Site Code : 88000002
Start Date : 11/12/2020
Page No : 8



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

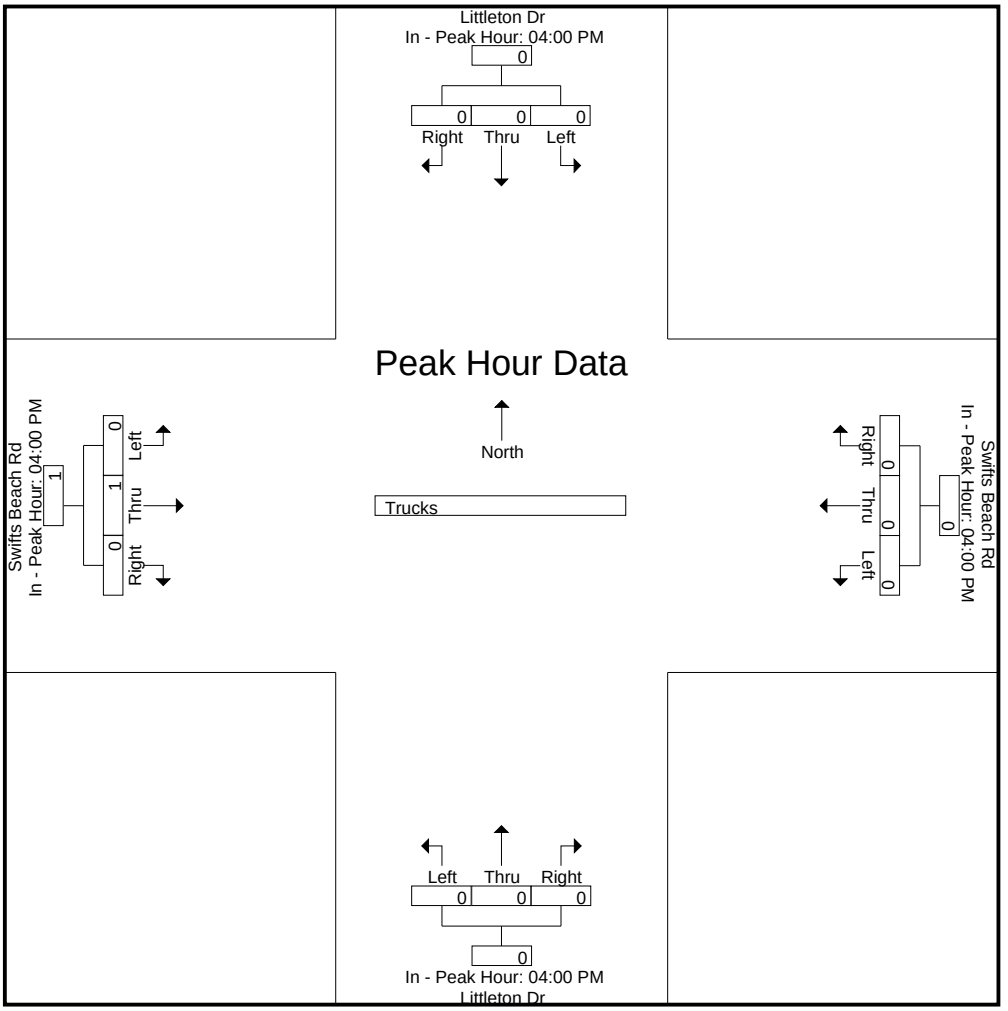
	04:00 PM				04:00 PM				04:00 PM				04:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
% App. Total	0	0	0		0	0	0		0	0	0		0	100	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250

Accurate Counts

978-664-2565

N/S Street : Littleton Drive
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000002
Site Code : 88000002
Start Date : 11/12/2020
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Littleton Drive
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000002
Site Code : 88000002
Start Date : 11/12/2020

Groups Printed- Bikes Peds

	Littleton Dr From North				Swifts Beach Rd From East				Littleton Dr From South				Swifts Beach Rd From West						
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
Total	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Grand Total	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	2	2
Apprch %	0	0	0		0	100	0		0	0	0		0	100	0				
Total %	0	0	0		0	50	0		0	0	0		0	50	0		0	100	

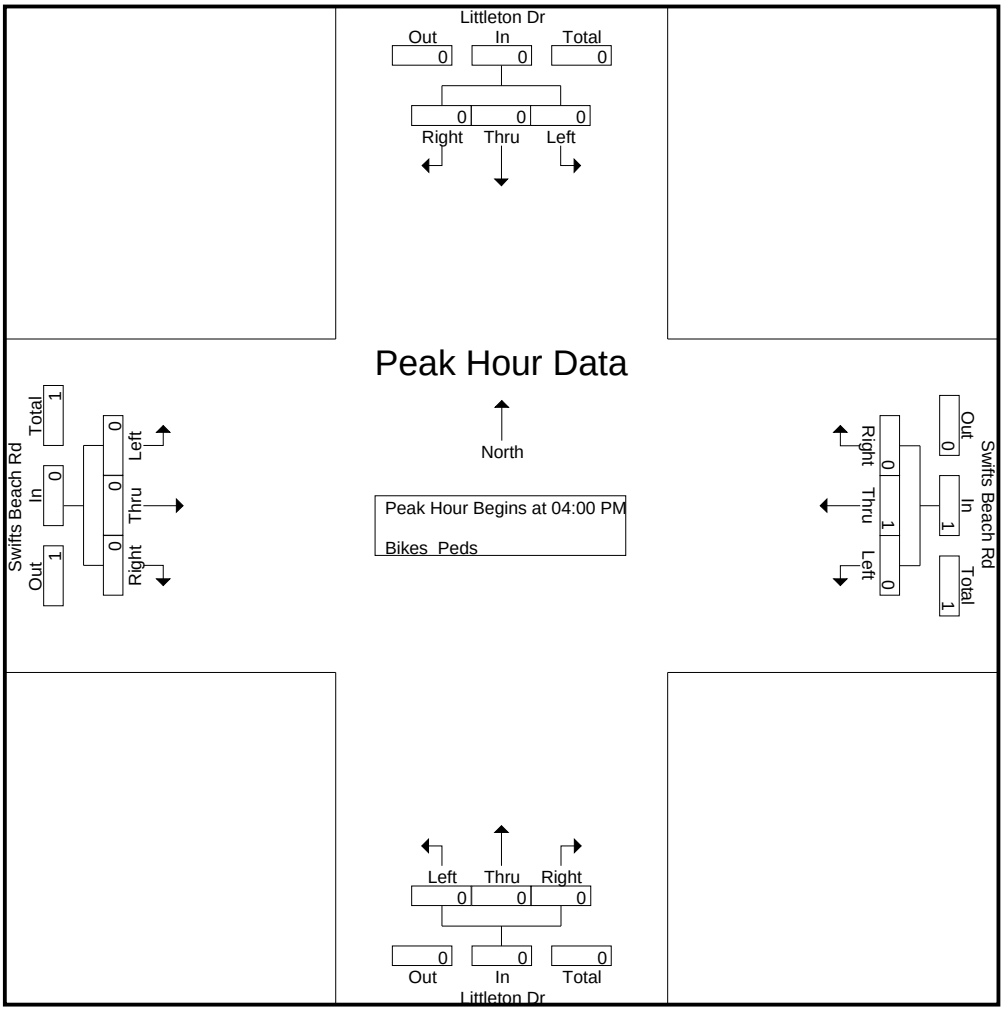
	Littleton Dr From North				Swifts Beach Rd From East				Littleton Dr From South				Swifts Beach Rd From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	0	0	0	**1**
Total Volume	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1
% App. Total	0	0	0		0	100	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.250

Accurate Counts

978-664-2565

N/S Street : Littleton Drive
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000002
Site Code : 88000002
Start Date : 11/12/2020
Page No : 11



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

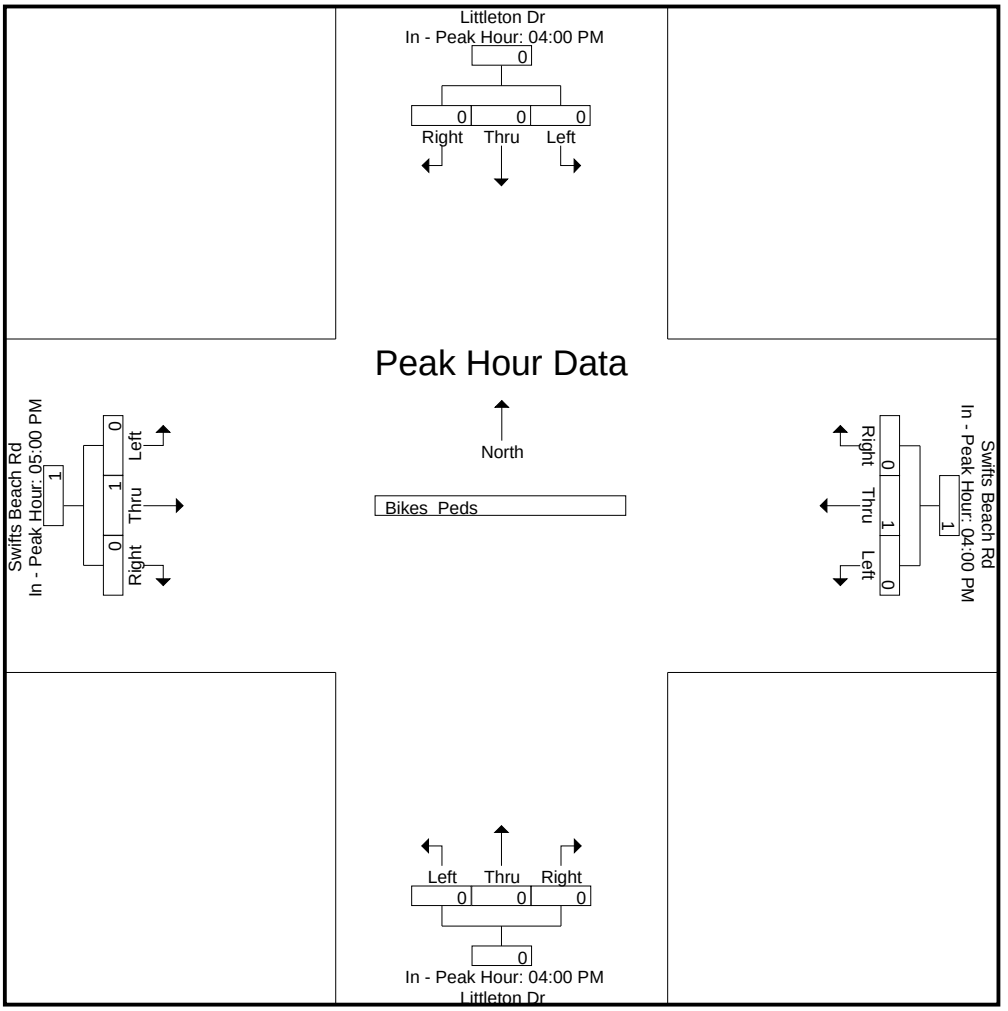
	04:00 PM				04:00 PM				04:00 PM				05:00 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	**1**	0	**1**
Total Volume	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0	
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.000	.250

Accurate Counts

978-664-2565

N/S Street : Littleton Drive
E/W Street : Swifts Beach Road
City/State : Wareham, MA
Weather : Cloudy

File Name : 88000002
Site Code : 88000002
Start Date : 11/12/2020
Page No : 12



SEASONAL ADJUSTMENT DATA

Massachusetts Highway Department

7116: Monthly Hourly Volume for November 2019

Location ID:	**7116**	**Seasonal Factor Group:**	**U1-Southeast**
County:	**Plymouth**	**Daily Factor Group:**	
Funcationl Class	**1**	**Axle Factor Group:**	**U1-Southeast**
Location:	**INTERSTATE 495**	**Growth Factor Group:**	

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	TOTAL	QC Status
1																										
2	318	164	105	99	197	568	1361	1707	2281	2775	3115	3492	3464	3098	3384	3645	3348	3066	2478	1608	1259	1070	821	507	43930	Accepted
3	265	276	76	66	98	346	796	1248	1744	2552	3076	3368	3474	3329	3527	3536	3806	2962	2119	1471	991	592	383	274	40375	Accepted
4	137	72	81	152	536	1472	3087	3713	3131	2612	2346	2259	2401	2349	2793	3355	3764	3483	2081	1261	876	685	427	318	43391	Accepted
5	138	98	96	154	494	1410	2909	3735	3040	2460	2222	2178	2191	2351	2862	3375	3472	3373	2158	1293	974	769	451	292	42495	Accepted
6	157	81	82	136	481	1369	2987	3832	3205	2589	2330	2383	2375	2455	3061	3631	3935	3679	2374	1410	1037	804	526	311	45230	Accepted
7	173	101	97	135	495	1384	2930	3720	3226	2481	2382	2367	2312	2641	3021	3816	4079	3817	2351	1575	1183	902	570	341	46099	Accepted
8	182	135	80	113	458	1199	2540	3232	2941	2470	2600	2605	2822	3180	3549	4106	4274	4093	2998	1878	1227	978	742	475	48877	Accepted
9	270	175	86	96	207	402	962	1418	2164	2960	3227	3491	3471	3160	3181	3226	3218	2700	1919	1434	1083	940	709	495	40994	Accepted
10	296	150	100	74	106	209	551	905	1425	2312	2935	3404	3582	3287	3297	3360	3183	2589	2061	1467	1016	696	435	300	37740	Accepted
11	166	86	65	125	357	1024	2166	2687	2543	2523	2652	2798	2939	2885	3092	3518	3550	3207	2145	1347	935	677	472	299	42258	Accepted
12	163	97	102	138	508	1403	2950	3678	3088	2484	2185	2321	2202	2365	2749	3169	3264	3047	2068	1098	818	647	437	282	41263	Accepted
13	148	101	83	127	421	1277	2480	3188	2995	2398	2074	2125	2108	2253	2729	3318	3751	3376	2314	1308	1090	809	448	317	41238	Accepted
14	153	96	77	117	436	1231	2548	3212	3083	2372	2210	2235	2218	2504	2906	3500	3888	3532	2309	1510	1066	884	484	342	42913	Accepted
15	200	125	78	127	457	1208	2522	3307	3059	2535	2532	2526	2784	2780	3505	4034	4114	4123	2791	1859	1268	1003	764	461	48162	Accepted
16	294	191	92	83	171	424	985	1550	2003	2621	2835	3171	3094	2957	3004	3458	2993	2570	2017	1269	1042	953	665	493	38935	Accepted
17	291	174	81	75	86	221	539	874	1419	2030	2574	2888	3052	3026	3042	3090	2585	1966	1554	1300	1376	699	414	284	33640	Accepted
18	141	72	69	122	493	1363	2646	3412	3041	2372	2004	1935	2083	2182	2424	2991	3222	3040	1891	1215	821	589	375	275	38778	Accepted
19	179	97	90	131	471	1270	2693	3640	3058	2496	2263	2176	2282	2247	2698	3401	3703	3510	2138	1315	1023	763	441	294	42379	Accepted
20	146	79	81	116	482	1277	2776	3485	2971	2353	2195	2114	2175	2358	2685	3351	3644	3423	2263	1390	1040	831	512	299	42046	Accepted
21	178	91	86	124	470	1276	2589	3621	3193	2412	2274	2368	2462	2565	3076	3590	3926	3718	2377	1484	1195	830	559	353	44817	Accepted
22	185	118	81	123	459	1167	2507	3460	3054	2354	2408	2355	2449	2813	3379	3943	3997	3707	2787	1637	1175	864	692	466	46180	Accepted
23	268	166	74	106	201	455	959	1526	2096	2665	2762	3015	3024	3078	3061	3256	2933	2532	1904	1349	1065	943	737	466	38641	Accepted
24	260	151	92	72	95	176	396	660	1148	1621	2215	2575	2665	2443	2411	2357	2022	1586	1336	1031	1236	842	434	236	28060	Accepted
25	143	71	74	126	506	1405	2903	3640	3112	2471	2224	2227	2262	2354	2819	3359	3677	3237	2217	1324	959	654	449	298	42511	Accepted
26	161	92	88	138	444	1313	2778	3530	3209	2675	2467	2421	2648	2807	3266	3934	4128	3736	2612	1747	1334	927	627	379	47461	Accepted
27	212	110	121	147	411	1167	2396	2945	2711	2400	2475	2837	3294	3487	3835	3870	3449	2939	2192	1457	1185	946	622	418	45626	Accepted
28	252	177	87	78	91	186	412	626	1189	2112	3371	5030	5610	4519	2474	1935	2505	3345	3993	3587	2856	1537	819	434	47225	Accepted
29	168	108	107	145	304	596	1164	1694	2080	2634	3372	3877	3594	3758	3663	3608	3298	2675	2098	1451	1161	934	616	460	43565	Accepted
30	222	147	95	96	165	329	705	1164	1802	2700	3325	3667	3970	3627	3497	3379	3116	2714	2225	1660	1356	1075	627	567	42230	Accepted
																								November Average	**42312**	
																								2019 AADT	**49522**	
																								Seasonal Adjutment	**1.170**	

COVID-19 ADJUSTMENT DATA

2019 Average Count Data – Station 7116

November ADT: **42,312**

2020 Average Count Data – Station 7116

November ADT: **38,690**

COVID Adjustment

$$\frac{42{,}312}{38{,}690} = \mathbf{1.094}$$

Massachusetts Highway Department

7116: Monthly Hourly Volume for November 2019

Location ID:	**7116**	**Seasonal Factor Group:**	**U1-Southeast**
County:	**Plymouth**	**Daily Factor Group:**	
Funcationl Class	**1**	**Axle Factor Group:**	**U1-Southeast**
Location:	**INTERSTATE 495**	**Growth Factor Group:**	

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	TOTAL	QC Status
1																										
2	318	164	105	99	197	568	1361	1707	2281	2775	3115	3492	3464	3098	3384	3645	3348	3066	2478	1608	1259	1070	821	507	43930	Accepted
3	265	276	76	66	98	346	796	1248	1744	2552	3076	3368	3474	3329	3527	3536	3806	2962	2119	1471	991	592	383	274	40375	Accepted
4	137	72	81	152	536	1472	3087	3713	3131	2612	2346	2259	2401	2349	2793	3355	3764	3483	2081	1261	876	685	427	318	43391	Accepted
5	138	98	96	154	494	1410	2909	3735	3040	2460	2222	2178	2191	2351	2862	3375	3472	3373	2158	1293	974	769	451	292	42495	Accepted
6	157	81	82	136	481	1369	2987	3832	3205	2589	2330	2383	2375	2455	3061	3631	3935	3679	2374	1410	1037	804	526	311	45230	Accepted
7	173	101	97	135	495	1384	2930	3720	3226	2481	2382	2367	2312	2641	3021	3816	4079	3817	2351	1575	1183	902	570	341	46099	Accepted
8	182	135	80	113	458	1199	2540	3232	2941	2470	2600	2605	2822	3180	3549	4106	4274	4093	2998	1878	1227	978	742	475	48877	Accepted
9	270	175	86	96	207	402	962	1418	2164	2960	3227	3491	3471	3160	3181	3226	3218	2700	1919	1434	1083	940	709	495	40994	Accepted
10	296	150	100	74	106	209	551	905	1425	2312	2935	3404	3582	3287	3297	3360	3183	2589	2061	1467	1016	696	435	300	37740	Accepted
11	166	86	65	125	357	1024	2166	2687	2543	2523	2652	2798	2939	2885	3092	3518	3550	3207	2145	1347	935	677	472	299	42258	Accepted
12	163	97	102	138	508	1403	2950	3678	3088	2484	2185	2321	2202	2365	2749	3169	3264	3047	2068	1098	818	647	437	282	41263	Accepted
13	148	101	83	127	421	1277	2480	3188	2995	2398	2074	2125	2108	2253	2729	3318	3751	3376	2314	1308	1090	809	448	317	41238	Accepted
14	153	96	77	117	436	1231	2548	3212	3083	2372	2210	2235	2218	2504	2906	3500	3888	3532	2309	1510	1066	884	484	342	42913	Accepted
15	200	125	78	127	457	1208	2522	3307	3059	2535	2532	2526	2784	2780	3505	4034	4114	4123	2791	1859	1268	1003	764	461	48162	Accepted
16	294	191	92	83	171	424	985	1550	2003	2621	2835	3171	3094	2957	3004	3458	2993	2570	2017	1269	1042	953	665	493	38935	Accepted
17	291	174	81	75	86	221	539	874	1419	2030	2574	2888	3052	3026	3042	3090	2585	1966	1554	1300	1376	699	414	284	33640	Accepted
18	141	72	69	122	493	1363	2646	3412	3041	2372	2004	1935	2083	2182	2424	2991	3222	3040	1891	1215	821	589	375	275	38778	Accepted
19	179	97	90	131	471	1270	2693	3640	3058	2496	2263	2176	2282	2247	2698	3401	3703	3510	2138	1315	1023	763	441	294	42379	Accepted
20	146	79	81	116	482	1277	2776	3485	2971	2353	2195	2114	2175	2358	2685	3351	3644	3423	2263	1390	1040	831	512	299	42046	Accepted
21	178	91	86	124	470	1276	2589	3621	3193	2412	2274	2368	2462	2565	3076	3590	3926	3718	2377	1484	1195	830	559	353	44817	Accepted
22	185	118	81	123	459	1167	2507	3460	3054	2354	2408	2355	2449	2813	3379	3943	3997	3707	2787	1637	1175	864	692	466	46180	Accepted
23	268	166	74	106	201	455	959	1526	2096	2665	2762	3015	3024	3078	3061	3256	2933	2532	1904	1349	1065	943	737	466	38641	Accepted
24	260	151	92	72	95	176	396	660	1148	1621	2215	2575	2665	2443	2411	2357	2022	1586	1336	1031	1236	842	434	236	28060	Accepted
25	143	71	74	126	506	1405	2903	3640	3112	2471	2224	2227	2262	2354	2819	3359	3677	3237	2217	1324	959	654	449	298	42511	Accepted
26	161	92	88	138	444	1313	2778	3530	3209	2675	2467	2421	2648	2807	3266	3934	4128	3736	2612	1747	1334	927	627	379	47461	Accepted
27	212	110	121	147	411	1167	2396	2945	2711	2400	2475	2837	3294	3487	3835	3870	3449	2939	2192	1457	1185	946	622	418	45626	Accepted
28	252	177	87	78	91	186	412	626	1189	2112	3371	5030	5610	4519	2474	1935	2505	3345	3993	3587	2856	1537	819	434	47225	Accepted
29	168	108	107	145	304	596	1164	1694	2080	2634	3372	3877	3594	3758	3663	3608	3298	2675	2098	1451	1161	934	616	460	43565	Accepted
30	222	147	95	96	165	329	705	1164	1802	2700	3325	3667	3970	3627	3497	3379	3116	2714	2225	1660	1356	1075	627	567	42230	Accepted
																								November Average	**42312**	
																								2019 AADT	**49522**	
																								Seasonal Adjutment	**1.170**	

Massachusetts Highway Department

7116: Monthly Hourly Volume for November 2020

Location ID:	**7116**	**Seasonal Factor Group:**	**U1-Southeast**
County:	**Plymouth**	**Daily Factor Group:**	
Funcationl Class	**1**	**Axle Factor Group:**	**U1-Southeast**
Location:	**INTERSTATE 495**	**Growth Factor Group:**	

	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	TOTAL	QC Status
1	231	201	65	66	97	226	491	792	1231	1951	2465	2952	2883	2605	2520	2644	2448	2111	1380	1036	716	407	262	205	29985	Accepted
2	91	62	50	123	383	1295	2659	3048	2600	2160	2090	2123	2204	2201	2553	3103	3235	2739	1574	946	696	396	313	194	36838	Accepted
3	130	81	67	117	348	1165	2312	2930	2485	2208	2131	2203	2243	2335	2758	3235	3410	2809	1620	939	682	438	323	224	37193	Accepted
4	148	81	64	121	356	1231	2559	2863	2552	2303	2079	2107	2133	2273	2677	3375	3498	2897	1889	1060	738	485	357	248	38094	Accepted
5	140	74	77	125	370	1219	2573	2922	2532	2420	2285	2348	2377	2445	2873	3632	3741	3329	2058	1208	858	597	407	233	40843	Accepted
6	195	89	81	121	343	1180	2454	2974	2546	2596	2553	2813	2926	3017	3665	4392	4435	4084	2804	1568	1060	814	488	274	47472	Accepted
7	176	80	67	95	233	554	1062	1497	2171	3131	3571	3960	3677	3733	3545	3638	3555	3180	2090	1367	972	809	469	287	43919	Accepted
8	153	60	56	64	95	299	659	1032	1613	2422	3063	3558	3581	3658	3621	4010	4006	3339	2301	1471	970	619	305	193	41148	Accepted
9	75	53	56	104	408	1344	2628	2953	2711	2523	2269	2485	2425	2472	2923	3449	3692	2900	1968	1015	747	487	304	223	40214	Accepted
10	124	74	81	122	349	1226	2551	3135	2641	2461	2413	2492	2301	2476	2806	3643	3837	3237	1918	1193	778	555	373	235	41021	Accepted
11	116	74	74	119	264	1025	2007	2486	2504	2514	2696	2655	2659	2777	3166	3289	3460	2760	1730	1190	874	577	327	213	39556	Accepted
12	120	66	70	125	369	1158	2381	2974	2510	2165	2087	2170	2230	2339	2669	3220	3259	2947	1741	1083	857	492	357	209	37598	Accepted
13	124	84	78	110	339	1109	2299	2812	2551	2242	2267	2406	2521	2630	3137	3687	3731	3404	2327	1521	950	727	436	287	41779	Accepted
14	154	80	66	86	179	463	997	1427	1948	2508	2932	3175	3061	3087	3106	3010	2888	2519	1608	1133	921	734	476	275	36833	Accepted
15	150	82	44	63	87	260	552	795	1193	1911	2313	2782	2981	3029	2755	2947	2745	2199	1647	1054	781	441	294	204	31309	Accepted
16	95	56	57	112	388	1261	2576	2988	2467	2350	2081	2062	2080	2057	2657	3054	3233	2750	1673	927	701	452	308	207	36592	Accepted
17	107	79	63	113	353	1261	2448	3013	2567	2292	2120	2078	2101	2224	2594	3385	3281	2904	1629	989	685	527	324	200	37337	Accepted
18																										
19																										
20																										
21																										
22																										
23																										
24																										
25																										
26																										
27																										
28																										
29																										
30																										

November Average **38690**

VEHICLE TRAVEL SPEED DATA

Location : Swifts Beach Road
Location : West of Littleton Drive
City/State: Wareham, MA

8800SP01

EB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
11/11/20	0	0	0	0	4	5	2	0	0	0	0	0	0	0	11
01:00	0	0	1	0	1	2	2	0	0	0	0	0	0	0	6
02:00	0	0	0	0	0	1	1	0	0	0	0	0	0	0	2
03:00	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
04:00	1	0	0	0	1	0	1	0	0	0	0	0	0	0	3
05:00	1	0	0	3	7	2	1	0	0	0	0	0	0	0	14
06:00	7	0	2	6	3	7	5	0	0	0	0	0	0	0	30
07:00	2	0	0	1	13	22	3	0	1	0	0	0	0	0	42
08:00	2	1	1	7	27	21	7	0	0	0	0	0	0	0	66
09:00	2	1	1	8	19	31	16	2	0	0	0	0	0	0	80
10:00	1	0	1	6	45	44	13	2	0	0	0	0	0	0	112
11:00	6	2	2	10	41	53	12	2	0	0	0	0	0	0	128
12 PM	4	0	0	11	50	45	26	3	1	0	0	0	0	0	140
13:00	0	0	4	7	46	57	12	4	1	0	0	0	0	0	131
14:00	2	0	2	10	47	53	26	1	1	0	0	0	0	0	142
15:00	0	0	2	10	57	55	23	4	0	0	0	0	0	0	151
16:00	5	0	1	15	68	84	16	7	1	0	0	0	0	0	197
17:00	3	0	2	13	73	60	15	3	1	0	0	0	0	0	170
18:00	1	0	3	13	51	34	17	1	1	0	0	0	0	0	121
19:00	0	0	1	8	28	28	5	1	2	0	0	0	0	0	73
20:00	2	1	3	11	23	18	4	1	0	0	0	0	0	0	63
21:00	1	1	2	10	16	11	2	0	0	0	0	0	0	0	43
22:00	0	0	0	3	10	5	2	2	0	0	0	0	0	0	22
23:00	0	0	0	3	8	6	1	0	1	0	0	0	0	0	19
Total	40	6	28	155	639	645	212	33	10	0	0	0	0	0	1768

Daily

15th Percentile :	30 MPH
50th Percentile :	35 MPH
85th Percentile :	39 MPH
95th Percentile :	43 MPH
Mean Speed(Average) :	35 MPH
10 MPH Pace Speed :	31-40 MPH
Number in Pace :	1284
Percent in Pace :	72.6%
Number of Vehicles > 35 MPH :	900
Percent of Vehicles > 35 MPH :	50.9%

Location : Swifts Beach Road
Location : West of Littleton Drive
City/State: Wareham, MA

8800SP01

EB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
11/12/20	0	0	0	2	4	1	3	0	0	0	0	0	0	0	10
01:00	0	1	0	1	0	0	1	0	0	0	0	0	0	0	3
02:00	0	0	1	1	0	1	0	0	0	0	0	0	0	0	3
03:00	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
04:00	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
05:00	0	0	1	3	3	2	0	0	0	0	0	0	0	0	9
06:00	1	0	0	2	6	11	0	2	0	0	0	0	0	0	22
07:00	0	0	0	2	17	19	4	0	0	0	0	0	0	0	42
08:00	0	1	3	4	30	26	10	0	0	0	0	0	0	0	74
09:00	1	0	0	6	34	36	5	1	0	0	0	0	0	0	83
10:00	2	0	1	6	29	28	10	4	0	0	0	0	0	0	80
11:00	5	2	1	15	47	31	11	5	0	1	0	0	0	0	118
12 PM	0	2	10	11	36	37	15	2	0	0	0	0	0	0	113
13:00	2	0	1	16	31	36	14	2	0	0	0	0	0	0	102
14:00	1	1	2	9	51	44	18	0	0	0	0	0	0	0	126
15:00	2	0	1	12	59	55	22	1	0	0	0	0	0	0	152
16:00	2	0	2	16	57	83	19	1	1	0	0	0	0	0	181
17:00	5	0	1	21	60	63	21	5	0	0	0	0	0	0	176
18:00	9	0	2	15	39	55	7	0	1	0	0	0	0	0	128
19:00	0	1	1	7	33	29	9	3	0	0	0	0	0	0	83
20:00	0	0	0	5	13	23	10	1	0	0	0	0	0	0	52
21:00	1	0	0	5	16	18	7	1	2	0	0	0	0	0	50
22:00	0	0	0	1	12	11	2	1	1	0	0	0	0	0	28
23:00	0	2	0	2	4	3	4	2	0	0	0	0	0	0	17
Total	31	10	27	162	583	613	192	31	5	1	0	0	0	0	1655

Daily

15th Percentile :	30 MPH
50th Percentile :	35 MPH
85th Percentile :	39 MPH
95th Percentile :	43 MPH
Mean Speed(Average) :	35 MPH
10 MPH Pace Speed :	31-40 MPH
Number in Pace :	1196
Percent in Pace :	72.3%
Number of Vehicles > 35 MPH :	842
Percent of Vehicles > 35 MPH :	50.9%

Grand Total	71	16	55	317	1222	1258	404	64	15	1	0	0	0	0	3423

Overall

15th Percentile :	30 MPH
50th Percentile :	35 MPH
85th Percentile :	39 MPH
95th Percentile :	43 MPH
Mean Speed(Average) :	35 MPH
10 MPH Pace Speed :	31-40 MPH
Number in Pace :	2480
Percent in Pace :	72.5%
Number of Vehicles > 35 MPH :	1742
Percent of Vehicles > 35 MPH :	50.9%

Location : Swifts Beach Road
Location : West of Littleton Drive
City/State: Wareham, MA

8800SP01

WB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
11/11/20	0	0	0	0	3	1	1	2	0	0	0	0	0	0	7
01:00	0	1	0	0	0	4	0	0	0	0	0	0	0	0	5
02:00	0	0	0	0	1	1	1	1	0	0	0	0	0	0	4
03:00	0	0	0	0	1	2	3	0	0	0	0	0	0	0	6
04:00	0	0	0	0	5	8	4	1	0	0	0	0	0	0	18
05:00	2	2	1	1	26	23	8	0	0	0	0	0	0	0	63
06:00	5	1	5	11	20	37	10	3	1	0	0	0	0	0	93
07:00	1	0	1	6	31	42	20	4	3	0	0	0	0	0	108
08:00	5	0	4	9	40	39	11	3	1	0	0	0	0	0	112
09:00	7	1	1	9	37	51	12	4	0	0	0	0	0	0	122
10:00	5	1	1	16	44	52	24	3	0	0	0	0	0	0	146
11:00	6	0	4	10	43	53	18	4	0	0	0	0	0	0	138
12 PM	5	0	3	11	39	62	24	1	1	0	0	0	0	0	146
13:00	3	0	2	10	38	53	21	2	1	0	0	0	0	0	130
14:00	6	0	3	17	46	58	16	4	0	0	0	0	0	0	150
15:00	4	1	5	10	45	34	7	4	0	0	0	0	0	0	110
16:00	4	0	2	11	48	51	12	3	0	0	0	0	0	0	131
17:00	6	1	2	11	42	40	14	3	0	0	0	0	0	0	119
18:00	1	0	1	11	21	28	5	3	0	0	0	0	0	0	70
19:00	0	0	0	1	18	9	3	0	0	0	0	0	0	0	31
20:00	1	0	2	6	17	11	8	0	0	0	0	0	0	0	45
21:00	1	1	1	2	7	4	6	1	0	0	0	0	0	0	23
22:00	0	1	1	3	5	4	3	1	0	0	0	0	0	0	18
23:00	0	0	0	1	5	2	3	1	0	0	0	0	0	0	12
Total	62	10	39	156	582	669	234	48	7	0	0	0	0	0	1807

Daily

15th Percentile :	30 MPH
50th Percentile :	35 MPH
85th Percentile :	40 MPH
95th Percentile :	44 MPH
Mean Speed(Average) :	35 MPH
10 MPH Pace Speed :	31-40 MPH
Number in Pace :	1251
Percent in Pace :	69.2%
Number of Vehicles > 35 MPH :	958
Percent of Vehicles > 35 MPH :	53.0%

Location : Swifts Beach Road
Location : West of Littleton Drive
City/State: Wareham, MA

8800SP01

WB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
11/12/20	0	0	0	0	0	1	2	1	0	0	0	0	0	0	4
01:00	0	1	0	0	2	1	0	0	0	0	0	0	0	0	4
02:00	0	0	0	0	0	4	0	0	0	0	0	0	0	0	4
03:00	0	0	0	0	1	1	3	0	0	0	0	0	0	0	5
04:00	0	0	0	2	5	5	6	0	0	0	0	0	0	0	18
05:00	0	1	2	4	17	16	14	3	0	0	0	0	0	0	57
06:00	1	1	1	8	22	45	21	3	0	0	0	0	0	0	102
07:00	0	0	2	3	31	56	31	5	0	0	0	0	0	0	128
08:00	1	4	3	8	35	37	20	4	0	0	0	0	0	0	112
09:00	3	2	0	10	33	41	12	2	0	0	0	0	0	0	103
10:00	1	1	2	4	37	45	16	3	1	0	0	0	0	0	110
11:00	1	1	2	6	45	40	21	4	1	0	0	0	0	0	121
12 PM	1	1	2	13	36	54	17	2	1	0	0	0	0	0	127
13:00	0	0	0	4	25	44	13	5	1	0	0	0	0	0	92
14:00	3	2	4	9	41	46	11	4	0	0	0	0	0	0	120
15:00	3	0	1	11	34	51	11	3	0	0	0	0	0	0	114
16:00	3	0	0	10	42	38	11	4	0	0	0	0	0	0	108
17:00	1	0	2	9	31	33	11	2	0	0	0	0	0	0	89
18:00	4	0	1	12	21	26	5	1	0	0	0	0	0	0	70
19:00	3	0	4	7	22	18	4	0	0	0	0	0	0	0	58
20:00	0	0	0	2	7	16	4	2	0	1	0	0	0	0	32
21:00	1	0	1	1	9	7	6	1	1	0	0	0	0	0	27
22:00	0	0	0	1	6	7	1	0	1	0	0	0	0	0	16
23:00	0	0	4	1	2	5	5	0	0	0	0	0	0	0	17
Total	26	14	31	125	504	637	245	49	6	1	0	0	0	0	1638

Daily

15th Percentile :	30 MPH
50th Percentile :	35 MPH
85th Percentile :	41 MPH
95th Percentile :	44 MPH
Mean Speed(Average) :	36 MPH
10 MPH Pace Speed :	31-40 MPH
Number in Pace :	1141
Percent in Pace :	69.7%
Number of Vehicles > 35 MPH :	938
Percent of Vehicles > 35 MPH :	57.3%

Grand Total	88	24	70	281	1086	1306	479	97	13	1	0	0	0	0	3445

Overall

15th Percentile :	30 MPH
50th Percentile :	35 MPH
85th Percentile :	40 MPH
95th Percentile :	44 MPH
Mean Speed(Average) :	35 MPH
10 MPH Pace Speed :	31-40 MPH
Number in Pace :	2392
Percent in Pace :	69.4%
Number of Vehicles > 35 MPH :	1896
Percent of Vehicles > 35 MPH :	55.0%

Location : Swifts Beach Road
Location : West of Littleton Drive
City/State: Wareham, MA

8800SP01

EB, WB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
11/11/20	0	0	0	0	7	6	3	2	0	0	0	0	0	0	18
01:00	0	1	1	0	1	6	2	0	0	0	0	0	0	0	11
02:00	0	0	0	0	1	2	2	1	0	0	0	0	0	0	6
03:00	0	0	0	0	2	3	3	0	0	0	0	0	0	0	8
04:00	1	0	0	0	6	8	5	1	0	0	0	0	0	0	21
05:00	3	2	1	4	33	25	9	0	0	0	0	0	0	0	77
06:00	12	1	7	17	23	44	15	3	1	0	0	0	0	0	123
07:00	3	0	1	7	44	64	23	4	4	0	0	0	0	0	150
08:00	7	1	5	16	67	60	18	3	1	0	0	0	0	0	178
09:00	9	2	2	17	56	82	28	6	0	0	0	0	0	0	202
10:00	6	1	2	22	89	96	37	5	0	0	0	0	0	0	258
11:00	12	2	6	20	84	106	30	6	0	0	0	0	0	0	266
12 PM	9	0	3	22	89	107	50	4	2	0	0	0	0	0	286
13:00	3	0	6	17	84	110	33	6	2	0	0	0	0	0	261
14:00	8	0	5	27	93	111	42	5	1	0	0	0	0	0	292
15:00	4	1	7	20	102	89	30	8	0	0	0	0	0	0	261
16:00	9	0	3	26	116	135	28	10	1	0	0	0	0	0	328
17:00	9	1	4	24	115	100	29	6	1	0	0	0	0	0	289
18:00	2	0	4	24	72	62	22	4	1	0	0	0	0	0	191
19:00	0	0	1	9	46	37	8	1	2	0	0	0	0	0	104
20:00	3	1	5	17	40	29	12	1	0	0	0	0	0	0	108
21:00	2	2	3	12	23	15	8	1	0	0	0	0	0	0	66
22:00	0	1	1	6	15	9	5	3	0	0	0	0	0	0	40
23:00	0	0	0	4	13	8	4	1	1	0	0	0	0	0	31
Total	102	16	67	311	1221	1314	446	81	17	0	0	0	0	0	3575

Daily

15th Percentile :	30 MPH
50th Percentile :	35 MPH
85th Percentile :	40 MPH
95th Percentile :	44 MPH
Mean Speed(Average) :	35 MPH
10 MPH Pace Speed :	31-40 MPH
Number in Pace :	2535
Percent in Pace :	70.9%
Number of Vehicles > 35 MPH :	1858
Percent of Vehicles > 35 MPH :	52.0%

Location : Swifts Beach Road
Location : West of Littleton Drive
City/State: Wareham, MA

8800SP01

EB, WB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total
11/12/20	0	0	0	2	4	2	5	1	0	0	0	0	0	0	14
01:00	0	2	0	1	2	1	1	0	0	0	0	0	0	0	7
02:00	0	0	1	1	0	5	0	0	0	0	0	0	0	0	7
03:00	0	0	0	0	3	1	3	0	0	0	0	0	0	0	7
04:00	0	0	0	2	5	6	6	0	0	0	0	0	0	0	19
05:00	0	1	3	7	20	18	14	3	0	0	0	0	0	0	66
06:00	2	1	1	10	28	56	21	5	0	0	0	0	0	0	124
07:00	0	0	2	5	48	75	35	5	0	0	0	0	0	0	170
08:00	1	5	6	12	65	63	30	4	0	0	0	0	0	0	186
09:00	4	2	0	16	67	77	17	3	0	0	0	0	0	0	186
10:00	3	1	3	10	66	73	26	7	1	0	0	0	0	0	190
11:00	6	3	3	21	92	71	32	9	1	1	0	0	0	0	239
12 PM	1	3	12	24	72	91	32	4	1	0	0	0	0	0	240
13:00	2	0	1	20	56	80	27	7	1	0	0	0	0	0	194
14:00	4	3	6	18	92	90	29	4	0	0	0	0	0	0	246
15:00	5	0	2	23	93	106	33	4	0	0	0	0	0	0	266
16:00	5	0	2	26	99	121	30	5	1	0	0	0	0	0	289
17:00	6	0	3	30	91	96	32	7	0	0	0	0	0	0	265
18:00	13	0	3	27	60	81	12	1	1	0	0	0	0	0	198
19:00	3	1	5	14	55	47	13	3	0	0	0	0	0	0	141
20:00	0	0	0	7	20	39	14	3	0	1	0	0	0	0	84
21:00	2	0	1	6	25	25	13	2	3	0	0	0	0	0	77
22:00	0	0	0	2	18	18	3	1	2	0	0	0	0	0	44
23:00	0	2	4	3	6	8	9	2	0	0	0	0	0	0	34
Total	57	24	58	287	1087	1250	437	80	11	2	0	0	0	0	3293

Daily

15th Percentile :	30 MPH
50th Percentile :	35 MPH
85th Percentile :	40 MPH
95th Percentile :	44 MPH
Mean Speed(Average) :	36 MPH
10 MPH Pace Speed :	31-40 MPH
Number in Pace :	2337
Percent in Pace :	71.0%
Number of Vehicles > 35 MPH :	1780
Percent of Vehicles > 35 MPH :	54.1%

Grand Total	159	40	125	598	2308	2564	883	161	28	2	0	0	0	0	6868

Overall

15th Percentile :	30 MPH
50th Percentile :	35 MPH
85th Percentile :	40 MPH
95th Percentile :	44 MPH
Mean Speed(Average) :	35 MPH
10 MPH Pace Speed :	31-40 MPH
Number in Pace :	4872
Percent in Pace :	70.9%
Number of Vehicles > 35 MPH :	3638
Percent of Vehicles > 35 MPH :	53.0%

MASSDOT CRASH RATE WORKSHEETS AND HIGH CRASH LOCATION MAPPING

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Wareham | COUNT DATE : Nov-20

DISTRICT : 5 | UNSIGNALIZED : X | SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Route 6

MINOR STREET(S) : Swift's Beach Road

INTERSECTION DIAGRAM (Label Approaches)

↑ *North*

PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	WB			
PEAK HOURLY VOLUMES (PM) :	464	837	183			**1,484**

" K " FACTOR : **0.090**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **16,489**

TOTAL # OF CRASHES : 13 | # OF YEARS : 5 | AVERAGE # OF CRASHES PER YEAR (**A**) : **2.60**

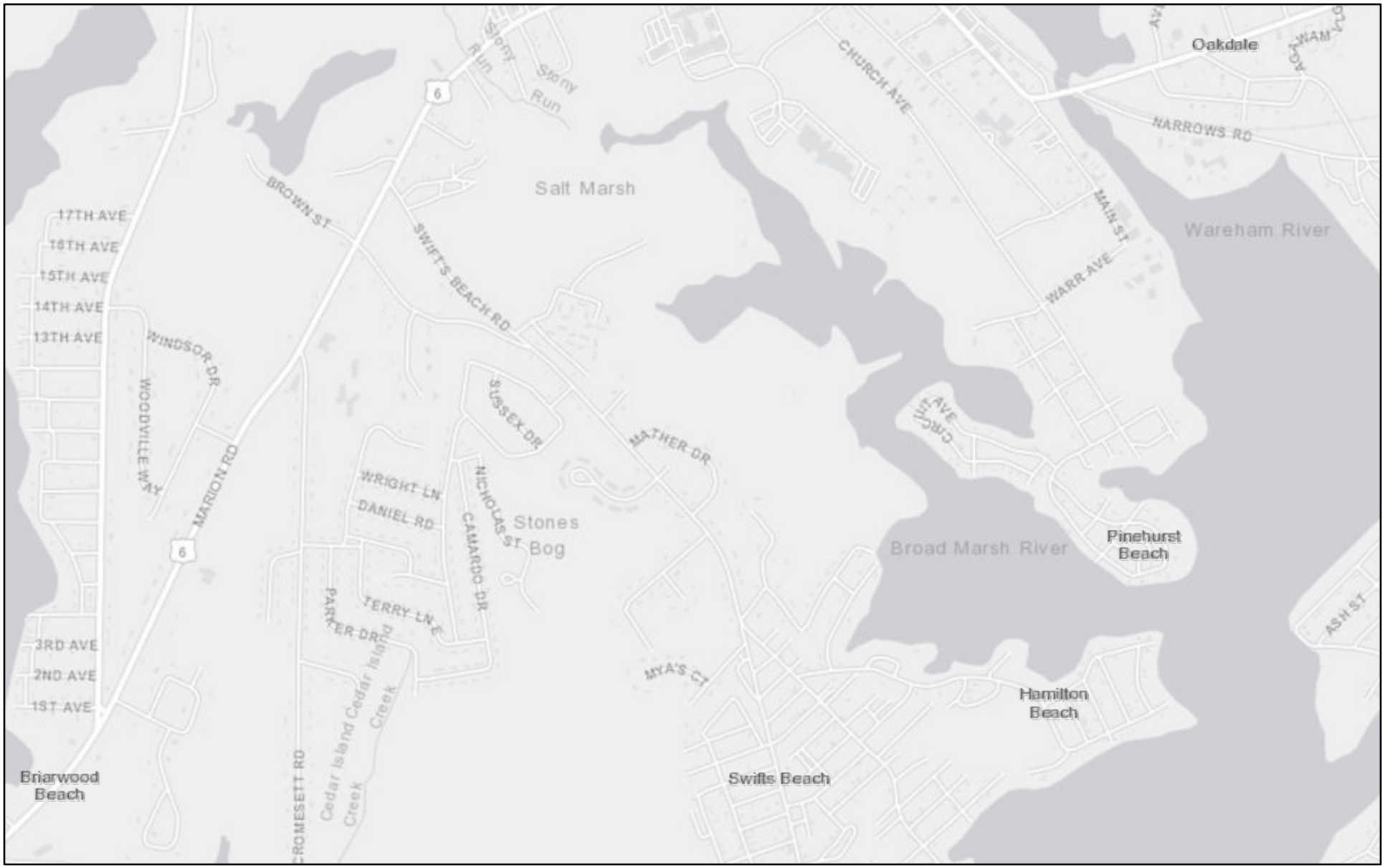
CRASH RATE CALCULATION : **0.43**

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

Comments : Above Statewide and District Crash Rates

Project Title & Date: Proposed Mixed-Use Development

GeoDOT Map



11/30/2020, 3:25:21 PM

1:18,056

0 0.1 0.2 0.4 mi

0 0.17 0.35 0.7 km

Esri, HERE

MassDOT

Esri, HERE | Esri, HERE |

GENERAL BACKGROUND TRAFFIC GROWTH

General Background Traffic Growth - Daily Traffic Volumes

CITY/TOWN	ROUTE/STREET	LOCATION	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Average Annual
Wareham	Gibbs Avenue	South of Park Street								8,912	*9,064*	*6,091*	*9,055*	**0.12%**
Wareham	Main Street	East of Tobey Road					6,870	*7,083*	*7,246*	*7,695*	*7,826*	*7,849*	7,553	**1.99%**
Wareham	Hathaway Street	South of Main Street							3,057	*3,247*	*3,302*	*3,312*	*3,299*	**1.79%**
Wareham	Indian Neck Road	North of Minot Avenue						432	*442*	*469*	*477*	*478*	*476*	**2.12%**
Wareham	Main Street	South of Route 6					1,919	*1,978*	*2,023*			*2,156*	*2,147*	**1.93%**
Wareham	Minot Avenue	East of Indian Neck Road						4,746	*4,855*	*5,156*	*5,244*	*5,260*	*5,239*	**2.16%**
Marion	Delano Road	South of Point Road								1,957	*1,990*	*1,996*	*1,988*	**0.51%**
Wareham	Narrows Road	East of Sandwich Road								8,408	*8,551*	*8,577*	*8,543*	**0.52%**
Wareham	Indian Neck Road	South of Minot Avenue								3,027	*3,078*	*3,087*	*3,075*	**0.51%**
Wareham	Gibbs Avenue	South of Main Street	8,837	8,214	8,496	8,379	8,332	7,988	*8,172*	*8,679*	9,301	*9,329*	*9,292*	**0.96%**
Wareham	Main Street	East of Tremont Road	14,099	13,106	14,933	14,705	14,687	14,495	*14,828*	*15,747*	*16,015*	*16,063*	*15,999*	**1.65%**
Wareham	Chapel Street	West of Main Street		8,500	8,913	8,799	7,475	*7,707*	*7,884*	7,325	*7,450*	*7,472*	7,043	**-2.20%**
Marion	Wareham Street (EB)	West of Wareham Town Line								4,439	*4,514*	4,184	*4,167*	**-2.49%**
Marion	Wareham Street (WB)	West of Wareham Town Line								4,672	*4,751*	4,514	*4,496*	**-1.57%**
														0.57%

TRIP-GENERATION CALCULATIONS

Land Use: 220
Multifamily Housing (Low-Rise)

Description

Low-rise multifamily housing includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have one or two levels (floors). Multifamily housing (mid-rise) (Land Use 221), multifamily housing (high-rise) (Land Use 222), and off-campus student apartment (Land Use 225) are related land uses.

Additional Data

In prior editions of *Trip Generation Manual*, the low-rise multifamily housing sites were further divided into rental and condominium categories. An investigation of vehicle trip data found no clear differences in trip making patterns between the rental and condominium sites within the ITE database. As more data are compiled for future editions, this land use classification can be reinvestigated.

For the three sites for which both the number of residents and the number of occupied dwelling units were available, there were an average of 2.72 residents per occupied dwelling unit.

For the two sites for which the numbers of both total dwelling units and occupied dwelling units were available, an average of 96.2 percent of the total dwelling units were occupied.

This land use included data from a wide variety of units with different sizes, price ranges, locations, and ages. Consequently, there was a wide variation in trips generated within this category. Other factors, such as geographic location and type of adjacent and nearby development, may also have had an effect on the site trip generation.

Time-of-day distribution data for this land use are presented in Appendix A. For the 10 general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 7:15 and 8:15 a.m. and 4:45 and 5:45 p.m., respectively. For the one site with Saturday data, the overall highest vehicle volume was counted between 9:45 and 10:45 a.m. For the one site with Sunday data, the overall highest vehicle volume was counted between 11:45 a.m. and 12:45 p.m.

For the one dense multi-use urban site with 24-hour count data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 7:00 and 8:00 a.m. and 6:15 and 7:15 p.m., respectively.

For the three sites for which data were provided for both occupied dwelling units and residents, there was an average of 2.72 residents per occupied dwelling unit.

The average numbers of person trips per vehicle trip at the five general urban/suburban sites at which both person trip and vehicle trip data were collected were as follows:

- 1.13 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 7 and 9 a.m.
- 1.21 during Weekday, Peak Hour of Adjacent Street Traffic, one hour between 4 and 6 p.m.

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in British Columbia (CAN), California, District of Columbia, Florida, Georgia, Illinois, Indiana, Maine, Maryland, Minnesota, New Jersey, New York, Ontario, Oregon, Pennsylvania, South Dakota, Tennessee, Texas, Utah, Virginia, and Washington.

It is expected that the number of bedrooms and number of residents are likely correlated to the number of trips generated by a residential site. Many of the studies included in this land use did not indicate the total number of bedrooms. To assist in the future analysis of this land use, it is important that this information be collected and included in trip generation data submissions.

Source Numbers

168, 187, 188, 204, 211, 300, 305, 306, 319, 320, 321, 357, 390, 412, 418, 525, 530, 571, 579, 583, 864, 868, 869, 870, 896, 903, 918, 946, 947, 948, 951

Multifamily Housing (Low-Rise)
(220)

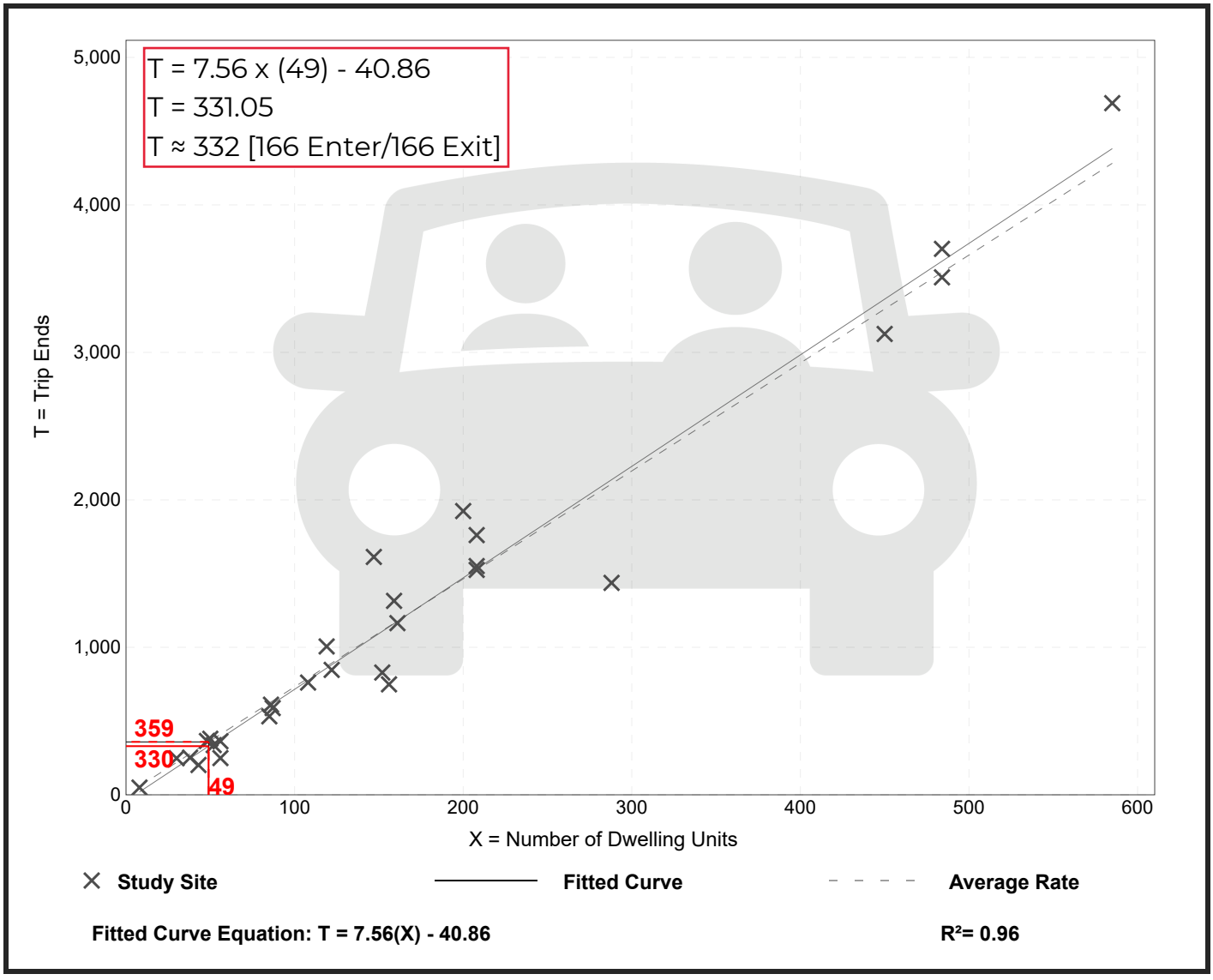
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 29
Avg. Num. of Dwelling Units: 168
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
7.32	4.45 - 10.97	1.31

Data Plot and Equation



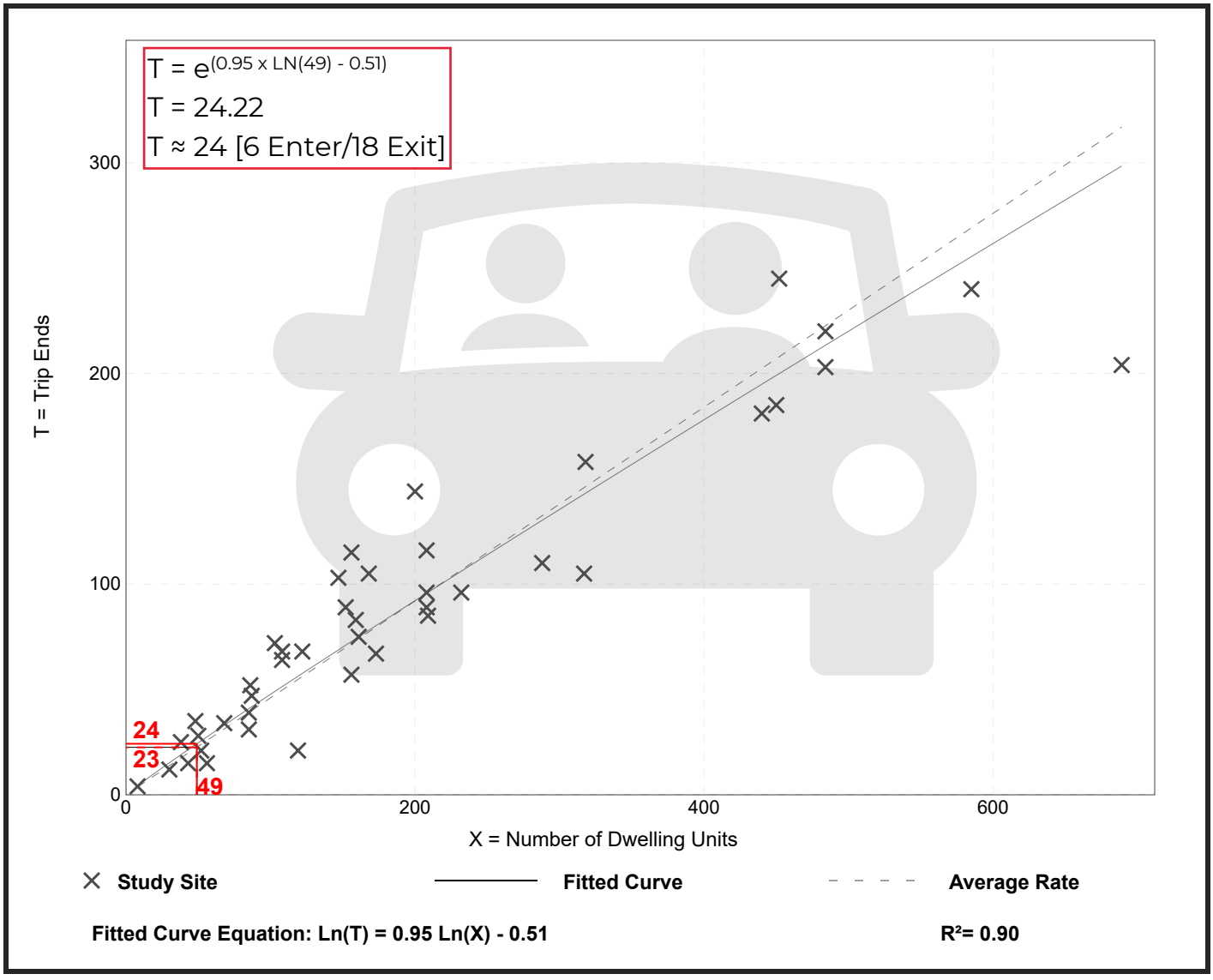
Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs:	**Dwelling Units**
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:	42
Avg. Num. of Dwelling Units:	199
Directional Distribution:	23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.46	0.18 - 0.74	0.12

Data Plot and Equation



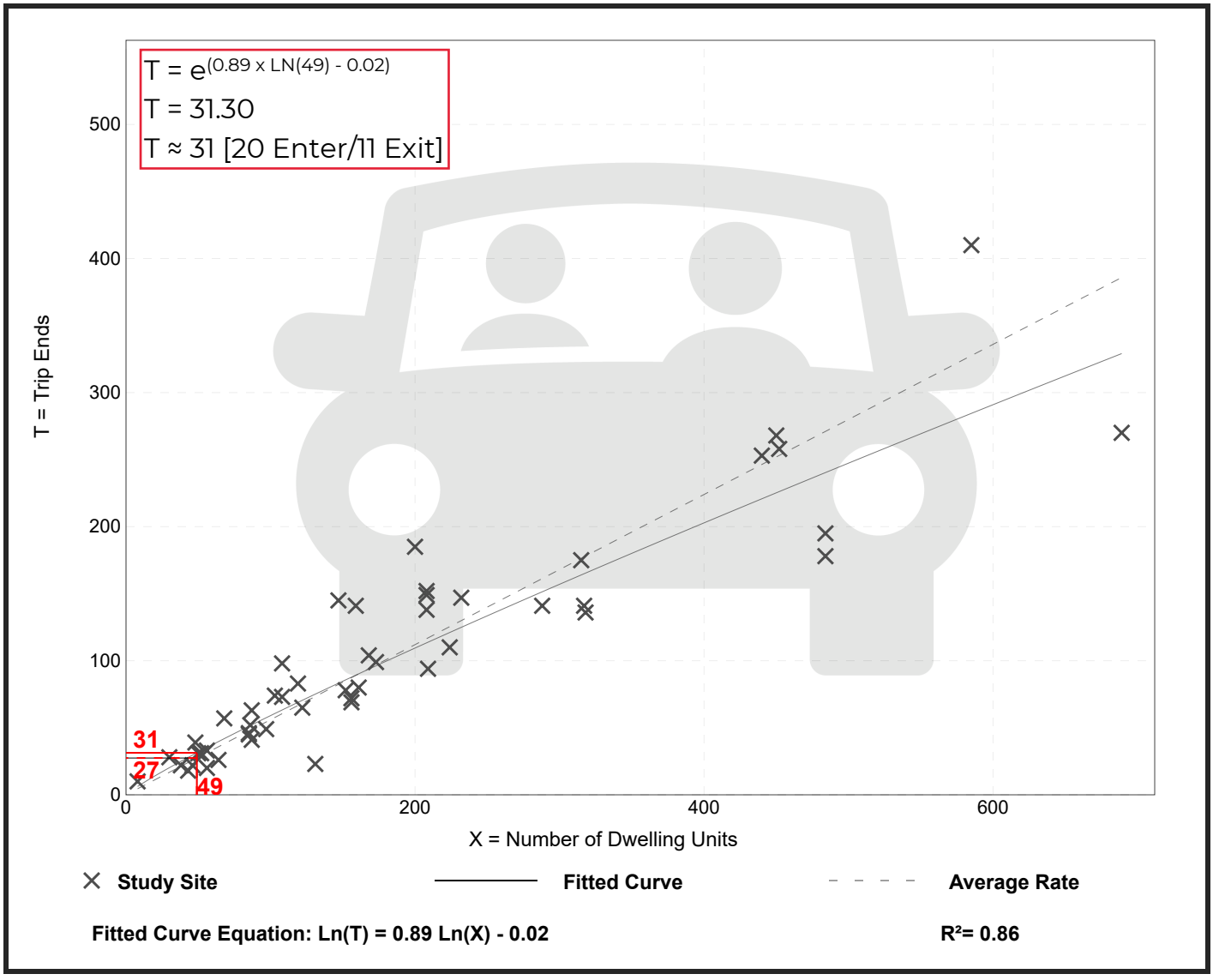
Multifamily Housing (Low-Rise)
(220)

Vehicle Trip Ends vs:	**Dwelling Units**
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:	50
Avg. Num. of Dwelling Units:	187
Directional Distribution:	63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.56	0.18 - 1.25	0.16

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.89 Ln(X) - 0.02 **R^2= 0.86**

Land Use: 252
Senior Adult Housing—Attached

Description

Senior adult housing consists of attached independent living developments, including retirement communities, age-restricted housing, and active adult communities. These developments may include limited social or recreational services. However, they generally lack centralized dining and onsite medical facilities. Residents in these communities live independently, are typically active (requiring little to no medical supervision) and may or may not be retired. Senior adult housing—detached (Land Use 251), congregate care facility (Land Use 253), assisted living (Land Use 254), and continuing care retirement community (Land Use 255) are related uses.

Additional Data

Time-of-day distribution data for this land use are presented in Appendix A. For the one general urban/suburban site with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 11:45 a.m. and 12:45 p.m. and 12:00 and 1:00 p.m., respectively.

The sites were surveyed in the 1980s, the 1990s, and the 2000s in Alberta (CAN), California, Illinois, New Hampshire, New Jersey, New York, and Pennsylvania.

Source Numbers

272, 501, 576, 602, 703, 734, 741, 902, 970

Senior Adult Housing - Attached
(252)

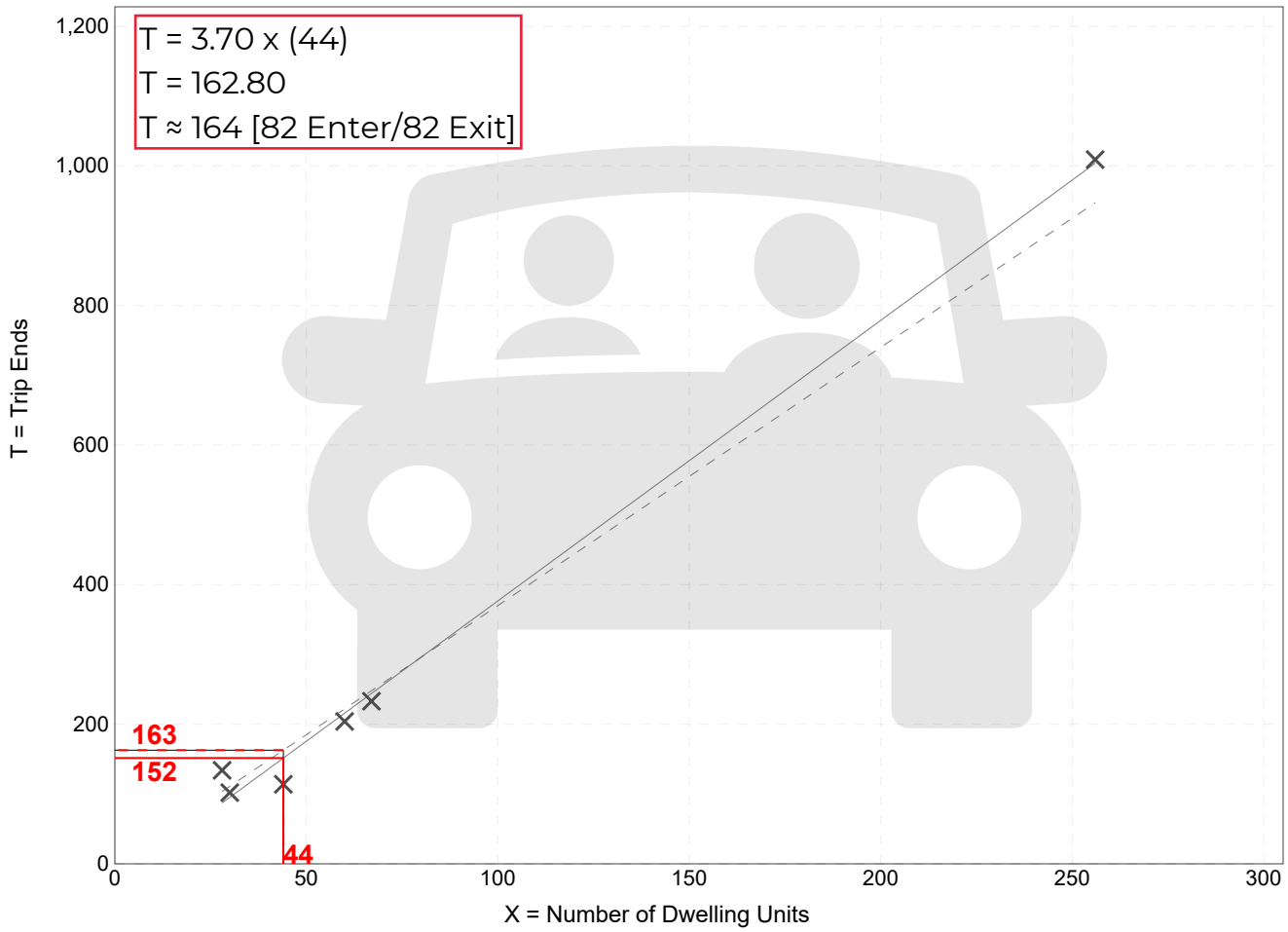
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 6
Avg. Num. of Dwelling Units: 81
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
3.70	2.59 - 4.79	0.53

Data Plot and Equation



Fitted Curve Equation: T = 4.02(X) - 25.37

R^2= 0.99

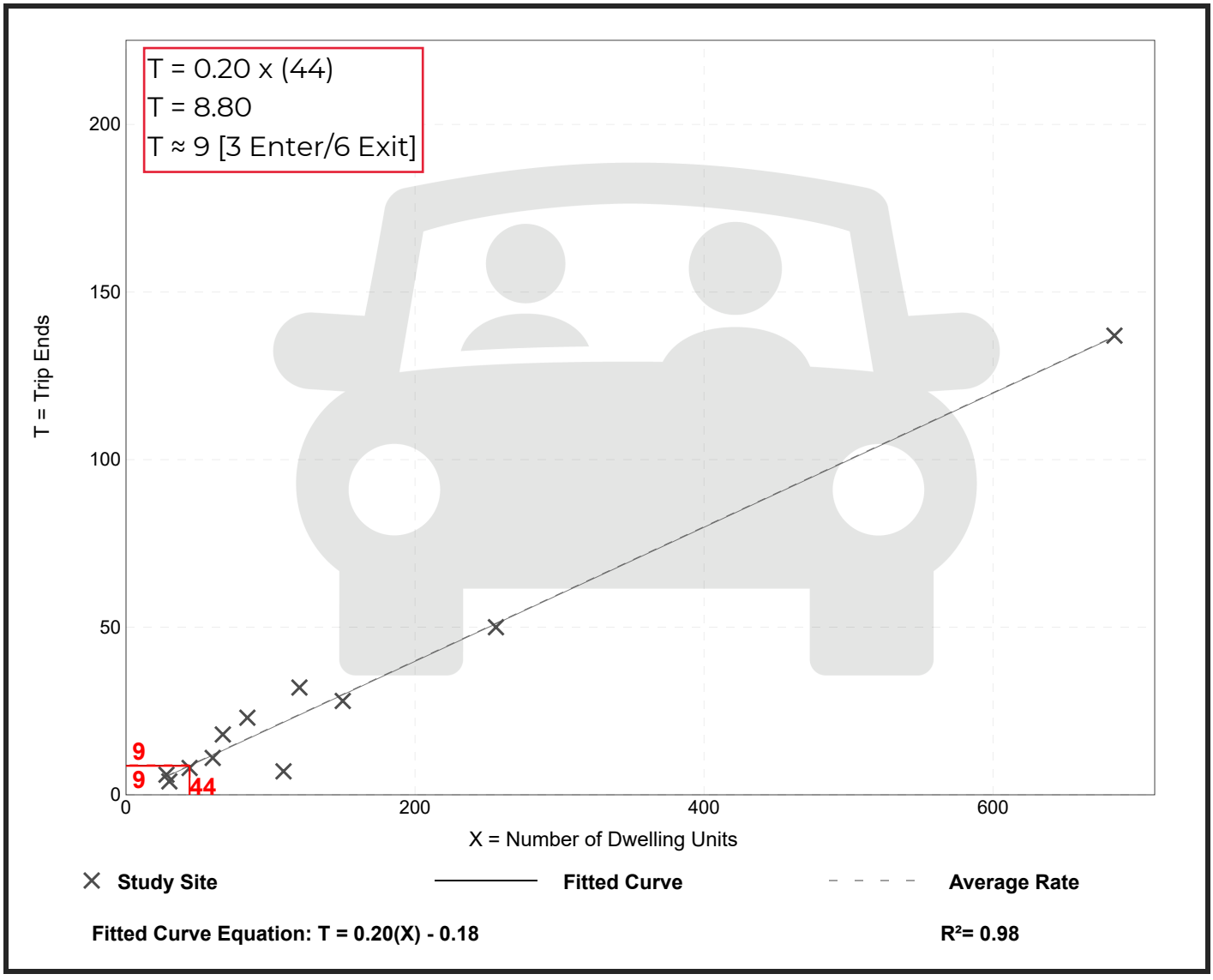
Senior Adult Housing - Attached
(252)

Vehicle Trip Ends vs:	**Dwelling Units**
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:	11
Avg. Num. of Dwelling Units:	148
Directional Distribution:	35% entering, 65% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.20	0.06 - 0.27	0.05

Data Plot and Equation



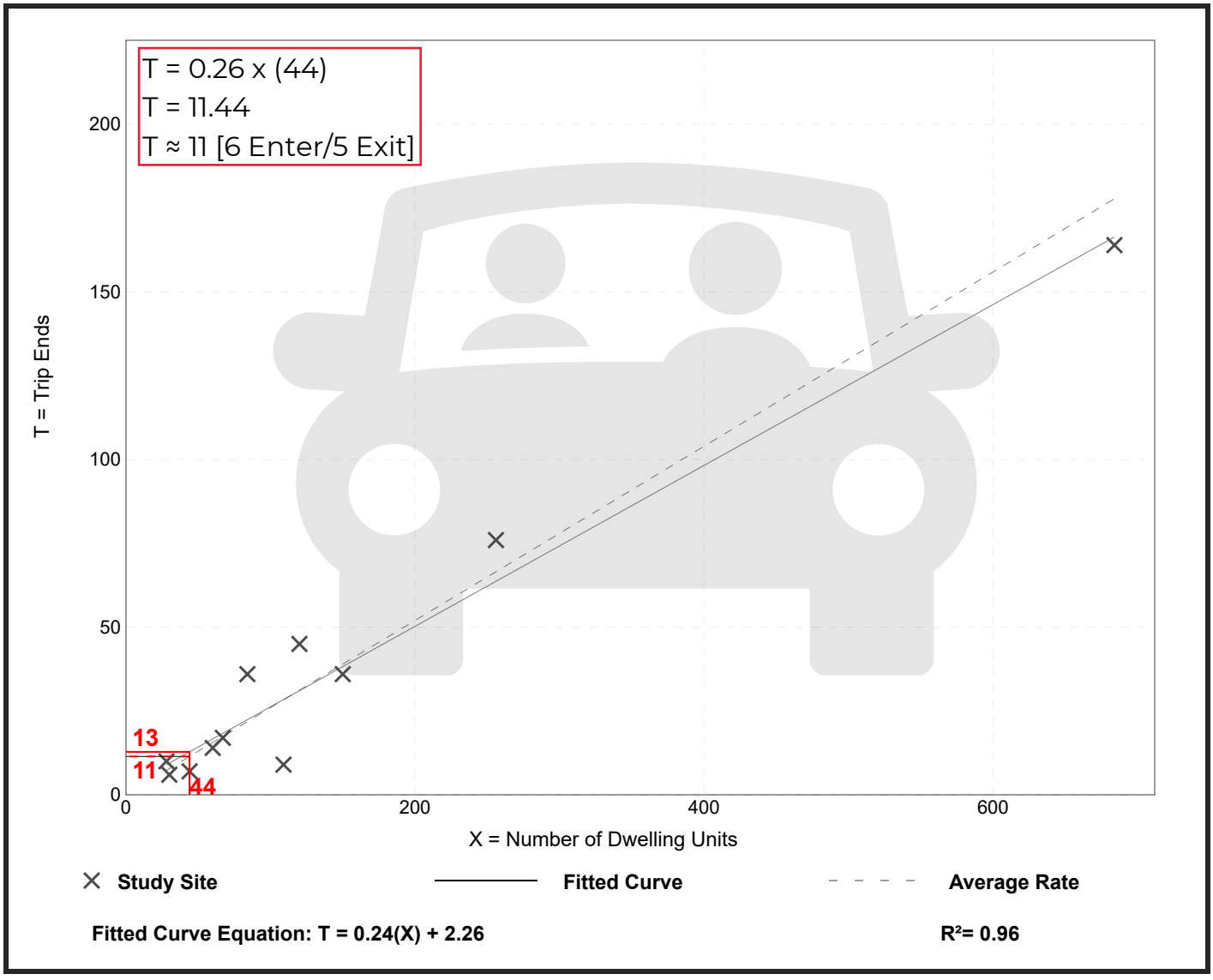
Senior Adult Housing - Attached
(252)

Vehicle Trip Ends vs:	**Dwelling Units**
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:	11
Avg. Num. of Dwelling Units:	148
Directional Distribution:	55% entering, 45% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.26	0.08 - 0.43	0.08

Data Plot and Equation



JOURNEY TO WORK TRIP DISTRIBUTION

Proposed Residential Development
Littleton Drive
Wareham, MA

Residence	Workplace	Number	Route 6 (North)		Route 6 (South)	
Wareham town	Wareham town	3,773	90%	3396	10%	377
Wareham town	Plymouth town	657	100%	657		0
Wareham town	Bourne town	546	100%	546		0
Wareham town	Boston city	444	100%	444		0
Wareham town	New Bedford city	361		0	100%	361
Wareham town	Brockton city	340	100%	340		0
Wareham town	Middleborough town	316	25%	79	75%	237
Wareham town	Falmouth town	294	100%	294		0
Wareham town	Barnstable Town city	279	100%	279		0
Wareham town	Sandwich town	240	100%	240		0
Wareham town	Marion town	207		0	100%	207
Wareham town	Fall River city	170		0	100%	170
Wareham town	Quincy city	162	100%	162		0
Wareham town	Carver town	153	100%	153		0
Wareham town	Lakeville town	149	25%	37	75%	112
Wareham town	Mattapoisett town	149		0	100%	149
Wareham town	Taunton city	118	100%	118		0
Wareham town	West Bridgewater tow	118	100%	118		0
Wareham town	Fairhaven town	109		0	100%	109
Wareham town	Mashpee town	101	100%	101		0
Wareham town	Easton town	97	100%	97		0
Wareham town	Bridgewater town	90	100%	90		0
Wareham town	Dartmouth town	88		0	100%	88
Wareham town	Yarmouth town	75	100%	75		0
Wareham town	Weymouth Town city	71	100%	71		0
Wareham town	Rochester town	64	25%	16	75%	48
Wareham town	Newton city	62	100%	62		0
Wareham town	Stoughton town	61	100%	61		0
Wareham town	Braintree Town city	55	100%	55		0
Wareham town	Hanover town	55	100%	55		0
Wareham town	Raynham town	47	100%	47		0
Wareham town	Natick town	46	100%	46		0
Wareham town	Somerset town	45	25%	11	75%	34
Wareham town	Canton town	45	100%	45		0
Wareham town	Franklin Town city	45	100%	45		0
Wareham town	Dennis town	39	100%	39		0
Wareham town	Kingston town	39	100%	39		0
Wareham town	Norwell town	37	100%	37		0
Wareham town	Portsmouth town	36		0	100%	36
Wareham town	Attleboro city	35	100%	35		0
Wareham town	Marshfield town	35	100%	35		0
		9,853		7,925		1,928
				80.4%		19.6%
		SAY		80%		20%

CAPACITY ANALYSIS WORKSHEETS

Route 6 at Swift's Beach Road
Swift's Beach Road at Littleton Drive

Route 6 at Swift’s Beach Road

Intersection	
Int Delay, s/veh	3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	36	147	408	28	41	252
Future Vol, veh/h	36	147	408	28	41	252
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	91	91	82	82
Heavy Vehicles, %	0	3	2	5	3	2
Mvmt Flow	37	152	448	31	50	307

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	718	240	0	0	479	0
Stage 1	464	-	-	-	-	-
Stage 2	254	-	-	-	-	-
Critical Hdwy	6.8	6.96	-	-	4.16	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.33	-	-	2.23	-
Pot Cap-1 Maneuver	368	758	-	-	1073	-
Stage 1	605	-	-	-	-	-
Stage 2	771	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	347	758	-	-	1073	-
Mov Cap-2 Maneuver	347	-	-	-	-	-
Stage 1	605	-	-	-	-	-
Stage 2	728	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.4	0	1.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	615	1073	-
HCM Lane V/C Ratio	-	-	0.307	0.047	-
HCM Control Delay (s)	-	-	13.4	8.5	0.2
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.3	0.1	-

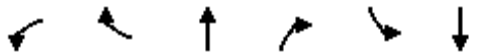
Intersection	
Int Delay, s/veh	8.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	46	137	394	70	230	607
Future Vol, veh/h	46	137	394	70	230	607
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	84	84	89	89
Heavy Vehicles, %	0	1	1	2	0	0
Mvmt Flow	49	146	469	83	258	682

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1368	276	0	0	552	0
Stage 1	511	-	-	-	-	-
Stage 2	857	-	-	-	-	-
Critical Hdwy	6.8	6.92	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.31	-	-	2.2	-
Pot Cap-1 Maneuver	140	724	-	-	1028	-
Stage 1	573	-	-	-	-	-
Stage 2	381	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	83	724	-	-	1028	-
Mov Cap-2 Maneuver	83	-	-	-	-	-
Stage 1	573	-	-	-	-	-
Stage 2	227	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	58.8	0	3.5
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	246	1028	-
HCM Lane V/C Ratio	-	-	0.791	0.251	-
HCM Control Delay (s)	-	-	58.8	9.7	1.1
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q(veh)	-	-	5.9	1	-

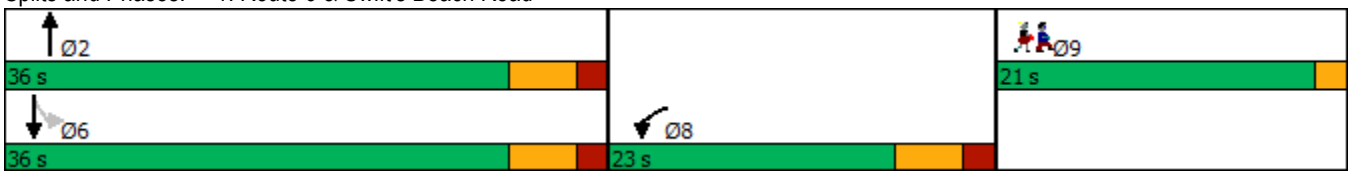


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø9
Lane Configurations							
Traffic Volume (vph)	39	158	437	30	44	270	
Future Volume (vph)	39	158	437	30	44	270	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95	
Frt	0.892		0.990				
Flt Protected	0.990					0.993	
Satd. Flow (prot)	1857	0	3264	0	0	3276	
Flt Permitted	0.990					0.842	
Satd. Flow (perm)	1857	0	3264	0	0	2778	
Satd. Flow (RTOR)	163		10				
Adj. Flow (vph)	40	163	480	33	54	329	
Lane Group Flow (vph)	203	0	513	0	0	383	
Turn Type	Prot		NA		Perm	NA	
Protected Phases	8		2			6	9
Permitted Phases					6		
Detector Phase	8		2		6	6	
Switch Phase							
Minimum Initial (s)	5.0		5.0		5.0	5.0	5.0
Minimum Split (s)	11.0		11.0		11.0	11.0	21.0
Total Split (s)	23.0		36.0		36.0	36.0	21.0
Total Split (%)	28.8%		45.0%		45.0%	45.0%	26%
Maximum Green (s)	17.0		30.0		30.0	30.0	19.0
Yellow Time (s)	4.0		4.0		4.0	4.0	2.0
All-Red Time (s)	2.0		2.0		2.0	2.0	0.0
Lost Time Adjust (s)	-2.0		-2.0			-2.0	
Total Lost Time (s)	4.0		4.0			4.0	
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0		3.0		3.0	3.0	3.0
Recall Mode	None		Min		Min	Min	None
Walk Time (s)							7.0
Flash Dont Walk (s)							12.0
Pedestrian Calls (#/hr)							2
v/c Ratio	0.35		0.33			0.29	
Control Delay	7.0		9.2			9.4	
Queue Delay	0.0		0.0			0.0	
Total Delay	7.0		9.2			9.4	
Queue Length 50th (ft)	4		22			16	
Queue Length 95th (ft)	61		119			83	
Internal Link Dist (ft)	920		120			120	
Turn Bay Length (ft)							
Base Capacity (vph)	1061		2803			2384	
Starvation Cap Reductn	0		0			0	
Spillback Cap Reductn	0		0			0	
Storage Cap Reductn	0		0			0	
Reduced v/c Ratio	0.19		0.18			0.16	

Intersection Summary
Cycle Length: 80

Actuated Cycle Length: 39.2
Natural Cycle: 45
Control Type: Semi Act-Uncoord

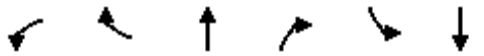
Splits and Phases: 1: Route 6 & Swift's Beach Road



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	39	158	437	30	44	270
Future Volume (vph)	39	158	437	30	44	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	16	16	10	10	10	10
Total Lost time (s)	4.0		4.0			4.0
Lane Util. Factor	1.00		0.95			0.95
Frt	0.89		0.99			1.00
Flt Protected	0.99		1.00			0.99
Satd. Flow (prot)	1856		3265			3276
Flt Permitted	0.99		1.00			0.84
Satd. Flow (perm)	1856		3265			2779
Peak-hour factor, PHF	0.97	0.97	0.91	0.91	0.82	0.82
Adj. Flow (vph)	40	163	480	33	54	329
RTOR Reduction (vph)	125	0	5	0	0	0
Lane Group Flow (vph)	78	0	508	0	0	383
Heavy Vehicles (%)	0%	3%	2%	5%	3%	2%
Turn Type	Prot		NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases					6	
Actuated Green, G (s)	7.4		16.1			16.1
Effective Green, g (s)	9.4		18.1			18.1
Actuated g/C Ratio	0.24		0.45			0.45
Clearance Time (s)	6.0		6.0			6.0
Vehicle Extension (s)	3.0		3.0			3.0
Lane Grp Cap (vph)	438		1484			1263
v/s Ratio Prot	c0.04		c0.16			
v/s Ratio Perm						0.14
v/c Ratio	0.18		0.34			0.30
Uniform Delay, d1	12.1		7.0			6.9
Progression Factor	1.00		1.00			1.00
Incremental Delay, d2	0.2		0.1			0.1
Delay (s)	12.3		7.1			7.0
Level of Service	B		A			A
Approach Delay (s)	12.3		7.1			7.0
Approach LOS	B		A			A

Intersection Summary			
HCM 2000 Control Delay	8.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	39.8	Sum of lost time (s)	10.0
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

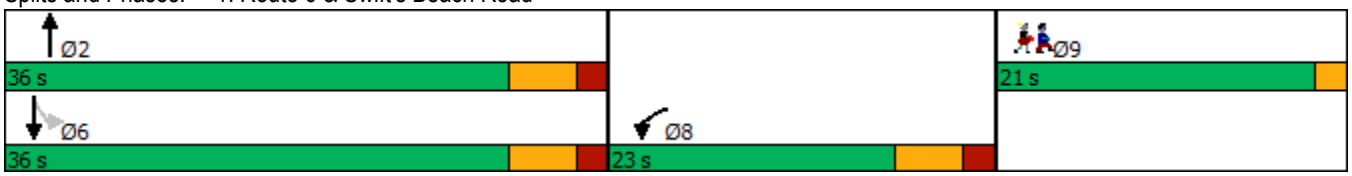


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø9
Lane Configurations							
Traffic Volume (vph)	49	147	422	75	247	651	
Future Volume (vph)	49	147	422	75	247	651	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95	
Frt	0.899		0.977				
Flt Protected	0.988					0.986	
Satd. Flow (prot)	1898	0	3254	0	0	3322	
Flt Permitted	0.988					0.666	
Satd. Flow (perm)	1898	0	3254	0	0	2244	
Satd. Flow (RTOR)	156		30				
Adj. Flow (vph)	52	156	502	89	278	731	
Lane Group Flow (vph)	208	0	591	0	0	1009	
Turn Type	Prot		NA		Perm	NA	
Protected Phases	8		2			6	9
Permitted Phases					6		
Detector Phase	8		2		6	6	
Switch Phase							
Minimum Initial (s)	5.0		5.0		5.0	5.0	5.0
Minimum Split (s)	11.0		11.0		11.0	11.0	21.0
Total Split (s)	23.0		36.0		36.0	36.0	21.0
Total Split (%)	28.8%		45.0%		45.0%	45.0%	26%
Maximum Green (s)	17.0		30.0		30.0	30.0	19.0
Yellow Time (s)	4.0		4.0		4.0	4.0	2.0
All-Red Time (s)	2.0		2.0		2.0	2.0	0.0
Lost Time Adjust (s)	-2.0		-2.0			-2.0	
Total Lost Time (s)	4.0		4.0			4.0	
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0		3.0		3.0	3.0	3.0
Recall Mode	None		Min		Min	Min	None
Walk Time (s)							7.0
Flash Dont Walk (s)							12.0
Pedestrian Calls (#/hr)							2
v/c Ratio	0.46		0.28			0.71	
Control Delay	11.0		7.0			14.9	
Queue Delay	0.0		0.0			0.0	
Total Delay	11.0		7.0			14.9	
Queue Length 50th (ft)	13		26			72	
Queue Length 95th (ft)	75		123			#391	
Internal Link Dist (ft)	920		120			120	
Turn Bay Length (ft)							
Base Capacity (vph)	743		2074			1423	
Starvation Cap Reductn	0		0			0	
Spillback Cap Reductn	0		0			0	
Storage Cap Reductn	0		0			0	
Reduced v/c Ratio	0.28		0.28			0.71	

Intersection Summary
Cycle Length: 80

Actuated Cycle Length: 57.9
Natural Cycle: 70
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

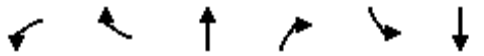
Splits and Phases: 1: Route 6 & Swift's Beach Road



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	49	147	422	75	247	651
Future Volume (vph)	49	147	422	75	247	651
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	16	16	10	10	10	10
Total Lost time (s)	4.0		4.0			4.0
Lane Util. Factor	1.00		0.95			0.95
Frt	0.90		0.98			1.00
Flt Protected	0.99		1.00			0.99
Satd. Flow (prot)	1897		3256			3324
Flt Permitted	0.99		1.00			0.67
Satd. Flow (perm)	1897		3256			2243
Peak-hour factor, PHF	0.94	0.94	0.84	0.84	0.89	0.89
Adj. Flow (vph)	52	156	502	89	278	731
RTOR Reduction (vph)	130	0	11	0	0	0
Lane Group Flow (vph)	78	0	580	0	0	1009
Heavy Vehicles (%)	0%	1%	1%	2%	0%	0%
Turn Type	Prot		NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases					6	
Actuated Green, G (s)	7.7		34.7			34.7
Effective Green, g (s)	9.7		36.7			36.7
Actuated g/C Ratio	0.16		0.62			0.62
Clearance Time (s)	6.0		6.0			6.0
Vehicle Extension (s)	3.0		3.0			3.0
Lane Grp Cap (vph)	310		2015			1388
v/s Ratio Prot	c0.04		0.18			
v/s Ratio Perm						c0.45
v/c Ratio	0.25		0.29			0.73
Uniform Delay, d1	21.6		5.2			7.8
Progression Factor	1.00		1.00			1.00
Incremental Delay, d2	0.4		0.1			1.9
Delay (s)	22.1		5.3			9.8
Level of Service	C		A			A
Approach Delay (s)	22.1		5.3			9.8
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay	9.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	59.3	Sum of lost time (s)	10.0
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

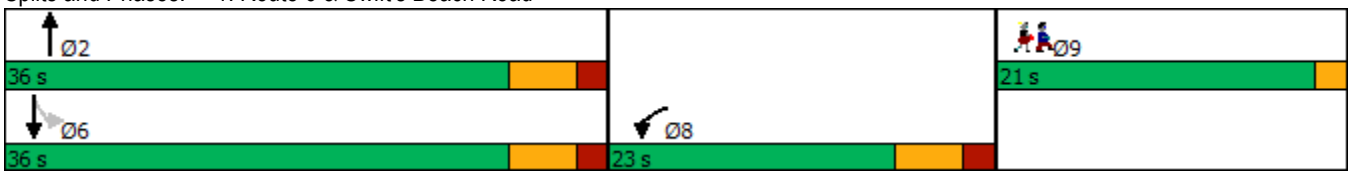


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø9
Lane Configurations							
Traffic Volume (vph)	44	177	437	32	51	270	
Future Volume (vph)	44	177	437	32	51	270	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95	
Frt	0.892		0.990				
Flt Protected	0.990					0.992	
Satd. Flow (prot)	1857	0	3264	0	0	3272	
Flt Permitted	0.990					0.826	
Satd. Flow (perm)	1857	0	3264	0	0	2724	
Satd. Flow (RTOR)	182		11				
Adj. Flow (vph)	45	182	480	35	62	329	
Lane Group Flow (vph)	227	0	515	0	0	391	
Turn Type	Prot		NA		Perm	NA	
Protected Phases	8		2			6	9
Permitted Phases					6		
Detector Phase	8		2		6	6	
Switch Phase							
Minimum Initial (s)	5.0		5.0		5.0	5.0	5.0
Minimum Split (s)	11.0		11.0		11.0	11.0	21.0
Total Split (s)	23.0		36.0		36.0	36.0	21.0
Total Split (%)	28.8%		45.0%		45.0%	45.0%	26%
Maximum Green (s)	17.0		30.0		30.0	30.0	19.0
Yellow Time (s)	4.0		4.0		4.0	4.0	2.0
All-Red Time (s)	2.0		2.0		2.0	2.0	0.0
Lost Time Adjust (s)	-2.0		-2.0			-2.0	
Total Lost Time (s)	4.0		4.0			4.0	
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0		3.0		3.0	3.0	3.0
Recall Mode	None		Min		Min	Min	None
Walk Time (s)							7.0
Flash Dont Walk (s)							12.0
Pedestrian Calls (#/hr)							2
v/c Ratio	0.38		0.34			0.32	
Control Delay	6.9		9.4			9.7	
Queue Delay	0.0		0.0			0.0	
Total Delay	6.9		9.4			9.7	
Queue Length 50th (ft)	5		22			17	
Queue Length 95th (ft)	66		121			86	
Internal Link Dist (ft)	920		120			120	
Turn Bay Length (ft)							
Base Capacity (vph)	1089		2811			2345	
Starvation Cap Reductn	0		0			0	
Spillback Cap Reductn	0		0			0	
Storage Cap Reductn	0		0			0	
Reduced v/c Ratio	0.21		0.18			0.17	

Intersection Summary
Cycle Length: 80

Actuated Cycle Length: 38.7
Natural Cycle: 45
Control Type: Semi Act-Uncoord

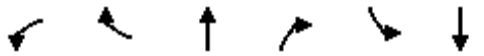
Splits and Phases: 1: Route 6 & Swift's Beach Road



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	44	177	437	32	51	270
Future Volume (vph)	44	177	437	32	51	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	16	16	10	10	10	10
Total Lost time (s)	4.0		4.0			4.0
Lane Util. Factor	1.00		0.95			0.95
Frt	0.89		0.99			1.00
Flt Protected	0.99		1.00			0.99
Satd. Flow (prot)	1857		3263			3272
Flt Permitted	0.99		1.00			0.83
Satd. Flow (perm)	1857		3263			2723
Peak-hour factor, PHF	0.97	0.97	0.91	0.91	0.82	0.82
Adj. Flow (vph)	45	182	480	35	62	329
RTOR Reduction (vph)	137	0	6	0	0	0
Lane Group Flow (vph)	90	0	509	0	0	391
Heavy Vehicles (%)	0%	3%	2%	5%	3%	2%
Turn Type	Prot		NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases					6	
Actuated Green, G (s)	7.6		15.4			15.4
Effective Green, g (s)	9.6		17.4			17.4
Actuated g/C Ratio	0.24		0.44			0.44
Clearance Time (s)	6.0		6.0			6.0
Vehicle Extension (s)	3.0		3.0			3.0
Lane Grp Cap (vph)	454		1448			1208
v/s Ratio Prot	c0.05		c0.16			
v/s Ratio Perm						0.14
v/c Ratio	0.20		0.35			0.32
Uniform Delay, d1	11.7		7.2			7.1
Progression Factor	1.00		1.00			1.00
Incremental Delay, d2	0.2		0.1			0.2
Delay (s)	12.0		7.3			7.2
Level of Service	B		A			A
Approach Delay (s)	12.0		7.3			7.2
Approach LOS	B		A			A

Intersection Summary			
HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	39.2	Sum of lost time (s)	10.0
Intersection Capacity Utilization	45.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

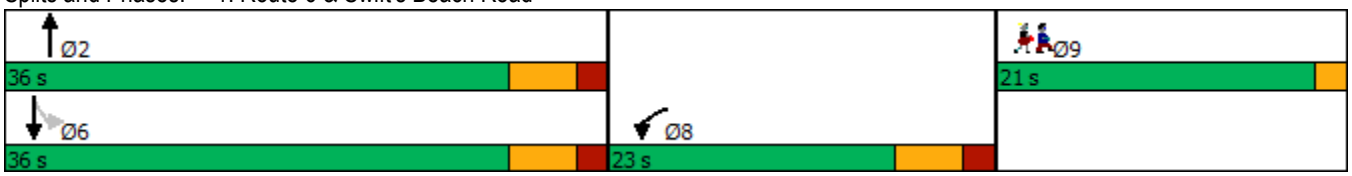


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø9
Lane Configurations							
Traffic Volume (vph)	52	160	422	80	268	651	
Future Volume (vph)	52	160	422	80	268	651	
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95	
Frt	0.898		0.976				
Flt Protected	0.988					0.986	
Satd. Flow (prot)	1896	0	3251	0	0	3322	
Flt Permitted	0.988					0.657	
Satd. Flow (perm)	1896	0	3251	0	0	2214	
Satd. Flow (RTOR)	170		33				
Adj. Flow (vph)	55	170	502	95	301	731	
Lane Group Flow (vph)	225	0	597	0	0	1032	
Turn Type	Prot		NA		Perm	NA	
Protected Phases	8		2			6	9
Permitted Phases					6		
Detector Phase	8		2		6	6	
Switch Phase							
Minimum Initial (s)	5.0		5.0		5.0	5.0	5.0
Minimum Split (s)	11.0		11.0		11.0	11.0	21.0
Total Split (s)	23.0		36.0		36.0	36.0	21.0
Total Split (%)	28.8%		45.0%		45.0%	45.0%	26%
Maximum Green (s)	17.0		30.0		30.0	30.0	19.0
Yellow Time (s)	4.0		4.0		4.0	4.0	2.0
All-Red Time (s)	2.0		2.0		2.0	2.0	0.0
Lost Time Adjust (s)	-2.0		-2.0			-2.0	
Total Lost Time (s)	4.0		4.0			4.0	
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0		3.0		3.0	3.0	3.0
Recall Mode	None		Min		Min	Min	None
Walk Time (s)							7.0
Flash Dont Walk (s)							12.0
Pedestrian Calls (#/hr)							2
v/c Ratio	0.48		0.29			0.74	
Control Delay	10.9		7.1			15.9	
Queue Delay	0.0		0.0			0.0	
Total Delay	10.9		7.1			15.9	
Queue Length 50th (ft)	13		27			77	
Queue Length 95th (ft)	78		125			#411	
Internal Link Dist (ft)	920		120			120	
Turn Bay Length (ft)							
Base Capacity (vph)	756		2060			1394	
Starvation Cap Reductn	0		0			0	
Spillback Cap Reductn	0		0			0	
Storage Cap Reductn	0		0			0	
Reduced v/c Ratio	0.30		0.29			0.74	

Intersection Summary
Cycle Length: 80

Actuated Cycle Length: 57.6
Natural Cycle: 75
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Route 6 & Swift's Beach Road



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	52	160	422	80	268	651
Future Volume (vph)	52	160	422	80	268	651
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	16	16	10	10	10	10
Total Lost time (s)	4.0		4.0			4.0
Lane Util. Factor	1.00		0.95			0.95
Frt	0.90		0.98			1.00
Flt Protected	0.99		1.00			0.99
Satd. Flow (prot)	1896		3251			3321
Flt Permitted	0.99		1.00			0.66
Satd. Flow (perm)	1896		3251			2213
Peak-hour factor, PHF	0.94	0.94	0.84	0.84	0.89	0.89
Adj. Flow (vph)	55	170	502	95	301	731
RTOR Reduction (vph)	142	0	13	0	0	0
Lane Group Flow (vph)	83	0	584	0	0	1032
Heavy Vehicles (%)	0%	1%	1%	2%	0%	0%
Turn Type	Prot		NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases					6	
Actuated Green, G (s)	7.8		34.2			34.2
Effective Green, g (s)	9.8		36.2			36.2
Actuated g/C Ratio	0.17		0.61			0.61
Clearance Time (s)	6.0		6.0			6.0
Vehicle Extension (s)	3.0		3.0			3.0
Lane Grp Cap (vph)	315		1998			1360
v/s Ratio Prot	c0.04		0.18			
v/s Ratio Perm						c0.47
v/c Ratio	0.26		0.29			0.76
Uniform Delay, d1	21.4		5.3			8.2
Progression Factor	1.00		1.00			1.00
Incremental Delay, d2	0.5		0.1			2.5
Delay (s)	21.9		5.4			10.7
Level of Service	C		A			B
Approach Delay (s)	21.9		5.4			10.7
Approach LOS	C		A			B

Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	58.9	Sum of lost time (s)	10.0
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Swift’s Beach Road at Littleton Drive

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	91	1	0	141	0	1	0	0	0	0	0
Future Vol, veh/h	0	91	1	0	141	0	1	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	64	64	64	92	92	92	25	25	25	25	25	25
Heavy Vehicles, %	0	3	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	0	142	2	0	153	0	4	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	153	0	0	144	0	0	296	296	143	296	297	153
Stage 1	-	-	-	-	-	-	143	143	-	153	153	-
Stage 2	-	-	-	-	-	-	153	153	-	143	144	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1440	-	-	1451	-	-	660	619	910	660	618	898
Stage 1	-	-	-	-	-	-	865	782	-	854	775	-
Stage 2	-	-	-	-	-	-	854	775	-	865	782	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1440	-	-	1451	-	-	660	619	910	660	618	898
Mov Cap-2 Maneuver	-	-	-	-	-	-	660	619	-	660	618	-
Stage 1	-	-	-	-	-	-	865	782	-	854	775	-
Stage 2	-	-	-	-	-	-	854	775	-	865	782	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	10.5	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	660	1440	-	-	1451	-	-	-
HCM Lane V/C Ratio	0.006	-	-	-	-	-	-	-
HCM Control Delay (s)	10.5	0	-	-	0	-	-	0
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	243	3	1	127	0	0	0	3	0	0	0
Future Vol, veh/h	0	243	3	1	127	0	0	0	3	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	86	86	86	50	50	50	25	25	25
Heavy Vehicles, %	0	1	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	300	4	1	148	0	0	0	6	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	148	0	0	304	0	0	452	452	302	455	454	148
Stage 1	-	-	-	-	-	-	302	302	-	150	150	-
Stage 2	-	-	-	-	-	-	150	150	-	305	304	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1446	-	-	1268	-	-	521	506	742	519	505	904
Stage 1	-	-	-	-	-	-	712	668	-	857	777	-
Stage 2	-	-	-	-	-	-	857	777	-	709	667	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1446	-	-	1268	-	-	520	505	742	514	504	904
Mov Cap-2 Maneuver	-	-	-	-	-	-	520	505	-	514	504	-
Stage 1	-	-	-	-	-	-	712	668	-	857	776	-
Stage 2	-	-	-	-	-	-	856	776	-	703	667	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	9.9	0
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	742	1446	-	-	1268	-	-	-
HCM Lane V/C Ratio	0.008	-	-	-	0.001	-	-	-
HCM Control Delay (s)	9.9	0	-	-	7.8	0	-	0
HCM Lane LOS	A	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	98	1	0	151	0	1	0	0	0	0	0
Future Vol, veh/h	0	98	1	0	151	0	1	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	64	64	64	92	92	92	25	25	25	25	25	25
Heavy Vehicles, %	0	3	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	0	153	2	0	164	0	4	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	164	0	0	155	0	0	318	318	154	318	319	164
Stage 1	-	-	-	-	-	-	154	154	-	164	164	-
Stage 2	-	-	-	-	-	-	164	164	-	154	155	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1427	-	-	1438	-	-	639	602	897	639	601	886
Stage 1	-	-	-	-	-	-	853	774	-	843	766	-
Stage 2	-	-	-	-	-	-	843	766	-	853	773	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1427	-	-	1438	-	-	639	602	897	639	601	886
Mov Cap-2 Maneuver	-	-	-	-	-	-	639	602	-	639	601	-
Stage 1	-	-	-	-	-	-	853	774	-	843	766	-
Stage 2	-	-	-	-	-	-	843	766	-	853	773	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	10.7	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	639	1427	-	-	1438	-	-	-
HCM Lane V/C Ratio	0.006	-	-	-	-	-	-	-
HCM Control Delay (s)	10.7	0	-	-	0	-	-	0
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	261	3	1	136	0	0	0	3	0	0	0
Future Vol, veh/h	0	261	3	1	136	0	0	0	3	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	86	86	86	50	50	50	25	25	25
Heavy Vehicles, %	0	1	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	322	4	1	158	0	0	0	6	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	158	0	0	326	0	0	484	484	324	487	486	158
Stage 1	-	-	-	-	-	-	324	324	-	160	160	-
Stage 2	-	-	-	-	-	-	160	160	-	327	326	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1434	-	-	1245	-	-	496	486	722	494	484	893
Stage 1	-	-	-	-	-	-	692	653	-	847	769	-
Stage 2	-	-	-	-	-	-	847	769	-	690	652	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1434	-	-	1245	-	-	496	486	722	490	484	893
Mov Cap-2 Maneuver	-	-	-	-	-	-	496	486	-	490	484	-
Stage 1	-	-	-	-	-	-	692	653	-	847	768	-
Stage 2	-	-	-	-	-	-	846	768	-	684	652	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	10	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	722	1434	-	-	1245	-	-	-
HCM Lane V/C Ratio	0.008	-	-	-	0.001	-	-	-
HCM Control Delay (s)	10	0	-	-	7.9	0	-	0
HCM Lane LOS	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	98	10	0	151	0	25	0	0	0	0	0
Future Vol, veh/h	0	98	10	0	151	0	25	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	64	64	64	92	92	92	25	25	25	25	25	25
Heavy Vehicles, %	0	3	0	0	3	0	0	0	0	0	0	0
Mvmt Flow	0	153	16	0	164	0	100	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	164	0	0	169	0	0	325	325	161	325	333	164
Stage 1	-	-	-	-	-	-	161	161	-	164	164	-
Stage 2	-	-	-	-	-	-	164	164	-	161	169	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1427	-	-	1421	-	-	632	596	889	632	590	886
Stage 1	-	-	-	-	-	-	846	769	-	843	766	-
Stage 2	-	-	-	-	-	-	843	766	-	846	763	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1427	-	-	1421	-	-	632	596	889	632	590	886
Mov Cap-2 Maneuver	-	-	-	-	-	-	632	596	-	632	590	-
Stage 1	-	-	-	-	-	-	846	769	-	843	766	-
Stage 2	-	-	-	-	-	-	843	766	-	846	763	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	11.8	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	632	1427	-	-	1421	-	-	-
HCM Lane V/C Ratio	0.158	-	-	-	-	-	-	-
HCM Control Delay (s)	11.8	0	-	-	0	-	-	0
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.6	0	-	-	0	-	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	261	29	1	136	0	16	0	3	0	0	0
Future Vol, veh/h	0	261	29	1	136	0	16	0	3	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	86	86	86	50	50	50	25	25	25
Heavy Vehicles, %	0	1	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	322	36	1	158	0	32	0	6	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	158	0	0	358	0	0	500	500	340	503	518	158
Stage 1	-	-	-	-	-	-	340	340	-	160	160	-
Stage 2	-	-	-	-	-	-	160	160	-	343	358	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1434	-	-	1212	-	-	484	476	707	482	465	893
Stage 1	-	-	-	-	-	-	679	643	-	847	769	-
Stage 2	-	-	-	-	-	-	847	769	-	676	631	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1434	-	-	1212	-	-	484	476	707	478	465	893
Mov Cap-2 Maneuver	-	-	-	-	-	-	484	476	-	478	465	-
Stage 1	-	-	-	-	-	-	679	643	-	847	768	-
Stage 2	-	-	-	-	-	-	846	768	-	670	631	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	12.6	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	509	1434	-	-	1212	-	-	-
HCM Lane V/C Ratio	0.075	-	-	-	0.001	-	-	-
HCM Control Delay (s)	12.6	0	-	-	8	0	-	0
HCM Lane LOS	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	-