

TRAFFIC ANALYSIS REPORT

Nitsch Engineering was retained by Dore & Whittier to conduct a traffic study analysis of the proposed site circulation and off-site traffic impact of the new consolidated school on Webster Street in Gloucester, MA. The attached report uses the existing traffic volume data, parent drop-off / pick-up behaviors, bus and van quantities, and parking needs along with the proposed site circulation plan to inform or project the traffic impact of a new elementary school on the surrounding neighborhood.

Evaluation of Existing Traffic Patterns

On-Site

The existing Veterans' Memorial School (VMS) on-site traffic patterns were studied to determine the traffic flow and number of cars that queue for both morning and afternoon pick up and drop off, the impact that the cars have on the adjacent neighborhoods and main streets, and the number of buses and vans that arrive daily. These numbers were then elevated by 89% to reflect the increased number of students and staff that will be included in the new consolidated school.

Traffic observation was conducted on Tuesday, October 8, 2019. The administration reported this to be a typical day for parental drop-off / pick up volume. The parent drop-off was observed for forty-five minutes from 8:15 to 9:00, and the pick-up was observed for forty-five minutes from 2:30 to 3:15. Due to the limited site circulation parent drop-off and pick-ups occur, for the most part, off site. Parents either park on the side of the road on Webster Street, in the parking lot of the adjacent apartment building, or in a parking lot located on Eastern Ave and walk their children to and from school. Crossing guards are located on Webster Street and on Eastern Ave to assist parents and students in crossing. During the morning drop-off 119 parent vehicles arrived with the greatest volume of 51 cars occurring from 8:45 to 9:00. In the afternoon 127 parent vehicles arrived for pick-up with the greatest volume of cars of 61 cars arriving between 2:45 and 3:15. During this time a queue of twelve (12) cars were observed southbound north of the entrance drive on Webster Street and six (6) vehicles were parked on the northbound side of Webster Street south of the school entrance. The parking or queuing of cars on Webster Street creates congestion and backup on Eastern Ave as it reduces the traffic flow to one lane. Additionally, there are three buses that arrive on site for both pick-up and drop off. Two buses are staged on Webster Street and one bus backs into the driveway to load and unload children. The bus in the driveway blocks cars from exiting the driveway. (see diagram below for site circulation during pick-up and drop off times).

On-site parking includes 25 marked spaces along the access drive to the east of the building and at the rear (north) of the building. There are an additional eight parking spaces in a lower parking lot. This lot includes two handicap spaces however, the travel distance to the front door exceeds the allowable travel distance by ADA and MAAB making these spaces non-compliant. There are ten parking spaces along Webster Street that are reserved for school use during school hours.

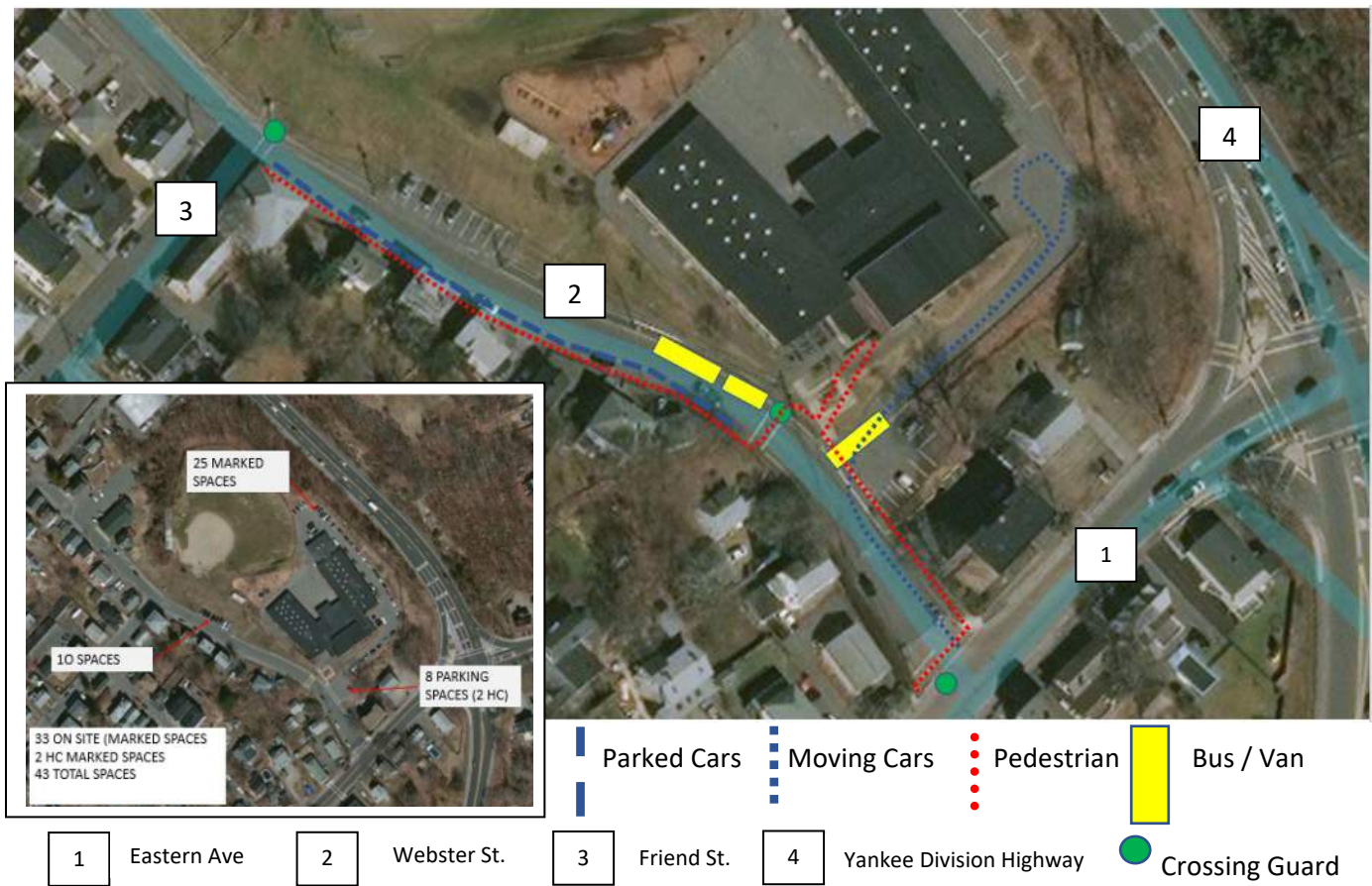


Image of cars waiting as students load the bus



Image of cars parked in fire-lane and pick-up in the gym.



Image of cars and buses parked on Webster St.

Off Site

The traffic study included the data collection of four intersections adjacent to the site, the intersection of Yankee Division Highway and Eastern Ave., the intersection of Eastern Ave. and Webster St., the intersection of Webster St. and Friend St., and the intersection of Eastern Ave. and East Main St. The Level of Service (LOS) for vehicular traffic at each of these intersections measured quite high with A/A and A/B at all locations with the one exception of the Yankee Division Highway and Eastern Ave intersection which measured C/D. However, the current drop-off and pick-up procedures which occur off-site, creates congestion and safety concerns for pedestrian students and parents.

Anticipated Changes in Traffic Volume

The anticipated traffic volume was determined by studying the existing volume of the Veterans' Memorial School and increasing those volumes by 89%, which reflects the percent increase of students that will be served by the combined school. The adjusted volumes were applied to both the 'Level of Service' at each intersection, and to the on-site circulation and parking requirements. The existing student population is 233 students with a staff FTE of 40. The Design enrollment will be 440 students with a staff FTE of 80. As noted above the current on-site parking count is (inclusive of the Webster St. parking) 43 spaces. Parking standards seek to achieve a 1.5 /FTE for elementary schools. The proposed site plan indicates 120 marked spaces on-site, meeting the 1.5/FTE based on the proposed 80 FTE staff members, with overflow spaces in the pick-up loop.

The current total parent drop offs are 119 and the projected (89% increase) is 225. The highest volume of parent drop-offs is 51 cars between 8:45 and 9:00. Increasing this volume by 89% would result in 96 cars in fifteen minutes. The morning queue is designed to accommodate approximately 40 cars, since this is a flowing drop-off time it is estimated that no more than 32 cars will be in the queue at any one time. The afternoon pick-up is currently 127 cars, with the 89% increase the projected number of parent vehicles is 240 with a projected 54 cars arriving between 2:45 and 3:00. The afternoon pick-up typically takes longer per vehicle and therefore the afternoon loop has been extended to accommodate 84 cars in the queue.

Recommendations

The goals of the site design development were to increase safety by providing an on-site drop-off and pick-up zone for parents with an extended queue area to move parent vehicles off the street and away from the intersection of Webster St. and Eastern Ave. as quickly as possible, provide an on-site drop-off and pick-up zone for buses that was separate from the parent queue, increase on-site parking and reduce the impact off traffic and parking on the Webster St. neighborhood. As noted above and demonstrated in the attached site plan each of these goals was achieved. Additionally, through conversations with public safety a full access road around the building was requested, this has also been accomplished. The turning radius for the City's firetrucks and for school buses were tested on the plan and are included in the attached drawings.

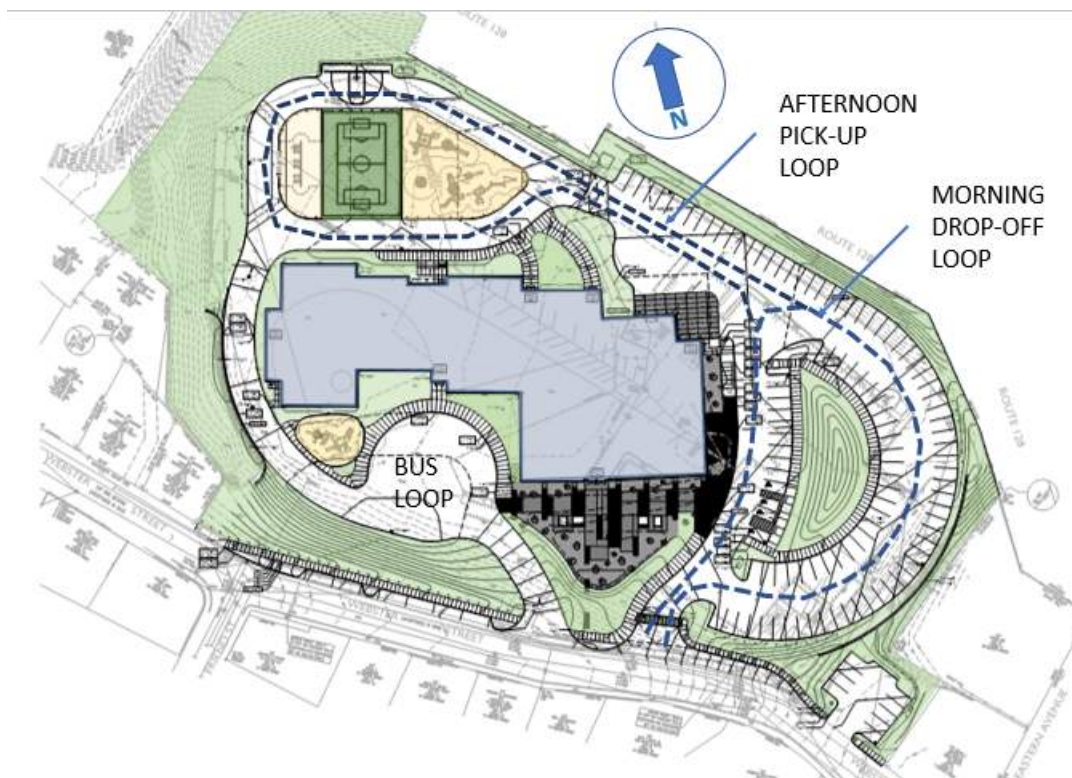
Off-site recommendations from Nitsch Engineering include the following:

- Designate the area as a School Zone under State and local statute, install appropriate School Zone signs

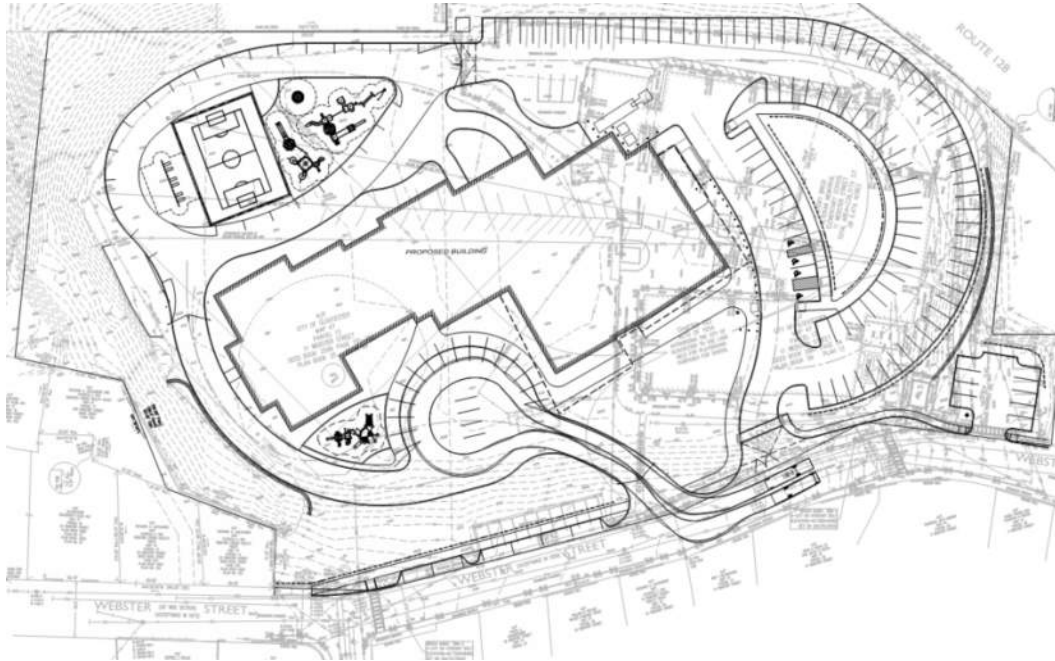
- Improve pedestrian experience along Webster Street including improving sidewalks to accommodate safe walks to school and provide advanced warning signs of school entering and exiting traffic
- Install ADA accessible crosswalks and curb cuts
- Evaluate installing exclusive turning lanes at Webster Street for school traffic
- Provide Safety Awareness community outreach through social media and other parent outreach

The district understands that cost associated with off-site work may not be eligible for reimbursement and is reviewing the cost of implementing the recommendations noted above.

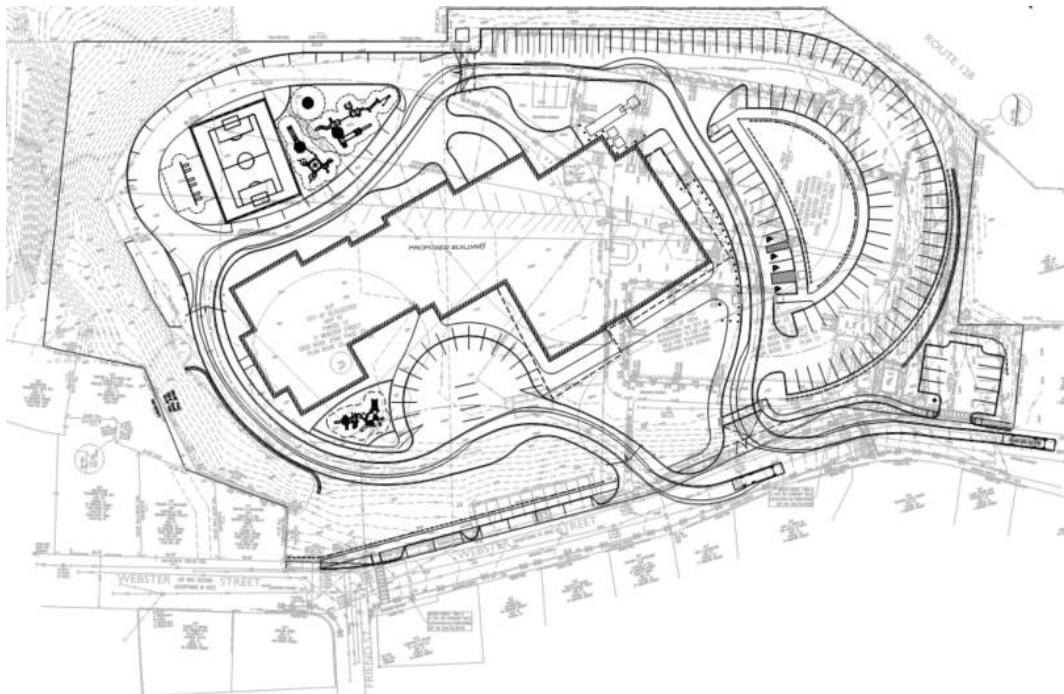
The following site plan has been developed by Brown + Sardina Landscape Architects (a full size plan is included in the document section of this submission). Turning radius for fire trucks and buses were developed by Nitsch Engineering. Traffic flow patterns were designed and developed by the Design Team and reviewed with Public Safety, School Building Committee and School Administration. The attached Traffic Report and appendix dated March 6, 2020 has been prepared by Nitsch Engineering for this project.



SITE PLAN

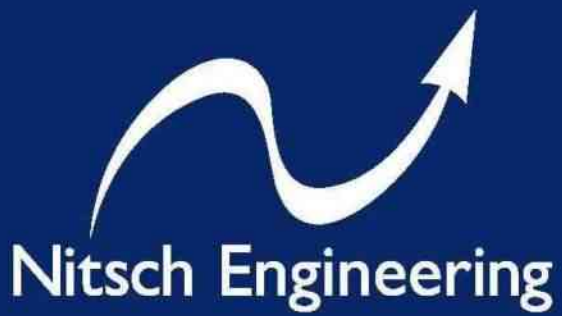


BUS LOOP TURNING ANALYSIS



LARGE FIRE TRUCK EMERGENCY LOOP ANALYSIS

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Transportation Impact Report

New Gloucester Elementary School at
Veterans' Memorial School Site
Gloucester, MA

March 6, 2020

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1 INTRODUCTION

Nitsch Engineering has been retained by Dore and Whittier Architects, Inc (D&W) to prepare a qualitative assessment of safety, traffic circulation, and traffic access/egress associated with the schematic design for the proposed new 440-student elementary school to be located at the existing school site of the Veterans' Memorial School (VMS) at 11 Webster Street in the City of Gloucester, Massachusetts.

This report will outline the existing and proposed traffic volumes, operations, and safety of the surrounding roadways and intersections; traffic patterns of the existing VMS, including site access/egress, parent and bus pick-up/drop-off, traffic circulation, and parking supply/demand. The report will use this information to project future conditions for the new elementary school.

The standards used for analysis conform to the current edition (2009) of the Manual on Uniform Traffic Control Devices (MUTCD) and the current edition (2010) of the Highway Capacity Manual.

The following conditions are analyzed in this report:

- Existing Conditions 2020;
- Future 2027 No-Build; and
- Future 2027 Build (new school of 440 students).

The Locus Map of the study area is as shown in Figure 1.

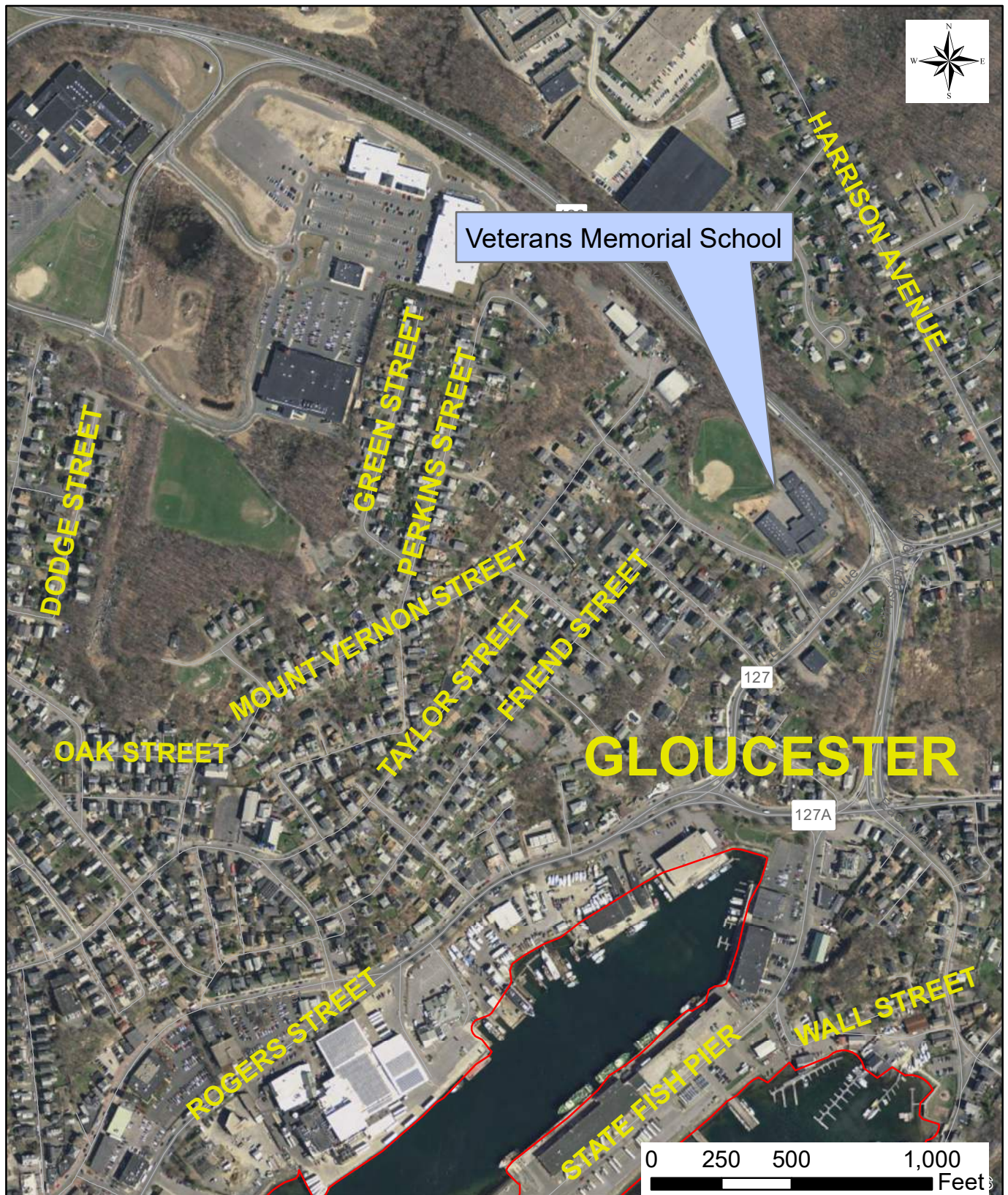


Figure 1: Locus Map
Veterans Memorial School
Gloucester, MA

2 EXISTING CONDITIONS

2.1 Study Area Roadways

To examine the existing conditions, we studied and collected data at the following roadways:

1. Webster Street;
2. Friend Street;
3. Eastern Avenue (Route 127);
4. Yankee Division Highway (Route 128); and
5. East Main Street.

Webster Street

Webster Street is classified by Massachusetts Department of Transportation (MassDOT) as a local roadway and runs in the south-north directions between Eastern Avenue at its southern terminus and dead-end at its northern terminus. The posted speed limit along the roadway near the VMS is 20 miles per hour. The land use is primarily residential. The roadway is within the jurisdiction of the City of Gloucester.

Friend Street

Friend Street is classified by Massachusetts Department of Transportation (MassDOT) as a local roadway and runs in the east-west directions between Webster Street at its eastern terminus and Prospect Street at its western terminus. The road is not posted for speed limit. The land use is primarily residential. The roadway is within the jurisdiction of the City of Gloucester.

Eastern Avenue (Route 127)

Eastern Avenue is classified by Massachusetts Department of Transportation (MassDOT) as an urban principal arterial and runs in the south-north directions between East Main Street at its southern terminus and Rockport Town Line at its northern terminus. The posted speed limit along the roadway is 20 miles per hour. The land use is a mix of residential and commercial. The roadway is within the jurisdiction of the City of Gloucester.

Yankee Division Highway (Route 128)

Yankee Division Highway (Route 128) is classified by Massachusetts Department of Transportation (MassDOT) as a rural or urban principal arterial and runs in the north-south directions between Blackburn Circle at its northern terminus and at East Main Street at its southern terminus. The posted speed limit along the roadway is 45 miles per hour. The land use is primarily commercial. The roadway is within the jurisdiction of the MassDOT.

East Main Street

East Main Street is classified by Massachusetts Department of Transportation (MassDOT) as an urban principal arterial and runs in the south-north directions between Main Street at its southern terminus and Rocky Neck Avenue at its northern terminus. The posted speed limit along the roadway is 20 miles per hour. The land use is a mix of residential and commercial. The roadway is within the jurisdiction of the City of Gloucester.

2.2 Study Area Intersections

To examine the existing conditions, we included the following intersections in the study area. The intersection locations are shown in Figure 2.

1. Yankee Division Highway (Route 128) at Eastern Avenue;
2. Eastern Avenue at East Main Street;
3. Webster Street at Friend Street; and
4. Webster Street at Eastern Avenue.

Yankee Division Highway (Route 128) at Eastern Avenue

Yankee Division Highway (Route 128) and Eastern Avenue intersect as a four-way signalized intersection with Yankee Division Highway (Route 128) approaching from the north and the south, and Eastern Avenue approaching from the east and the west. Americans with Disabilities Act (ADA) accessible crosswalks are present across approaches of the intersection.

From the north, Yankee Division Highway (Route 128) is a two-way roadway with one lane in each direction, separated by double yellow lines. Approaching the intersection, the approach consists of three lanes; one exclusive left turn lane that transitions to the east onto Eastern Avenue EB, one lane that permits through movements transitioning onto Yankee Division Highway SB, and a channelized right-turn lane that permits free right-turn movements that transition to the west onto Eastern Avenue WB. The width of the roadway at the intersection is approximately 64 feet.

From the east, Eastern Avenue is a two-way roadway with one lane in each direction, separated by double yellow lines. Approaching the intersection, the approach consists of three lanes; one exclusive left turn lane that transitions to the south onto Yankee Division Highway SB, one lane that permit through movements transitioning onto Eastern Avenue WB, and a channelized right-turn lane that permits free right-turn movements that transition to the north onto Yankee Division Highway NB. The width of the roadway at the intersection is approximately 50 feet.

From the south, Yankee Division Highway (Route 128) is a two-way roadway with one lane in each direction, separated by double yellow lines. Approaching the intersection, the approach consists of four lanes; one exclusive left turn lane that transitions to the west onto Eastern Avenue WB, two lanes that permit through movements transitioning onto Yankee Division Highway NB, and a channelized right-turn lane that permits free right-turn movements that transition to the east onto Eastern Avenue EB. The width of the roadway at the intersection is approximately 64 feet.

From the west, Eastern Avenue is a two-way roadway with one lane in each direction, separated by double yellow lines. Approaching the intersection, the approach consists of three lanes; one exclusive left turn lane that transitions to the north onto Yankee Division Highway NB, one lane that permit through movements transitioning onto Eastern Avenue EB, and a channelized right-turn lane that permits free right-turn movements that transition to the south onto Yankee Division Highway SB. The width of the roadway at the intersection is approximately 50 feet.

Eastern Avenue at East Main Street

Eastern Avenue and East Main Street intersect as a three-way unsignalized intersection with Eastern Avenue approaching from the north and East Main Street approaching from the east and the south. East Main Street operates freely with no control, and Eastern Avenue SB operates with stop control. ADA accessible crosswalks are present across Eastern Avenue SB and East Main Street WB approaches at the intersection.

From the north, Eastern Avenue is a two-way roadway with one lane in each direction, separated by double yellow lines. Approaching the intersection, the approach consists of one all-purpose lane that permits through movements transitioning onto East Main Street WB and left turns that transition to the east onto East Main Street EB. The width of the roadway at the intersection is approximately 46 feet. Parallel street parking is present on both sides of the roadway. Cement concrete sidewalk is present on the both sides of the roadway.

From the west, East Main Street is a two-way roadway with one lane in each direction, separated by raised island. Approaching the intersection, the approach consists of one all-purpose lane that permits left movements transitioning to the north onto Eastern Avenue NB, and right turns that transition to the east onto East Main Street EB. The width of the roadway at the intersection is approximately 64 feet. Parallel street parking is present on both sides of the roadway. Bituminous concrete sidewalk is present on the both sides of the roadway.

From the east, East Main Street is a two-way roadway with one lane in each direction, separated by raised island. Approaching the intersection, the approach consists of one all-purpose lane that permits left movements transitioning to the west onto East Main Street WB, and right turns that transition to the north onto Eastern Avenue NB. The width of the roadway at the intersection is approximately 50 feet. Parallel street parking is present on both sides of the roadway. Bituminous concrete sidewalk is present on the both sides of the roadway.

Webster Street at Friend Street

Webster Street and Friend Street intersect as a three-way unsignalized intersection with Webster Street approaching from the north and south and Friend Street approaching from the west. Webster Street operates freely with no control, and Friend Street operates with stop control. ADA accessible crosswalks are present across Friend Street and Webster Street NB approaches at the intersection.

From the north, Webster Street is a two-way roadway with one lane in each direction. There are no pavement markings separating the lanes. Approaching the intersection, the approach consists of one general purpose lane that permits through movements onto Webster Street SB, and right-turn movements that transition to the west onto Friend Street WB. The width of the roadway at the intersection is approximately 29 feet. Bituminous concrete sidewalk is present on both sides of the roadway.

From the south, Webster Street is a two-way roadway with one lane in each direction. There are no pavement markings separating the lanes. Approaching the intersection, the approach consists of one general purpose lane that permits through movements onto Webster Street NB and left-turn movements that transition to the west onto Friend Street WB. The width of the roadway at the intersection is approximately 29 feet. Bituminous concrete sidewalk is present on both sides of the roadway.

From the west, Friend Street is a two-way roadway with one lane in each direction. There are no pavement markings separating the lanes. Approaching the intersection, the approach consists of one general purpose lane that permits right and left turn movements onto Webster Street SB and NB. The width of the roadway at the intersection is approximately 25 feet. Bituminous concrete sidewalk is present on both sides of the roadway.

Webster Street at Eastern Avenue

Webster Street and Eastern Avenue intersect as a four-way signalized intersection, a three-way unsignalized intersection with Webster Street approaching from the northwest, and Eastern Avenue approaching from the northeast and south. Eastern Avenue operates freely with no control, and Webster Street operates with stop control. An ADA accessible crosswalk is present across Webster Street approach at the intersection.

From the northeast, Eastern Avenue is a two-way roadway with one lane in each direction, separated by double yellow lines. Approaching the intersection, the approach consists of one general purpose lane that permits through movement south onto Eastern Avenue SB and right-turn movements onto Webster Street NB. The width of the roadway at the intersection is approximately 35 feet. Bituminous concrete sidewalk is present on the both sides of the roadway.

From the southwest, Eastern Avenue is a two-way roadway with one lane in each direction, separated by double yellow lines. Approaching the intersection, the approach consists of one general purpose lane that permits through movement south onto Eastern Avenue NB and left-turn movements onto Webster Street NB. The width of the roadway at the intersection is approximately 35 feet. Bituminous concrete sidewalk is present on the both sides of the roadway.

From the northwest, Webster Street is a two-way roadway with one lane in each direction. There are no pavement markings separating the lanes. Approaching the intersection, the approach consists of one general purpose lane that permits right and left turn movements onto Eastern Avenue SB and NB. The width of the roadway at the intersection is approximately 45 feet. Bituminous concrete sidewalk is present on both sides of the roadway.

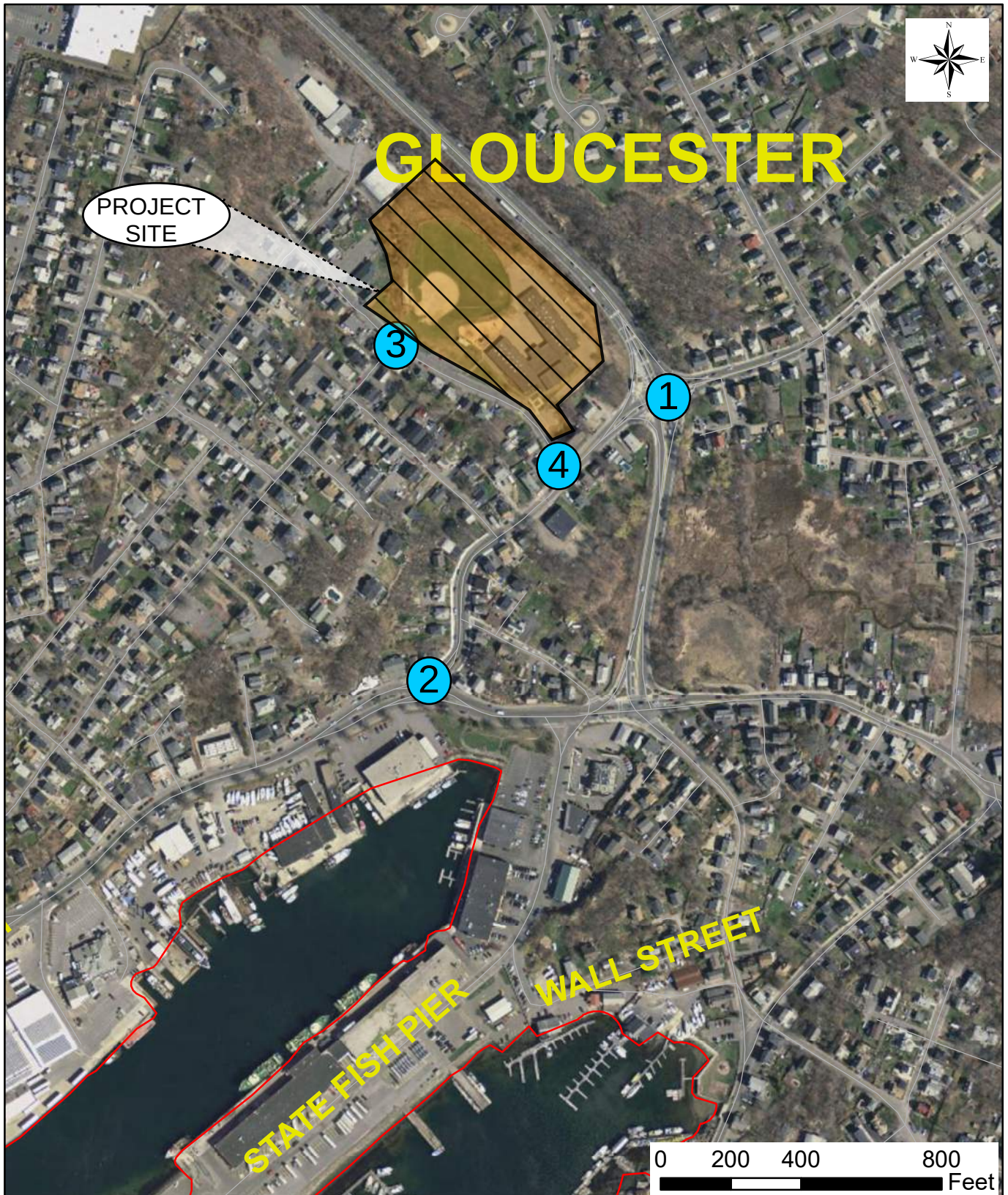


Figure 2: Intersection Locations
Veterans Memorial School
Gloucester, MA

2.3 Veterans' Memorial School Site Visit

Nitsch Engineering conducted a site visit on Tuesday, October 8, 2019 to observe the site circulation associated with the weekday morning drop-off, weekday afternoon pick-up, and general queue lengths around the school site. The weekday morning drop-off observation occurred during cloudy conditions with a temperature of 55 degrees. The weekday afternoon pick-up activity occurred during cloudy conditions with a temperature of 59 degrees.

2.4 Veterans' Memorial School Site Access and Egress

Veterans' Memorial School is located at 11 Webster Street in Gloucester, Massachusetts. The school is accessed from Webster Street.

2.5 Veterans' Memorial School Traffic Circulation and Pick-up/Drop-off

Existing Morning Drop-off Circulation via:

The Veterans' Memorial School traffic arrives at Webster Street from 8:15 AM through 9:00 AM. We observed that some parents arrive and park along Webster Street and the school driveway and walk their children to the school, and others drop-off their children at the front. The Principal or a teacher greet the students upon their arrival. We observed a total of 119 parents drop off students during the morning peak hour. At the time of the site visit, we did not observe any students walking or bicycling to the school.

Buses (#7 and #24) arrive approximately at 8:37 AM and park just to the north of the School driveway with their flashers and Stop Sign activated. The dropping off takes approximately five minutes, during which the traffic is at stand still north of the School driveway, but parents continue to loop around the mouth of the School driveway to drop-off their children. Note that the Crossing Guards are assisting parents who have parked their cars offsite and walk students to the front door. The two buses leave the school after dropping students off.

Existing Afternoon Pick-up Circulation via:

The School dismissal is at 3:00 PM and the afternoon pick-up period occurs approximately from 2:30 PM to 3:15 PM. Parents start arriving around 2:30 PM and queue up at the school's driveway and along Webster Street to wait for their children. We observed 12 vehicles in the queue along Webster Street southbound north of the School driveway and six vehicles south of the School driveway; another three vehicles were parked on Webster Street northbound south of the School driveway. Some parents had also parked at the Webster Street Apartments parking lot, while a handful others had double-parked along both sides of the Webster Street. Around 2:50 PM, parents leave their vehicles and walk to the front door of the School to wait for their children. Once they have collected their children, they leave via Webster Street, and normal traffic returns by 3:15 PM. We observed a total of 127 parents pick up students were observed during afternoon dismissal. At the time of the site visit we did not observe any student walkers or bicyclists.

Buses (#7 and #24) arrive approximately at 3:00 PM and park just to the north of the School driveway with their flashers and Stop Sign activated. The picking up takes approximately five minutes, during which the traffic is at stand still north of the School driveway. A crossing guard assists parents and their children to safely cross Webster Street. After dropping off students, the two buses leave the site.

Table 1 tables quantifies the parent and bus drop-off/pick-up totals for the existing Veterans' Memorial School.

Table 1 – Veterans’ Memorial School Students Drop-off/Pick-up

Type	Parent		Bus	
	Webster Street			
Time	Drop-Off	Pick-Up	Drop-Off	Pick-Up
8:15 - 8:30	27			
8:30 - 8:45	41		2	
8:45- 9:00	51			
2:30 - 2:45		34		
2:45 - 3:00		61		
3:00 - 3:15		32		2
Total	119	127	2	2

2.6 Veterans’ Memorial School Parking Supply and Demand

Nitsch Engineering performed a parking supply and demand counts on October 8, 2019. The utilization counts of the lot was taken at 9:30 AM.

A total of 36 parking spaces were counted within the parking lot at Veterans’ Memorial School, two of which are accessible spaces. This meets the Massachusetts Architectural Access Board (AAB) Code of Massachusetts Regulations (521 CMR) for the required number of handicapped parking spaces. Another 10-spaces are available on Webster Street, one of which is an accessible space. None of the accessible spaces were utilized at the time of observation. The overall combined lot utilization at the parking lots was 87% at the time of observation. This indicates a need for additional parking at the School.

3 SAFETY ANALYSIS

3.1 Crash Data

Nitsch Engineering reviewed the crash data available from MassDOT for the five most recent years available – 2016 to 2018 – for the study intersections. A summary of the crashes, including the severity, and the manner of collision are shown in Table 2.

Table 2 – Crash Summary

Location	Number of Crashes			Severity				Manner of Collision					Percent During	
	Year	Total Crashes	Average	PD ^a	PI ^b	NR ^c	F ^d	A ^e	RE ^f	HO ^g	Other ^h	Incl. Ped-Bike ⁱ	Peak Hours ^k	Wet/Icy Conditions
Yankee Division Highway at Eastern Avenue	2014	12	11.2	9	2	1	0	0	8	1	3	0	25%	8%
	2015	11		7	4	0	0	4	2	2	3	0	27%	9%
	2016	11		8	2	1	0	5	3	0	3	0	18%	18%
	2017	13		12	0	1	0	2	9	0	2	0	15%	0%
	2018	9		7	1	1	0	0	7	0	2	0	22%	0%
Friend Street at Webster Street	2014	0	0.8	0	0	0	0	0	0	0	0	0	0%	0%
	2015	2		0	0	2	0	0	0	0	2	0	0%	0%
	2016	0		0	0	0	0	0	0	0	0	0	0%	0%
	2017	2		1	1	0	0	1	0	0	1	0	50%	50%
	2018	0		0	0	0	0	0	0	0	0	0	0%	0%
Eastern Avenue at East Main Street	2014	7	3.8	4	1	2	0	2	2	1	2	0	0%	0%
	2015	2		2	0	0	0	0	1	0	1	0	0%	0%
	2016	5		3	1	1	0	0	2	1	2	0	20%	20%
	2017	3		3	0	0	0	0	2	0	1	0	0%	33%
	2018	2		1	1	0	0	1	0	0	1	0	0%	0%
Eastern Avenue at Webster Street	2014	2	2.4	2	0	0	0	2	0	0	0	0	0%	0%
	2015	3		2	1	0	0	2	0	0	1	0	0%	0%
	2016	2		2	0	0	0	1	1	0	0	0	0%	0%
	2017	3		2	1	0	0	2	0	0	1	0	33%	0%
	2018	2		2	0	0	0	1	0	0	1	0	50%	0%
Total		91	5.3	67	15	9	0	23	37	5	26	0	20%	8%
^a Property Damage Only; ^b Personal Injury Only (non-Fatal Injury); ^c Not Reported; ^d Fatality; ^e Angle; ^f Rear end; ^g Head on; ^h Sideswipe, opposite direction; sideswipe, same direction, single vehicle crash, rear-to-rear, not reported, unknown, etc.; ⁱ Includes pedestrian or cyclist; ^k Occurred between 7-9am or 4-6pm														

A total of 91 crashes were reported within the study areas for the four locations from 2014 to 2018. In terms of severity, 67 of the crashes involved property damage, 15 reported personal injury, and the other nine crashes were not reported. In terms of manner of collision, 23 of the crashes were angle collisions, another 37 were rear end, five were head-on, and 26 were of other type. There were no crashes that involved a pedestrian and/or a bicyclist. Approximately 20% of the crashes occurred during the peak hours of 7:00 to 9:00 AM or 4:00 to 6:00 PM and 8% occurred during wet/icy conditions. Analyzing the crash data, as most crashes were of angle or rear-end type, the crashes were most likely caused by driver carelessness or inattentiveness.

3.2 Intersection Crash Rates

The intersection crash rate is recognized as an effective tool to measure the safety of intersections. For intersections, crash rates are expressed by the number of crashes per million entering vehicles (MEV). As of February 9, 2016, the average statewide crash rate for unsignalized intersections is 0.57 per MEV and 0.78 for signalized intersections. For District 4, which includes the City of Gloucester, the rate for unsignalized intersections is 0.57 crashes per MEV and 0.73 for signalized intersections.

Intersection crash rate worksheets can be found in Appendix A-3.

Table 3 – Intersection Crash Rate Summary

Location	Control	Total Crashes	Crash Rate ^c	Compared to Average ^d	
				Statewide	District 4
Yankee Division Highway at Eastern Avenue	Signalized	56	0.95	Above	Above
Friend Street at Webster Street	Unsignalized	4	0.60	Above	Above
Eastern Avenue at East Main Street	Unsignalized	19	0.69	Above	Above
Eastern Avenue at Webster Street	Unsignalized	12	0.54	Below	Below

	Signalized Average	Unsignalized Average
Statewide	0.78	0.57
District 4	0.73	0.57

4 EXISTING TRAFFIC CONDITIONS

4.1 2020 Traffic Count Data

Turning Movement Count (TMC) Data

Nitsch Engineering retained Precision Data Industries, LLC (PDI) of Framingham, Massachusetts to conduct Turning Movement Counts (TMC) data for the study area intersections on Wednesday, January 8, 2020 from 7:00 AM to 9:00 AM and 1:30 PM to 3:30 PM to capture both the school morning and afternoon peak periods. The TMC data included bicycle and pedestrian counts. The peak hours within the study area were established as 7:45 AM to 8:45 AM during the weekday morning period and 2:30 PM to 3:30 PM during the afternoon period. The 2020 existing traffic volumes are shown in Figure 3.

4.2 Seasonal Adjustment

Nitsch Engineering researched data from MassDOT to establish if any seasonal adjustment to the traffic counts was necessary. We researched and used the MassDOT's 2013 Weekday Seasonal Adjustment Factors, which is the latest data set available. The data compares monthly traffic volumes from different types of roadways across the Commonwealth to compare the traffic volumes from each individual month to the annual average. During the month of January on urban arterials and collectors, traffic volumes are equal to an average month. Additionally, the counts were performed while school was in full session, so the traffic counts represent the average condition with respect to traffic within the study area. Therefore, we made no adjustment to the collected volumes. The Weekday Seasonal Adjustment Factors are included in Appendix A-2.

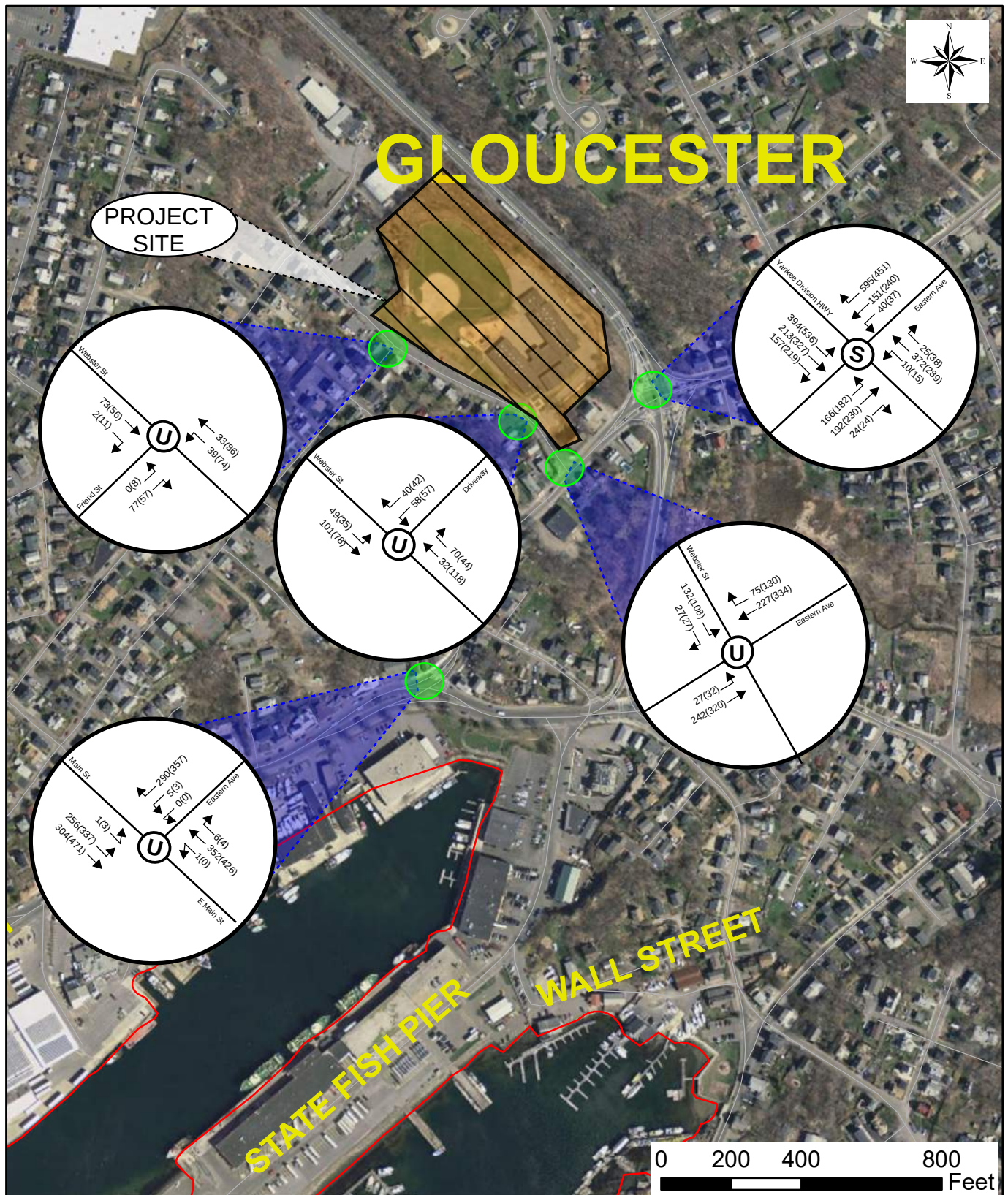


Figure 3: 2020 Existing Peak Hour Volumes

Veterans Memorial School
Gloucester, MA

Data Source: MassGIS
Nitsch Project #13117.1

5 FUTURE NO-BUILD TRAFFIC CONDITIONS

5.1 Background Growth

Nitsch Engineering used the previous seven years data from MassDOT count station #5091, located on Yankee Division Highway (Route 128) just east of Eastern Avenue calculate the background traffic growth. The data indicates that traffic has increased by an average of 1.7% for this station within the previous 10 years. We used a conservative annual background traffic growth factor of 2%, which is also consistent with recent MassDOT projects in eastern Massachusetts.

5.2 No-Build Traffic Volumes

The 2027 No-Build Traffic Volumes are shown in Figure 4 and are derived by applying the traffic growth rate of 2% per year over the seven-year design horizon to project the 2027 traffic counts.

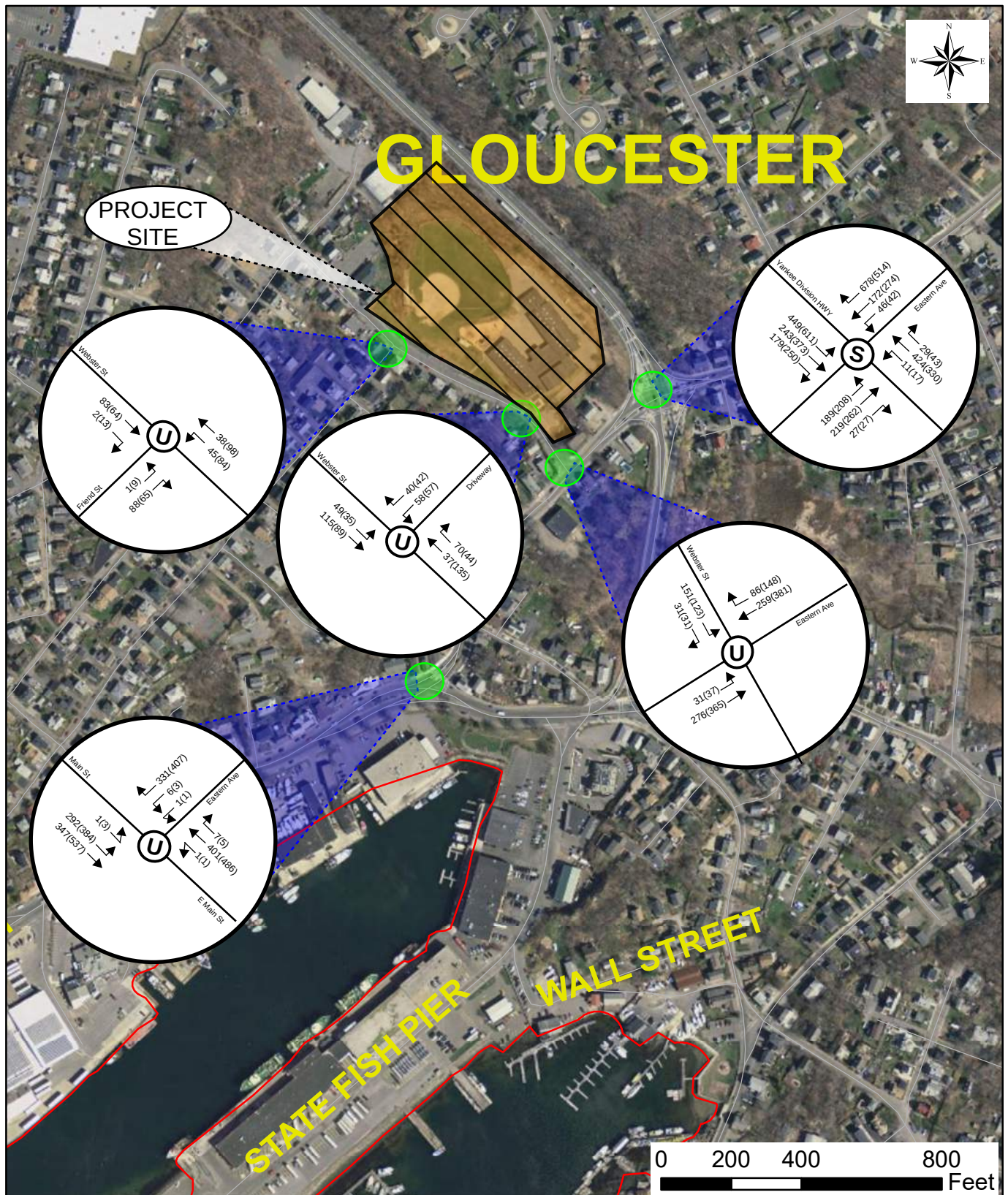


Figure 4: 2027 Future No-Build Peak Hour Volumes

Veterans Memorial School
Gloucester, MA

Data Source: MassGIS
Nitsch Project #13117.1

LEGEND:

- (S) SIGNALIZED INTERSECTION
- (U) UNSIGNALIZED INTERSECTION
- XX(XY) AM(PM) TRAFFIC VOLUMES

6 FUTURE CONDITIONS

D&W has presented a conceptual design for a new 440 student elementary school on the existing VMS site and examined the proposed future conditions with respect to the projected student population options of the 440 students. We examined the feasibility of constructing a new building and grounds on the existing Veterans' Memorial School site.

6.1 Proposed Trip Generation

Nitsch Engineering used the Number of Students as the independent variable to base the trip generation rates. The existing school enrolls 233 students. The enrollment at the new school will be 440 students. This means that the school enrollment will grow by 89%. The proposed school trip generation was calculated by increasing the existing trips entering and exiting the school by 89% to present a conservative analysis of the School Project.

To compare and use the most conservative numbers for our analysis, Nitsch Engineering used the Institute of Transportation Engineers (ITE) publication Trip Generation, 10th Edition to estimate the additional vehicle trip rates, as well as the Directional Distribution (total trip ends entering and exiting) for the proposed school.

Trip generation rates for the Elementary School were based on Land Use Code (LUC) 520 (Elementary School).

LUC 520 – Elementary School

Trip Generation per Student – Average rate 0.65, AM Peak hour of Generator 55% entering, 45% exiting

Trip Generation per Student – Average rate 0.34, PM Peak hour of Generator 45% entering, 55% exiting

Table 4 summarizes vehicle trips generated by the existing and proposed school. It also shows a comparison between trips generated based on manual traffic counts and based on ITE Trip Generation Rates.

Table 4 – Proposed Trip Generation

TIME PERIOD		EXISTING	FUTURE VEHICLE TRIPS BASED ON TRAFFIC COUNTS	NET VEHICLE TRIPS BASED ON TRAFFIC COUNTS	FUTURE VEHICLE TRIPS BASED ON ITE TRIP GENERATION RATES
AM	ENTERING	119	225	106	154
	EXITING	85	161	76	132
	TOTAL	204	386	182	286
PM	ENTERING	79	149	70	67
	EXITING	127	240	113	83
	TOTAL	206	389	183	150

Table 4 indicates that the trip generation rates based on the traffic counts presents more conservative data and have been used for the analysis. As shown in Table 7 above, the proposed VMS would result in approximately 182 additional entering and exiting trips during morning drop-off, and approximately 183 additional entering and exiting trips during afternoon pick-up. The increase in vehicle trips includes teachers and staff at the new school.

Trip Distribution & Assignment

The trips to/from the VMS on the existing site will be distributed and assigned based on the exiting travel patterns and logical travel routes, which are based on the existing roadway network both within the City of Gloucester and the surrounding region. Trip Distribution for the study intersections is shown in Figure 5.

The assigned trips to/from the VMS on the existing site were established by multiplying the trip distribution percentages by the quantity of expanded trips as seen in Table 4. The resultant trips are shown in Figure 6.

Proposed 2027 Build Volumes

For the proposed VMS on the existing site, the corresponding trip assignment volumes were added to the 2027 No-Build Volumes to yield the 2027 Build Volumes. The 2027 Build Volumes for the proposed VMS on the existing site are shown in Figure 7.

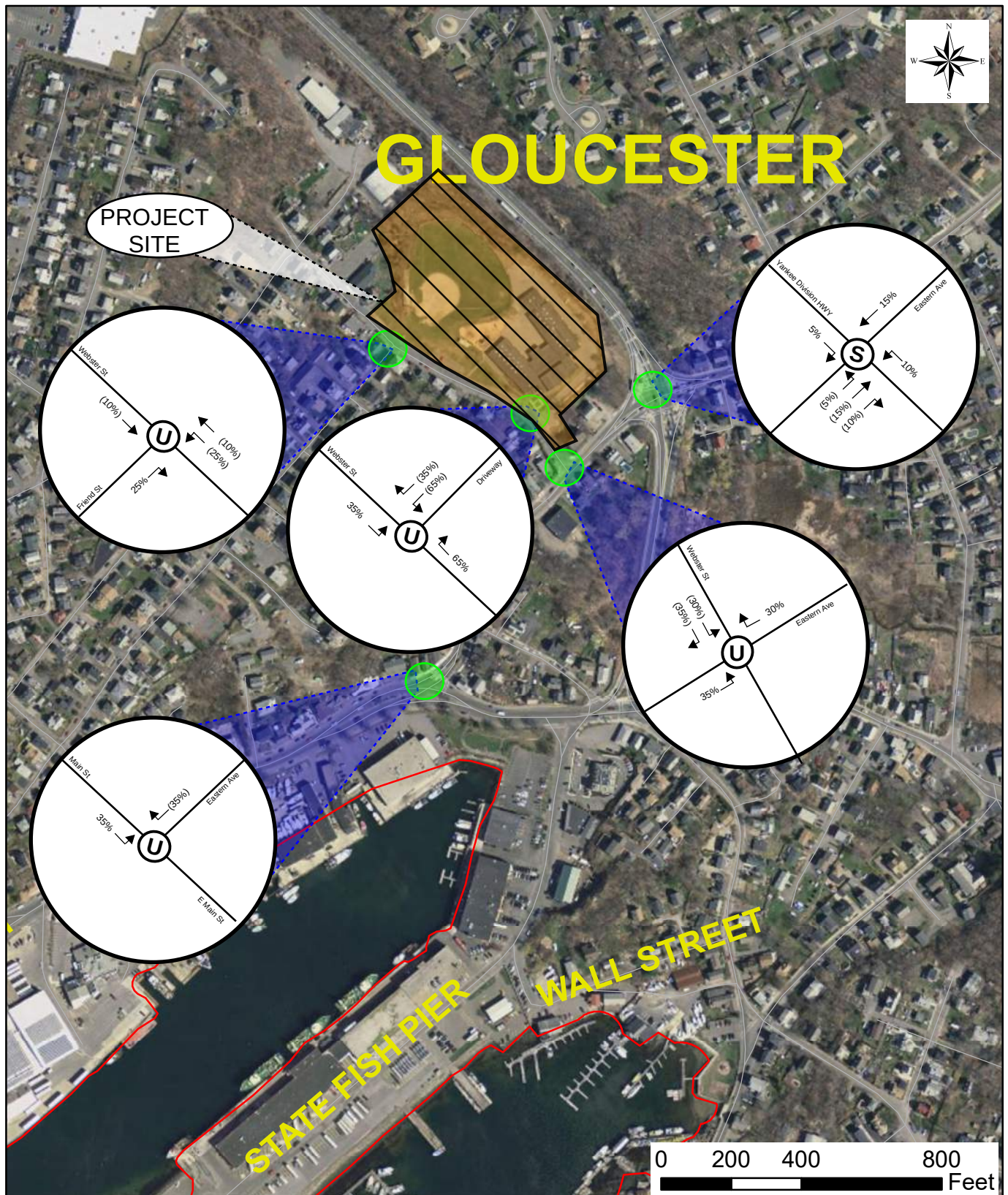


Figure 5: Trip Distribution

Veterans Memorial School
Gloucester, MA

Data Source: MassGIS
Nitsch Project #13117.1

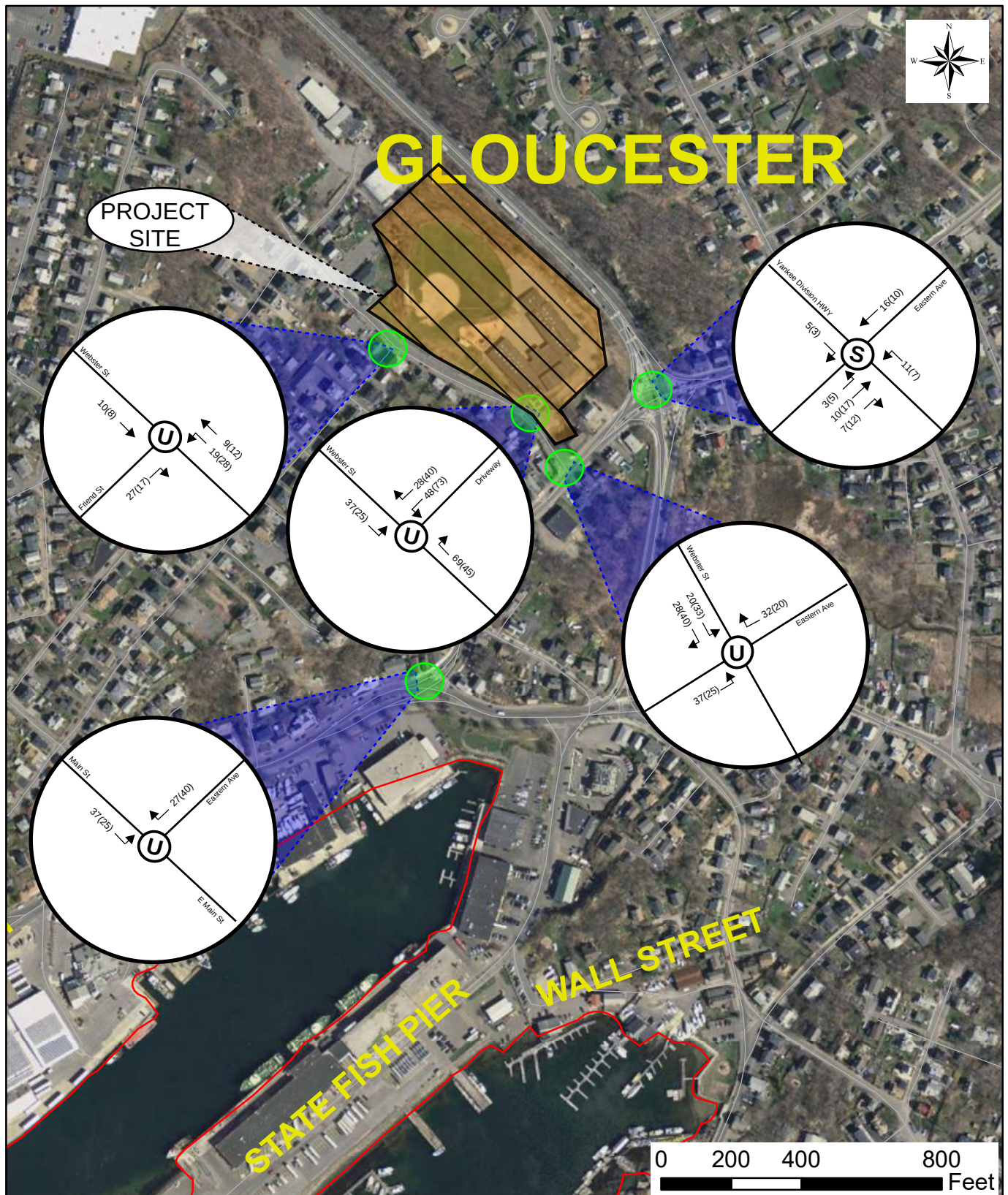


Figure 6: Trip Assignment

Veterans Memorial School
Gloucester, MA

Data Source: MassGIS
Nitsch Project #13117.1

LEGEND:	
(S)	SIGNALIZED INTERSECTION
(U)	UNSIGNALIZED INTERSECTION
xx(xx)	AM(PM) TRAFFIC VOLUMES

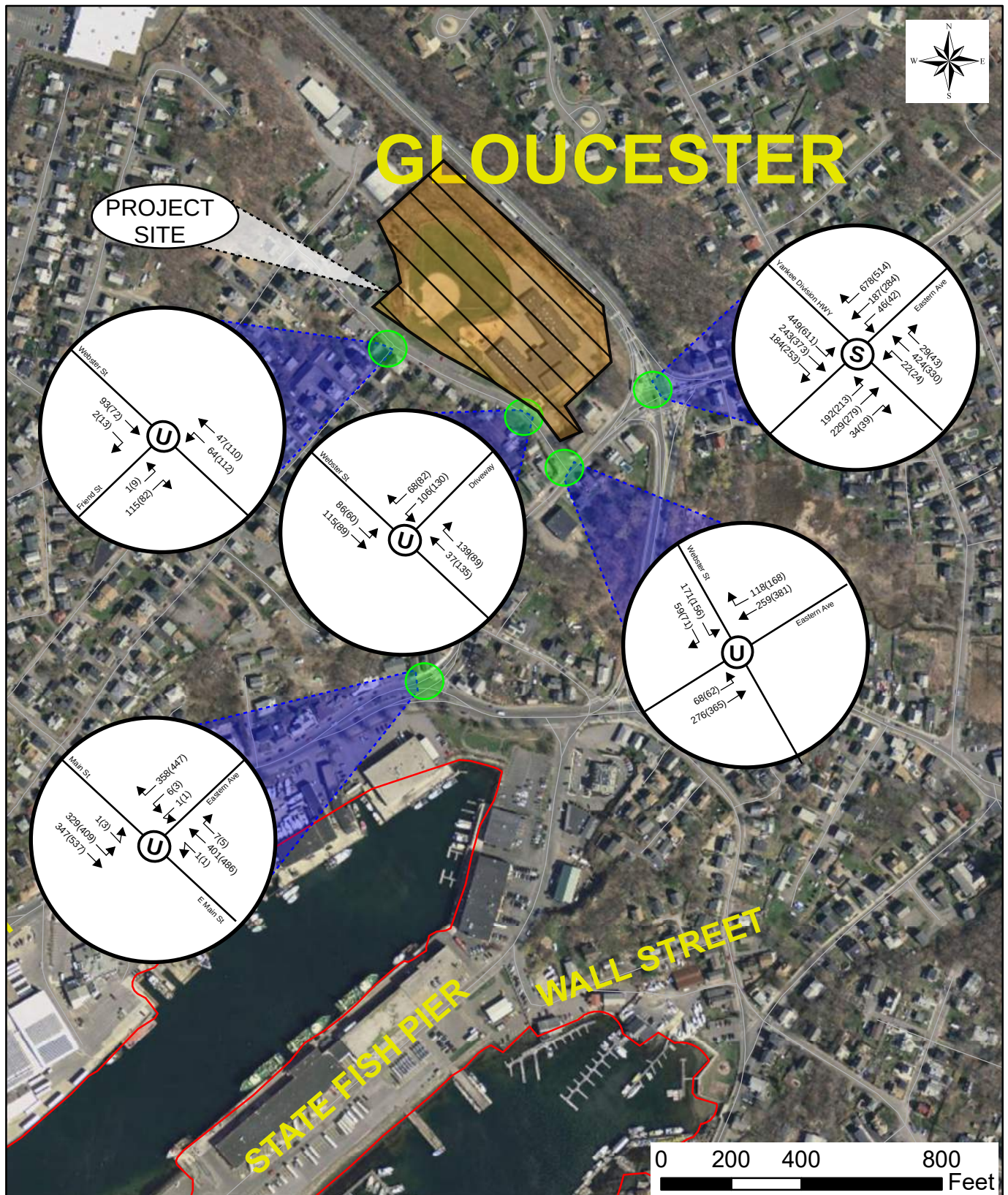


Figure 7: 2027 Future Build Peak Hour Volumes

Veterans Memorial School
Gloucester, MA

Data Source: MassGIS
Nitsch Project #13117.1

LEGEND:

- (S) SIGNALIZED INTERSECTION
- (U) UNSIGNALIZED INTERSECTION
- XX(X) AM(PM) TRAFFIC VOLUMES

7 OPERATIONS ANALYSIS

7.1 Level of Service Criteria

Level of Service (LOS) is a qualitative measure describing operational conditions within a traffic stream. Six (6) LOS criteria are used to describe the quality of traffic flow for any type of facility controls. LOS A represents the best operating conditions, and LOS-F represents the worst operating conditions. Nitsch Engineering analyzed the levels of service for signalized intersections using Synchro 10 software, which is based on the traffic operational analysis methodology of the Highway Capacity Manual¹ (HCM). The methodology for signalized intersections assesses the effects of signal type, timing, phasing, progression, vehicle mix, and geometrics on control delay. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Table 5 summarizes the relationship between LOS and average control delay for signalized and unsignalized intersections.

Table 5 – Level of Service Criteria

SIGNALIZED INTERSECTIONS		UNSIGNALIZED INTERSECTIONS		
Level of Service	Control Delay (seconds/vehicle)	Level of Service by Volume-to-Capacity (v/c) Ratio		Control Delay (seconds/vehicle)
		v/c ≤ 1.0	v/c > 1.0	
A	0 to 10	A	F	0 to 10
B	>10 to 20	B	F	>10 to 15
C	>20 to 35	C	F	>15 to 25
D	>35 to 55	D	F	>25 to 35
E	>55 to 80	E	F	>35 to 50
F	>80	F	F	>50

Source: 2010 Highway Capacity Manual, Transportation Research Board, Washington D.C. 2010

7.2 Capacity Analysis

Nitsch Engineering performed traffic analyses to evaluate traffic operations for the 2020 Existing Conditions, 2027 No-Build Conditions, and 2027 Build Conditions during the weekday morning and weekday afternoon peak hours at the study intersections. The analyses depict the volume-to-capacity (v/c) ratio, vehicle delay, LOS, and the 50th/95th percentile vehicle queues.

7.3 2020 Existing Capacity Analysis

Nitsch Engineering analyzed the 2020 Existing Conditions traffic operations at the study intersection based on the existing traffic counts performed by PDI and Nitsch Engineering in January 2020. The Level of Service Summary is shown in Table 6. The analysis worksheets are provided in Appendix A-6.

¹ Highway Capacity Manual, 2010 Edition, Transportation Research Board (TRB), Washington, D.C.

Table 6 – Level of Service Summary - 2020 Existing Conditions

LOCATION	DIRECTION / MOVEMENT ¹	WEEKDAY MIDDAY PEAK HOUR					WEEKDAY EVENING PEAK HOUR				
		VIC ²	DELAY ³	LOS ⁴	50th Q ⁵	95th Q ⁶	VIC ²	DELAY ³	LOS ⁴	50th Q ⁵	95th Q ⁶
Yankee Division Highway at Eastern Avenue	Eastern Ave WB-L	0.29	42.9	D	33	56	0.24	31.5	C	25	42
	Eastern Ave WB-T	0.72	57.7	E	134	165	0.75	47.3	D	143	218
	Eastern Ave WB-R	0.83	18.6	B	144	228	0.64	5.8	A	0	36
	YDH NB-L	0.15	51.5	D	11	23	0.24	42.1	D	20	22
	YDH NB-T	0.68	48.1	D	143	183	0.45	34.0	C	82	123
	YDH NB-R	0.10	0.6	A	0	0	0.13	0.7	A	0	0
	YDH SB-L	0.66	38.8	D	242	514	0.98	64.9	E	325	582
	YDH SB-T	0.24	17.8	B	76	179	0.42	18.9	B	146	237
	YDH SB-R	0.20	3.7	A	0	35	0.27	3.5	A	0	46
	Eastern Ave EB-L	0.59	32.8	C	113	128	2.91	887.9	F	718	104
	Eastern Ave EB-T	0.42	29.8	C	120	159	0.56	30.1	C	126	179
	Eastern Ave EB-R	0.11	0.7	A	0	0-	0.11	0.6	A	0	0
	Total	0.83	30.1	C			2.91	207.8	F		
Eastern Avenue at E Main Street	E Main St EB - LR	0.27	6.1	A	-	27	0.37	7.4	A	-	43
	E Main St WB -LR	0.23	0.0	A	-	0	0.24	0.0	A	-	0
	Eastern Ave SB - LR	0.63	21.6	C	-	111	0.77	31.1	D	-	174
Webster Street at Friend Street	Webster St SB-TR	0.17	0.0	A	-	0	0.07	0.0	A	-	0
	Webster St NB-LT	0.04	4.5	A	-	3	0.08	4.4	A	-	7
	Friend St EB-LR	0.15	10.7	B	-	13	0.11	9.9	A	-	9
Webster Street at Eastern Avenue	Webster St SB - LR	0.50	20.4	C	-	68	0.61	31.6	D	-	94
	Eastern Ave EB - LT	0.03	1.0	A	-	2	0.04	1.2	A	-	3
	Eastern Ave WB - TR	0.23	0.0	A	-	0	0.35	0.0	A	-	0
Webster Street at VMS Driveway	Webster St SB-LT	0.04	2.6	A	-	3	0.03	2.5	A	-	2
	Webster St NB-TR	0.07	0.0	A	-	0	0.10	0.0	A	-	0
	VMS Dr WB-LR	0.14	10.4	B	-	12	0.15	10.7	B	-	13
¹ SB = Southbound, EB = Eastbound, WB = Westbound, L = Left-turn, T = Through movement, R = Right-turn; ² Volume to Capacity Ratio; ³ Vehicle Delay, measured in seconds; ⁴ Level Of Service; ⁵ 50th Percentile Queue (in feet); ⁶ 95th Percentile Queue (in feet) based upon 22 feet per vehicle; # = 95th percentile volume exceeds capacity, queue may be longer; ~ = Volume exceeds capacity, queue is theoretically infinite											

7.4 2027 No-Build Capacity Analysis

Nitsch Engineering analyzed the 2027 No-Build Conditions traffic operations at the study intersection. The 2027 No-Build Condition represents the 2020 Existing Conditions and projects a traffic increase at the rate of 2% per year between 2020 and 2027. The Level of Service Summary is shown in Table 7. The analysis worksheets are provided in Appendix A-6.

7.5 2027 Build Capacity Analysis

Nitsch Engineering analyzed the 2027 Build Conditions traffic operations at the study intersection for reconstruction of a new Veteran Memorial School on the existing site. The 2027 Build Conditions represents the 2027 No-Build Conditions traffic volumes and adds the Trip Assignment Volumes for Veterans' Memorial School Site. The Level of Service Summary are shown in Tables 8.

Table 7 – Level of Service Summary - 2027 No-Build Conditions

LOCATION	DIRECTION / MOVEMENT ¹	WEEKDAY MIDDAY PEAK HOUR					WEEKDAY EVENING PEAK HOUR				
		V/C ²	DELAY ³	LOS ⁴	50th Q ⁵	95th Q ⁶	V/C ²	DELAY ³	LOS ⁴	50th Q ⁵	95th Q ⁶
Yankee Division Highway at Eastern Avenue	Eastern Ave WB-L	0.27	37.3	D	35	59	0.26	31.5	C	28	47
	Eastern Ave WB-T	0.64	47.2	D	142	175	0.80	50.1	D	162	253
	Eastern Ave WB-R	0.92	29.2	C	255	345	0.68	6.1	A	0	35
	YDH NB-L	0.15	51.5	D	12	24	0.26	43.3	D	22	24
	YDH NB-T	0.70	46.9	D	163	202	0.51	35.1	D	95	139
	YDH NB-R	0.10	0.6	A	0	0	0.14	0.8	A	0	0
	YDH SB-L	1.02	87.9	F	376	727	1.16	122.3	F	463	689
	YDH SB-T	0.30	22.0	C	104	224	0.49	20.8	C	181	279
	YDH SB-R	0.24	4.3	A	0	40	0.31	3.5	A	0	48
	Eastern Ave EB-L	0.60	29.0	C	116	129	3.51	*	F	848	141
	Eastern Ave EB-T	0.42	26.0	C	124	163	0.61	30.9	C	142	206
	Eastern Ave EB-R	0.10	0.5	A	0	0	0.12	0.6	A	0	0
	Total	1.02	39.0	D			3.51	273.8	F		
Eastern Avenue at E Main Street	E Main St EB - LR	0.32	6.8	A	-	35	0.48	10.1	A	-	65
	E Main St WB -LR	0.26	0.0	A	-	0	0.32	0	A	-	0
	Eastern Ave SB - LR	0.82	37.2	E	-	201	1.16	126.9	F	-	445
Webster Street at Friend Street	Webster St SB-TR	0.20	0.0	A	-	0	0.08	0.0	A	-	0
	Webster St NB-LT	0.05	4.6	A	-	4	0.10	4.5	A	-	8
	Friend St EB-LR	0.18	11.2	B	-	16	0.13	10.2	A	-	11
Webster Street at Eastern Avenue	Webster St SB - LR	0.64	28.6	C	-	110	0.83	59.0	F	-	168
	Eastern Ave EB - LT	0.03	1.1	A	-	2	0.05	1.3	A	-	4
	Eastern Ave WB - TR	0.26	0.0	A	-	0	0.39	0.0	A	-	0
Webster Street at VMS Driveway	Webster St SB-LT	0.04	2.4	A	-	3	0.03	2.3	A	-	2
	Webster St NB-TR	0.07	0.0	A	-	0	0.11	0.0	A	-	0
	VMS Dr WB-LR	0.14	10.5	B	-	12	0.15	10.9	B	-	13

¹SB = Southbound, EB = Eastbound, WB = Westbound, L = Left-turn, T = Through movement, R = Right-turn; ²Volume to Capacity Ratio; ³Vehicle Delay, measured in seconds; ⁴Level Of Service; ⁵50th Percentile Queue (in feet); ⁶95th Percentile Queue (in feet) based upon 22 feet per vehicle; # = 95th percentile volume exceeds capacity, queue may be longer; ~ = Volume exceeds capacity, queue is theoretically infinite

Table 8 – Level of Service Summary - 2027 Build Conditions

LOCATION	DIRECTION / MOVEMENT ¹	WEEKDAY MIDDAY PEAK HOUR					WEEKDAY EVENING PEAK HOUR				
		V/C ²	DELAY ³	LOS ⁴	50th Q ⁵	95th Q ⁶	V/C ²	DELAY ³	LOS ⁴	50th Q ⁵	95th Q ⁶
Yankee Division Highway at Eastern Avenue	Eastern Ave WB-L	0.26	39.1	D	31	60	0.20	30.0	C	21	50
	Eastern Ave WB-T	0.66	51.4	D	137	188	0.81	50.4	D	164	271
	Eastern Ave WB-R	0.88	24.7	C	212	330	0.63	5.6	A	0	69
	YDH NB-L	0.24	52.9	D	20	49	0.19	41.5	D	14	39
	YDH NB-T	0.70	47.0	D	161	199	0.52	35.2	D	96	141
	YDH NB-R	0.07	0.4	A	0	0	0.12	0.7	A	0	0
	YDH SB-L	0.95	67.3	E	328	758	1.18	130.1	F	475	697
	YDH SB-T	0.29	21.6	C	112	227	0.43	18.1	B	126	267
	YDH SB-R	0.23	4.3	A	0	51	0.30	3.3	A	0	47
	Eastern Ave EB-L	0.56	30.2	C	109	135	0.98	82.5	F	97	227
	Eastern Ave EB-T	0.46	29.4	C	138	170	0.60	30.4	C	139	219
	Eastern Ave EB-R	0.11	0.6	A	0	0	0.10	0.5	A	0	0
	Total	0.95	36.2	D			1.18	48.0	D		
Eastern Avenue at E Main Street	E Main St EB - LR	0.32	6.9	A	-	35	0.43	9.0	A	-	56
	E Main St WB -LR	0.26	0.0	A	-	0	0.31	0.0	A	-	0
	Eastern Ave SB - LR	0.73	27.1	D	-	150	0.97	61.4	F	-	315
Webster Street at Friend Street	Webster St SB-TR	0.06	0.0	A	-	0	0.05	0.0	A	-	0
	Webster St NB-LT	0.05	4.5	A	-	4	0.08	4.2	A	-	7
	Friend St EB-LR	0.13	9.4	A	-	11	0.11	9.5	A	-	9
Webster Street at Eastern Avenue	Webster St SB - LR	0.64	29.7	D	-	108	0.84	59.0	F	-	180
	Eastern Ave EB - LT	0.07	2.2	A	-	5	0.07	2.0	A	-	6
	Eastern Ave WB - TR	0.24	0.0	A	-	0	0.35	0.0	A	-	0
Webster Street at VMS Driveway	Webster St SB-LT	0.07	3.6	A	-	5	0.04	3.1	A	-	3
	Webster St NB-TR	0.11	0.0	A	-	0	0.15	0.0	A	-	0
	VMS Dr WB-LR	0.29	12.7	B	-	30	0.35	13.7	B	-	38

¹SB = Southbound, EB = Eastbound, WB = Westbound, L = Left-turn, T = Through movement, R = Right-turn; ²Volume to Capacity Ratio; ³Vehicle Delay, measured in seconds; ⁴Level Of Service; ⁵50th Percentile Queue (in feet); ⁶95th Percentile Queue (in feet) based upon 22 feet per vehicle; # = 95th percentile volume exceeds capacity, queue may be longer; ~ = Volume exceeds capacity, queue is theoretically infinite

7.6 Traffic Signal Warrant Methodology

To quantify if additional mitigation would be necessary at the Site, we performed Traffic Signal Warrant Analyses.

We performed the warrants based on the procedures outlined in the *Manual on Uniform Traffic Control Devices*² (MUTCD), 2009 edition. The MUTCD indicates nine separate conditions under which a traffic signal warrant can be met, and they are shown below.

1. Warrant 1: Eight-Hour Vehicular Volume;
2. Warrant 2: Four-Hour Vehicular Volume;
3. Warrant 3: Peak Hour;
4. Warrant 4: Pedestrian Volume;
5. Warrant 5: School Crossing;
6. Warrant 6: Coordinated Signal System;
7. Warrant 7: Crash Experience;
8. Warrant 8: Roadway Network; and
9. Warrant 9: Intersection Near A Grade Crossing.

7.7 Traffic Signal Warrant

We performed the Signal Warrant Analysis for Eastern Avenue at the Webster Street.

Given the criteria set forth in the MUTCD and the assumptions above, the intersection of Eastern Avenue at Webster Street meets Warrant 3 (One-Hour warrant). None of the other warrants are met for the intersection. However, based on engineering judgement, the peak hour warrant is generally not accepted unless accompanied by an additional warrant. We believe that the recommendations outlined in Section 9.2 would represent the best return on investment with regards to handling the estimated traffic to and from the new Veterans' Memorial School. The Traffic Signal Warrant Analysis is included in Appendix A-5.

² Manual on Uniform Traffic Control Devices for Streets and Highways, 2009 Edition, Federal Highway Administration

8 SIGHT DISTANCE

Stopping Sight Distance (SSD) is the length of the roadway ahead that is visible to the driver and should be sufficiently long to enable a vehicle traveling at or near the design speed to stop before reaching a stationary object in its path. Stopping sight distance is the sum of the distance traversed by the vehicle from the instant the driver sights an object necessitating a stop to the instant the brakes are applied and the distance needed to stop the vehicle from the instant brake application begins.

Intersection Sight Distance (ISD) is the length of the leg of the departure sight triangle along the major road in both directions for a vehicle stopped on the minor road waiting to depart. The critical departure sight triangles for School driveway are for traffic approaching from either the left or right for left turns from the School Driveway onto Webster Street. The methods for determining the sight distances needed by drivers approaching intersections are based on the same principles as stopping sight distance, but incorporate modified assumptions based on observed driver behavior at intersections.

The SSD and ISD values associated with a given design speed are shown in Table 9. The site distance evaluations for the intersection are shown in Table 10.

Table 9 – Sight Distance Criteria

DESIGN SPEED	DESIGN STOPPING SIGHT DISTANCE VALUE ¹ (SSD)	RECOMMENDED INTERSECTION SIGHT DISTANCE VALUE ² (ISD)
(MPH)	(FT)	(FT)
15	80	170
20	115	225
25	155	280
30	200	335
35	250	390
40	305	445
45	360	500
50	425	555
55	495	610
60	570	665
65	645	720
70	730	775
75	820	830
80	910	885
Source: <i>A Policy on Geometric Design of Highways and Streets</i> , AASHTO, Washington DC (2011)		
¹ Design value based on a grade of less than 3%, a brake reaction distance predicted on a time of 2.5 seconds and a deceleration rate of 11.2 ft/s ²		
² Recommended value based on Case B1 - a stopped passenger car to turn left onto a two-lane highway with no median and grades 3% or less		

Webster Street is a School Zone, and the posted speed limit for Webster Street is 20 MPH. We used the posted speed for the sight distance analysis.

As shown in Table 10 both SSD and ISD values at Webster Street exceed the minimum values.

Table 10 – Proposed Sight Distance Evaluation

INTERSECTION	POSTED SPEED (MPH)	MINIMUM (FEET) ^{1,2}	MEASURED (FEET)	OBSTRUCTION
Stopping Sight Distance:				
Webster Street Northbound	20	115	128	
Webster Street Southbound	20	115	250	
Intersection Sight Distance:				
Looking to the right from School Driveway	20	225	300	
Looking to the left from School Driveway	20	225	128	
<i>Source: A Policy on Geometric Design of Highways and Streets, AASHTO, Washington DC (2011)</i> ¹ Table 3-1. Stopping Sight Distance on Level Roadways ² Table 9-6. Design Intersection Sight Distance - Case B1, Left Turn from Stop				

The School Driveway on Webster Street has a clear site distance to the intersection of Eastern Avenue at Webster Street to its left. However, the distance is less than the recommended minimum distances.

9 CONCLUSIONS AND RECOMMENDATION

9.1 Conclusions

Nitsch Engineering has been retained by Dore and Whittier Architects, Inc (D&W) to prepare a qualitative assessment of safety, traffic circulation, and traffic access/egress associated with the schematic design for the proposed new Veterans' Memorial School to be located at the existing school site at 11 Webster Street, in East Gloucester.

This report outlined the existing and proposed traffic volumes, operations, and safety of the adjacent surrounding roadways and intersections; traffic patterns of the existing VMS, including site access/egress, parent and bus pick-up/drop-off, traffic circulation, and parking supply/demand.

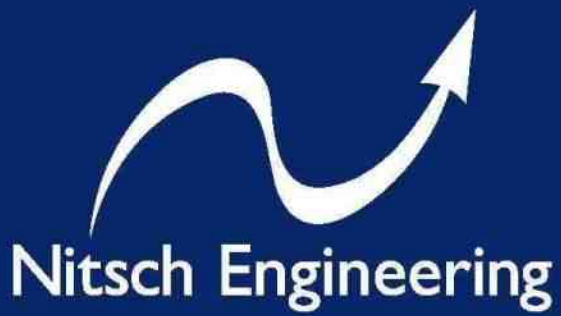
We examined the proposed future conditions with respect to the projected student enrollment of 440 students. This would result in an increase in traffic volumes at the school, and within the study area during the weekday morning drop-off and weekday afternoon pick-up.

The existing roadway network contains heavy traffic volumes and delays during the weekday afternoon peak hours, particularly east of Webster Street, when the new VMS pick-up and drop-off traffic will overlaps slightly with the peak hour of the commuter traffic. To mitigate the impacts, some measures minor geometric improvements may be necessary at the intersection of Webster Street at Eastern Avenue. Nitsch Engineering has outlined recommendations to improve traffic conditions based on the estimated increase in traffic volumes due to the expansion of the student enrollment.

9.2 Recommendations

Based on the proposed Veterans' Memorial School at the existing site, Nitsch Engineering offers the following recommendations:

- The City may consider adding an exclusive left-turn lane on Webster Street SB at the intersection of Webster Street at Eastern Avenue.
- Consider enhancements to pedestrian facilities along Webster Street and Eastern Avenue.
- Provide advanced warning along Webster Street to warn drivers of school entering and exiting traffic.
- Designate the area as a School Zone under State and local statute, and install the appropriate School Zone signs, which can also act as traffic calming devices.
- Reach out to parents via social media to increase safety awareness.



Technical Appendices

New Gloucester Elementary School at
Veterans' Memorial School Site
Gloucester, MA

March 6, 2020

Prepared for:

Dore and Whittier Architects, Inc.
200 Merrimac Street, Building 7, 2nd Floor
Newburyport, MA 01950

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2 Center Plaza, Suite 430
Boston, MA 02108

Nitsch Project #13117.1

CONTENTS

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A-1	Traffic Count Data
A-2	Weekday Seasonal Adjustment Factors
A-3	Crash Data
A-4	Traffic Signal Data
A-5	Warrant Analysis
A-6	Capacity Analysis

Section A-I

Traffic Count Data

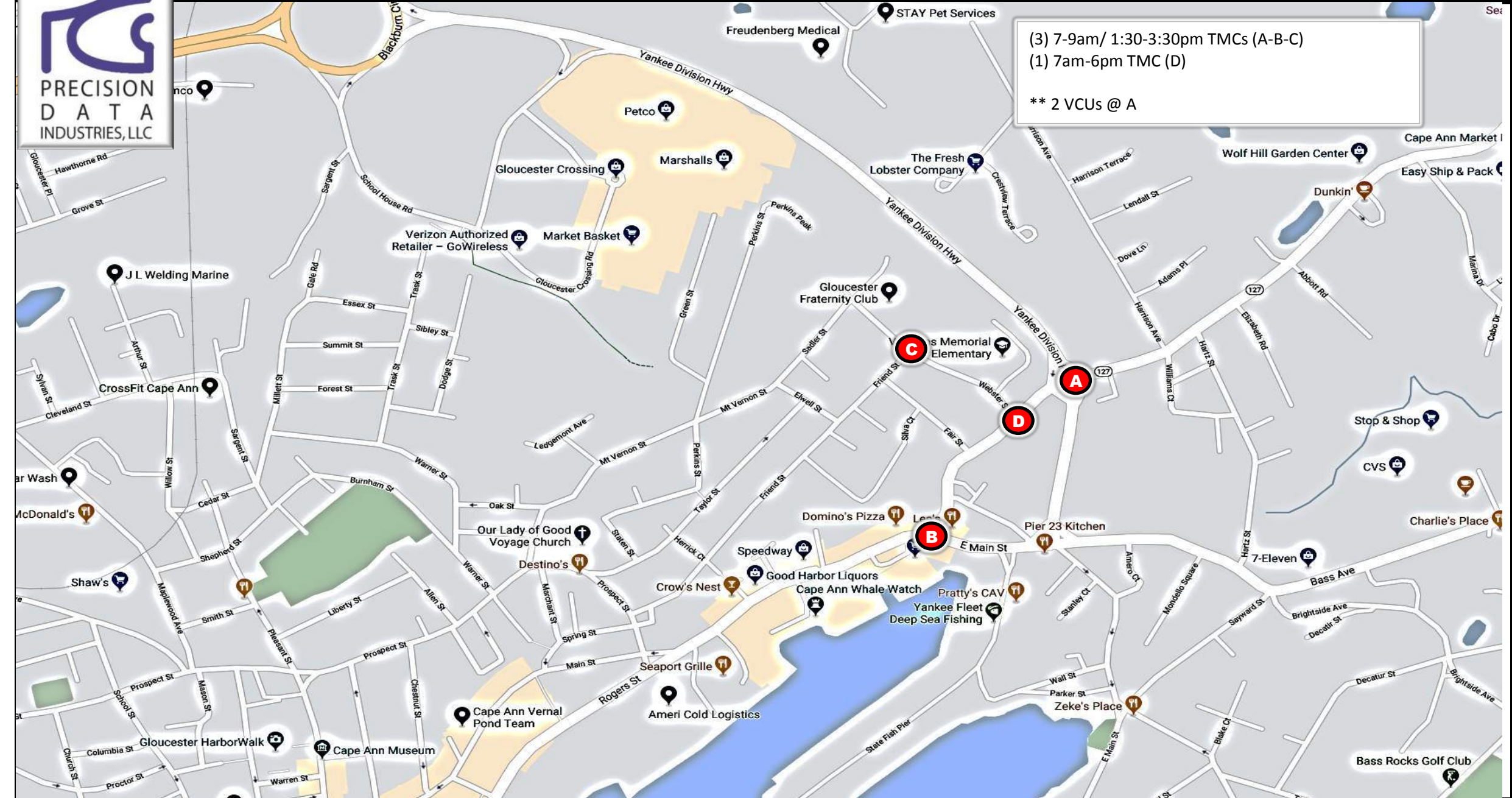


Location Map: 197379 East Gloucester, MA

Precision Data Industries, LLC 46 Morton Street, Framingham, MA 01702 ph: 508-875-0100 email: datarequests@pdillc.com

(3) 7-9am/ 1:30-3:30pm TMCs (A-B-C)
(1) 7am-6pm TMC (D)

** 2 VCUs @ A



Client:
Nitsch

Engineer:
N. Havan

Site Code:
13117.1

Date:
Wed 1/8/2020

PDI Job #
197379

City, State:
East Gloucester, MA

PDI File #: **197379 A**
 Location: **N: Yankee Division Highway (Route 128) S: Yankee Division Highway (Route 128)**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:

Cars and Heavy Vehicles (Combined)

	Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:00 AM	22	31	85	0	138	119	36	7	0	162	6	55	0	0	61	4	28	30	0	62	423
7:15 AM	33	25	77	0	135	152	38	11	0	201	4	92	0	0	96	6	53	38	0	97	529
7:30 AM	28	37	88	0	153	178	29	9	0	216	6	73	3	0	82	4	48	36	0	88	539
7:45 AM	43	46	98	0	187	174	28	7	0	209	8	102	1	0	111	2	45	41	0	88	595
Total	126	139	348	0	613	623	131	34	0	788	24	322	4	0	350	16	174	145	0	335	2086
8:00 AM	24	52	91	0	167	124	38	10	0	172	8	83	3	0	94	6	45	39	0	90	523
8:15 AM	47	58	102	0	207	175	50	13	0	238	6	95	2	0	103	7	47	54	0	108	656
8:30 AM	43	57	103	0	203	122	35	10	0	167	3	92	4	0	99	9	55	32	0	96	565
8:45 AM	37	58	109	0	204	141	41	2	0	184	7	78	2	0	87	3	67	33	0	103	578
Total	151	225	405	0	781	562	164	35	0	761	24	348	11	0	383	25	214	158	0	397	2322
Grand Total	277	364	753	0	1394	1185	295	69	0	1549	48	670	15	0	733	41	388	303	0	732	4408
Approach %	19.9	26.1	54.0	0.0		76.5	19.0	4.5	0.0		6.5	91.4	2.0	0.0		5.6	53.0	41.4	0.0		
Total %	6.3	8.3	17.1	0.0	31.6	26.9	6.7	1.6	0.0	35.1	1.1	15.2	0.3	0.0	16.6	0.9	8.8	6.9	0.0	16.6	
Exiting Leg Total	2158					1189					474					587					4408
Cars	264	339	700	0	1303	1139	279	64	0	1482	43	645	15	0	703	39	374	291	0	704	4192
% Cars	95.3	93.1	93.0	0.0	93.5	96.1	94.6	92.8	0.0	95.7	89.6	96.3	100.0	0.0	95.9	95.1	96.4	96.0	0.0	96.2	95.1
Exiting Leg Total	2075					1117					442					558					4192
Heavy Vehicles	13	25	53	0	91	46	16	5	0	67	5	25	0	0	30	2	14	12	0	28	216
% Heavy Vehicles	4.7	6.9	7.0	0.0	6.5	3.9	5.4	7.2	0.0	4.3	10.4	3.7	0.0	0.0	4.1	4.9	3.6	4.0	0.0	3.8	4.9
Exiting Leg Total	83					72					32					29					216

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:45 AM	43	46	98	0	187	174	28	7	0	209	8	102	1	0	111	2	45	41	0	88	595
8:00 AM	24	52	91	0	167	124	38	10	0	172	8	83	3	0	94	6	45	39	0	90	523
8:15 AM	47	58	102	0	207	175	50	13	0	238	6	95	2	0	103	7	47	54	0	108	656
8:30 AM	43	57	103	0	203	122	35	10	0	167	3	92	4	0	99	9	55	32	0	96	565
Total Volume	157	213	394	0	764	595	151	40	0	786	25	372	10	0	407	24	192	166	0	382	2339
% Approach Total	20.5	27.9	51.6	0.0		75.7	19.2	5.1	0.0		6.1	91.4	2.5	0.0		6.3	50.3	43.5	0.0		
PHF	0.835	0.918	0.956	0.000	0.923	0.850	0.755	0.769	0.000	0.826	0.781	0.912	0.625	0.000	0.917	0.667	0.873	0.769	0.000	0.884	0.891
Cars	152	203	370	0	725	571	144	38	0	753	22	354	10	0	386	22	187	162	0	371	2235
Cars %	96.8	95.3	93.9	0.0	94.9	96.0	95.4	95.0	0.0	95.8	88.0	95.2	100.0	0.0	94.8	91.7	97.4	97.6	0.0	97.1	95.6
Heavy Vehicles	5	10	24	0	39	24	7	2	0	33	3	18	0	0	21	2	5	4	0	11	104
Heavy Vehicles %	3.2	4.7	6.1	0.0	5.1	4.0	4.6	5.0	0.0	4.2	12.0	4.8	0.0	0.0	5.2	8.3	2.6	2.4	0.0	2.9	4.4
Cars Enter Leg	152	203	370	0	725	571	144	38	0	753	22	354	10	0	386	22	187	162	0	371	2235
Heavy Enter Leg	5	10	24	0	39	24	7	2	0	33	3	18	0	0	21	2	5	4	0	11	104
Total Entering Leg	157	213	394	0	764	595	151	40	0	786	25	372	10	0	407	24	192	166	0	382	2339
Cars Exiting Leg	1087					579					263					306					2235
Heavy Exiting Leg	46					32					14					12					104
Total Exiting Leg	1133					611					277					318					2339

PDI File #: **197379 A**
 Location: **N: Yankee Division Highway (Route 128) S: Yankee Division Highway (Route 128)**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:

Cars

	Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:00 AM	19	25	80	0	124	115	32	6	0	153	6	54	0	0	60	4	26	28	0	58	395
7:15 AM	31	23	70	0	124	147	38	9	0	194	4	90	0	0	94	6	49	35	0	90	502
7:30 AM	26	33	81	0	140	171	28	9	0	208	5	72	3	0	80	4	47	35	0	86	514
7:45 AM	41	44	90	0	175	166	28	7	0	201	7	99	1	0	107	1	44	40	0	85	568
Total	117	125	321	0	563	599	126	31	0	756	22	315	4	0	341	15	166	138	0	319	1979
8:00 AM	24	50	88	0	162	120	37	9	0	166	7	76	3	0	86	6	43	39	0	88	502
8:15 AM	47	54	90	0	191	170	45	12	0	227	6	93	2	0	101	6	47	53	0	106	625
8:30 AM	40	55	102	0	197	115	34	10	0	159	2	86	4	0	92	9	53	30	0	92	540
8:45 AM	36	55	99	0	190	135	37	2	0	174	6	75	2	0	83	3	65	31	0	99	546
Total	147	214	379	0	740	540	153	33	0	726	21	330	11	0	362	24	208	153	0	385	2213
Grand Total	264	339	700	0	1303	1139	279	64	0	1482	43	645	15	0	703	39	374	291	0	704	4192
Approach %	20.3	26.0	53.7	0.0		76.9	18.8	4.3	0.0		6.1	91.7	2.1	0.0		5.5	53.1	41.3	0.0		
Total %	6.3	8.1	16.7	0.0	31.1	27.2	6.7	1.5	0.0	35.4	1.0	15.4	0.4	0.0	16.8	0.9	8.9	6.9	0.0	16.8	
Exiting Leg Total	2075					1117					442					558					4192

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:45 AM	41	44	90	0	175	166	28	7	0	201	7	99	1	0	107	1	44	40	0	85	568
8:00 AM	24	50	88	0	162	120	37	9	0	166	7	76	3	0	86	6	43	39	0	88	502
8:15 AM	47	54	90	0	191	170	45	12	0	227	6	93	2	0	101	6	47	53	0	106	625
8:30 AM	40	55	102	0	197	115	34	10	0	159	2	86	4	0	92	9	53	30	0	92	540
Total Volume	152	203	370	0	725	571	144	38	0	753	22	354	10	0	386	22	187	162	0	371	2235
% Approach Total	21.0	28.0	51.0	0.0		75.8	19.1	5.0	0.0		5.7	91.7	2.6	0.0		5.9	50.4	43.7	0.0		
PHF	0.809	0.923	0.907	0.000	0.920	0.840	0.800	0.792	0.000	0.829	0.786	0.894	0.625	0.000	0.902	0.611	0.882	0.764	0.000	0.875	0.894
Entering Leg	152	203	370	0	725	571	144	38	0	753	22	354	10	0	386	22	187	162	0	371	2235
Exiting Leg	1087					579					263					306					2235
Total	1812					1332					649					677					4470

PDI File #: **197379 A**
 Location: **N: Yankee Division Highway (Route 128) S: Yankee Division Highway (Route 128)**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:00 AM	3	6	5	0	14	4	4	1	0	9	0	1	0	0	1	0	2	2	0	4	28
7:15 AM	2	2	7	0	11	5	0	2	0	7	0	2	0	0	2	0	4	3	0	7	27
7:30 AM	2	4	7	0	13	7	1	0	0	8	1	1	0	0	2	0	1	1	0	2	25
7:45 AM	2	2	8	0	12	8	0	0	0	8	1	3	0	0	4	1	1	1	0	3	27
Total	9	14	27	0	50	24	5	3	0	32	2	7	0	0	9	1	8	7	0	16	107
8:00 AM	0	2	3	0	5	4	1	1	0	6	1	7	0	0	8	0	2	0	0	2	21
8:15 AM	0	4	12	0	16	5	5	1	0	11	0	2	0	0	2	1	0	1	0	2	31
8:30 AM	3	2	1	0	6	7	1	0	0	8	1	6	0	0	7	0	2	2	0	4	25
8:45 AM	1	3	10	0	14	6	4	0	0	10	1	3	0	0	4	0	2	2	0	4	32
Total	4	11	26	0	41	22	11	2	0	35	3	18	0	0	21	1	6	5	0	12	109
Grand Total	13	25	53	0	91	46	16	5	0	67	5	25	0	0	30	2	14	12	0	28	216
Approach %	14.3	27.5	58.2	0.0		68.7	23.9	7.5	0.0		16.7	83.3	0.0	0.0		7.1	50.0	42.9	0.0		
Total %	6.0	11.6	24.5	0.0	42.1	21.3	7.4	2.3	0.0	31.0	2.3	11.6	0.0	0.0	13.9	0.9	6.5	5.6	0.0	13.0	
Exiting Leg Total	83					72					32					29					216
Buses	6	3	10	0	19	16	6	1	0	23	0	3	0	0	3	1	6	7	0	14	59
% Buses	46.2	12.0	18.9	0.0	20.9	34.8	37.5	20.0	0.0	34.3	0.0	12.0	0.0	0.0	10.0	50.0	42.9	58.3	0.0	50.0	27.3
Exiting Leg Total	26					16					5					12					59
Single-Unit Trucks	6	17	32	0	55	21	10	4	0	35	3	17	0	0	20	1	8	5	0	14	124
% Single-Unit	46.2	68.0	60.4	0.0	60.4	45.7	62.5	80.0	0.0	52.2	60.0	68.0	0.0	0.0	66.7	50.0	57.1	41.7	0.0	50.0	57.4
Exiting Leg Total	43					43					22					16					124
Articulated Trucks	1	5	11	0	17	9	0	0	0	9	2	5	0	0	7	0	0	0	0	0	33
% Articulated	7.7	20.0	20.8	0.0	18.7	19.6	0.0	0.0	0.0	13.4	40.0	20.0	0.0	0.0	23.3	0.0	0.0	0.0	0.0	0.0	15.3
Exiting Leg Total	14					13					5					1					33

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
8:00 AM	0	2	3	0	5	4	1	1	0	6	1	7	0	0	8	0	2	0	0	2	21
8:15 AM	0	4	12	0	16	5	5	1	0	11	0	2	0	0	2	1	0	1	0	2	31
8:30 AM	3	2	1	0	6	7	1	0	0	8	1	6	0	0	7	0	2	2	0	4	25
8:45 AM	1	3	10	0	14	6	4	0	0	10	1	3	0	0	4	0	2	2	0	4	32
Total Volume	4	11	26	0	41	22	11	2	0	35	3	18	0	0	21	1	6	5	0	12	109
% Approach Total	9.8	26.8	63.4	0.0		62.9	31.4	5.7	0.0		14.3	85.7	0.0	0.0		8.3	50.0	41.7	0.0		
PHF	0.333	0.688	0.542	0.000	0.641	0.786	0.550	0.500	0.000	0.795	0.750	0.643	0.000	0.000	0.656	0.250	0.750	0.625	0.000	0.750	0.852
Buses	3	1	3	0	7	7	3	0	0	10	0	2	0	0	2	1	3	2	0	6	25
Buses %	75.0	9.1	11.5	0.0	17.1	31.8	27.3	0.0	0.0	28.6	0.0	11.1	0.0	0.0	9.5	100.0	50.0	40.0	0.0	50.0	22.9
Single-Unit Trucks	1	9	17	0	27	9	8	2	0	19	1	13	0	0	14	0	3	3	0	6	66
Single-Unit %	25.0	81.8	65.4	0.0	65.9	40.9	72.7	100.0	0.0	54.3	33.3	72.2	0.0	0.0	66.7	0.0	50.0	60.0	0.0	50.0	60.6
Articulated Trucks	0	1	6	0	7	6	0	0	0	6	2	3	0	0	5	0	0	0	0	0	18
Articulated %	0.0	9.1	23.1	0.0	17.1	27.3	0.0	0.0	0.0	17.1	66.7	16.7	0.0	0.0	23.8	0.0	0.0	0.0	0.0	0.0	16.5
Buses	3	1	3	0	7	7	3	0	0	10	0	2	0	0	2	1	3	2	0	6	25
Single-Unit Trucks	1	9	17	0	27	9	8	2	0	19	1	13	0	0	14	0	3	3	0	6	66
Articulated Trucks	0	1	6	0	7	6	0	0	0	6	2	3	0	0	5	0	0	0	0	0	18
Total Entering Leg	4	11	26	0	41	22	11	2	0	35	3	18	0	0	21	1	6	5	0	12	109
Buses	11					6					2					6					25
Single-Unit Trucks	25					21					11					9					66
Articulated Trucks	9					8					1					0					18
Total Exiting Leg	45					35					14					15					109

PDI File #: **197379 A**
 Location: **N: Yankee Division Highway (Route 128) S: Yankee Division Highway (Route 128)**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:

Buses

	Yankee Division Highway (Route 128)						Eastern Avenue (Route 127)						Yankee Division Highway (Route 128)						Eastern Avenue (Route 127)						
	from North						from East						from South						from West						
	Right	Thru	Left	U-Turn	Total		Right	Thru	Left	U-Turn	Total		Right	Thru	Left	U-Turn	Total		Right	Thru	Left	U-Turn	Total	Total	
7:00 AM	1	2	2	0	5		2	2	0	0	4		0	0	0	0	0		0	0	2	0	2	11	
7:15 AM	0	0	0	0	0		2	0	1	0	3		0	0	0	0	0		0	2	2	0	4	7	
7:30 AM	1	0	4	0	5		3	1	0	0	4		0	0	0	0	0		0	1	1	0	2	11	
7:45 AM	1	0	1	0	2		2	0	0	0	2		0	1	0	0	1		0	0	0	0	0	5	
Total	3	2	7	0	12		9	3	1	0	13		0	1	0	0	1		0	3	5	0	8	34	
8:00 AM	0	0	0	0	0		1	1	0	0	2		0	1	0	0	1		0	1	0	0	1	4	
8:15 AM	0	1	0	0	1		2	1	0	0	3		0	1	0	0	1		1	0	0	0	1	6	
8:30 AM	2	0	0	0	2		2	0	0	0	2		0	0	0	0	0		0	0	1	0	1	5	
8:45 AM	1	0	3	0	4		2	1	0	0	3		0	0	0	0	0		0	2	1	0	3	10	
Total	3	1	3	0	7		7	3	0	0	10		0	2	0	0	2		1	3	2	0	6	25	
Grand Total	6	3	10	0	19		16	6	1	0	23		0	3	0	0	3		1	6	7	0	14	59	
Approach %	31.6	15.8	52.6	0.0			69.6	26.1	4.3	0.0			0.0	100.0	0.0	0.0			7.1	42.9	50.0	0.0			
Total %	10.2	5.1	16.9	0.0	32.2		27.1	10.2	1.7	0.0	39.0		0.0	5.1	0.0	0.0	5.1		1.7	10.2	11.9	0.0	23.7		
Exiting Leg Total	26						16						5						12						59

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:00 AM	1	2	2	0	5	2	2	0	0	4	0	0	0	0	0	0	0	2	0	2	11
7:15 AM	0	0	0	0	0	2	0	1	0	3	0	0	0	0	0	0	2	2	0	4	7
7:30 AM	1	0	4	0	5	3	1	0	0	4	0	0	0	0	0	0	1	1	0	2	11
7:45 AM	1	0	1	0	2	2	0	0	0	2	0	1	0	0	1	0	0	0	0	0	5
Total Volume	3	2	7	0	12	9	3	1	0	13	0	1	0	0	1	0	3	5	0	8	34
% Approach Total	25.0	16.7	58.3	0.0		69.2	23.1	7.7	0.0		0.0	100.0	0.0	0.0		0.0	37.5	62.5	0.0		
PHF	0.750	0.250	0.438	0.000	0.600	0.750	0.375	0.250	0.000	0.813	0.000	0.250	0.000	0.000	0.250	0.000	0.375	0.625	0.000	0.500	0.773
Entering Leg	3	2	7	0	12	9	3	1	0	13	0	1	0	0	1	0	3	5	0	8	34
Exiting Leg	15					10					3					6					34
Total	27					23					4					14					68

PDI File #: **197379 A**
 Location: **N: Yankee Division Highway (Route 128) S: Yankee Division Highway (Route 128)**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:

Single-Unit Trucks

	Yankee Division Highway (Route 128)						Eastern Avenue (Route 127)						Yankee Division Highway (Route 128)						Eastern Avenue (Route 127)						Total
	from North						from East						from South						from West						
	Right	Thru	Left	U-Turn	Total		Right	Thru	Left	U-Turn	Total		Right	Thru	Left	U-Turn	Total		Right	Thru	Left	U-Turn	Total		
7:00 AM	2	2	3	0	7		1	2	1	0	4		0	1	0	0	1		0	2	0	0	2		14
7:15 AM	1	1	6	0	8		3	0	1	0	4		0	2	0	0	2		0	2	1	0	3		17
7:30 AM	1	3	1	0	5		3	0	0	0	3		1	1	0	0	2		0	0	0	0	0		10
7:45 AM	1	2	5	0	8		5	0	0	0	5		1	0	0	0	1		1	1	1	0	3		17
Total	5	8	15	0	28		12	2	2	0	16		2	4	0	0	6		1	5	2	0	8		58
8:00 AM	0	2	3	0	5		3	0	1	0	4		0	6	0	0	6		0	1	0	0	1		16
8:15 AM	0	3	7	0	10		2	4	1	0	7		0	1	0	0	1		0	0	1	0	1		19
8:30 AM	1	1	0	0	2		1	1	0	0	2		0	5	0	0	5		0	2	1	0	3		12
8:45 AM	0	3	7	0	10		3	3	0	0	6		1	1	0	0	2		0	0	1	0	1		19
Total	1	9	17	0	27		9	8	2	0	19		1	13	0	0	14		0	3	3	0	6		66
Grand Total	6	17	32	0	55		21	10	4	0	35		3	17	0	0	20		1	8	5	0	14		124
Approach %	10.9	30.9	58.2	0.0			60.0	28.6	11.4	0.0			15.0	85.0	0.0	0.0			7.1	57.1	35.7	0.0			
Total %	4.8	13.7	25.8	0.0	44.4		16.9	8.1	3.2	0.0	28.2		2.4	13.7	0.0	0.0	16.1		0.8	6.5	4.0	0.0	11.3		
Exiting Leg Total	43						43						22						16						124

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
8:00 AM	0	2	3	0	5	3	0	1	0	4	0	6	0	0	6	0	1	0	0	1	16
8:15 AM	0	3	7	0	10	2	4	1	0	7	0	1	0	0	1	0	0	1	0	1	19
8:30 AM	1	1	0	0	2	1	1	0	0	2	0	5	0	0	5	0	2	1	0	3	12
8:45 AM	0	3	7	0	10	3	3	0	0	6	1	1	0	0	2	0	0	1	0	1	19
Total Volume	1	9	17	0	27	9	8	2	0	19	1	13	0	0	14	0	3	3	0	6	66
% Approach Total	3.7	33.3	63.0	0.0		47.4	42.1	10.5	0.0		7.1	92.9	0.0	0.0		0.0	50.0	50.0	0.0		
PHF	0.250	0.750	0.607	0.000	0.675	0.750	0.500	0.500	0.000	0.679	0.250	0.542	0.000	0.000	0.583	0.000	0.375	0.750	0.000	0.500	0.868
Entering Leg	1	9	17	0	27	9	8	2	0	19	1	13	0	0	14	0	3	3	0	6	66
Exiting Leg	25					21					11					9					66
Total	52					40					25					15					132

PDI File #: **197379 A**
 Location: **N: Yankee Division Highway (Route 128) S: Yankee Division Highway (Route 128)**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:

Articulated Trucks

	Yankee Division Highway (Route 128)						Eastern Avenue (Route 127)						Yankee Division Highway (Route 128)						Eastern Avenue (Route 127)						Total
	from North						from East						from South						from West						
	Right	Thru	Left	U-Turn	Total		Right	Thru	Left	U-Turn	Total		Right	Thru	Left	U-Turn	Total		Right	Thru	Left	U-Turn	Total		
7:00 AM	0	2	0	0	2		1	0	0	0	1		0	0	0	0	0		0	0	0	0	0	3	
7:15 AM	1	1	1	0	3		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	3	
7:30 AM	0	1	2	0	3		1	0	0	0	1		0	0	0	0	0		0	0	0	0	0	4	
7:45 AM	0	0	2	0	2		1	0	0	0	1		0	2	0	0	2		0	0	0	0	0	5	
Total	1	4	5	0	10		3	0	0	0	3		0	2	0	0	2		0	0	0	0	0	15	
8:00 AM	0	0	0	0	0		0	0	0	0	0		1	0	0	0	1		0	0	0	0	0	1	
8:15 AM	0	0	5	0	5		1	0	0	0	1		0	0	0	0	0		0	0	0	0	0	6	
8:30 AM	0	1	1	0	2		4	0	0	0	4		1	1	0	0	2		0	0	0	0	0	8	
8:45 AM	0	0	0	0	0		1	0	0	0	1		0	2	0	0	2		0	0	0	0	0	3	
Total	0	1	6	0	7		6	0	0	0	6		2	3	0	0	5		0	0	0	0	0	18	
Grand Total	1	5	11	0	17		9	0	0	0	9		2	5	0	0	7		0	0	0	0	0	33	
Approach %	5.9	29.4	64.7	0.0			100.0	0.0	0.0	0.0			28.6	71.4	0.0	0.0			0.0	0.0	0.0	0.0			
Total %	3.0	15.2	33.3	0.0	51.5		27.3	0.0	0.0	0.0	27.3		6.1	15.2	0.0	0.0	21.2		0.0	0.0	0.0	0.0	0.0		
Exiting Leg Total	14						13						5						1						33

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:45 AM	0	0	2	0	2	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	5
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
8:15 AM	0	0	5	0	5	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	6
8:30 AM	0	1	1	0	2	4	0	0	0	4	1	1	0	0	2	0	0	0	0	0	8
Total Volume	0	1	8	0	9	6	0	0	0	6	2	3	0	0	5	0	0	0	0	0	20
% Approach Total	0.0	11.1	88.9	0.0		100.0	0.0	0.0	0.0		40.0	60.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.250	0.400	0.000	0.450	0.375	0.000	0.000	0.000	0.375	0.500	0.375	0.000	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.625
Entering Leg	0	1	8	0	9	6	0	0	0	6	2	3	0	0	5	0	0	0	0	0	20
Exiting Leg	9					10					1					0					20
Total	18					16					6					0					40

PDI File #: **197379 A**
 Location: **N: Yankee Division Highway (Route 128) S: Yankee Division Highway (Route 128)**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:

Bicycles (on Roadway and Crosswalks)

	Yankee Division Highway (Route 128)							Eastern Avenue (Route 127)							Yankee Division Highway (Route 128)							Eastern Avenue (Route 127)								
	from North							from East							from South							from West								
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total		Total
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
Approach %	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	100.0		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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Exiting Leg Total	0							0							1							0							1	

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Yankee Division Highway (Route 128)							Eastern Avenue (Route 127)							Yankee Division Highway (Route 128)							Eastern Avenue (Route 127)								
	from North							from East							from South							from West								
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total	
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	100.0		0.0	0.0	0.0	0.0	0.0	0.0			
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	
Exiting Leg	0							0							1							0							1	
Total	0							0							2							0							2	

PDI File #: **197379 A**
 Location: **N: Yankee Division Highway (Route 128) S: Yankee Division Highway (Route 128)**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:

Pedestrians

	Yankee Division Highway (Route 128)							Eastern Avenue (Route 127)							Yankee Division Highway (Route 128)							Eastern Avenue (Route 127)							
	from North							from East							from South							from West							Total
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
7:00 AM	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:00 AM	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	3
Total	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	4
Grand Total	0	0	0	0	3	1	4	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	6
Approach %	0	0	0	0	75	25		0	0	0	0	0	0	0	0	0	0	0	100		0	0	0	0	0	0	0		
Total %	0	0	0	0	50	16.7	66.7	0	0	0	0	0	0	0	0	0	0	0	33.3	33.3	0	0	0	0	0	0	0		
Exiting Leg Total	4							0							2							0							6

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

	Yankee Division Highway (Route 128)							Eastern Avenue (Route 127)							Yankee Division Highway (Route 128)							Eastern Avenue (Route 127)							
	from North							from East							from South							from West							Total
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
8:00 AM	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	3
Total Volume	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	4
% Approach Total	0.0	0.0	0.0	0.0	100.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	100.0		0.0	0.0	0.0	0.0	0.0	0.0			
PHF	0.000	0.000	0.000	0.000	0.500	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.333	
Entering Leg	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	4
Exiting Leg	2							0							2							0							4
Total	4							0							4							0							8

PDI File #: **197379 AA**
 Location: **N: Yankee Division Highway (Route 128) S: Yankee Division Highway (Route 128)**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **1:30 PM**
 End Time: **3:30 PM**
 Class:

Cars and Heavy Vehicles (Combined)

	Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
1:30 PM	49	55	87	0	191	85	49	16	0	150	6	60	1	0	67	8	62	46	0	116	524
1:45 PM	44	57	121	0	222	101	53	19	0	173	12	62	1	0	75	7	47	39	0	93	563
Total	93	112	208	0	413	186	102	35	0	323	18	122	2	0	142	15	109	85	0	209	1087
2:00 PM	46	64	118	0	228	115	51	2	0	168	6	82	1	0	89	4	54	46	0	104	589
2:15 PM	50	84	119	0	253	117	43	6	0	166	5	78	1	0	84	8	87	55	0	150	653
2:30 PM	60	75	120	0	255	109	62	12	0	183	8	73	2	0	83	5	68	48	0	121	642
2:45 PM	59	72	134	0	265	108	57	6	0	171	12	78	9	0	99	4	48	43	0	95	630
Total	215	295	491	0	1001	449	213	26	0	688	31	311	13	0	355	21	257	192	0	470	2514
3:00 PM	49	95	144	0	288	94	54	8	0	156	8	62	4	0	74	11	56	52	0	119	637
3:15 PM	51	85	138	0	274	140	67	11	0	218	10	76	0	0	86	4	58	39	0	101	679
Total	100	180	282	0	562	234	121	19	0	374	18	138	4	0	160	15	114	91	0	220	1316
Grand Total	408	587	981	0	1976	869	436	80	0	1385	67	571	19	0	657	51	480	368	0	899	4917
Approach %	20.6	29.7	49.6	0.0		62.7	31.5	5.8	0.0		10.2	86.9	2.9	0.0		5.7	53.4	40.9	0.0		
Total %	8.3	11.9	20.0	0.0	40.2	17.7	8.9	1.6	0.0	28.2	1.4	11.6	0.4	0.0	13.4	1.0	9.8	7.5	0.0	18.3	
Exiting Leg Total	1808					1528					718					863					4917
Cars	394	565	956	0	1915	827	425	79	0	1331	60	546	19	0	625	47	464	354	0	865	4736
% Cars	96.6	96.3	97.5	0.0	96.9	95.2	97.5	98.8	0.0	96.1	89.6	95.6	100.0	0.0	95.1	92.2	96.7	96.2	0.0	96.2	96.3
Exiting Leg Total	1727					1480					691					838					4736
Heavy Vehicles	14	22	25	0	61	42	11	1	0	54	7	25	0	0	32	4	16	14	0	34	181
% Heavy Vehicles	3.4	3.7	2.5	0.0	3.1	4.8	2.5	1.3	0.0	3.9	10.4	4.4	0.0	0.0	4.9	7.8	3.3	3.8	0.0	3.8	3.7
Exiting Leg Total	81					48					27					25					181

Peak Hour Analysis from 01:30 PM to 03:30 PM begins at:

2:30 PM	Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
2:30 PM	60	75	120	0	255	109	62	12	0	183	8	73	2	0	83	5	68	48	0	121	642
2:45 PM	59	72	134	0	265	108	57	6	0	171	12	78	9	0	99	4	48	43	0	95	630
3:00 PM	49	95	144	0	288	94	54	8	0	156	8	62	4	0	74	11	56	52	0	119	637
3:15 PM	51	85	138	0	274	140	67	11	0	218	10	76	0	0	86	4	58	39	0	101	679
Total Volume	219	327	536	0	1082	451	240	37	0	728	38	289	15	0	342	24	230	182	0	436	2588
% Approach Total	20.2	30.2	49.5	0.0		62.0	33.0	5.1	0.0		11.1	84.5	4.4	0.0		5.5	52.8	41.7	0.0		
PHF	0.913	0.861	0.931	0.000	0.939	0.805	0.896	0.771	0.000	0.835	0.792	0.926	0.417	0.000	0.864	0.545	0.846	0.875	0.000	0.901	0.953
Cars	210	317	525	0	1052	431	235	36	0	702	33	278	15	0	326	22	221	177	0	420	2500
Cars %	95.9	96.9	97.9	0.0	97.2	95.6	97.9	97.3	0.0	96.4	86.8	96.2	100.0	0.0	95.3	91.7	96.1	97.3	0.0	96.3	96.6
Heavy Vehicles	9	10	11	0	30	20	5	1	0	26	5	11	0	0	16	2	9	5	0	16	88
Heavy Vehicles %	4.1	3.1	2.1	0.0	2.8	4.4	2.1	2.7	0.0	3.6	13.2	3.8	0.0	0.0	4.7	8.3	3.9	2.7	0.0	3.7	3.4
Cars Enter Leg	210	317	525	0	1052	431	235	36	0	702	33	278	15	0	326	22	221	177	0	420	2500
Heavy Enter Leg	9	10	11	0	30	20	5	1	0	26	5	11	0	0	16	2	9	5	0	16	88
Total Entering Leg	219	327	536	0	1082	451	240	37	0	728	38	289	15	0	342	24	230	182	0	436	2588
Cars Exiting Leg	886					779					375					460					2500
Heavy Exiting Leg	36					25					13					14					88
Total Exiting Leg	922					804					388					474					2588

PDI File #: **197379 AA**
 Location: **N: Yankee Division Highway (Route 128) S: Yankee Division Highway (Route 128)**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **1:30 PM**
 End Time: **3:30 PM**
 Class:

Cars

	Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
1:30 PM	48	50	85	0	183	77	47	16	0	140	6	56	1	0	63	8	60	44	0	112	498
1:45 PM	44	56	115	0	215	96	51	19	0	166	11	60	1	0	72	5	46	36	0	87	540
Total	92	106	200	0	398	173	98	35	0	306	17	116	2	0	135	13	106	80	0	199	1038
2:00 PM	44	62	115	0	221	114	50	2	0	166	6	79	1	0	86	4	53	44	0	101	574
2:15 PM	48	80	116	0	244	109	42	6	0	157	4	73	1	0	78	8	84	53	0	145	624
2:30 PM	58	71	119	0	248	107	62	12	0	181	7	69	2	0	78	5	68	48	0	121	628
2:45 PM	57	72	130	0	259	101	55	6	0	162	11	75	9	0	95	4	46	43	0	93	609
Total	207	285	480	0	972	431	209	26	0	666	28	296	13	0	337	21	251	188	0	460	2435
3:00 PM	45	90	141	0	276	88	53	7	0	148	6	62	4	0	72	10	52	47	0	109	605
3:15 PM	50	84	135	0	269	135	65	11	0	211	9	72	0	0	81	3	55	39	0	97	658
Total	95	174	276	0	545	223	118	18	0	359	15	134	4	0	153	13	107	86	0	206	1263
Grand Total	394	565	956	0	1915	827	425	79	0	1331	60	546	19	0	625	47	464	354	0	865	4736
Approach %	20.6	29.5	49.9	0.0		62.1	31.9	5.9	0.0		9.6	87.4	3.0	0.0		5.4	53.6	40.9	0.0		
Total %	8.3	11.9	20.2	0.0	40.4	17.5	9.0	1.7	0.0	28.1	1.3	11.5	0.4	0.0	13.2	1.0	9.8	7.5	0.0	18.3	
Exiting Leg Total	1727					1480					691					838					4736

Peak Hour Analysis from 01:30 PM to 03:30 PM begins at:

2:30 PM	Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
2:30 PM	58	71	119	0	248	107	62	12	0	181	7	69	2	0	78	5	68	48	0	121	628
2:45 PM	57	72	130	0	259	101	55	6	0	162	11	75	9	0	95	4	46	43	0	93	609
3:00 PM	45	90	141	0	276	88	53	7	0	148	6	62	4	0	72	10	52	47	0	109	605
3:15 PM	50	84	135	0	269	135	65	11	0	211	9	72	0	0	81	3	55	39	0	97	658
Total Volume	210	317	525	0	1052	431	235	36	0	702	33	278	15	0	326	22	221	177	0	420	2500
% Approach Total	20.0	30.1	49.9	0.0		61.4	33.5	5.1	0.0		10.1	85.3	4.6	0.0		5.2	52.6	42.1	0.0		
PHF	0.905	0.881	0.931	0.000	0.953	0.798	0.904	0.750	0.000	0.832	0.750	0.927	0.417	0.000	0.858	0.550	0.813	0.922	0.000	0.868	0.950
Entering Leg	210	317	525	0	1052	431	235	36	0	702	33	278	15	0	326	22	221	177	0	420	2500
Exiting Leg	886					779					375					460					2500
Total	1938					1481					701					880					5000

PDI File #: **197379 AA**
 Location: **N: Yankee Division Highway (Route 128) S: Yankee Division Highway (Route 128)**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **1:30 PM**
 End Time: **3:30 PM**
 Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
1:30 PM	1	5	2	0	8	8	2	0	0	10	0	4	0	0	4	0	2	2	0	4	26
1:45 PM	0	1	6	0	7	5	2	0	0	7	1	2	0	0	3	2	1	3	0	6	23
Total	1	6	8	0	15	13	4	0	0	17	1	6	0	0	7	2	3	5	0	10	49
2:00 PM	2	2	3	0	7	1	1	0	0	2	0	3	0	0	3	0	1	2	0	3	15
2:15 PM	2	4	3	0	9	8	1	0	0	9	1	5	0	0	6	0	3	2	0	5	29
2:30 PM	2	4	1	0	7	2	0	0	0	2	1	4	0	0	5	0	0	0	0	0	14
2:45 PM	2	0	4	0	6	7	2	0	0	9	1	3	0	0	4	0	2	0	0	2	21
Total	8	10	11	0	29	18	4	0	0	22	3	15	0	0	18	0	6	4	0	10	79
3:00 PM	4	5	3	0	12	6	1	1	0	8	2	0	0	0	2	1	4	5	0	10	32
3:15 PM	1	1	3	0	5	5	2	0	0	7	1	4	0	0	5	1	3	0	0	4	21
Total	5	6	6	0	17	11	3	1	0	15	3	4	0	0	7	2	7	5	0	14	53
Grand Total	14	22	25	0	61	42	11	1	0	54	7	25	0	0	32	4	16	14	0	34	181
Approach %	23.0	36.1	41.0	0.0		77.8	20.4	1.9	0.0		21.9	78.1	0.0	0.0		11.8	47.1	41.2	0.0		
Total %	7.7	12.2	13.8	0.0	33.7	23.2	6.1	0.6	0.0	29.8	3.9	13.8	0.0	0.0	17.7	2.2	8.8	7.7	0.0	18.8	
Exiting Leg Total	81					48					27					25					181
Buses	7	3	8	0	18	11	7	0	0	18	3	8	0	0	11	3	4	5	0	12	59
% Buses	50.0	13.6	32.0	0.0	29.5	26.2	63.6	0.0	0.0	33.3	42.9	32.0	0.0	0.0	34.4	75.0	25.0	35.7	0.0	35.3	32.6
Exiting Leg Total	24					15					6					14					59
Single-Unit Trucks	7	14	14	0	35	23	4	1	0	28	4	13	0	0	17	1	12	9	0	22	102
% Single-Unit	50.0	63.6	56.0	0.0	57.4	54.8	36.4	100.0	0.0	51.9	57.1	52.0	0.0	0.0	53.1	25.0	75.0	64.3	0.0	64.7	56.4
Exiting Leg Total	45					30					16					11					102
Articulated Trucks	0	5	3	0	8	8	0	0	0	8	0	4	0	0	4	0	0	0	0	0	20
% Articulated	0.0	22.7	12.0	0.0	13.1	19.0	0.0	0.0	0.0	14.8	0.0	16.0	0.0	0.0	12.5	0.0	0.0	0.0	0.0	0.0	11.0
Exiting Leg Total	12					3					5					0					20

Peak Hour Analysis from 01:30 PM to 03:30 PM begins at:

	Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
2:15 PM	2	4	3	0	9	8	1	0	0	9	1	5	0	0	6	0	3	2	0	5	29
2:30 PM	2	4	1	0	7	2	0	0	0	2	1	4	0	0	5	0	0	0	0	0	14
2:45 PM	2	0	4	0	6	7	2	0	0	9	1	3	0	0	4	0	2	0	0	2	21
3:00 PM	4	5	3	0	12	6	1	1	0	8	2	0	0	0	2	1	4	5	0	10	32
Total Volume	10	13	11	0	34	23	4	1	0	28	5	12	0	0	17	1	9	7	0	17	96
% Approach Total	29.4	38.2	32.4	0.0		82.1	14.3	3.6	0.0		29.4	70.6	0.0	0.0		5.9	52.9	41.2	0.0		
PHF	0.625	0.650	0.688	0.000	0.708	0.719	0.500	0.250	0.000	0.778	0.625	0.600	0.000	0.000	0.708	0.250	0.563	0.350	0.000	0.425	0.750
Buses	5	2	5	0	12	4	3	0	0	7	3	4	0	0	7	1	3	3	0	7	33
Buses %	50.0	15.4	45.5	0.0	35.3	17.4	75.0	0.0	0.0	25.0	60.0	33.3	0.0	0.0	41.2	100.0	33.3	42.9	0.0	41.2	34.4
Single-Unit Trucks	5	7	6	0	18	13	1	1	0	15	2	6	0	0	8	0	6	4	0	10	51
Single-Unit %	50.0	53.8	54.5	0.0	52.9	56.5	25.0	100.0	0.0	53.6	40.0	50.0	0.0	0.0	47.1	0.0	66.7	57.1	0.0	58.8	53.1
Articulated Trucks	0	4	0	0	4	6	0	0	0	6	0	2	0	0	2	0	0	0	0	0	12
Articulated %	0.0	30.8	0.0	0.0	11.8	26.1	0.0	0.0	0.0	21.4	0.0	16.7	0.0	0.0	11.8	0.0	0.0	0.0	0.0	0.0	12.5
Buses	5	2	5	0	12	4	3	0	0	7	3	4	0	0	7	1	3	3	0	7	33
Single-Unit Trucks	5	7	6	0	18	13	1	1	0	15	2	6	0	0	8	0	6	4	0	10	51
Articulated Trucks	0	4	0	0	4	6	0	0	0	6	0	2	0	0	2	0	0	0	0	0	12
Total Entering Leg	10	13	11	0	34	23	4	1	0	28	5	12	0	0	17	1	9	7	0	17	96
Buses	11					11					3					8					33
Single-Unit Trucks	23					14					8					6					51
Articulated Trucks	8					0					4					0					12
Total Exiting Leg	42					25					15					14					96

PDI File #: **197379 AA**
 Location: **N: Yankee Division Highway (Route 128) S: Yankee Division Highway (Route 128)**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **1:30 PM**
 End Time: **3:30 PM**
 Class:

Buses

	Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
1:30 PM	1	1	1	0	3	4	2	0	0	6	0	1	0	0	1	0	1	0	0	1	11
1:45 PM	0	0	0	0	0	2	1	0	0	3	0	1	0	0	1	1	0	0	0	1	5
Total	1	1	1	0	3	6	3	0	0	9	0	2	0	0	2	1	1	0	0	2	16
2:00 PM	1	0	2	0	3	1	1	0	0	2	0	1	0	0	1	0	0	2	0	2	8
2:15 PM	1	1	3	0	5	0	0	0	0	0	1	2	0	0	3	0	2	1	0	3	11
2:30 PM	1	1	0	0	2	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	4
2:45 PM	2	0	0	0	2	1	2	0	0	3	1	1	0	0	2	0	0	0	0	0	7
Total	5	2	5	0	12	2	3	0	0	5	3	5	0	0	8	0	2	3	0	5	30
3:00 PM	1	0	2	0	3	3	1	0	0	4	0	0	0	0	0	1	1	2	0	4	11
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	2
Total	1	0	2	0	3	3	1	0	0	4	0	1	0	0	1	2	1	2	0	5	13
Grand Total	7	3	8	0	18	11	7	0	0	18	3	8	0	0	11	3	4	5	0	12	59
Approach %	38.9	16.7	44.4	0.0		61.1	38.9	0.0	0.0		27.3	72.7	0.0	0.0		25.0	33.3	41.7	0.0		
Total %	11.9	5.1	13.6	0.0	30.5	18.6	11.9	0.0	0.0	30.5	5.1	13.6	0.0	0.0	18.6	5.1	6.8	8.5	0.0	20.3	
Exiting Leg Total	24					15					6					14					59

Peak Hour Analysis from 01:30 PM to 03:30 PM begins at:

1:30 PM	Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
1:30 PM	1	1	1	0	3	4	2	0	0	6	0	1	0	0	1	0	1	0	0	1	11
1:45 PM	0	0	0	0	0	2	1	0	0	3	0	1	0	0	1	1	0	0	0	1	5
2:00 PM	1	0	2	0	3	1	1	0	0	2	0	1	0	0	1	0	0	2	0	2	8
2:15 PM	1	1	3	0	5	0	0	0	0	0	1	2	0	0	3	0	2	1	0	3	11
Total Volume	3	2	6	0	11	7	4	0	0	11	1	5	0	0	6	1	3	3	0	7	35
% Approach Total	27.3	18.2	54.5	0.0		63.6	36.4	0.0	0.0		16.7	83.3	0.0	0.0		14.3	42.9	42.9	0.0		
PHF	0.750	0.500	0.500	0.000	0.550	0.438	0.500	0.000	0.000	0.458	0.250	0.625	0.000	0.000	0.500	0.250	0.375	0.375	0.000	0.583	0.795
Entering Leg	3	2	6	0	11	7	4	0	0	11	1	5	0	0	6	1	3	3	0	7	35
Exiting Leg	15					10					3					7					35
Total	26					21					9					14					70

PDI File #: **197379 AA**
 Location: **N: Yankee Division Highway (Route 128) S: Yankee Division Highway (Route 128)**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **1:30 PM**
 End Time: **3:30 PM**
 Class:

Single-Unit Trucks

	Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
1:30 PM	0	4	1	0	5	3	0	0	0	3	0	2	0	0	2	0	1	2	0	3	13
1:45 PM	0	1	5	0	6	3	1	0	0	4	1	1	0	0	2	1	1	3	0	5	17
Total	0	5	6	0	11	6	1	0	0	7	1	3	0	0	4	1	2	5	0	8	30
2:00 PM	1	1	1	0	3	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	6
2:15 PM	1	3	0	0	4	5	1	0	0	6	0	1	0	0	1	0	1	1	0	2	13
2:30 PM	1	2	1	0	4	2	0	0	0	2	0	3	0	0	3	0	0	0	0	0	9
2:45 PM	0	0	4	0	4	5	0	0	0	5	0	2	0	0	2	0	2	0	0	2	13
Total	3	6	6	0	15	12	1	0	0	13	0	8	0	0	8	0	4	1	0	5	41
3:00 PM	3	2	1	0	6	1	0	1	0	2	2	0	0	0	2	0	3	3	0	6	16
3:15 PM	1	1	1	0	3	4	2	0	0	6	1	2	0	0	3	0	3	0	0	3	15
Total	4	3	2	0	9	5	2	1	0	8	3	2	0	0	5	0	6	3	0	9	31
Grand Total	7	14	14	0	35	23	4	1	0	28	4	13	0	0	17	1	12	9	0	22	102
Approach %	20.0	40.0	40.0	0.0		82.1	14.3	3.6	0.0		23.5	76.5	0.0	0.0		4.5	54.5	40.9	0.0		
Total %	6.9	13.7	13.7	0.0	34.3	22.5	3.9	1.0	0.0	27.5	3.9	12.7	0.0	0.0	16.7	1.0	11.8	8.8	0.0	21.6	
Exiting Leg Total	45					30					16					11					102

Peak Hour Analysis from 01:30 PM to 03:30 PM begins at:

2:30 PM	Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
2:30 PM	1	2	1	0	4	2	0	0	0	2	0	3	0	0	3	0	0	0	0	0	9
2:45 PM	0	0	4	0	4	5	0	0	0	5	0	2	0	0	2	0	2	0	0	2	13
3:00 PM	3	2	1	0	6	1	0	1	0	2	2	0	0	0	2	0	3	3	0	6	16
3:15 PM	1	1	1	0	3	4	2	0	0	6	1	2	0	0	3	0	3	0	0	3	15
Total Volume	5	5	7	0	17	12	2	1	0	15	3	7	0	0	10	0	8	3	0	11	53
% Approach Total	29.4	29.4	41.2	0.0		80.0	13.3	6.7	0.0		30.0	70.0	0.0	0.0		0.0	72.7	27.3	0.0		
PHF	0.417	0.625	0.438	0.000	0.708	0.600	0.250	0.250	0.000	0.625	0.375	0.583	0.000	0.000	0.833	0.000	0.667	0.250	0.000	0.458	0.828
Entering Leg	5	5	7	0	17	12	2	1	0	15	3	7	0	0	10	0	8	3	0	11	53
Exiting Leg	22					18					6					7					53
Total	39					33					16					18					106

PDI File #: **197379 AA**
 Location: **N: Yankee Division Highway (Route 128) S: Yankee Division Highway (Route 128)**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **1:30 PM**
 End Time: **3:30 PM**
 Class:

Articulated Trucks

	Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Total	
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		
1:30 PM	0	0	0	0	0	1	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	2
1:45 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	1	0	1	1	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	3
2:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
2:15 PM	0	0	0	0	0	3	0	0	0	0	3	0	2	0	0	2	0	0	0	0	0	5
2:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
2:45 PM	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	2	0	0	2	4	0	0	0	0	4	0	2	0	0	2	0	0	0	0	0	8
3:00 PM	0	3	0	0	3	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5
3:15 PM	0	0	2	0	2	1	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	4
Total	0	3	2	0	5	3	0	0	0	0	3	0	1	0	0	1	0	0	0	0	0	9
Grand Total	0	5	3	0	8	8	0	0	0	0	8	0	4	0	0	4	0	0	0	0	0	20
Approach %	0.0	62.5	37.5	0.0		100.0	0.0	0.0	0.0			0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	25.0	15.0	0.0	40.0	40.0	0.0	0.0	0.0	40.0		0.0	20.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total	12					3					5					0					20	

Peak Hour Analysis from 01:30 PM to 03:30 PM begins at:

2:15 PM	Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Yankee Division Highway (Route 128)					Eastern Avenue (Route 127)					Total	
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		
2:15 PM	0	0	0	0	0	3	0	0	0	0	3	0	2	0	0	2	0	0	0	0	0	5
2:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
2:45 PM	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
3:00 PM	0	3	0	0	3	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5
Total Volume	0	4	0	0	4	6	0	0	0	0	6	0	2	0	0	2	0	0	0	0	0	12
% Approach Total	0.0	100.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.333	0.000	0.000	0.333	0.500	0.000	0.000	0.000	0.500		0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.600
Entering Leg	0	4	0	0	4	6	0	0	0	0	6	0	2	0	0	2	0	0	0	0	0	12
Exiting Leg	8					0					4					0					12	
Total	12					6					6					0					24	

PDI File #: **197379 AA**
 Location: **N: Yankee Division Highway (Route 128) S: Yankee Division Highway (Route 128)**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **1:30 PM**
 End Time: **3:30 PM**
 Class:

Bicycles (on Roadway and Crosswalks)

	Yankee Division Highway (Route 128)							Eastern Avenue (Route 127)							Yankee Division Highway (Route 128)							Eastern Avenue (Route 127)							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total	0							0							0							0							0

Peak Hour Analysis from 01:30 PM to 03:30 PM begins at:

	Yankee Division Highway (Route 128)							Eastern Avenue (Route 127)							Yankee Division Highway (Route 128)							Eastern Avenue (Route 127)							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg	0							0							0							0							0
Total	0							0							0							0							0

PDI File #: **197379 AA**
 Location: **N: Yankee Division Highway (Route 128) S: Yankee Division Highway (Route 128)**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **1:30 PM**
 End Time: **3:30 PM**
 Class:

Pedestrians

	Yankee Division Highway (Route 128)							Eastern Avenue (Route 127)							Yankee Division Highway (Route 128)							Eastern Avenue (Route 127)							
	from North							from East							from South							from West							Total
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	2
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1	4	0	0	0	0	0	0	0	4
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	2
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3	0	0	0	0	0	0	0	3
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	3	8	0	0	0	0	0	0	0	8
Approach %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62.5	37.5		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	62.5	37.5	100	0	0	0	0	0	0	0	
Exiting Leg Total	0							0							8							0							8

Peak Hour Analysis from 01:30 PM to 03:30 PM begins at:

	Yankee Division Highway (Route 128)							Eastern Avenue (Route 127)							Yankee Division Highway (Route 128)							Eastern Avenue (Route 127)							
	from North							from East							from South							from West							Total
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	2
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	5	0	0	0	0	0	0	0	5
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	60.0	40.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.500	0.625	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.625
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	5	0	0	0	0	0	0	0	5
Exiting Leg	0							0							5							0							5
Total	0							0							10							0							10

PDI File #: **197379 B**
 Location: **N: Eastern Avenue (Route 127)**
 Location: **E: East Main Street W: Main Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:

Cars and Heavy Vehicles (Combined)

	Eastern Avenue (Route 127)				East Main Street				Main Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:00 AM	51	3	0	54	6	75	0	81	42	33	1	76	211
7:15 AM	63	0	0	63	6	75	0	81	65	55	2	122	266
7:30 AM	43	2	0	45	2	71	0	73	75	59	2	136	254
7:45 AM	64	1	0	65	1	68	0	69	79	59	1	139	273
Total	221	6	0	227	15	289	0	304	261	206	6	473	1004
8:00 AM	58	1	0	59	0	82	0	82	77	59	0	136	277
8:15 AM	87	1	0	88	2	94	1	97	80	59	0	139	324
8:30 AM	68	0	0	68	2	81	0	83	74	78	1	153	304
8:45 AM	77	3	0	80	2	95	0	97	73	60	0	133	310
Total	290	5	0	295	6	352	1	359	304	256	1	561	1215
Grand Total	511	11	0	522	21	641	1	663	565	462	7	1034	2219
Approach %	97.9	2.1	0.0		3.2	96.7	0.2		54.6	44.7	0.7		
Total %	23.0	0.5	0.0	23.5	0.9	28.9	0.0	29.9	25.5	20.8	0.3	46.6	
Exiting Leg Total	483				577				1159				2219
Cars	482	10	0	492	19	613	1	633	527	441	7	975	2100
% Cars	94.3	90.9	0.0	94.3	90.5	95.6	100.0	95.5	93.3	95.5	100.0	94.3	94.6
Exiting Leg Total	460				538				1102				2100
Heavy Vehicles	29	1	0	30	2	28	0	30	38	21	0	59	119
% Heavy Vehicles	5.7	9.1	0.0	5.7	9.5	4.4	0.0	4.5	6.7	4.5	0.0	5.7	5.4
Exiting Leg Total	23				39				57				119

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Eastern Avenue (Route 127)				East Main Street				Main Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
8:00 AM	58	1	0	59	0	82	0	82	77	59	0	136	277
8:15 AM	87	1	0	88	2	94	1	97	80	59	0	139	324
8:30 AM	68	0	0	68	2	81	0	83	74	78	1	153	304
8:45 AM	77	3	0	80	2	95	0	97	73	60	0	133	310
Total Volume	290	5	0	295	6	352	1	359	304	256	1	561	1215
% Approach Total	98.3	1.7	0.0		1.7	98.1	0.3		54.2	45.6	0.2		
PHF	0.833	0.417	0.000	0.838	0.750	0.926	0.250	0.925	0.950	0.821	0.250	0.917	0.938
Cars	276	4	0	280	6	334	1	341	280	247	1	528	1149
Cars %	95.2	80.0	0.0	94.9	100.0	94.9	100.0	95.0	92.1	96.5	100.0	94.1	94.6
Heavy Vehicles	14	1	0	15	0	18	0	18	24	9	0	33	66
Heavy Vehicles %	4.8	20.0	0.0	5.1	0.0	5.1	0.0	5.0	7.9	3.5	0.0	5.9	5.4
Cars Enter Leg	276	4	0	280	6	334	1	341	280	247	1	528	1149
Heavy Enter Leg	14	1	0	15	0	18	0	18	24	9	0	33	66
Total Entering Leg	290	5	0	295	6	352	1	359	304	256	1	561	1215
Cars Exiting Leg				253				285				611	1149
Heavy Exiting Leg				9				25				32	66
Total Exiting Leg				262				310				643	1215

PDI File #: **197379 B**
 Location: **N: Eastern Avenue (Route 127)**
 Location: **E: East Main Street W: Main Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:

Cars

	Eastern Avenue (Route 127)				East Main Street				Main Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:00 AM	46	3	0	49	5	70	0	75	40	29	1	70	194
7:15 AM	60	0	0	60	5	72	0	77	62	50	2	114	251
7:30 AM	41	2	0	43	2	70	0	72	72	58	2	132	247
7:45 AM	59	1	0	60	1	67	0	68	73	57	1	131	259
Total	206	6	0	212	13	279	0	292	247	194	6	447	951
8:00 AM	58	1	0	59	0	75	0	75	67	58	0	125	259
8:15 AM	82	1	0	83	2	91	1	94	78	58	0	136	313
8:30 AM	63	0	0	63	2	75	0	77	67	74	1	142	282
8:45 AM	73	2	0	75	2	93	0	95	68	57	0	125	295
Total	276	4	0	280	6	334	1	341	280	247	1	528	1149
Grand Total	482	10	0	492	19	613	1	633	527	441	7	975	2100
Approach %	98.0	2.0	0.0		3.0	96.8	0.2		54.1	45.2	0.7		
Total %	23.0	0.5	0.0	23.4	0.9	29.2	0.0	30.1	25.1	21.0	0.3	46.4	
Exiting Leg Total				460				538				1102	2100

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Eastern Avenue (Route 127)				East Main Street				Main Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
8:00 AM	58	1	0	59	0	75	0	75	67	58	0	125	259
8:15 AM	82	1	0	83	2	91	1	94	78	58	0	136	313
8:30 AM	63	0	0	63	2	75	0	77	67	74	1	142	282
8:45 AM	73	2	0	75	2	93	0	95	68	57	0	125	295
Total Volume	276	4	0	280	6	334	1	341	280	247	1	528	1149
% Approach Total	98.6	1.4	0.0		1.8	97.9	0.3		53.0	46.8	0.2		
PHF	0.841	0.500	0.000	0.843	0.750	0.898	0.250	0.897	0.897	0.834	0.250	0.930	0.918
Entering Leg	276	4	0	280	6	334	1	341	280	247	1	528	1149
Exiting Leg				253				285				611	1149
Total				533				626				1139	2298

PDI File #: **197379 B**
 Location: **N: Eastern Avenue (Route 127)**
 Location: **E: East Main Street W: Main Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Eastern Avenue (Route 127)				East Main Street				Main Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:00 AM	5	0	0	5	1	5	0	6	2	4	0	6	17
7:15 AM	3	0	0	3	1	3	0	4	3	5	0	8	15
7:30 AM	2	0	0	2	0	1	0	1	3	1	0	4	7
7:45 AM	5	0	0	5	0	1	0	1	6	2	0	8	14
Total	15	0	0	15	2	10	0	12	14	12	0	26	53
8:00 AM	0	0	0	0	0	7	0	7	10	1	0	11	18
8:15 AM	5	0	0	5	0	3	0	3	2	1	0	3	11
8:30 AM	5	0	0	5	0	6	0	6	7	4	0	11	22
8:45 AM	4	1	0	5	0	2	0	2	5	3	0	8	15
Total	14	1	0	15	0	18	0	18	24	9	0	33	66
Grand Total	29	1	0	30	2	28	0	30	38	21	0	59	119
Approach %	96.7	3.3	0.0		6.7	93.3	0.0		64.4	35.6	0.0		
Total %	24.4	0.8	0.0	25.2	1.7	23.5	0.0	25.2	31.9	17.6	0.0	49.6	
Exiting Leg Total				23				39				57	119
Buses	8	1	0	9	2	8	0	10	9	8	0	17	36
% Buses	27.6	100.0	0.0	30.0	100.0	28.6	0.0	33.3	23.7	38.1	0.0	28.8	30.3
Exiting Leg Total				10				10				16	36
Single-Unit Trucks	19	0	0	19	0	16	0	16	22	13	0	35	70
% Single-Unit	65.5	0.0	0.0	63.3	0.0	57.1	0.0	53.3	57.9	61.9	0.0	59.3	58.8
Exiting Leg Total				13				22				35	70
Articulated Trucks	2	0	0	2	0	4	0	4	7	0	0	7	13
% Articulated	6.9	0.0	0.0	6.7	0.0	14.3	0.0	13.3	18.4	0.0	0.0	11.9	10.9
Exiting Leg Total				0				7				6	13

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Eastern Avenue (Route 127)				East Main Street				Main Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
8:00 AM	0	0	0	0	0	7	0	7	10	1	0	11	18
8:15 AM	5	0	0	5	0	3	0	3	2	1	0	3	11
8:30 AM	5	0	0	5	0	6	0	6	7	4	0	11	22
8:45 AM	4	1	0	5	0	2	0	2	5	3	0	8	15
Total Volume	14	1	0	15	0	18	0	18	24	9	0	33	66
% Approach Total	93.3	6.7	0.0		0.0	100.0	0.0		72.7	27.3	0.0		
PHF	0.700	0.250	0.000	0.750	0.000	0.643	0.000	0.643	0.600	0.563	0.000	0.750	0.750
Buses	3	1	0	4	0	4	0	4	5	3	0	8	16
Buses %	21.4	100.0	0.0	26.7	0.0	22.2	0.0	22.2	20.8	33.3	0.0	24.2	24.2
Single-Unit Trucks	10	0	0	10	0	12	0	12	15	6	0	21	43
Single-Unit %	71.4	0.0	0.0	66.7	0.0	66.7	0.0	66.7	62.5	66.7	0.0	63.6	65.2
Articulated Trucks	1	0	0	1	0	2	0	2	4	0	0	4	7
Articulated %	7.1	0.0	0.0	6.7	0.0	11.1	0.0	11.1	16.7	0.0	0.0	12.1	10.6
Buses	3	1	0	4	0	4	0	4	5	3	0	8	16
Single-Unit Trucks	10	0	0	10	0	12	0	12	15	6	0	21	43
Articulated Trucks	1	0	0	1	0	2	0	2	4	0	0	4	7
Total Entering Leg	14	1	0	15	0	18	0	18	24	9	0	33	66
Buses				3				6				7	16
Single-Unit Trucks				6				15				22	43
Articulated Trucks				0				4				3	7
Total Exiting Leg				9				25				32	66

PDI File #: **197379 B**
 Location: **N: Eastern Avenue (Route 127)**
 Location: **E: East Main Street W: Main Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:

Buses

	Eastern Avenue (Route 127)					East Main Street					Main Street					Total
	from North					from East					from West					
	Right	Left	U-Turn	Total		Right	Thru	U-Turn	Total		Thru	Left	U-Turn	Total		
7:00 AM	1	0	0	1		1	2	0	3		1	2	0	3		7
7:15 AM	1	0	0	1		1	2	0	3		1	2	0	3		7
7:30 AM	1	0	0	1		0	0	0	0		2	1	0	3		4
7:45 AM	2	0	0	2		0	0	0	0		0	0	0	0		2
Total	5	0	0	5		2	4	0	6		4	5	0	9		20
8:00 AM	0	0	0	0		0	2	0	2		3	0	0	3		5
8:15 AM	1	0	0	1		0	2	0	2		0	0	0	0		3
8:30 AM	1	0	0	1		0	0	0	0		2	1	0	3		4
8:45 AM	1	1	0	2		0	0	0	0		0	2	0	2		4
Total	3	1	0	4		0	4	0	4		5	3	0	8		16
Grand Total	8	1	0	9		2	8	0	10		9	8	0	17		36
Approach %	88.9	11.1	0.0			20.0	80.0	0.0			52.9	47.1	0.0			
Total %	22.2	2.8	0.0	25.0		5.6	22.2	0.0	27.8		25.0	22.2	0.0	47.2		
Exiting Leg Total	10					10					16					36

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Eastern Avenue (Route 127)				East Main Street				Main Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:00 AM	1	0	0	1	1	2	0	3	1	2	0	3	7
7:15 AM	1	0	0	1	1	2	0	3	1	2	0	3	7
7:30 AM	1	0	0	1	0	0	0	0	2	1	0	3	4
7:45 AM	2	0	0	2	0	0	0	0	0	0	0	0	2
Total Volume	5	0	0	5	2	4	0	6	4	5	0	9	20
% Approach Total	100.0	0.0	0.0		33.3	66.7	0.0		44.4	55.6	0.0		
PHF	0.625	0.000	0.000	0.625	0.500	0.500	0.000	0.500	0.500	0.625	0.000	0.750	0.714
Entering Leg	5	0	0	5	2	4	0	6	4	5	0	9	20
Exiting Leg				7				4				9	20
Total				12				10				18	40

PDI File #: **197379 B**
 Location: **N: Eastern Avenue (Route 127)**
 Location: **E: East Main Street W: Main Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:

Single-Unit Trucks

	Eastern Avenue (Route 127)					East Main Street					Main Street					Total
	from North					from East					from West					
	Right	Left	U-Turn	Total		Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total			
7:00 AM	4	0	0	0	4	0	1	0	1	1	2	0	3	8		
7:15 AM	1	0	0	0	1	0	1	0	1	2	3	0	5	7		
7:30 AM	1	0	0	0	1	0	1	0	1	1	0	0	1	3		
7:45 AM	3	0	0	0	3	0	1	0	1	3	2	0	5	9		
Total	9	0	0	0	9	0	4	0	4	7	7	0	14	27		
8:00 AM	0	0	0	0	0	0	4	0	4	6	1	0	7	11		
8:15 AM	3	0	0	0	3	0	1	0	1	1	1	0	2	6		
8:30 AM	4	0	0	0	4	0	6	0	6	5	3	0	8	18		
8:45 AM	3	0	0	0	3	0	1	0	1	3	1	0	4	8		
Total	10	0	0	0	10	0	12	0	12	15	6	0	21	43		
Grand Total	19	0	0	0	19	0	16	0	16	22	13	0	35	70		
Approach %	100.0	0.0	0.0			0.0	100.0	0.0		62.9	37.1	0.0				
Total %	27.1	0.0	0.0	27.1		0.0	22.9	0.0	22.9	31.4	18.6	0.0	50.0			
Exiting Leg Total	13					22					35					70

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Eastern Avenue (Route 127)				East Main Street				Main Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:45 AM	3	0	0	3	0	1	0	1	3	2	0	5	9
8:00 AM	0	0	0	0	0	4	0	4	6	1	0	7	11
8:15 AM	3	0	0	3	0	1	0	1	1	1	0	2	6
8:30 AM	4	0	0	4	0	6	0	6	5	3	0	8	18
Total Volume	10	0	0	10	0	12	0	12	15	7	0	22	44
% Approach Total	100.0	0.0	0.0		0.0	100.0	0.0		68.2	31.8	0.0		
PHF	0.625	0.000	0.000	0.625	0.000	0.500	0.000	0.500	0.625	0.583	0.000	0.688	0.611
Entering Leg	10	0	0	10	0	12	0	12	15	7	0	22	44
Exiting Leg				7				15				22	44
Total				17				27				44	88

PDI File #: **197379 B**
 Location: **N: Eastern Avenue (Route 127)**
 Location: **E: East Main Street W: Main Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:

Articulated Trucks

	Eastern Avenue (Route 127)				East Main Street				Main Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:00 AM	0	0	0	0	0	2	0	2	0	0	0	0	2
7:15 AM	1	0	0	1	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	3	0	0	3	3
Total	1	0	0	1	0	2	0	2	3	0	0	3	6
8:00 AM	0	0	0	0	0	1	0	1	1	0	0	1	2
8:15 AM	1	0	0	1	0	0	0	0	1	0	0	1	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	1	0	1	2	0	0	2	3
Total	1	0	0	1	0	2	0	2	4	0	0	4	7
Grand Total	2	0	0	2	0	4	0	4	7	0	0	7	13
Approach %	100.0	0.0	0.0		0.0	100.0	0.0		100.0	0.0	0.0		
Total %	15.4	0.0	0.0	15.4	0.0	30.8	0.0	30.8	53.8	0.0	0.0	53.8	
Exiting Leg Total	0				7				6				13

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Eastern Avenue (Route 127)				East Main Street				Main Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	3	0	0	3	3
8:00 AM	0	0	0	0	0	1	0	1	1	0	0	1	2
8:15 AM	1	0	0	1	0	0	0	0	1	0	0	1	2
Total Volume	1	0	0	1	0	1	0	1	5	0	0	5	7
% Approach Total	100.0	0.0	0.0		0.0	100.0	0.0		100.0	0.0	0.0		
PHF	0.250	0.000	0.000	0.250	0.000	0.250	0.000	0.250	0.417	0.000	0.000	0.417	0.583
Entering Leg	1	0	0	1	0	1	0	1	5	0	0	5	7
Exiting Leg				0				5				2	7
Total				1				6				7	14

PDI File #: **197379 B**
 Location: **N: Eastern Avenue (Route 127)**
 Location: **E: East Main Street W: Main Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**

Class: **Bicycles (on Roadway and Crosswalks)**

	Eastern Avenue (Route 127)						East Main Street						Main Street						Total	
	from North						from East						from West							
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
8:45 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	1	2
Grand Total	1	0	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	0	1	3
Approach %	100.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0			
Total %	33.3	0.0	0.0	0.0	0.0	33.3	0.0	33.3	0.0	0.0	0.0	33.3	0.0	33.3	0.0	0.0	0.0	33.3		
Exiting Leg Total	1						0						2						3	

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Eastern Avenue (Route 127)						East Main Street						Main Street						Total	
	from North						from East						from West							
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total		
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
8:45 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	1	2
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.250		0.500
Entering Leg	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	1	2	2
Exiting Leg						1						0						1	1	2
Total						1						1						2		4

PDI File #: **197379 B**
 Location: **N: Eastern Avenue (Route 127)**
 Location: **E: East Main Street W: Main Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:

Pedestrians

	Eastern Avenue (Route 127)							East Main Street							Main Street							Total
	from North							from East							from West							
	Right	Left	U-Turn	CW-EB	CW-WB	Total		Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total			
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	0	0	0	1	1		0	0	0	2	0	2	0	0	0	1	0	1		4	
7:45 AM	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	1	1		1	
Total	0	0	0	0	1	1		0	0	0	2	0	2	0	0	0	1	1	2		5	
8:00 AM	0	0	0	0	1	1		0	0	0	0	0	0	0	0	0	0	0	0		1	
8:15 AM	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0		0	
8:30 AM	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0		0	
8:45 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	1	1		0	0	0	0	0	0	0	0	0	0	0	0		1	
Grand Total	0	0	0	0	2	2		0	0	0	2	0	2	0	0	0	1	1	2		6	
Approach %	0	0	0	0	100			0	0	0	100	0		0	0	0	50	50				
Total %	0	0	0	0	33.333	33.333		0	0	0	33.333	0	33.333	0	0	0	16.667	16.667	33.333			
Exiting Leg Total	2							2							2							6

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Eastern Avenue (Route 127)						East Main Street						Main Street						Total	
	from North						from East						from West							
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total		
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	1	1	0	0	0	2	0	2	0	0	0	1	0	1	1	4
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
8:00 AM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	2	2	0	0	0	2	0	2	0	0	0	1	1	2	2	6
% Approach Total	0.0	0.0	0.0	0.0	100.0		0.0	0.0	0.0	100.0	0.0		0.0	0.0	0.0	50.0	50.0			
PHF	0.000	0.000	0.000	0.000	0.500	0.500	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.250	0.250	0.500		0.375
Entering Leg	0	0	0	0	2	2	0	0	0	2	0	2	0	0	0	1	1	2	2	6
Exiting Leg	2						2						2						2	6
Total	4						4						4						4	12

PDI File #: **197379 BB**
 Location: **N: Eastern Avenue (Route 127)**
 Location: **E: East Main Street W: Main Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **1:30 PM**
 End Time: **3:30 PM**
 Class:

Cars and Heavy Vehicles (Combined)

	Eastern Avenue (Route 127)				East Main Street				Main Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
1:30 PM	82	0	0	82	3	105	0	108	94	97	1	192	382
1:45 PM	82	1	0	83	1	116	0	117	121	67	0	188	388
Total	164	1	0	165	4	221	0	225	215	164	1	380	770
2:00 PM	74	1	0	75	1	90	0	91	90	88	2	180	346
2:15 PM	81	0	0	81	1	96	0	97	136	105	0	241	419
2:30 PM	85	0	0	85	1	111	0	112	114	87	1	202	399
2:45 PM	91	2	0	93	2	101	0	103	111	78	2	191	387
Total	331	3	0	334	5	398	0	403	451	358	5	814	1551
3:00 PM	100	1	0	101	0	118	0	118	110	67	0	177	396
3:15 PM	83	2	0	85	2	111	0	113	100	79	2	181	379
Total	183	3	0	186	2	229	0	231	210	146	2	358	775
Grand Total	678	7	0	685	11	848	0	859	876	668	8	1552	3096
Approach %	99.0	1.0	0.0		1.3	98.7	0.0		56.4	43.0	0.5		
Total %	21.9	0.2	0.0	22.1	0.4	27.4	0.0	27.7	28.3	21.6	0.3	50.1	
Exiting Leg Total	679				883				1534				3096
Cars	659	6	0	665	8	816	0	824	849	644	8	1501	2990
% Cars	97.2	85.7	0.0	97.1	72.7	96.2	0.0	95.9	96.9	96.4	100.0	96.7	96.6
Exiting Leg Total	652				855				1483				2990
Heavy Vehicles	19	1	0	20	3	32	0	35	27	24	0	51	106
% Heavy Vehicles	2.8	14.3	0.0	2.9	27.3	3.8	0.0	4.1	3.1	3.6	0.0	3.3	3.4
Exiting Leg Total	27				28				51				106

Peak Hour Analysis from 01:30 PM to 03:30 PM begins at:

2:15 PM	Eastern Avenue (Route 127)				East Main Street				Main Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
2:15 PM	81	0	0	81	1	96	0	97	136	105	0	241	419
2:30 PM	85	0	0	85	1	111	0	112	114	87	1	202	399
2:45 PM	91	2	0	93	2	101	0	103	111	78	2	191	387
3:00 PM	100	1	0	101	0	118	0	118	110	67	0	177	396
Total Volume	357	3	0	360	4	426	0	430	471	337	3	811	1601
% Approach Total	99.2	0.8	0.0		0.9	99.1	0.0		58.1	41.6	0.4		
PHF	0.893	0.375	0.000	0.891	0.500	0.903	0.000	0.911	0.866	0.802	0.375	0.841	0.955
Cars	347	3	0	350	2	409	0	411	455	323	3	781	1542
Cars %	97.2	100.0	0.0	97.2	50.0	96.0	0.0	95.6	96.6	95.8	100.0	96.3	96.3
Heavy Vehicles	10	0	0	10	2	17	0	19	16	14	0	30	59
Heavy Vehicles %	2.8	0.0	0.0	2.8	50.0	4.0	0.0	4.4	3.4	4.2	0.0	3.7	3.7
Cars Enter Leg	347	3	0	350	2	409	0	411	455	323	3	781	1542
Heavy Enter Leg	10	0	0	10	2	17	0	19	16	14	0	30	59
Total Entering Leg	357	3	0	360	4	426	0	430	471	337	3	811	1601
Cars Exiting Leg				325				458				759	1542
Heavy Exiting Leg				16				16				27	59
Total Exiting Leg				341				474				786	1601

PDI File #: **197379 BB**
 Location: **N: Eastern Avenue (Route 127)**
 Location: **E: East Main Street W: Main Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **1:30 PM**
 End Time: **3:30 PM**
 Class:

Cars

	Eastern Avenue (Route 127)				East Main Street				Main Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
1:30 PM	80	0	0	80	3	101	0	104	90	93	1	184	368
1:45 PM	79	1	0	80	1	114	0	115	118	65	0	183	378
Total	159	1	0	160	4	215	0	219	208	158	1	367	746
2:00 PM	71	0	0	71	1	86	0	87	88	85	2	175	333
2:15 PM	78	0	0	78	0	93	0	93	128	100	0	228	399
2:30 PM	84	0	0	84	1	107	0	108	113	86	1	200	392
2:45 PM	89	2	0	91	1	98	0	99	107	76	2	185	375
Total	322	2	0	324	3	384	0	387	436	347	5	788	1499
3:00 PM	96	1	0	97	0	111	0	111	107	61	0	168	376
3:15 PM	82	2	0	84	1	106	0	107	98	78	2	178	369
Total	178	3	0	181	1	217	0	218	205	139	2	346	745
Grand Total	659	6	0	665	8	816	0	824	849	644	8	1501	2990
Approach %	99.1	0.9	0.0		1.0	99.0	0.0		56.6	42.9	0.5		
Total %	22.0	0.2	0.0	22.2	0.3	27.3	0.0	27.6	28.4	21.5	0.3	50.2	
Exiting Leg Total				652				855				1483	2990

Peak Hour Analysis from 01:30 PM to 03:30 PM begins at:

2:15 PM	Eastern Avenue (Route 127)				East Main Street				Main Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
2:15 PM	78	0	0	78	0	93	0	93	128	100	0	228	399
2:30 PM	84	0	0	84	1	107	0	108	113	86	1	200	392
2:45 PM	89	2	0	91	1	98	0	99	107	76	2	185	375
3:00 PM	96	1	0	97	0	111	0	111	107	61	0	168	376
Total Volume	347	3	0	350	2	409	0	411	455	323	3	781	1542
% Approach Total	99.1	0.9	0.0		0.5	99.5	0.0		58.3	41.4	0.4		
PHF	0.904	0.375	0.000	0.902	0.500	0.921	0.000	0.926	0.889	0.808	0.375	0.856	0.966
Entering Leg	347	3	0	350	2	409	0	411	455	323	3	781	1542
Exiting Leg				325				458				759	1542
Total				675				869				1540	3084

PDI File #: **197379 BB**
 Location: **N: Eastern Avenue (Route 127)**
 Location: **E: East Main Street W: Main Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **1:30 PM**
 End Time: **3:30 PM**
 Class:

Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	Eastern Avenue (Route 127)				East Main Street				Main Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
1:30 PM	2	0	0	2	0	4	0	4	4	4	0	8	14
1:45 PM	3	0	0	3	0	2	0	2	3	2	0	5	10
Total	5	0	0	5	0	6	0	6	7	6	0	13	24
2:00 PM	3	1	0	4	0	4	0	4	2	3	0	5	13
2:15 PM	3	0	0	3	1	3	0	4	8	5	0	13	20
2:30 PM	1	0	0	1	0	4	0	4	1	1	0	2	7
2:45 PM	2	0	0	2	1	3	0	4	4	2	0	6	12
Total	9	1	0	10	2	14	0	16	15	11	0	26	52
3:00 PM	4	0	0	4	0	7	0	7	3	6	0	9	20
3:15 PM	1	0	0	1	1	5	0	6	2	1	0	3	10
Total	5	0	0	5	1	12	0	13	5	7	0	12	30
Grand Total	19	1	0	20	3	32	0	35	27	24	0	51	106
Approach %	95.0	5.0	0.0		8.6	91.4	0.0		52.9	47.1	0.0		
Total %	17.9	0.9	0.0	18.9	2.8	30.2	0.0	33.0	25.5	22.6	0.0	48.1	
Exiting Leg Total	27				28				51				106
Buses	8	1	0	9	0	7	0	7	9	7	0	16	32
% Buses	42.1	100.0	0.0	45.0	0.0	21.9	0.0	20.0	33.3	29.2	0.0	31.4	30.2
Exiting Leg Total	7				10				15				32
Single-Unit Trucks	11	0	0	11	3	20	0	23	13	17	0	30	64
% Single-Unit	57.9	0.0	0.0	55.0	100.0	62.5	0.0	65.7	48.1	70.8	0.0	58.8	60.4
Exiting Leg Total	20				13				31				64
Articulated Trucks	0	0	0	0	0	5	0	5	5	0	0	5	10
% Articulated	0.0	0.0	0.0	0.0	0.0	15.6	0.0	14.3	18.5	0.0	0.0	9.8	9.4
Exiting Leg Total	0				5				5				10

Peak Hour Analysis from 01:30 PM to 03:30 PM begins at:

2:15 PM	Eastern Avenue (Route 127)				East Main Street				Main Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
2:15 PM	3	0	0	3	1	3	0	4	8	5	0	13	20
2:30 PM	1	0	0	1	0	4	0	4	1	1	0	2	7
2:45 PM	2	0	0	2	1	3	0	4	4	2	0	6	12
3:00 PM	4	0	0	4	0	7	0	7	3	6	0	9	20
Total Volume	10	0	0	10	2	17	0	19	16	14	0	30	59
% Approach Total	100.0	0.0	0.0		10.5	89.5	0.0		53.3	46.7	0.0		
PHF	0.625	0.000	0.000	0.625	0.500	0.607	0.000	0.679	0.500	0.583	0.000	0.577	0.738
Buses	3	0	0	3	0	4	0	4	8	5	0	13	20
Buses %	30.0	0.0	0.0	30.0	0.0	23.5	0.0	21.1	50.0	35.7	0.0	43.3	33.9
Single-Unit Trucks	7	0	0	7	2	11	0	13	6	9	0	15	35
Single-Unit %	70.0	0.0	0.0	70.0	100.0	64.7	0.0	68.4	37.5	64.3	0.0	50.0	59.3
Articulated Trucks	0	0	0	0	0	2	0	2	2	0	0	2	4
Articulated %	0.0	0.0	0.0	0.0	0.0	11.8	0.0	10.5	12.5	0.0	0.0	6.7	6.8
Buses	3	0	0	3	0	4	0	4	8	5	0	13	20
Single-Unit Trucks	7	0	0	7	2	11	0	13	6	9	0	15	35
Articulated Trucks	0	0	0	0	0	2	0	2	2	0	0	2	4
Total Entering Leg	10	0	0	10	2	17	0	19	16	14	0	30	59
Buses	5				8				7				20
Single-Unit Trucks	11				6				18				35
Articulated Trucks	0				2				2				4
Total Exiting Leg	16				16				27				59

PDI File #: **197379 BB**
 Location: **N: Eastern Avenue (Route 127)**
 Location: **E: East Main Street W: Main Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **1:30 PM**
 End Time: **3:30 PM**
 Class:

Buses

	Eastern Avenue (Route 127)					East Main Street					Main Street					Total
	from North					from East					from West					
	Right	Left	U-Turn	Total		Right	Thru	U-Turn	Total		Thru	Left	U-Turn	Total		
1:30 PM	2	0	0	0	2	0	0	0	0	0	1	1	0	0	2	4
1:45 PM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	2
Total	3	0	0	0	3	0	1	0	0	1	1	1	0	0	2	6
2:00 PM	2	1	0	0	3	0	1	0	0	1	0	1	0	0	1	5
2:15 PM	0	0	0	0	0	0	0	0	0	0	3	3	0	0	6	6
2:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
2:45 PM	2	0	0	0	2	0	0	0	0	0	3	1	0	0	4	6
Total	4	1	0	0	5	0	3	0	0	3	6	5	0	0	11	19
3:00 PM	1	0	0	0	1	0	2	0	0	2	2	1	0	0	3	6
3:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	1	0	0	0	1	0	3	0	0	3	2	1	0	0	3	7
Grand Total	8	1	0	0	9	0	7	0	0	7	9	7	0	0	16	32
Approach %	88.9	11.1	0.0			0.0	100.0	0.0			56.3	43.8	0.0			
Total %	25.0	3.1	0.0	28.1		0.0	21.9	0.0	21.9		28.1	21.9	0.0	50.0		
Exiting Leg Total	7					10					15					32

Peak Hour Analysis from 01:30 PM to 03:30 PM begins at:

2:15 PM	Eastern Avenue (Route 127)					East Main Street				Main Street					Total
	from North					from East				from West					
	Right	Left	U-Turn	Total		Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total		
2:15 PM	0	0	0	0	0	0	0	0	0	0	3	3	0	6	6
2:30 PM	0	0	0	0	0	0	2	0	2	0	0	0	0	0	2
2:45 PM	2	0	0	2	0	0	0	0	0	3	1	0	4	6	6
3:00 PM	1	0	0	1	0	2	0	2	0	2	1	0	3	6	6
Total Volume	3	0	0	3	0	4	0	4	0	8	5	0	13	20	20
% Approach Total	100.0	0.0	0.0		0.0	100.0	0.0			61.5	38.5	0.0			
PHF	0.375	0.000	0.000	0.375	0.000	0.500	0.000	0.500		0.667	0.417	0.000	0.542	0.833	
Entering Leg	3	0	0	3	0	4	0	4		8	5	0	13	20	20
Exiting Leg	5				8				7				20		
Total	8				12				20				40		

PDI File #: **197379 BB**
 Location: **N: Eastern Avenue (Route 127)**
 Location: **E: East Main Street W: Main Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **1:30 PM**
 End Time: **3:30 PM**
 Class:

Single-Unit Trucks

	Eastern Avenue (Route 127)				East Main Street				Main Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
1:30 PM	0	0	0	0	0	4	0	4	2	3	0	5	9
1:45 PM	2	0	0	2	0	0	0	0	3	2	0	5	7
Total	2	0	0	2	0	4	0	4	5	5	0	10	16
2:00 PM	1	0	0	1	0	3	0	3	0	2	0	2	6
2:15 PM	3	0	0	3	1	2	0	3	3	2	0	5	11
2:30 PM	1	0	0	1	0	2	0	2	1	1	0	2	5
2:45 PM	0	0	0	0	1	3	0	4	1	1	0	2	6
Total	5	0	0	5	2	10	0	12	5	6	0	11	28
3:00 PM	3	0	0	3	0	4	0	4	1	5	0	6	13
3:15 PM	1	0	0	1	1	2	0	3	2	1	0	3	7
Total	4	0	0	4	1	6	0	7	3	6	0	9	20
Grand Total	11	0	0	11	3	20	0	23	13	17	0	30	64
Approach %	100.0	0.0	0.0		13.0	87.0	0.0		43.3	56.7	0.0		
Total %	17.2	0.0	0.0	17.2	4.7	31.3	0.0	35.9	20.3	26.6	0.0	46.9	
Exiting Leg Total	20				13				31				64

Peak Hour Analysis from 01:30 PM to 03:30 PM begins at:

2:15 PM	Eastern Avenue (Route 127)				East Main Street				Main Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
2:15 PM	3	0	0	3	1	2	0	3	3	2	0	5	11
2:30 PM	1	0	0	1	0	2	0	2	1	1	0	2	5
2:45 PM	0	0	0	0	1	3	0	4	1	1	0	2	6
3:00 PM	3	0	0	3	0	4	0	4	1	5	0	6	13
Total Volume	7	0	0	7	2	11	0	13	6	9	0	15	35
% Approach Total	100.0	0.0	0.0		15.4	84.6	0.0		40.0	60.0	0.0		
PHF	0.583	0.000	0.000	0.583	0.500	0.688	0.000	0.813	0.500	0.450	0.000	0.625	0.673
Entering Leg	7	0	0	7	2	11	0	13	6	9	0	15	35
Exiting Leg	11				6				18				35
Total	18				19				33				70

PDI File #: **197379 BB**
 Location: **N: Eastern Avenue (Route 127)**
 Location: **E: East Main Street W: Main Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **1:30 PM**
 End Time: **3:30 PM**
 Class:

Articulated Trucks

	Eastern Avenue (Route 127)					East Main Street					Main Street					Total
	from North					from East					from West					
	Right	Left	U-Turn	Total		Right	Thru	U-Turn	Total		Thru	Left	U-Turn	Total		
1:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
1:45 PM	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	1	0	1	1	1	0	0	0	1	2
2:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2
2:15 PM	0	0	0	0	0	0	1	0	1	2	2	0	0	0	2	3
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	1	4	4	0	0	0	4	5
3:00 PM	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1
3:15 PM	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	2
Total	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	3
Grand Total	0	0	0	0	0	0	5	0	5	5	5	0	0	0	5	10
Approach %	0.0	0.0	0.0			0.0	100.0	0.0		100.0	100.0	0.0	0.0			
Total %	0.0	0.0	0.0	0.0		0.0	50.0	0.0	50.0	50.0	50.0	0.0	0.0	0.0	50.0	
Exiting Leg Total	0					5					5					10

Peak Hour Analysis from 01:30 PM to 03:30 PM begins at:

1:30 PM	Eastern Avenue (Route 127)				East Main Street				Main Street				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
1:30 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
1:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
2:00 PM	0	0	0	0	0	0	0	0	2	0	0	2	2
2:15 PM	0	0	0	0	0	1	0	1	2	0	0	2	3
Total Volume	0	0	0	0	0	2	0	2	5	0	0	5	7
% Approach Total	0.0	0.0	0.0		0.0	100.0	0.0		100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.500	0.625	0.000	0.000	0.625	0.583
Entering Leg	0	0	0	0	0	2	0	2	5	0	0	5	7
Exiting Leg				0				5				2	7
Total				0				7				7	14

PDI File #: **197379 BB**
 Location: **N: Eastern Avenue (Route 127)**
 Location: **E: East Main Street W: Main Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **1:30 PM**
 End Time: **3:30 PM**

Class: **Bicycles (on Roadway and Crosswalks)**

	Eastern Avenue (Route 127)						East Main Street						Main Street						Total
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
1:30 PM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1
1:45 PM	0	0	0	0	0	0	1	0	0	0	1	2	0	0	0	0	0	0	2
Total	0	0	0	0	0	0	1	1	0	0	1	3	0	0	0	0	0	0	3
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	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
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	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
Grand Total	0	0	0	0	0	0	1	1	0	0	1	3	0	0	0	0	0	0	3
Approach %	0.0	0.0	0.0	0.0	0.0		33.3	33.3	0.0	0.0	33.3		0.0	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	33.3	33.3	0.0	0.0	33.3	100.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total	1						1						1						3

Peak Hour Analysis from 01:30 PM to 03:30 PM begins at:

1:30 PM	Eastern Avenue (Route 127)						East Main Street						Main Street						Total	
	from North						from East						from West							
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total		
1:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1
1:45 PM	0	0	0	0	0	0	1	0	0	0	0	1	2	0	0	0	0	0	0	2
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	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	1	1	0	0	1	3	0	0	0	0	0	0	0	3
% Approach Total	0.0	0.0	0.0	0.0	0.0		33.3	33.3	0.0	0.0	33.3		0.0	0.0	0.0	0.0	0.0			
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.250	0.375	0.000	0.000	0.000	0.000	0.000	0.000		0.375
Entering Leg	0	0	0	0	0	0	1	1	0	0	1	3	0	0	0	0	0	0	0	3
Exiting Leg	1						1						1						3	
Total	1						4						1						6	

PDI File #: **197379 BB**
 Location: **N: Eastern Avenue (Route 127)**
 Location: **E: East Main Street W: Main Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **1:30 PM**
 End Time: **3:30 PM**
 Class:

Pedestrians

	Eastern Avenue (Route 127)						East Main Street						Main Street						Total
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
1:30 PM	0	0	0	2	1	3	0	0	0	0	0	0	0	0	0	1	0	1	4
1:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	2	4
Total	0	0	0	2	1	3	0	0	0	1	0	1	0	0	0	2	0	2	6
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	1	0	1	4
2:30 PM	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
2:45 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1
Total	0	0	0	1	3	4	0	0	0	0	1	1	0	0	0	1	0	1	6
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	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
Grand Total	0	0	0	3	4	7	0	0	0	1	1	2	0	0	0	3	0	3	12
Approach %	0	0	0	42.857	57.143		0	0	0	50	50		0	0	0	100	0		
Total %	0	0	0	25	33.333	58.333	0	0	0	8.3333	8.3333	16.667	0	0	0	25	0	25	
Exiting Leg Total	7						2						3						12

Peak Hour Analysis from 01:30 PM to 03:30 PM begins at:

1:30 PM	Eastern Avenue (Route 127)						East Main Street						Main Street						Total	
	from North						from East						from West							
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total		
1:30 PM	0	0	0	2	1	3	0	0	0	0	0	0	0	0	0	0	1	0	1	4
1:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	1	2	
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:15 PM	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	1	0	1	4	
Total Volume	0	0	0	2	4	6	0	0	0	1	0	1	0	0	0	3	0	3	10	
% Approach Total	0.0	0.0	0.0	33.3	66.7		0.0	0.0	0.0	100.0	0.0		0.0	0.0	0.0	100.0	0.0			
PHF	0.000	0.000	0.000	0.250	0.333	0.500	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.750	0.000	0.750	0.625	
Entering Leg	0	0	0	2	4	6	0	0	0	1	0	1	0	0	0	3	0	3	10	
Exiting Leg	6						1						3						10	
Total	12						2						6						20	

PDI File #: **197379 C**
 Location: **N: Webster Street S: Webster Street**
 Location: **W: Friend Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:

Cars and Heavy Vehicles (Combined)

	Webster Street				Webster Street				Friend Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
7:00 AM	2	6	0	8	8	7	0	15	17	0	0	17	40
7:15 AM	1	13	0	14	6	2	0	8	19	0	0	19	41
7:30 AM	0	17	0	17	9	1	0	10	11	0	0	11	38
7:45 AM	0	20	0	20	8	4	0	12	20	0	0	20	52
Total	3	56	0	59	31	14	0	45	67	0	0	67	171
8:00 AM	0	21	0	21	11	5	0	16	25	0	0	25	62
8:15 AM	1	17	0	18	11	9	0	20	21	0	0	21	59
8:30 AM	1	12	0	13	4	12	1	17	12	0	0	12	42
8:45 AM	0	23	0	23	7	13	0	20	19	0	0	19	62
Total	2	73	0	75	33	39	1	73	77	0	0	77	225
Grand Total	5	129	0	134	64	53	1	118	144	0	0	144	396
Approach %	3.7	96.3	0.0		54.2	44.9	0.8		100.0	0.0	0.0		
Total %	1.3	32.6	0.0	33.8	16.2	13.4	0.3	29.8	36.4	0.0	0.0	36.4	
Exiting Leg Total	64				274				58				396
Cars	5	127	0	132	63	48	1	112	141	0	0	141	385
% Cars	100.0	98.4	0.0	98.5	98.4	90.6	100.0	94.9	97.9	0.0	0.0	97.9	97.2
Exiting Leg Total	63				269				53				385
Heavy Vehicles	0	2	0	2	1	5	0	6	3	0	0	3	11
% Heavy Vehicles	0.0	1.6	0.0	1.5	1.6	9.4	0.0	5.1	2.1	0.0	0.0	2.1	2.8
Exiting Leg Total	1				5				5				11

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Webster Street				Webster Street				Friend Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
8:00 AM	0	21	0	21	11	5	0	16	25	0	0	25	62
8:15 AM	1	17	0	18	11	9	0	20	21	0	0	21	59
8:30 AM	1	12	0	13	4	12	1	17	12	0	0	12	42
8:45 AM	0	23	0	23	7	13	0	20	19	0	0	19	62
Total Volume	2	73	0	75	33	39	1	73	77	0	0	77	225
% Approach Total	2.7	97.3	0.0		45.2	53.4	1.4		100.0	0.0	0.0		
PHF	0.500	0.793	0.000	0.815	0.750	0.750	0.250	0.913	0.770	0.000	0.000	0.770	0.907
Cars	2	73	0	75	32	37	1	70	75	0	0	75	220
Cars %	100.0	100.0	0.0	100.0	97.0	94.9	100.0	95.9	97.4	0.0	0.0	97.4	97.8
Heavy Vehicles	0	0	0	0	1	2	0	3	2	0	0	2	5
Heavy Vehicles %	0.0	0.0	0.0	0.0	3.0	5.1	0.0	4.1	2.6	0.0	0.0	2.6	2.2
Cars Enter Leg	2	73	0	75	32	37	1	70	75	0	0	75	220
Heavy Enter Leg	0	0	0	0	1	2	0	3	2	0	0	2	5
Total Entering Leg	2	73	0	75	33	39	1	73	77	0	0	77	225
Cars Exiting Leg				32				149				39	220
Heavy Exiting Leg				1				2				2	5
Total Exiting Leg				33				151				41	225

PDI File #: **197379 C**
 Location: **N: Webster Street S: Webster Street**
 Location: **W: Friend Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:

Cars

	Webster Street				Webster Street				Friend Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
7:00 AM	2	6	0	8	8	5	0	13	17	0	0	17	38
7:15 AM	1	12	0	13	6	2	0	8	19	0	0	19	40
7:30 AM	0	17	0	17	9	1	0	10	10	0	0	10	37
7:45 AM	0	19	0	19	8	3	0	11	20	0	0	20	50
Total	3	54	0	57	31	11	0	42	66	0	0	66	165
8:00 AM	0	21	0	21	10	4	0	14	24	0	0	24	59
8:15 AM	1	17	0	18	11	9	0	20	20	0	0	20	58
8:30 AM	1	12	0	13	4	11	1	16	12	0	0	12	41
8:45 AM	0	23	0	23	7	13	0	20	19	0	0	19	62
Total	2	73	0	75	32	37	1	70	75	0	0	75	220
Grand Total	5	127	0	132	63	48	1	112	141	0	0	141	385
Approach %	3.8	96.2	0.0		56.3	42.9	0.9		100.0	0.0	0.0		
Total %	1.3	33.0	0.0	34.3	16.4	12.5	0.3	29.1	36.6	0.0	0.0	36.6	
Exiting Leg Total	63				269				53				385

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Webster Street				Webster Street				Friend Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
8:00 AM	0	21	0	21	10	4	0	14	24	0	0	24	59
8:15 AM	1	17	0	18	11	9	0	20	20	0	0	20	58
8:30 AM	1	12	0	13	4	11	1	16	12	0	0	12	41
8:45 AM	0	23	0	23	7	13	0	20	19	0	0	19	62
Total Volume	2	73	0	75	32	37	1	70	75	0	0	75	220
% Approach Total	2.7	97.3	0.0		45.7	52.9	1.4		100.0	0.0	0.0		
PHF	0.500	0.793	0.000	0.815	0.727	0.712	0.250	0.875	0.781	0.000	0.000	0.781	0.887
Entering Leg	2	73	0	75	32	37	1	70	75	0	0	75	220
Exiting Leg				32				149				39	220
Total				107				219				114	440

PDI File #: **197379 C**
 Location: **N: Webster Street S: Webster Street**
 Location: **W: Friend Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Webster Street				Webster Street				Friend Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
7:00 AM	0	0	0	0	0	2	0	2	0	0	0	0	2
7:15 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	1
7:45 AM	0	1	0	1	0	1	0	1	0	0	0	0	2
Total	0	2	0	2	0	3	0	3	1	0	0	1	6
8:00 AM	0	0	0	0	1	1	0	2	1	0	0	1	3
8:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	1
8:30 AM	0	0	0	0	0	1	0	1	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	2	0	3	2	0	0	2	5
Grand Total	0	2	0	2	1	5	0	6	3	0	0	3	11
Approach %	0.0	100.0	0.0		16.7	83.3	0.0		100.0	0.0	0.0		
Total %	0.0	18.2	0.0	18.2	9.1	45.5	0.0	54.5	27.3	0.0	0.0	27.3	
Exiting Leg Total	1				5				5				11
Buses	0	1	0	1	1	3	0	4	3	0	0	3	8
% Buses	0.0	50.0	0.0	50.0	100.0	60.0	0.0	66.7	100.0	0.0	0.0	100.0	72.7
Exiting Leg Total	1				4				3				8
Single-Unit Trucks	0	1	0	1	0	2	0	2	0	0	0	0	3
% Single-Unit	0.0	50.0	0.0	50.0	0.0	40.0	0.0	33.3	0.0	0.0	0.0	0.0	27.3
Exiting Leg Total	0				1				2				3
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total	0				0				0				0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Webster Street				Webster Street				Friend Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
7:15 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	1
7:45 AM	0	1	0	1	0	1	0	1	0	0	0	0	2
8:00 AM	0	0	0	0	1	1	0	2	1	0	0	1	3
Total Volume	0	2	0	2	1	2	0	3	2	0	0	2	7
% Approach Total	0.0	100.0	0.0		33.3	66.7	0.0		100.0	0.0	0.0		
PHF	0.000	0.500	0.000	0.500	0.250	0.500	0.000	0.375	0.500	0.000	0.000	0.500	0.583
Buses	0	1	0	1	1	0	0	1	2	0	0	2	4
Buses %	0.0	50.0	0.0	50.0	100.0	0.0	0.0	33.3	100.0	0.0	0.0	100.0	57.1
Single-Unit Trucks	0	1	0	1	0	2	0	2	0	0	0	0	3
Single-Unit %	0.0	50.0	0.0	50.0	0.0	100.0	0.0	66.7	0.0	0.0	0.0	0.0	42.9
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Buses	0	1	0	1	1	0	0	1	2	0	0	2	4
Single-Unit Trucks	0	1	0	1	0	2	0	2	0	0	0	0	3
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	0	2	0	2	1	2	0	3	2	0	0	2	7
Buses				1				3				0	4
Single-Unit Trucks				0				1				2	3
Articulated Trucks				0				0				0	0
Total Exiting Leg				1				4				2	7

PDI File #: **197379 C**
 Location: **N: Webster Street S: Webster Street**
 Location: **W: Friend Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:

Buses

	Webster Street				Webster Street				Friend Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
7:00 AM	0	0	0	0	0	2	0	2	0	0	0	0	2
7:15 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	1	0	2	0	2	1	0	0	1	4
8:00 AM	0	0	0	0	1	0	0	1	1	0	0	1	2
8:15 AM	0	0	0	0	0	0	0	0	1	0	0	1	1
8:30 AM	0	0	0	0	0	1	0	1	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	1	0	2	2	0	0	2	4
Grand Total	0	1	0	1	1	3	0	4	3	0	0	3	8
Approach %	0.0	100.0	0.0		25.0	75.0	0.0		100.0	0.0	0.0		
Total %	0.0	12.5	0.0	12.5	12.5	37.5	0.0	50.0	37.5	0.0	0.0	37.5	
Exiting Leg Total	1				4				3				8

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Webster Street				Webster Street				Friend Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
7:00 AM	0	0	0	0	0	2	0	2	0	0	0	0	2
7:15 AM	0	1	0	1	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	2	0	2	1	0	0	1	4
% Approach Total	0.0	100.0	0.0		0.0	100.0	0.0		100.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.250	0.000	0.250	0.000	0.250	0.250	0.000	0.000	0.250	0.500
Entering Leg	0	1	0	1	0	2	0	2	1	0	0	1	4
Exiting Leg				0				2				2	4
Total				1				4				3	8

PDI File #: **197379 C**
 Location: **N: Webster Street S: Webster Street**
 Location: **W: Friend Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:

Single-Unit Trucks

	Webster Street				Webster Street				Friend Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	1	0	1	0	1	0	0	0	0	2
Total	0	1	0	1	0	1	0	1	0	0	0	0	2
8:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	1	0	0	0	0	1
Grand Total	0	1	0	1	0	2	0	2	0	0	0	0	3
Approach %	0.0	100.0	0.0		0.0	100.0	0.0		0.0	0.0	0.0		
Total %	0.0	33.3	0.0	33.3	0.0	66.7	0.0	66.7	0.0	0.0	0.0	0.0	
Exiting Leg Total	0				1				2				3

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Webster Street				Webster Street				Friend Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	1	0	1	0	1	0	0	0	0	2
8:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	1
Total Volume	0	1	0	1	0	2	0	2	0	0	0	0	3
% Approach Total	0.0	100.0	0.0		0.0	100.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.250	0.000	0.500	0.000	0.500	0.000	0.000	0.000	0.000	0.375
Entering Leg	0	1	0	1	0	2	0	2	0	0	0	0	3
Exiting Leg				0				1				2	3
Total				1				3				2	6

PDI File #: **197379 C**
 Location: **N: Webster Street S: Webster Street**
 Location: **W: Friend Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:

Articulated Trucks

	Webster Street				Webster Street				Friend Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	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
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0	0
Approach %	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	0.0	0.0	0.0	
Exiting Leg Total	0				0				0				0

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Webster Street				Webster Street				Friend Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	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
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg				0				0				0	0
Total				0				0				0	0

PDI File #: **197379 C**
 Location: **N: Webster Street S: Webster Street**
 Location: **W: Friend Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**

Class: **Bicycles (on Roadway and Crosswalks)**

	Webster Street						Webster Street						Friend Street						Total	
	from North						from South						from West							
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	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	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	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	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0			
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Exiting Leg Total	0						0						0						0	

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:00 AM	Webster Street						Webster Street						Friend Street						Total
	from North						from South						from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	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	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg	0						0						0						0
Total	0						0						0						0

PDI File #: **197379 C**
 Location: **N: Webster Street S: Webster Street**
 Location: **W: Friend Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **9:00 AM**
 Class:

Pedestrians

	Webster Street						Webster Street						Friend Street						Total	
	from North						from South						from West							
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total		
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	8	9	0	0	0	0	4	4	13
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0	2
Total	0	0	0	0	0	0	0	0	0	0	3	10	13	0	0	0	0	4	4	17
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	1	1	3
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	2
8:45 AM	0	0	0	1	0	1	0	0	0	0	1	7	8	0	0	0	1	6	7	16
Total	0	0	0	1	0	1	0	0	0	0	1	11	12	0	0	0	1	7	8	21
Grand Total	0	0	0	1	0	1	0	0	0	0	4	21	25	0	0	0	1	11	12	38
Approach %	0	0	0	100	0		0	0	0	0	16	84		0	0	0	8.3333	91.667		
Total %	0	0	0	2.6316	0	2.6316	0	0	0	0	10.526	55.263	65.789	0	0	0	2.6316	28.947	31.579	
Exiting Leg Total	1						25						12						38	

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

8:00 AM	Webster Street						Webster Street						Friend Street						Total
	from North						from South						from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	1	1	3
8:30 AM	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	2
8:45 AM	0	0	0	1	0	1	0	0	0	1	7	8	0	0	0	1	6	7	16
Total Volume	0	0	0	1	0	1	0	0	0	1	11	12	0	0	0	1	7	8	21
% Approach Total	0.0	0.0	0.0	100.0	0.0		0.0	0.0	0.0	8.3	91.7		0.0	0.0	0.0	12.5	87.5		
PHF	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.250	0.393	0.375	0.000	0.000	0.000	0.250	0.292	0.286	0.328
Entering Leg	0	0	0	1	0	1	0	0	0	1	11	12	0	0	0	1	7	8	21
Exiting Leg	1						12						8						21
Total	2						24						16						42

PDI File #: **197379 CC**
 Location: **N: Webster Street S: Webster Street**
 Location: **W: Friend Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **1:30 PM**
 End Time: **3:30 PM**
 Class:

Cars and Heavy Vehicles (Combined)

	Webster Street				Webster Street				Friend Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
1:30 PM	0	8	0	8	14	11	0	25	11	1	0	12	45
1:45 PM	0	12	0	12	12	11	0	23	7	1	0	8	43
Total	0	20	0	20	26	22	0	48	18	2	0	20	88
2:00 PM	2	7	0	9	11	8	2	21	14	1	0	15	45
2:15 PM	1	11	0	12	15	10	0	25	29	0	0	29	66
2:30 PM	3	9	0	12	14	11	2	27	16	2	0	18	57
2:45 PM	2	17	0	19	17	12	0	29	18	4	0	22	70
Total	8	44	0	52	57	41	4	102	77	7	0	84	238
3:00 PM	6	23	0	29	28	31	0	59	9	2	0	11	99
3:15 PM	0	7	0	7	27	20	0	47	14	0	0	14	68
Total	6	30	0	36	55	51	0	106	23	2	0	25	167
Grand Total	14	94	0	108	138	114	4	256	118	11	0	129	493
Approach %	13.0	87.0	0.0		53.9	44.5	1.6		91.5	8.5	0.0		
Total %	2.8	19.1	0.0	21.9	28.0	23.1	0.8	51.9	23.9	2.2	0.0	26.2	
Exiting Leg Total				149				216				128	493
Cars	13	90	0	103	131	111	4	246	115	11	0	126	475
% Cars	92.9	95.7	0.0	95.4	94.9	97.4	100.0	96.1	97.5	100.0	0.0	97.7	96.3
Exiting Leg Total				142				209				124	475
Heavy Vehicles	1	4	0	5	7	3	0	10	3	0	0	3	18
% Heavy Vehicles	7.1	4.3	0.0	4.6	5.1	2.6	0.0	3.9	2.5	0.0	0.0	2.3	3.7
Exiting Leg Total				7				7				4	18

Peak Hour Analysis from 01:30 PM to 03:30 PM begins at:

2:30 PM	Webster Street				Webster Street				Friend Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
2:30 PM	3	9	0	12	14	11	2	27	16	2	0	18	57
2:45 PM	2	17	0	19	17	12	0	29	18	4	0	22	70
3:00 PM	6	23	0	29	28	31	0	59	9	2	0	11	99
3:15 PM	0	7	0	7	27	20	0	47	14	0	0	14	68
Total Volume	11	56	0	67	86	74	2	162	57	8	0	65	294
% Approach Total	16.4	83.6	0.0		53.1	45.7	1.2		87.7	12.3	0.0		
PHF	0.458	0.609	0.000	0.578	0.768	0.597	0.250	0.686	0.792	0.500	0.000	0.739	0.742
Cars	10	54	0	64	80	72	2	154	56	8	0	64	282
Cars %	90.9	96.4	0.0	95.5	93.0	97.3	100.0	95.1	98.2	100.0	0.0	98.5	95.9
Heavy Vehicles	1	2	0	3	6	2	0	8	1	0	0	1	12
Heavy Vehicles %	9.1	3.6	0.0	4.5	7.0	2.7	0.0	4.9	1.8	0.0	0.0	1.5	4.1
Cars Enter Leg	10	54	0	64	80	72	2	154	56	8	0	64	282
Heavy Enter Leg	1	2	0	3	6	2	0	8	1	0	0	1	12
Total Entering Leg	11	56	0	67	86	74	2	162	57	8	0	65	294
Cars Exiting Leg				88				112				82	282
Heavy Exiting Leg				6				3				3	12
Total Exiting Leg				94				115				85	294

PDI File #: **197379 CC**
 Location: **N: Webster Street S: Webster Street**
 Location: **W: Friend Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **1:30 PM**
 End Time: **3:30 PM**
 Class:

Cars

	Webster Street				Webster Street				Friend Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
1:30 PM	0	8	0	8	13	11	0	24	10	1	0	11	43
1:45 PM	0	10	0	10	12	11	0	23	6	1	0	7	40
Total	0	18	0	18	25	22	0	47	16	2	0	18	83
2:00 PM	2	7	0	9	11	8	2	21	14	1	0	15	45
2:15 PM	1	11	0	12	15	9	0	24	29	0	0	29	65
2:30 PM	2	9	0	11	14	11	2	27	16	2	0	18	56
2:45 PM	2	17	0	19	16	11	0	27	18	4	0	22	68
Total	7	44	0	51	56	39	4	99	77	7	0	84	234
3:00 PM	6	22	0	28	25	31	0	56	9	2	0	11	95
3:15 PM	0	6	0	6	25	19	0	44	13	0	0	13	63
Total	6	28	0	34	50	50	0	100	22	2	0	24	158
Grand Total	13	90	0	103	131	111	4	246	115	11	0	126	475
Approach %	12.6	87.4	0.0		53.3	45.1	1.6		91.3	8.7	0.0		
Total %	2.7	18.9	0.0	21.7	27.6	23.4	0.8	51.8	24.2	2.3	0.0	26.5	
Exiting Leg Total				142				209				124	475

Peak Hour Analysis from 01:30 PM to 03:30 PM begins at:

2:15 PM	Webster Street				Webster Street				Friend Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
2:15 PM	1	11	0	12	15	9	0	24	29	0	0	29	65
2:30 PM	2	9	0	11	14	11	2	27	16	2	0	18	56
2:45 PM	2	17	0	19	16	11	0	27	18	4	0	22	68
3:00 PM	6	22	0	28	25	31	0	56	9	2	0	11	95
Total Volume	11	59	0	70	70	62	2	134	72	8	0	80	284
% Approach Total	15.7	84.3	0.0		52.2	46.3	1.5		90.0	10.0	0.0		
PHF	0.458	0.670	0.000	0.625	0.700	0.500	0.250	0.598	0.621	0.500	0.000	0.690	0.747
Entering Leg	11	59	0	70	70	62	2	134	72	8	0	80	284
Exiting Leg				78				133				73	284
Total				148				267				153	568

PDI File #: **197379 CC**
 Location: **N: Webster Street S: Webster Street**
 Location: **W: Friend Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **1:30 PM**
 End Time: **3:30 PM**

Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Webster Street				Webster Street				Friend Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
1:30 PM	0	0	0	0	1	0	0	1	1	0	0	1	2
1:45 PM	0	2	0	2	0	0	0	0	1	0	0	1	3
Total	0	2	0	2	1	0	0	1	2	0	0	2	5
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
2:30 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
2:45 PM	0	0	0	0	1	1	0	2	0	0	0	0	2
Total	1	0	0	1	1	2	0	3	0	0	0	0	4
3:00 PM	0	1	0	1	3	0	0	3	0	0	0	0	4
3:15 PM	0	1	0	1	2	1	0	3	1	0	0	1	5
Total	0	2	0	2	5	1	0	6	1	0	0	1	9
Grand Total	1	4	0	5	7	3	0	10	3	0	0	3	18
Approach %	20.0	80.0	0.0		70.0	30.0	0.0		100.0	0.0	0.0		
Total %	5.6	22.2	0.0	27.8	38.9	16.7	0.0	55.6	16.7	0.0	0.0	16.7	
Exiting Leg Total	7				7				4				18
Buses	0	2	0	2	4	0	0	4	1	0	0	1	7
% Buses	0.0	50.0	0.0	40.0	57.1	0.0	0.0	40.0	33.3	0.0	0.0	33.3	38.9
Exiting Leg Total	4				3				0				7
Single-Unit Trucks	1	2	0	3	3	3	0	6	2	0	0	2	11
% Single-Unit	100.0	50.0	0.0	60.0	42.9	100.0	0.0	60.0	66.7	0.0	0.0	66.7	61.1
Exiting Leg Total	3				4				4				11
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Exiting Leg Total	0				0				0				0

Peak Hour Analysis from 01:30 PM to 03:30 PM begins at:

2:30 PM	Webster Street				Webster Street				Friend Street				Total	
	from North				from South				from West					
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total		
2:30 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	1
2:45 PM	0	0	0	0	1	1	0	2	0	0	0	0	0	2
3:00 PM	0	1	0	1	3	0	0	3	0	0	0	0	0	4
3:15 PM	0	1	0	1	2	1	0	3	1	0	0	0	1	5
Total Volume	1	2	0	3	6	2	0	8	1	0	0	1	1	12
% Approach Total	33.3	66.7	0.0		75.0	25.0	0.0		100.0	0.0	0.0			
PHF	0.250	0.500	0.000	0.750	0.500	0.500	0.000	0.667	0.250	0.000	0.000	0.250		0.600
Buses	0	1	0	1	3	0	0	3	1	0	0	1		5
Buses %	0.0	50.0	0.0	33.3	50.0	0.0	0.0	37.5	100.0	0.0	0.0	100.0		41.7
Single-Unit Trucks	1	1	0	2	3	2	0	5	0	0	0	0		7
Single-Unit %	100.0	50.0	0.0	66.7	50.0	100.0	0.0	62.5	0.0	0.0	0.0	0.0		58.3
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0		0
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0
Buses	0	1	0	1	3	0	0	3	1	0	0	1		5
Single-Unit Trucks	1	1	0	2	3	2	0	5	0	0	0	0		7
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0		0
Total Entering Leg	1	2	0	3	6	2	0	8	1	0	0	1		12
Buses	3				2				0				5	
Single-Unit Trucks	3				1				3				7	
Articulated Trucks	0				0				0				0	
Total Exiting Leg	6				3				3				12	

PDI File #: **197379 CC**
 Location: **N: Webster Street S: Webster Street**
 Location: **W: Friend Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **1:30 PM**
 End Time: **3:30 PM**
 Class:

Buses

	Webster Street					Webster Street					Friend Street					Total
	from North					from South					from West					
	Right	Thru	U-Turn	Total		Thru	Left	U-Turn	Total		Right	Left	U-Turn	Total		
1:30 PM	0	0	0	0		1	0	0	1		0	0	0	0		1
1:45 PM	0	1	0	1		0	0	0	0		0	0	0	0		1
Total	0	1	0	1		1	0	0	1		0	0	0	0		2
2:00 PM	0	0	0	0		0	0	0	0		0	0	0	0		0
2:15 PM	0	0	0	0		0	0	0	0		0	0	0	0		0
2:30 PM	0	0	0	0		0	0	0	0		0	0	0	0		0
2:45 PM	0	0	0	0		1	0	0	1		0	0	0	0		1
Total	0	0	0	0		1	0	0	1		0	0	0	0		1
3:00 PM	0	1	0	1		2	0	0	2		0	0	0	0		3
3:15 PM	0	0	0	0		0	0	0	0		1	0	0	1		1
Total	0	1	0	1		2	0	0	2		1	0	0	1		4
Grand Total	0	2	0	2		4	0	0	4		1	0	0	1		7
Approach %	0.0	100.0	0.0			100.0	0.0	0.0			100.0	0.0	0.0			
Total %	0.0	28.6	0.0	28.6		57.1	0.0	0.0	57.1		14.3	0.0	0.0	14.3		
Exiting Leg Total	4					3					0					7

Peak Hour Analysis from 01:30 PM to 03:30 PM begins at:

2:30 PM	Webster Street				Webster Street				Friend Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
3:00 PM	0	1	0	1	2	0	0	2	0	0	0	0	3
3:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
Total Volume	0	1	0	1	3	0	0	3	1	0	0	1	5
% Approach Total	0.0	100.0	0.0		100.0	0.0	0.0		100.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.250	0.375	0.000	0.000	0.375	0.250	0.000	0.000	0.250	0.417
Entering Leg	0	1	0	1	3	0	0	3	1	0	0	1	5
Exiting Leg				3				2				0	5
Total				4				5				1	10

PDI File #: **197379 CC**
 Location: **N: Webster Street S: Webster Street**
 Location: **W: Friend Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **1:30 PM**
 End Time: **3:30 PM**
 Class:

Single-Unit Trucks

	Webster Street				Webster Street				Friend Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
1:30 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
1:45 PM	0	1	0	1	0	0	0	0	1	0	0	1	2
Total	0	1	0	1	0	0	0	0	2	0	0	2	3
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
2:30 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
2:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	1	0	0	1	0	2	0	2	0	0	0	0	3
3:00 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
3:15 PM	0	1	0	1	2	1	0	3	0	0	0	0	4
Total	0	1	0	1	3	1	0	4	0	0	0	0	5
Grand Total	1	2	0	3	3	3	0	6	2	0	0	2	11
Approach %	33.3	66.7	0.0		50.0	50.0	0.0		100.0	0.0	0.0		
Total %	9.1	18.2	0.0	27.3	27.3	27.3	0.0	54.5	18.2	0.0	0.0	18.2	
Exiting Leg Total	3				4				4				11

Peak Hour Analysis from 01:30 PM to 03:30 PM begins at:

2:30 PM	Webster Street				Webster Street				Friend Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
2:30 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
2:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
3:00 PM	0	0	0	0	1	0	0	1	0	0	0	0	1
3:15 PM	0	1	0	1	2	1	0	3	0	0	0	0	4
Total Volume	1	1	0	2	3	2	0	5	0	0	0	0	7
% Approach Total	50.0	50.0	0.0		60.0	40.0	0.0		0.0	0.0	0.0		
PHF	0.250	0.250	0.000	0.500	0.375	0.500	0.000	0.417	0.000	0.000	0.000	0.000	0.438
Entering Leg	1	1	0	2	3	2	0	5	0	0	0	0	7
Exiting Leg				3				1				3	7
Total				5				6				3	14

PDI File #: **197379 CC**
 Location: **N: Webster Street S: Webster Street**
 Location: **W: Friend Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **1:30 PM**
 End Time: **3:30 PM**
 Class:

Articulated Trucks

	Webster Street				Webster Street				Friend Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 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
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 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
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 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	0	0	0
Approach %	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	0.0	0.0	0.0	
Exiting Leg Total	0				0				0				0

Peak Hour Analysis from 01:30 PM to 03:30 PM begins at:

1:30 PM	Webster Street				Webster Street				Friend Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	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
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg				0				0				0	0
Total				0				0				0	0

PDI File #: **197379 CC**
 Location: **N: Webster Street S: Webster Street**
 Location: **W: Friend Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **1:30 PM**
 End Time: **3:30 PM**

Class: **Bicycles (on Roadway and Crosswalks)**

	Webster Street						Webster Street						Friend Street						Total	
	from North						from South						from West							
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total		
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	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	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	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	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	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	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0			
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Exiting Leg Total	0						0						0						0	

Peak Hour Analysis from 01:30 PM to 03:30 PM begins at:

1:30 PM	Webster Street						Webster Street						Friend Street						Total
	from North						from South						from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	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	0	0
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg	0						0						0						0
Total	0						0						0						0

PDI File #: **197379 CC**
 Location: **N: Webster Street S: Webster Street**
 Location: **W: Friend Street**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **1:30 PM**
 End Time: **3:30 PM**
 Class:

Pedestrians

	Webster Street						Webster Street						Friend Street						Total
	from North						from South						from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	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
2:00 PM	0	0	0	0	0	0	0	0	0	5	1	6	0	0	0	3	0	3	9
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
2:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1
2:45 PM	0	0	0	2	0	2	0	0	0	0	9	9	0	0	0	0	3	3	14
Total	0	0	0	2	0	2	0	0	0	6	10	16	0	0	0	5	3	8	26
3:00 PM	0	0	0	2	0	2	0	0	0	21	0	21	0	0	0	6	0	6	29
3:15 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1
Total	0	0	0	2	0	2	0	0	0	21	1	22	0	0	0	6	0	6	30
Grand Total	0	0	0	4	0	4	0	0	0	27	11	38	0	0	0	11	3	14	56
Approach %	0	0	0	100	0		0	0	0	71.053	28.947		0	0	0	78.571	21.429		
Total %	0	0	0	7.1429	0	7.1429	0	0	0	48.214	19.643	67.857	0	0	0	19.643	5.3571	25	
Exiting Leg Total	4						38						14						56

Peak Hour Analysis from 01:30 PM to 03:30 PM begins at:

2:15 PM	Webster Street						Webster Street						Friend Street						Total	
	from North						from South						from West							
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total		
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
2:30 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1
2:45 PM	0	0	0	2	0	2	0	0	0	0	9	9	0	0	0	0	3	3	14	14
3:00 PM	0	0	0	2	0	2	0	0	0	21	0	21	0	0	0	6	0	6	29	29
Total Volume	0	0	0	4	0	4	0	0	0	22	9	31	0	0	0	8	3	11	46	46
% Approach Total	0.0	0.0	0.0	100.0	0.0		0.0	0.0	0.0	71.0	29.0		0.0	0.0	0.0	72.7	27.3			
PHF	0.000	0.000	0.000	0.500	0.000	0.500	0.000	0.000	0.000	0.262	0.250	0.369	0.000	0.000	0.000	0.333	0.250	0.458	0.397	0.397
Entering Leg	0	0	0	4	0	4	0	0	0	22	9	31	0	0	0	8	3	11	46	46
Exiting Leg						4						31						11	46	46
Total						8						62						22	92	92

PDI File #: **197379 D**
 Location: **N: Webster Street S: Driveway**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **6:00 PM**
 Class:

Cars and Heavy Vehicles (Combined)

	Webster Street					Eastern Avenue (Route 127)					Driveway					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:00 AM	3	0	20	0	23	11	47	0	0	58	0	0	0	0	0	0	44	6	0	50	131
7:15 AM	0	0	33	0	33	8	63	0	0	71	0	0	0	0	0	0	63	2	0	65	169
7:30 AM	1	0	29	0	30	8	50	0	0	58	0	0	0	0	0	0	64	4	0	68	156
7:45 AM	4	0	30	0	34	17	59	0	0	76	0	0	0	0	0	0	56	4	0	60	170
Total	8	0	112	0	120	44	219	0	0	263	0	0	0	0	0	0	227	16	0	243	626
8:00 AM	10	0	37	0	47	17	48	0	0	65	0	0	0	0	0	0	55	11	0	66	178
8:15 AM	12	0	36	0	48	27	70	0	0	97	0	0	0	0	0	0	67	8	0	75	220
8:30 AM	7	0	22	0	29	23	64	0	0	87	0	0	0	0	0	0	82	8	0	90	206
8:45 AM	13	0	25	0	38	17	64	0	0	81	0	0	0	0	0	0	73	6	0	79	198
Total	42	0	120	0	162	84	246	0	0	330	0	0	0	0	0	0	277	33	0	310	802
9:00 AM	6	0	27	0	33	15	88	0	0	103	0	0	0	0	0	0	55	4	0	59	195
9:15 AM	1	0	25	0	26	13	75	0	0	88	0	0	0	0	0	0	50	1	0	51	165
9:30 AM	6	0	16	0	22	19	73	0	0	92	0	0	0	0	0	0	51	3	0	54	168
9:45 AM	4	0	24	0	28	10	74	0	0	84	0	0	0	0	0	0	61	6	0	67	179
Total	17	0	92	0	109	57	310	0	0	367	0	0	0	0	0	0	217	14	0	231	707
10:00 AM	1	0	22	0	23	14	78	0	0	92	0	0	0	0	0	0	67	5	0	72	187
10:15 AM	2	0	20	0	22	14	71	0	0	85	0	0	0	0	0	0	49	2	0	51	158
10:30 AM	2	0	27	0	29	13	90	0	0	103	0	0	0	0	0	0	48	2	0	50	182
10:45 AM	3	0	16	0	19	17	83	0	0	100	0	0	0	0	0	0	74	4	0	78	197
Total	8	0	85	0	93	58	322	0	0	380	0	0	0	0	0	0	238	13	0	251	724
11:00 AM	3	0	21	0	24	15	84	0	1	100	0	0	0	0	0	0	68	3	0	71	195
11:15 AM	0	0	21	0	21	18	83	0	0	101	0	0	0	0	0	0	72	4	0	76	198
11:30 AM	1	0	7	1	9	17	87	0	0	104	0	0	0	0	0	0	63	7	0	70	183
11:45 AM	3	0	22	0	25	18	117	0	0	135	0	0	0	0	0	0	69	4	0	73	233
Total	7	0	71	1	79	68	371	0	1	440	0	0	0	0	0	0	272	18	0	290	809
12:00 PM	1	0	13	0	14	25	92	0	0	117	0	0	0	0	0	0	74	3	0	77	208
12:15 PM	4	0	24	0	28	27	101	0	1	129	0	0	0	0	0	0	72	4	0	76	233
12:30 PM	2	0	22	0	24	18	63	0	0	81	0	0	0	0	0	0	69	3	0	72	177
12:45 PM	1	0	26	0	27	21	100	0	0	121	0	0	0	0	0	0	75	4	0	79	227
Total	8	0	85	0	93	91	356	0	1	448	0	0	0	0	0	0	290	14	0	304	845
1:00 PM	6	0	29	0	35	21	98	0	0	119	0	0	0	0	0	0	71	9	0	80	234
1:15 PM	3	0	25	0	28	18	83	0	0	101	0	0	0	0	0	0	65	4	0	69	198
1:30 PM	1	0	18	0	19	17	82	0	0	99	0	0	0	0	0	0	99	11	0	110	228
1:45 PM	1	0	19	0	20	20	79	0	0	99	0	0	0	0	0	0	73	4	0	77	196
Total	11	0	91	0	102	76	342	0	0	418	0	0	0	0	0	0	308	28	0	336	856
2:00 PM	1	0	20	0	21	21	74	0	0	95	0	0	0	0	0	0	85	6	0	91	207
2:15 PM	2	0	38	0	40	22	73	0	0	95	0	0	1	0	1	0	108	4	0	112	248
2:30 PM	1	0	27	0	28	25	93	0	0	118	0	0	0	0	0	0	93	10	0	103	249
2:45 PM	6	0	23	0	29	36	91	0	0	127	0	0	0	0	0	0	70	9	0	79	235
Total	10	0	108	0	118	104	331	0	0	435	0	0	1	0	1	0	356	29	0	385	939
3:00 PM	15	0	37	0	52	33	76	0	0	109	0	0	0	0	0	0	80	8	0	88	249
3:15 PM	5	0	30	0	35	36	84	0	0	120	0	1	0	0	1	0	77	5	0	82	238
3:30 PM	6	0	28	0	34	30	77	0	0	107	0	0	0	0	0	1	77	9	0	87	228
3:45 PM	4	0	29	0	33	45	96	0	0	141	0	0	0	0	0	0	73	4	0	77	251
Total	30	0	124	0	154	144	333	0	0	477	0	1	0	0	1	1	307	26	0	334	966
4:00 PM	3	0	23	0	26	28	94	0	0	122	0	0	0	0	0	0	80	6	0	86	234
4:15 PM	3	0	21	0	24	24	82	0	0	106	0	0	0	0	0	0	74	4	0	78	208
4:30 PM	2	0	12	0	14	33	88	0	0	121	0	0	0	0	0	0	66	4	0	70	205
4:45 PM	4	0	23	0	27	38	97	0	0	135	0	0	0	0	0	0	65	5	0	70	232
Total	12	0	79	0	91	123	361	0	0	484	0	0	0	0	0	0	285	19	0	304	879
5:00 PM	3	0	27	0	30	36	98	0	0	134	0	0	0	0	0	0	91	3	0	94	258
5:15 PM	1	0	11	0	12	28	65	0	0	93	0	0	0	0	0	0	74	7	1	82	187
5:30 PM	3	0	21	0	24	30	92	0	0	122	0	0	0	0	0	0	54	5	0	59	205
5:45 PM	4	0	23	0	27	22	78	0	0	100	0	0	0	0	0	0	73	5	0	78	205
Total	11	0	82	0	93	116	333	0	0	449	0	0	0	0	0	0	292	20	1	313	855
Grand Total	164	0	1049	1	1214	965	3524	0	2	4491	0	1	1	0	2	1	3069	230	1	3301	9008
Approach %	13.5	0.0	86.4	0.1		21.5	78.5	0.0	0.0		0.0	50.0	50.0	0.0		0.0	93.0	7.0	0.0		

PDI File #: **197379 D**
 Location: **N: Webster Street S: Driveway**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **6:00 PM**
 Class:

Cars and Heavy Vehicles (Combined)

	Webster Street					Eastern Avenue (Route 127)					Driveway					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
Total %	1.8	0.0	11.6	0.0	13.5	10.7	39.1	0.0	0.0	49.9	0.0	0.0	0.0	0.0	0.0	0.0	34.1	2.6	0.0	36.6	
Exiting Leg Total	1197					4120					1					3690					9008
Cars	159	0	1026	1	1186	946	3410	0	2	4358	0	1	1	0	2	1	2964	219	1	3185	8731
% Cars	97.0	0.0	97.8	100.0	97.7	98.0	96.8	0.0	100.0	97.0	0.0	100.0	100.0	0.0	100.0	100.0	96.6	95.2	100.0	96.5	96.9
Exiting Leg Total	1167					3992					1					3571					8731
Heavy Vehicles	5	0	23	0	28	19	114	0	0	133	0	0	0	0	0	0	105	11	0	116	277
% Heavy Vehicles	3.0	0.0	2.2	0.0	2.3	2.0	3.2	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	4.8	0.0	3.5	3.1
Exiting Leg Total	30					128					0					119					277

Peak Hour Analysis from 07:00 AM to 06:00 PM begins at:

2:15 PM	Webster Street					Eastern Avenue (Route 127)					Driveway					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
2:15 PM	2	0	38	0	40	22	73	0	0	95	0	0	1	0	1	0	108	4	0	112	248
2:30 PM	1	0	27	0	28	25	93	0	0	118	0	0	0	0	0	0	93	10	0	103	249
2:45 PM	6	0	23	0	29	36	91	0	0	127	0	0	0	0	0	0	70	9	0	79	235
3:00 PM	15	0	37	0	52	33	76	0	0	109	0	0	0	0	0	0	80	8	0	88	249
Total Volume	24	0	125	0	149	116	333	0	0	449	0	0	1	0	1	0	351	31	0	382	981
% Approach Total	16.1	0.0	83.9	0.0		25.8	74.2	0.0	0.0		0.0	0.0	100.0	0.0		0.0	91.9	8.1	0.0		
PHF	0.400	0.000	0.822	0.000	0.716	0.806	0.895	0.000	0.000	0.884	0.000	0.000	0.250	0.000	0.250	0.000	0.813	0.775	0.000	0.853	0.985
Cars	24	0	123	0	147	112	323	0	0	435	0	0	1	0	1	0	336	28	0	364	947
Cars %	100.0	0.0	98.4	0.0	98.7	96.6	97.0	0.0	0.0	96.9	0.0	0.0	100.0	0.0	100.0	0.0	95.7	90.3	0.0	95.3	96.5
Heavy Vehicles	0	0	2	0	2	4	10	0	0	14	0	0	0	0	0	0	15	3	0	18	34
Heavy Vehicles %	0.0	0.0	1.6	0.0	1.3	3.4	3.0	0.0	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	4.3	9.7	0.0	4.7	3.5
Cars Enter Leg	24	0	123	0	147	112	323	0	0	435	0	0	1	0	1	0	336	28	0	364	947
Heavy Enter Leg	0	0	2	0	2	4	10	0	0	14	0	0	0	0	0	0	15	3	0	18	34
Total Entering Leg	24	0	125	0	149	116	333	0	0	449	0	0	1	0	1	0	351	31	0	382	981
Cars Exiting Leg	140					459					0					348					947
Heavy Exiting Leg	7					17					0					10					34
Total Exiting Leg	147					476					0					358					981

PDI File #: **197379 D**
 Location: **N: Webster Street S: Driveway**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **6:00 PM**
 Class:

Cars

	Webster Street					Eastern Avenue (Route 127)					Driveway					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:00 AM	3	0	20	0	23	10	40	0	0	50	0	0	0	0	0	0	40	5	0	45	118
7:15 AM	0	0	32	0	32	8	60	0	0	68	0	0	0	0	0	0	57	2	0	59	159
7:30 AM	1	0	28	0	29	8	47	0	0	55	0	0	0	0	0	0	63	4	0	67	151
7:45 AM	4	0	29	0	33	17	54	0	0	71	0	0	0	0	0	0	54	4	0	58	162
Total	8	0	109	0	117	43	201	0	0	244	0	0	0	0	0	0	214	15	0	229	590
8:00 AM	10	0	36	0	46	15	48	0	0	63	0	0	0	0	0	0	54	11	0	65	174
8:15 AM	12	0	35	0	47	27	66	0	0	93	0	0	0	0	0	0	67	8	0	75	215
8:30 AM	7	0	21	0	28	22	61	0	0	83	0	0	0	0	0	0	79	7	0	86	197
8:45 AM	13	0	25	0	38	17	60	0	0	77	0	0	0	0	0	0	69	6	0	75	190
Total	42	0	117	0	159	81	235	0	0	316	0	0	0	0	0	0	269	32	0	301	776
9:00 AM	6	0	27	0	33	15	84	0	0	99	0	0	0	0	0	0	52	4	0	56	188
9:15 AM	1	0	24	0	25	12	74	0	0	86	0	0	0	0	0	0	45	1	0	46	157
9:30 AM	5	0	15	0	20	16	71	0	0	87	0	0	0	0	0	0	48	1	0	49	156
9:45 AM	3	0	24	0	27	10	69	0	0	79	0	0	0	0	0	0	56	6	0	62	168
Total	15	0	90	0	105	53	298	0	0	351	0	0	0	0	0	0	201	12	0	213	669
10:00 AM	1	0	22	0	23	14	75	0	0	89	0	0	0	0	0	0	65	5	0	70	182
10:15 AM	2	0	19	0	21	14	66	0	0	80	0	0	0	0	0	0	48	2	0	50	151
10:30 AM	2	0	26	0	28	13	89	0	0	102	0	0	0	0	0	0	47	2	0	49	179
10:45 AM	3	0	16	0	19	17	77	0	0	94	0	0	0	0	0	0	72	4	0	76	189
Total	8	0	83	0	91	58	307	0	0	365	0	0	0	0	0	0	232	13	0	245	701
11:00 AM	3	0	21	0	24	15	80	0	1	96	0	0	0	0	0	0	64	3	0	67	187
11:15 AM	0	0	21	0	21	18	79	0	0	97	0	0	0	0	0	0	68	4	0	72	190
11:30 AM	1	0	7	1	9	17	85	0	0	102	0	0	0	0	0	0	61	7	0	68	179
11:45 AM	3	0	22	0	25	17	113	0	0	130	0	0	0	0	0	0	65	4	0	69	224
Total	7	0	71	1	79	67	357	0	1	425	0	0	0	0	0	0	258	18	0	276	780
12:00 PM	1	0	13	0	14	25	89	0	0	114	0	0	0	0	0	0	74	3	0	77	205
12:15 PM	3	0	23	0	26	27	101	0	1	129	0	0	0	0	0	0	71	4	0	75	230
12:30 PM	2	0	22	0	24	17	61	0	0	78	0	0	0	0	0	0	67	2	0	69	171
12:45 PM	1	0	26	0	27	21	96	0	0	117	0	0	0	0	0	0	74	4	0	78	222
Total	7	0	84	0	91	90	347	0	1	438	0	0	0	0	0	0	286	13	0	299	828
1:00 PM	5	0	28	0	33	21	97	0	0	118	0	0	0	0	0	0	68	9	0	77	228
1:15 PM	2	0	24	0	26	18	81	0	0	99	0	0	0	0	0	0	63	3	0	66	191
1:30 PM	1	0	17	0	18	16	80	0	0	96	0	0	0	0	0	0	94	11	0	105	219
1:45 PM	1	0	16	0	17	20	76	0	0	96	0	0	0	0	0	0	71	4	0	75	188
Total	9	0	85	0	94	75	334	0	0	409	0	0	0	0	0	0	296	27	0	323	826
2:00 PM	1	0	20	0	21	21	71	0	0	92	0	0	0	0	0	0	82	6	0	88	201
2:15 PM	2	0	38	0	40	22	70	0	0	92	0	0	1	0	1	0	103	3	0	106	239
2:30 PM	1	0	27	0	28	25	91	0	0	116	0	0	0	0	0	0	92	10	0	102	246
2:45 PM	6	0	23	0	29	33	90	0	0	123	0	0	0	0	0	0	69	7	0	76	228
Total	10	0	108	0	118	101	322	0	0	423	0	0	1	0	1	0	346	26	0	372	914
3:00 PM	15	0	35	0	50	32	72	0	0	104	0	0	0	0	0	0	72	8	0	80	234
3:15 PM	5	0	28	0	33	34	83	0	0	117	0	1	0	0	1	0	75	4	0	79	230
3:30 PM	6	0	28	0	34	29	75	0	0	104	0	0	0	0	0	0	77	9	0	87	225
3:45 PM	4	0	29	0	33	44	93	0	0	137	0	0	0	0	0	0	72	4	0	76	246
Total	30	0	120	0	150	139	323	0	0	462	0	1	0	0	1	0	296	25	0	322	935
4:00 PM	3	0	22	0	25	28	93	0	0	121	0	0	0	0	0	0	79	5	0	84	230
4:15 PM	3	0	21	0	24	24	80	0	0	104	0	0	0	0	0	0	73	4	0	77	205
4:30 PM	2	0	11	0	13	33	87	0	0	120	0	0	0	0	0	0	65	4	0	69	202
4:45 PM	4	0	23	0	27	38	97	0	0	135	0	0	0	0	0	0	64	5	0	69	231
Total	12	0	77	0	89	123	357	0	0	480	0	0	0	0	0	0	281	18	0	299	868
5:00 PM	3	0	27	0	30	36	97	0	0	133	0	0	0	0	0	0	90	3	0	93	256
5:15 PM	1	0	11	0	12	28	63	0	0	91	0	0	0	0	0	0	71	7	1	79	182
5:30 PM	3	0	21	0	24	30	92	0	0	122	0	0	0	0	0	0	52	5	0	57	203
5:45 PM	4	0	23	0	27	22	77	0	0	99	0	0	0	0	0	0	72	5	0	77	203
Total	11	0	82	0	93	116	329	0	0	445	0	0	0	0	0	0	285	20	1	306	844
Grand Total	159	0	1026	1	1186	946	3410	0	2	4358	0	1	1	0	2	0	2964	219	1	3185	8731

PDI File #: **197379 D**
 Location: **N: Webster Street S: Driveway**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **6:00 PM**
 Class:

Cars

	Webster Street					Eastern Avenue (Route 127)					Driveway					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
	Approach %																				
Total %	13.4	0.0	86.5	0.1		21.7	78.2	0.0	0.0		0.0	50.0	50.0	0.0		0.0	93.1	6.9	0.0		
Exiting Leg Total	1.8	0.0	11.8	0.0	13.6	10.8	39.1	0.0	0.0	49.9	0.0	0.0	0.0	0.0	0.0	0.0	33.9	2.5	0.0	36.5	
	1167					3992					1					3571					8731

Peak Hour Analysis from 07:00 AM to 06:00 PM begins at:

2:15 PM	Webster Street					Eastern Avenue (Route 127)					Driveway					Eastern Avenue (Route 127)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
2:15 PM	2	0	38	0	40	22	70	0	0	92	0	0	1	0	1	0	103	3	0	106	239
2:30 PM	1	0	27	0	28	25	91	0	0	116	0	0	0	0	0	0	92	10	0	102	246
2:45 PM	6	0	23	0	29	33	90	0	0	123	0	0	0	0	0	0	69	7	0	76	228
3:00 PM	15	0	35	0	50	32	72	0	0	104	0	0	0	0	0	0	72	8	0	80	234
Total Volume	24	0	123	0	147	112	323	0	0	435	0	0	1	0	1	0	336	28	0	364	947
% Approach Total	16.3	0.0	83.7	0.0		25.7	74.3	0.0	0.0		0.0	0.0	100.0	0.0		0.0	92.3	7.7	0.0		
PHF	0.400	0.000	0.809	0.000	0.735	0.848	0.887	0.000	0.000	0.884	0.000	0.000	0.250	0.000	0.250	0.000	0.816	0.700	0.000	0.858	0.962
Entering Leg	24	0	123	0	147	112	323	0	0	435	0	0	1	0	1	0	336	28	0	364	947
Exiting Leg					140					459					0					348	947
Total	287					894					1					712					1894

PDI File #: **197379 D**
 Location: **N: Webster Street S: Driveway**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **6:00 PM**
 Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Webster Street					Eastern Avenue (Route 127)					Driveway					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:00 AM	0	0	0	0	0	1	7	0	0	8	0	0	0	0	0	0	4	1	0	5	13
7:15 AM	0	0	1	0	1	0	3	0	0	3	0	0	0	0	0	0	6	0	0	6	10
7:30 AM	0	0	1	0	1	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	5
7:45 AM	0	0	1	0	1	0	5	0	0	5	0	0	0	0	0	0	2	0	0	2	8
Total	0	0	3	0	3	1	18	0	0	19	0	0	0	0	0	0	13	1	0	14	36
8:00 AM	0	0	1	0	1	2	0	0	0	2	0	0	0	0	0	0	1	0	0	1	4
8:15 AM	0	0	1	0	1	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	5
8:30 AM	0	0	1	0	1	1	3	0	0	4	0	0	0	0	0	0	3	1	0	4	9
8:45 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	4	0	0	4	8
Total	0	0	3	0	3	3	11	0	0	14	0	0	0	0	0	0	8	1	0	9	26
9:00 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	7
9:15 AM	0	0	1	0	1	1	1	0	0	2	0	0	0	0	0	0	5	0	0	5	8
9:30 AM	1	0	1	0	2	3	2	0	0	5	0	0	0	0	0	0	3	2	0	5	12
9:45 AM	1	0	0	0	1	0	5	0	0	5	0	0	0	0	0	0	5	0	0	5	11
Total	2	0	2	0	4	4	12	0	0	16	0	0	0	0	0	0	16	2	0	18	38
10:00 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	5
10:15 AM	0	0	1	0	1	0	5	0	0	5	0	0	0	0	0	0	1	0	0	1	7
10:30 AM	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	3
10:45 AM	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	2	0	0	2	8
Total	0	0	2	0	2	0	15	0	0	15	0	0	0	0	0	0	6	0	0	6	23
11:00 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	4	0	0	4	8
11:15 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	4	0	0	4	8
11:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
11:45 AM	0	0	0	0	0	1	4	0	0	5	0	0	0	0	0	0	4	0	0	4	9
Total	0	0	0	0	0	1	14	0	0	15	0	0	0	0	0	0	14	0	0	14	29
12:00 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3
12:15 PM	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	3
12:30 PM	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	0	2	1	0	3	6
12:45 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	5
Total	1	0	1	0	2	1	9	0	0	10	0	0	0	0	0	0	4	1	0	5	17
1:00 PM	1	0	1	0	2	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	6
1:15 PM	1	0	1	0	2	0	2	0	0	2	0	0	0	0	0	0	2	1	0	3	7
1:30 PM	0	0	1	0	1	1	2	0	0	3	0	0	0	0	0	0	5	0	0	5	9
1:45 PM	0	0	3	0	3	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	8
Total	2	0	6	0	8	1	8	0	0	9	0	0	0	0	0	0	12	1	0	13	30
2:00 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	6
2:15 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	5	1	0	6	9
2:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
2:45 PM	0	0	0	0	0	3	1	0	0	4	0	0	0	0	0	0	1	2	0	3	7
Total	0	0	0	0	0	3	9	0	0	12	0	0	0	0	0	0	10	3	0	13	25
3:00 PM	0	0	2	0	2	1	4	0	0	5	0	0	0	0	0	0	8	0	0	8	15
3:15 PM	0	0	2	0	2	2	1	0	0	3	0	0	0	0	0	0	2	1	0	3	8
3:30 PM	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	3
3:45 PM	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	0	1	0	0	1	5
Total	0	0	4	0	4	5	10	0	0	15	0	0	0	0	0	0	11	1	0	12	31
4:00 PM	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	4
4:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
4:30 PM	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	3
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	2	0	2	0	4	0	0	4	0	0	0	0	0	0	4	1	0	5	11
5:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
5:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	5
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
5:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Total	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	7	0	0	7	11
Grand Total	5	0	23	0	28	19	114	0	0	133	0	0	0	0	0	0	105	11	0	116	277
Approach %	17.9	0.0	82.1	0.0		14.3	85.7	0.0	0.0		0.0	0.0	0.0	0.0		0.0	90.5	9.5	0.0		

PDI File #: **197379 D**
 Location: **N: Webster Street S: Driveway**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **6:00 PM**
 Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Webster Street					Eastern Avenue (Route 127)					Driveway					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
Total %	1.8	0.0	8.3	0.0	10.1	6.9	41.2	0.0	0.0	48.0	0.0	0.0	0.0	0.0	0.0	0.0	37.9	4.0	0.0	41.9	
Exiting Leg Total	30					128					0					119					277
Buses	2	0	11	0	13	7	30	0	0	37	0	0	0	0	0	0	31	3	0	34	84
% Buses	40.0	0.0	47.8	0.0	46.4	36.8	26.3	0.0	0.0	27.8	0.0	0.0	0.0	0.0	0.0	0.0	29.5	27.3	0.0	29.3	30.3
Exiting Leg Total	10					42					0					32					84
Single-Unit Trucks	2	0	12	0	14	12	80	0	0	92	0	0	0	0	0	0	71	8	0	79	185
% Single-Unit	40.0	0.0	52.2	0.0	50.0	63.2	70.2	0.0	0.0	69.2	0.0	0.0	0.0	0.0	0.0	0.0	67.6	72.7	0.0	68.1	66.8
Exiting Leg Total	20					83					0					82					185
Articulated Trucks	1	0	0	0	1	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	8
% Articulated	20.0	0.0	0.0	0.0	3.6	0.0	3.5	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0	2.6	2.9
Exiting Leg Total	0					3					0					5					8

Peak Hour Analysis from 07:00 AM to 06:00 PM begins at:

9:00 AM	Webster Street					Eastern Avenue (Route 127)					Driveway					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
9:00 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	7
9:15 AM	0	0	1	0	1	1	1	0	0	2	0	0	0	0	0	0	5	0	0	5	8
9:30 AM	1	0	1	0	2	3	2	0	0	5	0	0	0	0	0	0	3	2	0	5	12
9:45 AM	1	0	0	0	1	0	5	0	0	5	0	0	0	0	0	0	5	0	0	5	11
Total Volume	2	0	2	0	4	4	12	0	0	16	0	0	0	0	0	0	16	2	0	18	38
% Approach Total	50.0	0.0	50.0	0.0		25.0	75.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	88.9	11.1	0.0		
PHF	0.500	0.000	0.500	0.000	0.500	0.333	0.600	0.000	0.000	0.800	0.000	0.000	0.000	0.000	0.000	0.000	0.800	0.250	0.000	0.900	0.792
Buses	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	7
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	18.8	0.0	0.0	16.7	18.4
Single-Unit Trucks	1	0	2	0	3	4	8	0	0	12	0	0	0	0	0	0	13	2	0	15	30
Single-Unit %	50.0	0.0	100.0	0.0	75.0	100.0	66.7	0.0	0.0	75.0	0.0	0.0	0.0	0.0	0.0	0.0	81.3	100.0	0.0	83.3	78.9
Articulated Trucks	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Articulated %	50.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6
Buses	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	7
Single-Unit Trucks	1	0	2	0	3	4	8	0	0	12	0	0	0	0	0	0	13	2	0	15	30
Articulated Trucks	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Entering Leg	2	0	2	0	4	4	12	0	0	16	0	0	0	0	0	0	16	2	0	18	38
Buses	0					3					0					4					7
Single-Unit Trucks	6					15					0					9					30
Articulated Trucks	0					0					0					1					1
Total Exiting Leg	6					18					0					14					38

PDI File #: **197379 D**
 Location: **N: Webster Street S: Driveway**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **6:00 PM**
 Class:

Buses

	Webster Street					Eastern Avenue (Route 127)					Driveway					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:00 AM	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	0	2	1	0	3	6
7:15 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	4
7:30 AM	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	3
7:45 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	2	0	2	1	5	0	0	6	0	0	0	0	0	0	6	1	0	7	15
8:00 AM	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
8:30 AM	0	0	1	0	1	1	1	0	0	2	0	0	0	0	0	0	0	1	0	1	4
8:45 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	5
Total	0	0	3	0	3	2	4	0	0	6	0	0	0	0	0	0	3	1	0	4	13
9:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
9:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
9:45 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	7
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
10:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	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	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
11:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
11:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
12:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	3
1:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
1:15 PM	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1:30 PM	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	0	1	0	0	1	4
1:45 PM	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Total	1	0	2	0	3	1	4	0	0	5	0	0	0	0	0	0	3	0	0	3	11
2:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3
2:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
2:45 PM	0	0	0	0	0	3	1	0	0	4	0	0	0	0	0	0	0	1	0	1	5
Total	0	0	0	0	0	3	4	0	0	7	0	0	0	0	0	0	4	1	0	5	12
3:00 PM	0	0	2	0	2	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	5
3:15 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	3	0	3	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	8
4:00 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	3
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
5:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	4	0	0	4	5
Grand Total	2	0	11	0	13	7	30	0	0	37	0	0	0	0	0	0	31	3	0	34	84

PDI File #: **197379 D**
 Location: **N: Webster Street S: Driveway**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **6:00 PM**
 Class:

Buses

Approach %	Webster Street					Eastern Avenue (Route 127)					Driveway					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
	15.4	0.0	84.6	0.0		18.9	81.1	0.0	0.0		0.0	0.0	0.0	0.0		0.0	91.2	8.8	0.0		
Total %	2.4	0.0	13.1	0.0	15.5	8.3	35.7	0.0	0.0	44.0	0.0	0.0	0.0	0.0	0.0	0.0	36.9	3.6	0.0	40.5	
Exiting Leg Total	10					42					0					32					84

Peak Hour Analysis from 07:00 AM to 06:00 PM begins at:

7:00 AM	Webster Street					Eastern Avenue (Route 127)					Driveway					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:00 AM	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	0	2	1	0	3	6
7:15 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	4
7:30 AM	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	3
7:45 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Total Volume	0	0	2	0	2	1	5	0	0	6	0	0	0	0	0	0	6	1	0	7	15
% Approach Total	0.0	0.0	100.0	0.0		16.7	83.3	0.0	0.0		0.0	0.0	0.0	0.0		0.0	85.7	14.3	0.0		
PHF	0.000	0.000	0.500	0.000	0.500	0.250	0.625	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.250	0.000	0.583	0.625
Entering Leg	0	0	2	0	2	1	5	0	0	6	0	0	0	0	0	0	6	1	0	7	15
Exiting Leg					2					8					0					5	15
Total	4					14					0					12					30

PDI File #: **197379 D**
 Location: **N: Webster Street S: Driveway**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **6:00 PM**
 Class:

Single-Unit Trucks

	Webster Street					Eastern Avenue (Route 127)					Driveway					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:00 AM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	2	0	0	2	7
7:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	5
7:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
7:45 AM	0	0	1	0	1	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	6
Total	0	0	1	0	1	0	12	0	0	12	0	0	0	0	0	0	7	0	0	7	20
8:00 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	2
8:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
8:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	5
8:45 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
Total	0	0	0	0	0	1	6	0	0	7	0	0	0	0	0	0	5	0	0	5	12
9:00 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	6
9:15 AM	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	4	0	0	4	6
9:30 AM	0	0	1	0	1	3	2	0	0	5	0	0	0	0	0	0	1	2	0	3	9
9:45 AM	1	0	0	0	1	0	3	0	0	3	0	0	0	0	0	0	5	0	0	5	9
Total	1	0	2	0	3	4	8	0	0	12	0	0	0	0	0	0	13	2	0	15	30
10:00 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	4
10:15 AM	0	0	1	0	1	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	5
10:30 AM	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	3
10:45 AM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	2	0	0	2	7
Total	0	0	2	0	2	0	12	0	0	12	0	0	0	0	0	0	5	0	0	5	19
11:00 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	7
11:15 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	4	0	0	4	8
11:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
11:45 AM	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	0	3	0	0	3	7
Total	0	0	0	0	0	1	12	0	0	13	0	0	0	0	0	0	11	0	0	11	24
12:00 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3
12:15 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12:30 PM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	2	1	0	3	5
12:45 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	4
Total	0	0	1	0	1	1	8	0	0	9	0	0	0	0	0	0	2	1	0	3	13
1:00 PM	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	3
1:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	1	0	3	5
1:30 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	5
1:45 PM	0	0	2	0	2	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	6
Total	1	0	4	0	5	0	4	0	0	4	0	0	0	0	0	0	9	1	0	10	19
2:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
2:15 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	2	1	0	3	6
2:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2
Total	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	6	2	0	8	13
3:00 PM	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	0	6	0	0	6	10
3:15 PM	0	0	1	0	1	2	1	0	0	3	0	0	0	0	0	0	2	1	0	3	7
3:30 PM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	2
3:45 PM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	1	0	1	5	6	0	0	11	0	0	0	0	0	0	8	1	0	9	21
4:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	3
4:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
4:30 PM	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	3
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	0	1	0	4	0	0	4	0	0	0	0	0	0	2	1	0	3	8
5:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	6
Grand Total	2	0	12	0	14	12	80	0	0	92	0	0	0	0	0	0	71	8	0	79	185

PDI File #: **197379 D**
 Location: **N: Webster Street S: Driveway**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **6:00 PM**
 Class:

Single-Unit Trucks

Approach %	Webster Street					Eastern Avenue (Route 127)					Driveway					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
	14.3	0.0	85.7	0.0		13.0	87.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	89.9	10.1	0.0		
Total %	1.1	0.0	6.5	0.0	7.6	6.5	43.2	0.0	0.0	49.7	0.0	0.0	0.0	0.0	0.0	0.0	38.4	4.3	0.0	42.7	
Exiting Leg Total	20					83					0					82					185

Peak Hour Analysis from 07:00 AM to 06:00 PM begins at:

9:00 AM	Webster Street					Eastern Avenue (Route 127)					Driveway					Eastern Avenue (Route 127)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
9:00 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	6
9:15 AM	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	4	0	0	4	6
9:30 AM	0	0	1	0	1	3	2	0	0	5	0	0	0	0	0	0	1	2	0	3	9
9:45 AM	1	0	0	0	1	0	3	0	0	3	0	0	0	0	0	0	5	0	0	5	9
Total Volume	1	0	2	0	3	4	8	0	0	12	0	0	0	0	0	0	13	2	0	15	30
% Approach Total	33.3	0.0	66.7	0.0		33.3	66.7	0.0	0.0		0.0	0.0	0.0	0.0		0.0	86.7	13.3	0.0		
PHF	0.250	0.000	0.500	0.000	0.750	0.333	0.667	0.000	0.000	0.600	0.000	0.000	0.000	0.000	0.000	0.000	0.650	0.250	0.000	0.750	0.833
Entering Leg	1	0	2	0	3	4	8	0	0	12	0	0	0	0	0	0	13	2	0	15	30
Exiting Leg					6					15					0					9	30
Total					9					27					0					24	60

PDI File #: **197379 D**
 Location: **N: Webster Street S: Driveway**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **6:00 PM**
 Class:

Articulated Trucks

	Webster Street					Eastern Avenue (Route 127)					Driveway					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
11:45 AM	0	0	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	1	0	0	1	1
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	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	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	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	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	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	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	1	0	0	0	1	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	8

PDI File #: **197379 D**
 Location: **N: Webster Street S: Driveway**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **6:00 PM**
 Class:

Articulated Trucks

Approach %	Webster Street					Eastern Avenue (Route 127)					Driveway					Eastern Avenue (Route 127)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
	100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	12.5	0.0	0.0	0.0	12.5	0.0	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	37.5	0.0	0.0	37.5	
Exiting Leg Total	0					3					0					5					8

Peak Hour Analysis from 07:00 AM to 06:00 PM begins at:

10:45 AM	Webster Street					Eastern Avenue (Route 127)					Driveway					Eastern Avenue (Route 127)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
10:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total Volume	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.500
Entering Leg	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Exiting Leg					0					1					0					1	2
Total	0					2					0					2					4

Class: **Bicycles (on Roadway and Crosswalks)**

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PDI File #: **197379 D**
 Location: **N: Webster Street S: Driveway**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **6:00 PM**
 Class:

Bicycles (on Roadway and Crosswalks)

	Webster Street							Eastern Avenue (Route 127)							Driveway							Eastern Avenue (Route 127)							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
	Approach %	50.0	0.0	50.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	100.0		0.0	0.0	0.0	0.0	0.0	0.0	
Total %	20.0	0.0	20.0	0.0	0.0	0.0	40.0	0.0	40.0	0.0	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	0.0	20.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total	0							1							1							3							5

Peak Hour Analysis from 07:00 AM to 06:00 PM begins at:

4:30 PM	Webster Street							Eastern Avenue (Route 127)							Driveway							Eastern Avenue (Route 127)								
	from North							from East							from South							from West								
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0			
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.500	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	
Entering Leg	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
Exiting Leg							0							0													2	2		
Total	0							2							0							2							4	

PDI File #: 197379 D
Location: N: Webster Street S: Driveway
Location: E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)
City, State: East Gloucester, MA
Client: Nitscheng/N.Havan
Site Code: 13117.1
Count Date: Wednesday, January 8, 2020
Start Time: 7:00 AM
End Time: 6:00 PM
Class:

Pedestrians

	Webster Street							Eastern Avenue (Route 127)							Driveway							Eastern Avenue (Route 127)							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:00 AM	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	12	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	2	0	2	0	0	0	0	12	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
8:00 AM	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	3
8:45 AM	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	5
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	2
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:30 PM	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	2
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	2	3	0	0	0	0	0	0	0	4
2:00 PM	0	0	0	0	7	3	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	8	0	8	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	1	0	1	11
Total	0	0	0	0	15	3	18	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	1	0	1	21
3:00 PM	0	0	0	0	1	13	14	0	0	0	0	2	0	2	0	0	0	0	0	3	3	0	0	0	0	0	0	0	19
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3:45 PM	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	2	13	15	0	0	0	0	3	0	3	0	0	0	0	0	3	3	0	0	0	0	0	0	0	21
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1
Grand Total	0	0	0	0	22	16	38	0	0	0	0	15	2	17	0	0	0	0	4	5	9	0	0	0	0	2	0	2	66

PDI File #: **197379 D**
 Location: **N: Webster Street S: Driveway**
 Location: **E: Eastern Avenue (Route 127) W: Eastern Avenue (Route 127)**
 City, State: **East Gloucester, MA**
 Client: **Nitscheng/N.Havan**
 Site Code: **13117.1**
 Count Date: **Wednesday, January 8, 2020**
 Start Time: **7:00 AM**
 End Time: **6:00 PM**
 Class:

Pedestrians

Approach % Total %	Webster Street							Eastern Avenue (Route 127)							Driveway							Eastern Avenue (Route 127)							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
	0	0	0	0	57.9	42.1		0	0	0	0	88.2	11.8		0	0	0	0	44.4	55.6		0	0	0	0	100	0		
	0	0	0	0	33.3	24.2	57.6	0	0	0	0	22.7	3.03	25.8	0	0	0	0	6.06	7.58	13.6	0	0	0	0	3.03	0	3.03	
Exiting Leg Total	38							17							9							2							66

Peak Hour Analysis from 07:00 AM to 06:00 PM begins at:

2:45 PM	Webster Street							Eastern Avenue (Route 127)							Driveway							Eastern Avenue (Route 127)							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
2:45 PM	0	0	0	0	8	0	8	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	1	0	1	11
3:00 PM	0	0	0	0	1	13	14	0	0	0	0	2	0	2	0	0	0	0	0	0	3	3	0	0	0	0	0	0	19
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	9	13	22	0	0	0	0	3	2	5	0	0	0	0	0	3	3	0	0	0	0	1	0	1	31
% Approach Total	0.0	0.0	0.0	0.0	40.9	59.1		0.0	0.0	0.0	0.0	60.0	40.0		0.0	0.0	0.0	0.0	0.0	100.0		0.0	0.0	0.0	0.0	100.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.281	0.250	0.393	0.000	0.000	0.000	0.000	0.375	0.250	0.625	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.408
Entering Leg	0	0	0	0	9	13	22	0	0	0	0	3	2	5	0	0	0	0	0	3	3	0	0	0	0	1	0	1	31
Exiting Leg							22							5							3						1		31
Total	44							10							6							2							62

Section A-2

Weekday Seasonal Adjustment Factors

Massachusetts Highway Department
Statewide Traffic Data Collection
2013 Weekday Seasonal Factors

Factor Group	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
R1	1.14	1.13	1.12	1.04	0.96	0.93	0.87	0.84	0.96	0.99	1.02	1.15
R2	1.14	1.09	1.06	1.00	0.94	0.90	0.89	0.87	0.94	0.94	1.01	0.99
R3	1.14	1.09	1.06	1.00	0.94	0.90	0.89	0.87	0.94	0.94	1.01	0.99
R4-R7	1.10	1.09	1.11	1.01	0.92	0.92	0.91	0.91	0.93	0.92	1.04	1.08
U1-Boston	1.01	1.02	1.00	0.95	0.92	0.89	0.90	0.87	0.91	0.91	0.96	1.02
U1-Essex	1.05	1.04	1.03	0.97	0.94	0.91	0.89	0.87	0.93	0.92	0.97	1.01
U1-Southeast	1.08	1.05	1.04	0.97	0.94	0.91	0.89	0.86	0.93	0.94	0.99	1.03
U1-West	1.01	0.98	0.98	0.97	0.95	0.93	0.95	0.91	0.92	0.91	0.97	0.96
U1-Worcester	1.00	0.98	1.00	0.93	0.92	0.91	0.94	0.90	0.92	0.92	0.96	1.02
U2	0.99	1.01	1.03	0.96	0.93	0.91	0.92	0.89	0.91	0.90	0.95	1.00
U3	1.02	1.01	1.01	0.94	0.92	0.90	0.93	0.91	0.91	0.91	0.96	0.98
U4-U7	1.00	1.00	0.98	0.93	0.89	0.87	0.93	0.93	0.93	0.93	0.97	0.99

Round off:
0.999 = 10
>1000 = 100

U = Urban
R = Rural

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

2013 Weekday Axle Correction Factors

Group	Factor
R1	0.94
R2	0.96
R3	0.97
R4-R7	0.98
U1	0.94
U2	0.96
U3	0.96
U4-U7	0.97

Section A-3

Crash Data

INTERSECTION CRASH RATE WORKSHEET, 2014-2018

CITY/TOWN : EAST GLOUCESTER COUNT DATE : Jan-20

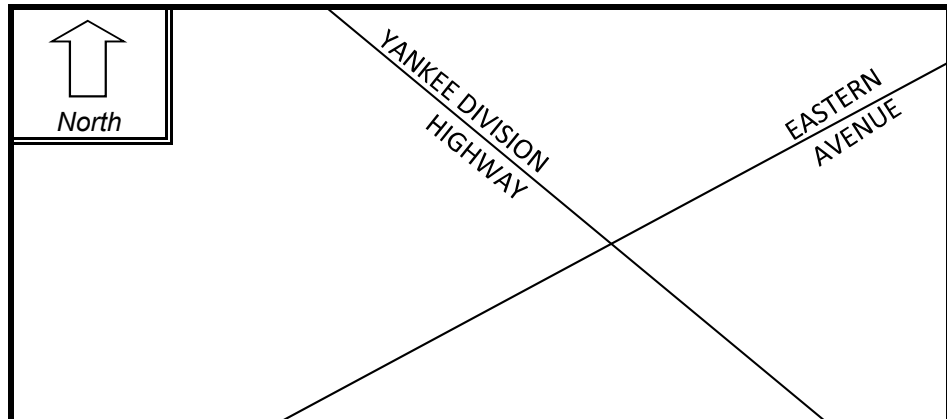
DISTRICT : 4 UNSIGNALIZED : ☐ SIGNALIZED : ☒

~ INTERSECTION DATA ~

MAJOR STREET : YANKEE DIVISION HIGHWAY

MINOR STREET(S) : EASTERN AVENUE

**INTERSECTION
DIAGRAM**
(Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	SB	WB	NB	EB		
PEAK HOURLY VOLUMES (AM/PM) :	922	804	388	474		2,588

" K " FACTOR :

0.08

INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :

32,350

TOTAL # OF CRASHES :

56

OF YEARS :

5

AVERAGE # OF CRASHES PER YEAR (A) :

11.20

CRASH RATE CALCULATION :

0.95

RATE =

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

Comments : PM Peak Used

Project Title & Date : VETERANS MEMORIAL ELEMENTARY SCHOOL

INTERSECTION CRASH RATE WORKSHEET, 2014-2018

CITY/TOWN : EAST GLOUCESTER COUNT DATE : Jan-20

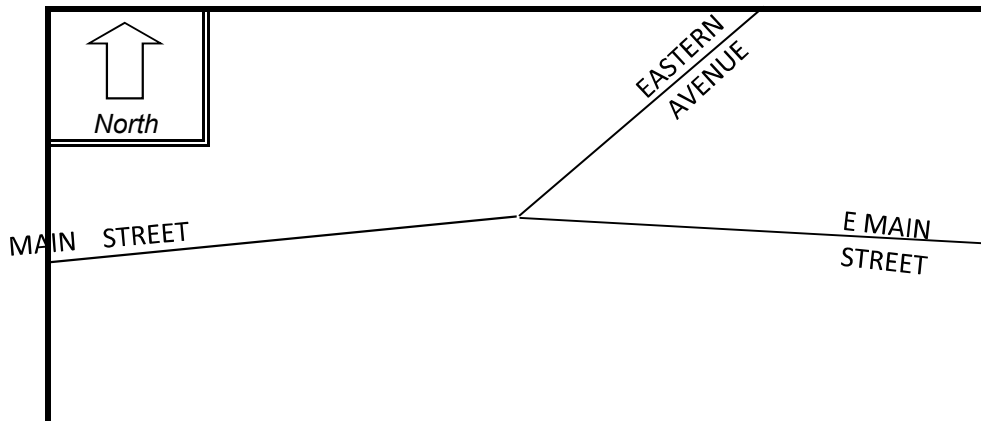
DISTRICT : 4 UNSIGNALIZED : ☒ SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : EASTERN AVENUE

MINOR STREET(S) : E MAIN STREET AND MAIN STREET

**INTERSECTION
DIAGRAM**
(Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	SB	WB	EB			
PEAK HOURLY VOLUMES (AM/PM) :	262	310	643			1,215

" K " FACTOR :

0.08

INTERSECTION ADT (V) = TOTAL DAILY
APPROACH VOLUME :

15,188

TOTAL # OF CRASHES :

19

OF
YEARS :

5

AVERAGE # OF
CRASHES PER YEAR (A) :

3.80

CRASH RATE CALCULATION :

0.69

RATE =

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

Comments : PM Peak Used

Project Title & Date : VETERANS MEMORIAL ELEMENTARY SCHOOL

INTERSECTION CRASH RATE WORKSHEET, 2014-2018

CITY/TOWN : EAST GLOUCESTER COUNT DATE : Jan-20

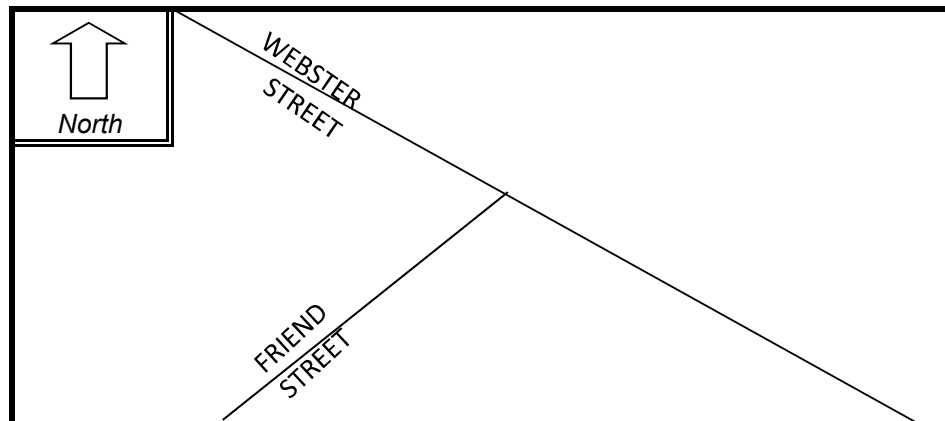
DISTRICT : 4 UNSIGNALIZED : ☒ SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : WEBSTER STREET

MINOR STREET(S) : FRIEND STREET

**INTERSECTION
DIAGRAM**
(Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	SB	NB	EB			
PEAK HOURLY VOLUMES (AM/PM) :	94	115	85			294

" K " FACTOR :

0.08

INTERSECTION ADT (V) = TOTAL DAILY
APPROACH VOLUME :

3,675

TOTAL # OF CRASHES :

4

OF
YEARS :

5

AVERAGE # OF
CRASHES PER YEAR (A) :

0.80

CRASH RATE CALCULATION :

0.60

RATE =

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

Comments : PM Peak Used

Project Title & Date : VETERANS MEMORIAL ELEMENTARY SCHOOL

INTERSECTION CRASH RATE WORKSHEET, 2014-2018

CITY/TOWN : EAST GLOUCESTER COUNT DATE : Jan-20

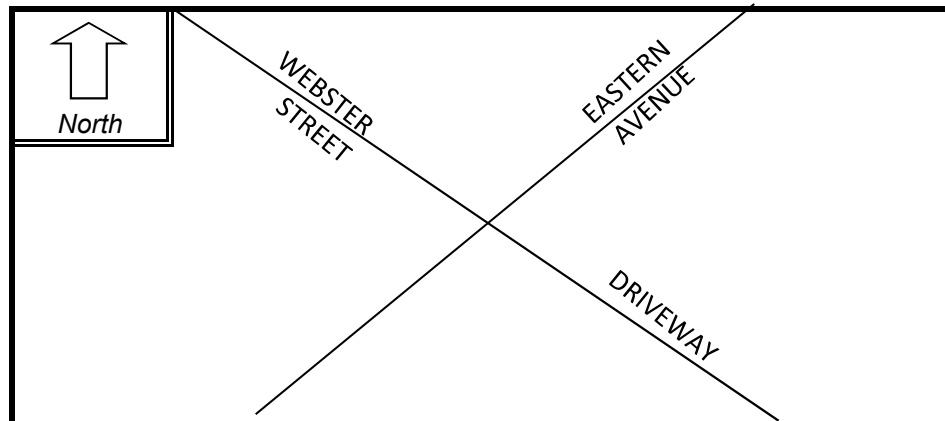
DISTRICT : 4 UNSIGNALIZED : ☒ SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : EASTERN AVENUE

MINOR STREET(S) : WEBSTER STREET

**INTERSECTION
DIAGRAM**
(Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	SB	WB	NB	EB		
PEAK HOURLY VOLUMES (AM/PM) :	147	476	0	358		981

" K " FACTOR :

0.08

INTERSECTION ADT (V) = TOTAL DAILY APPROACH VOLUME :

12,263

TOTAL # OF CRASHES :

12

OF YEARS :

5

AVERAGE # OF CRASHES PER YEAR (A) :

2.40

CRASH RATE CALCULATION :

0.54

RATE =

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

Comments : 11-Hour Count

Project Title & Date : EAST GLOUCESTER ELEMENTARY SCHOOL

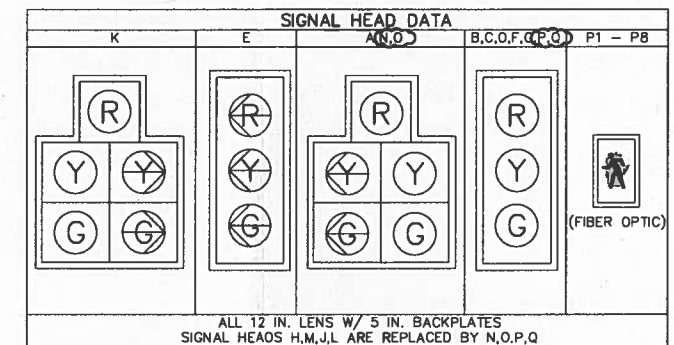
Section A-4

Traffic Signal Data

GLOUCESTER				
ROUTE 128 @ EASTERN AVE (RT 127)				
STATE	SIGNAL ID NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	0524	2008	8	TOT
03-018				

TRAFFIC SIGNAL DATA

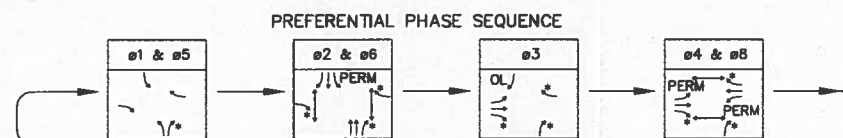
MAJOR ITEMS REQUIRED	
QUANTITY	DESCRIPTION
2	SIGNAL HEAD 1-WAY, 5-SECTION, 12" LENSES
2	SIGNAL HEAD 1-WAY, 3-SECTION, 12" LENSES
1	R10-12 SIGN
PLUS ALL MISCELLANEOUS EQUIPMENT AND MATERIAL NECESSARY TO PROVIDE A COMPLETE OPERATING TRAFFIC CONTROL SIGNAL	



1 GLOUCESTER CROSSING MITIGATION 06/26/2008, 08/05/2008

NOTES:

1. AUTOMATIC FLASHING OPERATION FOR M.U.T.C.O. SECTION 4B-1B
2. PHASES 7 & 9 ARE NOT IN USE
3. * YIELD CONTROL
4. ** NORMALLY OW, UPON PEDESTRIAN PUSHBUTTON ACTIVATION W/ FOW.
5. *** "REO" ON ADV. WARNING SIGN FLASHES, STEADY BURN RED IN ALL
INTERVALS EXCEPT WHEN @6 GREEN IS ON.



DETECTOR DATA						
DETECTOR NO.	NO. SECTION / SIZE	NO. OF TURNS	OPERATIONS	DELAY / EXT	CALL PHASE	LOOP CONNECTION
1	3-8'XB'	3	PRESENCE	0	e4	SERIES
2	3-6'XB'	3	PRESENCE	0	e4	SERIES
3	4-8'XB'	3	PRESENCE	D	e8	SERIES
4	2-6'XB'	3	PRESENCE	4 SEC	e3	SERIES
5	2-8'XB' 1-8'X14'	3	PRESENCE	D	e6	SERIES
6	3-6'XB'	3	PRESENCE	0	e6	SERIES
7	3-8'XB'	3	PRESENCE	0	e1	SERIES
8	1-8'X40' QUADRAPOLE	2	PRESENCE	D	e2	SERIES
9	1-8'X40' QUADRAPOLE	2	PRESENCE	D	e2	SERIES
10	1-8'X40' QUADRAPOLE	2	PRESENCE	D	e5	SERIES

SEQUENCE & TIMING NOTES:

1. IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT ALLOD PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT WILL NOT CHANGE DURING THE CLEARANCE.
2. THE RIGHT OF WAY MAY BE ASSIGNED TO ANY PHASE, OR ANY COMBINATION OF NON-CONFLICTING PHASES.
3. IF CALLS EXIST ON ALL PHASES, THE ASSIGNMENT OF RIGHT OF WAY SHALL BE IN ACCORDANCE WITH THE PREFERENTIAL PHASE SEQUENCE.

SCALE

20 0 10 20 40

1 inch = 20 ft

Gloucester - Eastern Avenue (Route 127) at Route 128

Signal Time of Day Plans

Plan	Cycle Length	Time of Year	Phase Splits							
			1	2	3	4	5	6	7	8
1/1/1	110	WP1	20	43	18	29	20	43	--	47
2/1/1	90	WP1	30	23	10	27	30	23	--	37
3/1/1	113	WP2	34	35	14	30	34	35	--	44
4/1/1	110	WP2	42	25	10	33	42	25	--	43
2/2/1	95	WP2	36	22	10	27	36	22	--	37
1/2/1	110	WP2	30	24	10	46	30	24	--	56

Splits include yellow and all red clearance time

Inhibit Max

Week Plan 1 (WP1) runs Labor Day to Memorial Day

Week Plan 2 (WP2) runs Memorial Day to Labor Day

WP1 weekends run FREE

Time Of Day

Weekday

111, 311 7 - 9 AM

FREE 9 AM - 3 PM

211, 411 4:30 - 6:30 PM

FREE 6:30 PM - 7 AM

Saturday WP2

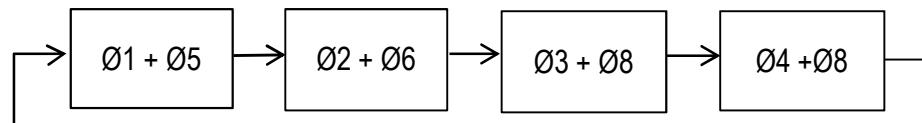
211 Sat 11 AM - 2 PM

FREE 2 PM - 11 AM

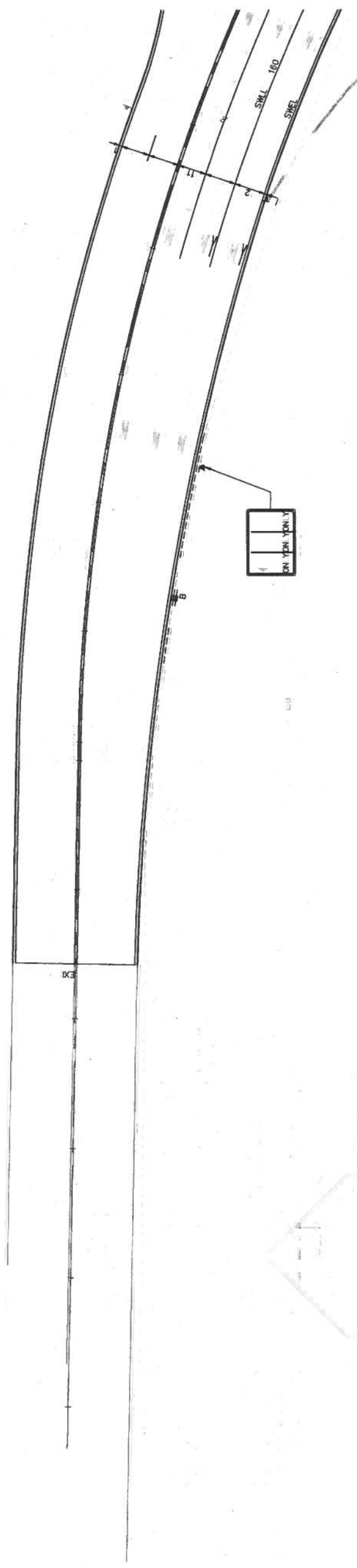
Sunday WP2

121 Sun 11 AM - 2 PM

FREE 2 PM - 11 AM



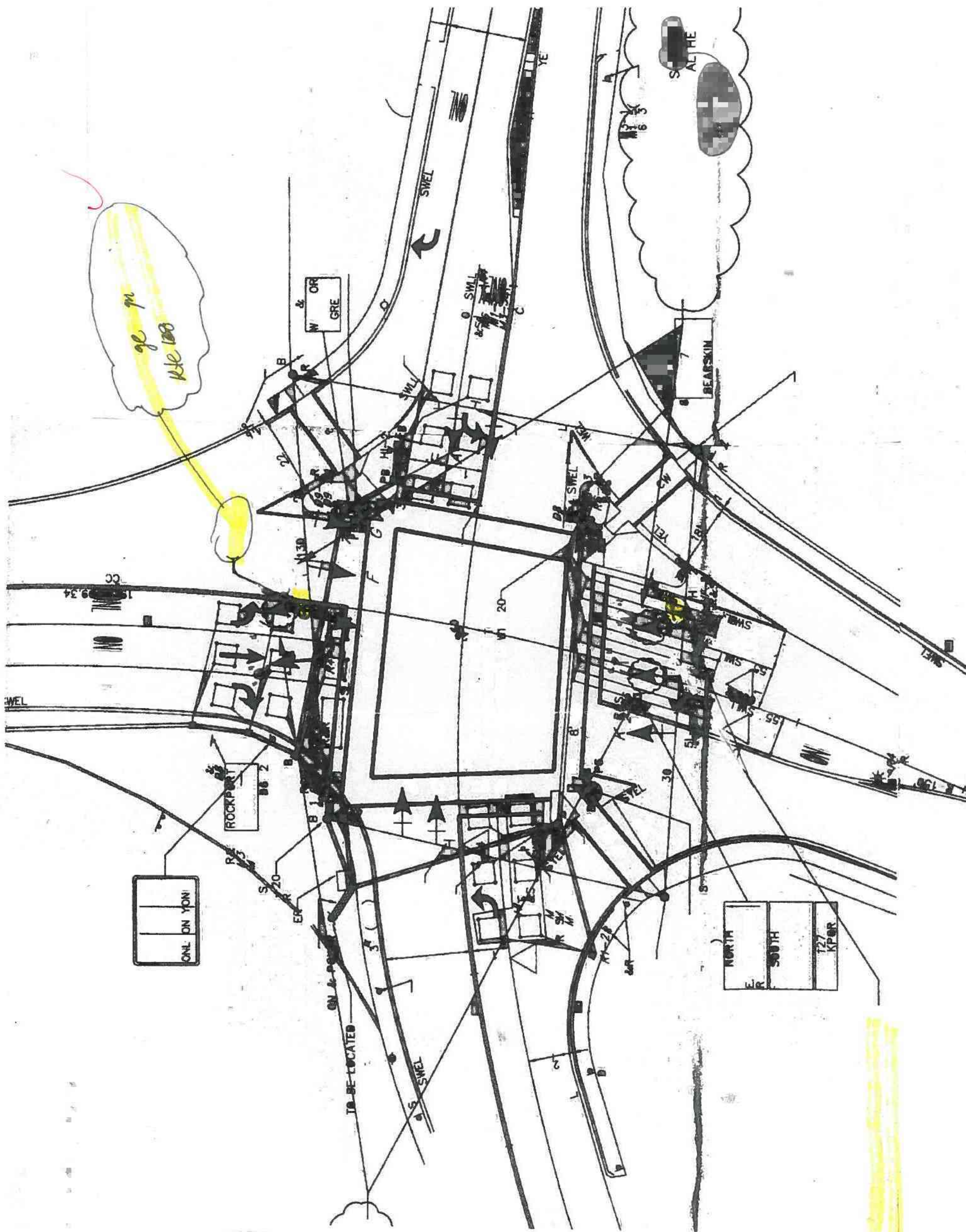
Programmed by RITS 05/17/11



ON YON YONLY



Run analyses



Section A-5

Warrant Analysis

MUTCD Traffic Signal Warrant Summary Worksheet

The Worksheet(s) attached are provided as an attachment to the Engineering Investigation Study for:

Intersection: Eastern Avenue at Webster Street
Town: Gloucester, MA

100%
Volume Level

Major Street: Eastern Avenue
Critical Approach Speed: 20 mph
Lanes: 1 lane

Minor Street: Webster Street
Critical Approach Speed: 20 mph
Lanes: 1 lane

% Right Turns Included
From North (SB) 100%
From East (WB) 100%
From South (NB) 100%
From West (EB) 100%

In built-up area of isolated community of < 10,000 population? No
Total number of approaches at intersection? 4 or more
We request that the Applicant Manually set volume level? No

Analysis based on PROJECTED volume data.

Forecast Year	Within 5 Years of Construction?	Time (HH:MM)			
		From	AM / PM	To	AM / PM

Warrant Evaluation Summary	Warrant Met:
Warrant 1: Eight - Hour Vehicular Volume	No
Condition A: Minimum Vehicular Volume	No
Condition B: Interruption of Continuous Traffic	No
Condition C: Combination: 80% of A and B	No
Warrant 2: Four-Hour Volume	No
Warrant 3: Peak Hour Volume	Yes
Warrant 4: Pedestrian Volume	N/A
Criterion A: Four-Hour	
Criterion B: Peak-Hour	
Warrant 5: School Crossing	No
Warrant 6: Coordinated Signal System	N/A
Warrant 7: Crash Experience	N/A
Warrant 8: Roadway Network	No
Warrant 9: Intersection Near a Grade Crossing	N/A

Warrant Analysis Conducted By:

Name: Nick Havan, PE, PTOE

Date: 1/31/2019

Nitsch Engineering

Warrant 1: Eight - Hour Vehicular Volume

100%

Warrant Evaluated? Yes

Condition A : Min. Veh. Volume		
Volume Level	100%	80%
Major Rd. Req	500	400
Minor Rd. Req	150	120
Number of Hours	2	5

Satisfied? No

Condition B: Interruption of Continuous Traffic		
Volume Level	100%	80%
Major Rd. Req	750	600
Minor Rd. Req	75	60
Number of Hours	7	9

Satisfied? No

Condition C: Combination of A & B at 80%		
---	--	--

Satisfied? No

Warrant Satisfied? No

Manually Set To:

6:00 AM		Enter Start Time (Military Time) (HH:MM)			Total
Time Period	From	To	Major Road: Both App. (VPH)	Minor Road: High App. (VPH)	
1	6:00	7:00	0	0	0
2	7:00	8:00	582	138	720
3	8:00	9:00	509	703	1212
4	9:00	10:00	686	126	812
5	10:00	11:00	725	107	832
6	11:00	12:00	838	91	929
7	12:00	13:00	864	107	971
8	13:00	14:00	866	118	984
9	14:00	15:00	941	135	1076
10	15:00	16:00	932	176	1108
11	16:00	17:00	905	105	1010
12	17:00	18:00	875	107	982
13	18:00	19:00	0	0	0
14	19:00	20:00	178	497	675
15	20:00	21:00	0	0	0
16	21:00	22:00	0	0	0

Warrant 2: Four-Hour Volume

100%

Four hours with highest total volume meeting warrant criteria:

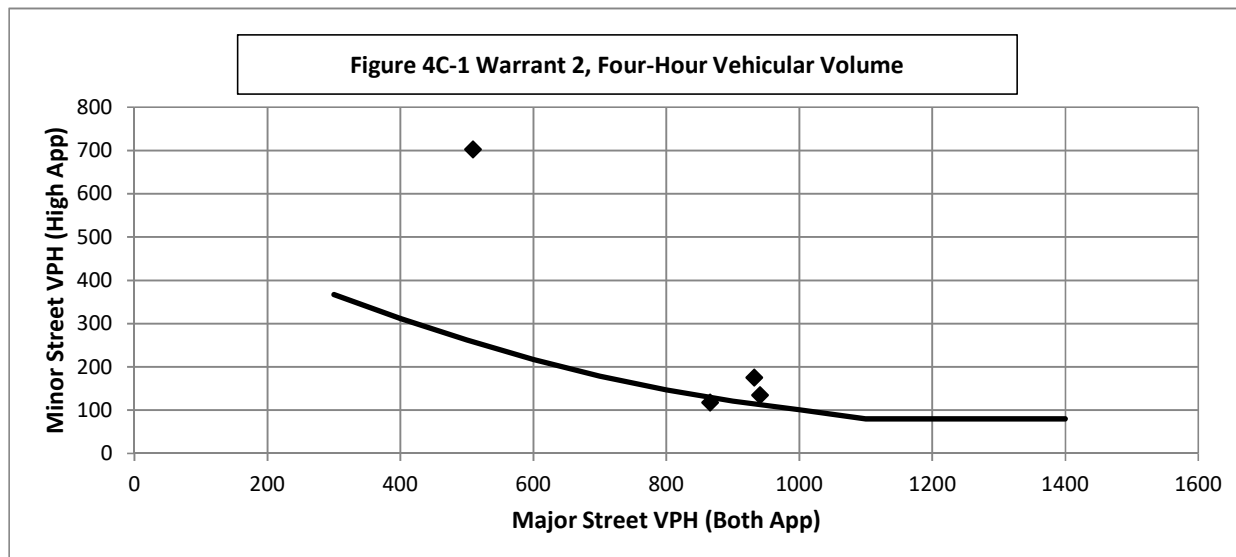
Hour Start	8:00	15:00	14:00	13:00
Major Road Vol.	509	932	941	866
Minor Road Vol.	703	176	135	118

Warrant Evaluated? Yes

Number of Hours 3

Warrant Satisfied? No

Manually Set To:



Warrant 3: Peak Hour Volume

100%

Warrant Evaluated? Yes

Warrant Satisfied? Yes

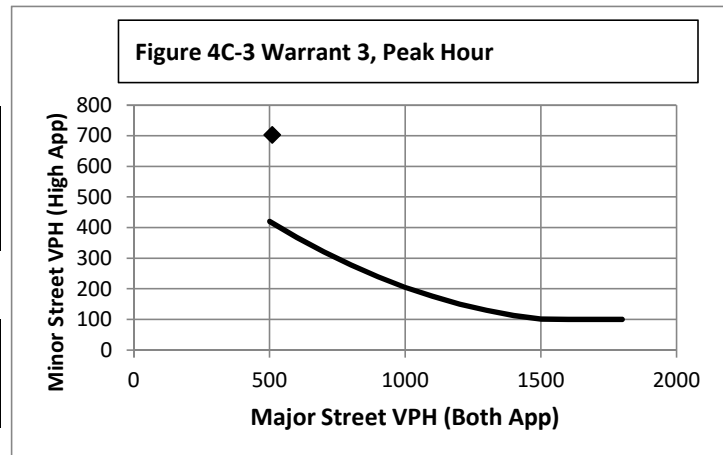
Manually Set To:

Condition justifying use of warrant:

Criteria		Met?
Delay on Minor Approach	4	No
Volume on Minor Approach	100	Yes
Total Entering Volume (veh/h)	800	

Manually Set Peak Hour?

Peak Hour	Major Road Vol. (Both App.)	Minor Road Vol. (High App.)
8:00	509	703



Warrant 4: Pedestrian Volume

100%

Warrant Evaluated? No

Warrant Satisfied? N/A

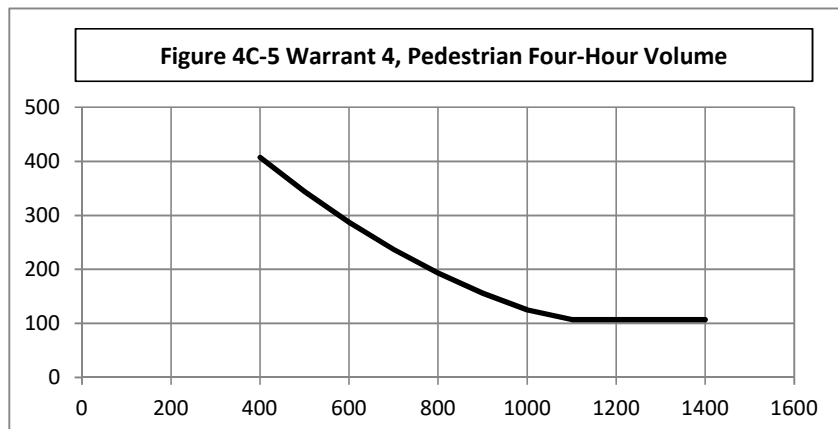
Manually Set To:

Criterion A: Four Hour

Hour (Start)	Pedestrian Volume	Major Road Vol.
		0
		0
		0
		0

Manually Set Major Rd Vol?
15th % walk speed < 3.5 ft/s?

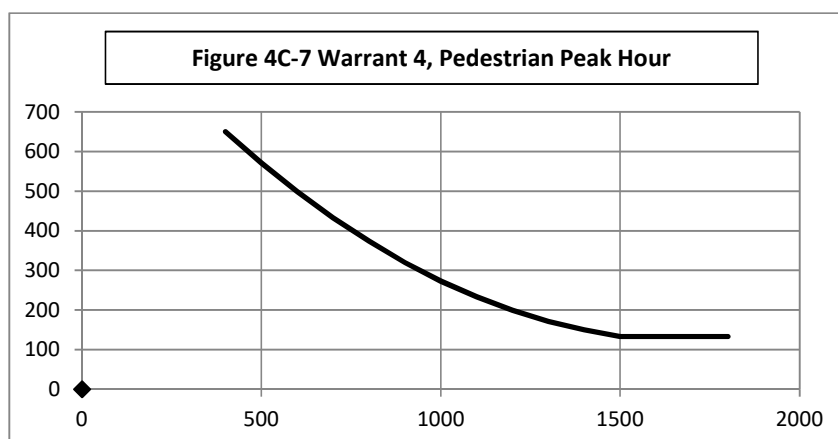
Criterion A Satisfied?



Criterion B: Peak Hour

Peak Hour	Pedestrian Vol.	Major Road Vol.
0:00	0	0

Criterion B Satisfied?



Warrant 5: School Crossing

Warrant Evaluated? Yes

Warrant Satisfied? No

Manually Set To:

Criteria		Fulfilled?
1	There are a MINIMUM of 20 school children during the highest crossing hour.	Yes
2	There are fewer adequate gaps in the major road traffic stream during the period when the school children are using the crossing than the number of minutes in the same period.	No
3	The nearest traffic signal along the major road is located more than 300 ft away. Or, the nearest traffic signal is within 300 ft but the proposed traffic signal will not restrict the progressive movement of traffic.	Yes

Warrant 6: Coordinated Signal System

Warrant Evaluated? No

Warrant Satisfied? N/A

Manually Set To:

Criteria		Fulfilled?
1	Signal spacing > 1000 ft	
2	On a one-way road or a road that has traffic predominantly in one direction, the adjacent signals are so far apart that they do not provide the necessary degree of vehicle platooning.	
3	On a two-way road, adjacent signals do not provide the necessary degree of platooning and the proposed and the adjacent signals will collectively provide a progressive operation.	

Warrant 7: Crash Experience

100%

Warrant Evaluated? No

Warrant Satisfied? N/A

Manually Set To:

Criteria		Met?	Fulfilled?
1	Adequate trial of other remedial measures has failed to reduce crash frequency.		
	Measures Tried:		
2	Five or more reported crashes, of types susceptible to correction by signal, have occurred within a 12 month period.	# of crashes per 12 months	
3	Warrant 1, Condition A (80%)		
	Warrant 1, Condition B (80%)		
	Warrant 4, Criterion A (80%)		
	Warrant 4, Criterion B (80%)		

Warrant 8: Roadway Network

Warrant Evaluated? Yes

Warrant Satisfied? No

Manually Set To:

Criteria		Met?	Fulfilled?
1	Total entering volume of at least 1,000 veh/h during typical weekday peak hour	1212	Yes
	Five-year projected volumes that satisfy one or more of Warrants 1, 2, or 3.		No
2	Total entering vol. of at least 1,000 veh/h for each of any 5 hrs of non-normal business day (Sat. or Sun.)		
	Hour		
	Volume		

Characteristics of Major Routes - Select yes if all intersecting routes have characteristic	Fulfilled?
1 Part of the road or highway system that serves as the principal roadway network for through traffic flow	
2 Rural or suburban highway outside of, entering, or traversing a city	
3 Appears as a major route on an official plan	

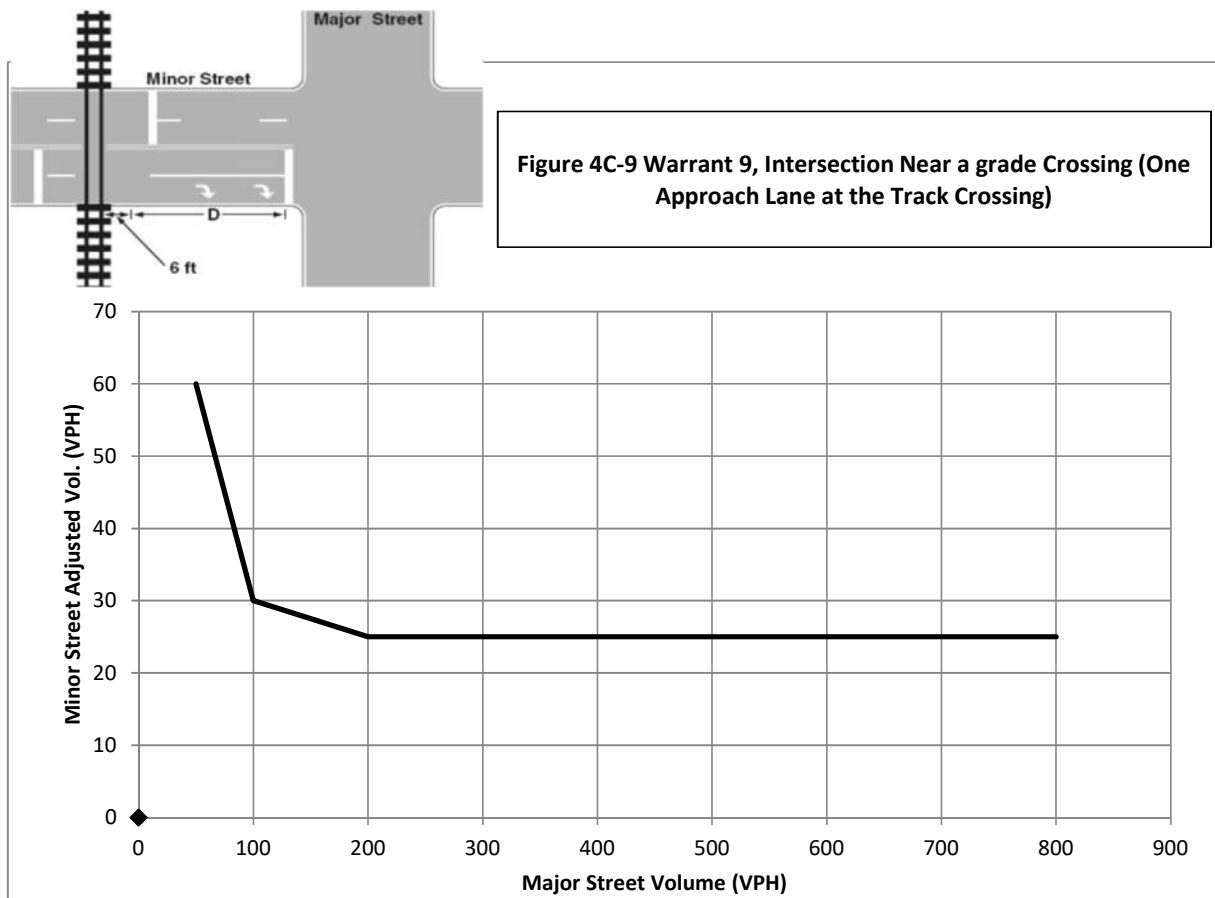
Warrant 9: Intersection Near a Grade Crossing

Warrant Evaluated? No

Warrant Satisfied? N/A

Manually Set To:

Adjustment Factors			Manually Set Peak Hour?				
Rail Traffic per Day	% High Occupancy Buses on Minor Road	% Tractor-Trailer Trucks on Minor Road	D	Peak Hour	Major Road Vol.	Minor Road Vol.	Adjusted Minor Vol.
					0	0	0



Conclusions/Comments:

Section A-6

Capacity Analysis

Lanes, Volumes, Timings

3: Eastern & Route 128

03/06/2020

												
Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2
Lane Configurations												
Traffic Volume (vph)	40	151	595	10	372	25	394	213	157	166	192	24
Future Volume (vph)	40	151	595	10	372	25	394	213	157	166	192	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		80	0	80		0	0		0	120	0	
Storage Lanes		2	1	2		1	1		1	0	2	
Taper Length (ft)		25		25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.850	0.850
Flt Protected	0.950	0.950		0.950			0.950			0.950		
Satd. Flow (prot)	1719	1719	1553	1805	3438	1442	1703	1810	1568	1770	1568	1495
Flt Permitted	0.620	0.950		0.950			0.950			0.329		
Satd. Flow (perm)	1122	1719	1553	1805	3438	1442	1703	1810	1568	613	1568	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			487			99			187			99
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		900			864			938			369	
Travel Time (s)		24.5			23.6			25.6			10.1	
Peak Hour Factor	0.77	0.76	0.85	0.63	0.91	0.78	0.96	0.92	0.84	0.77	0.87	0.67
Heavy Vehicles (%)	5%	5%	4%	0%	5%	12%	6%	5%	3%	2%	3%	8%
Adj. Flow (vph)	52	199	700	16	409	32	410	232	187	216	221	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	199	700	16	409	32	410	232	187	216	221	36
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right	Right
Median Width(ft)		24			12			12		12		
Link Offset(ft)		0			0			0		0		
Crosswalk Width(ft)		16			16			16		16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15	9	15		9	15		9	15	9	9
Number of Detectors	1	1	1	1	2	1	1	2	1	1	1	1
Detector Template	Left	Left	Right	Left	Thru	Right	Left	Thru	Right	Left	Right	Right
Leading Detector (ft)	20	20	20	20	100	20	20	100	20	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	20	6	20	20	6	20	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)					94			94				
Detector 2 Size(ft)					6			6				
Detector 2 Type					Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0				
Turn Type	Perm	Prot	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	Prot	Perm
Protected Phases		4		5	2		1	6		3	8	

Baseline

Synchro 10 Report
Page 1

Lanes, Volumes, Timings

3: Eastern & Route 128

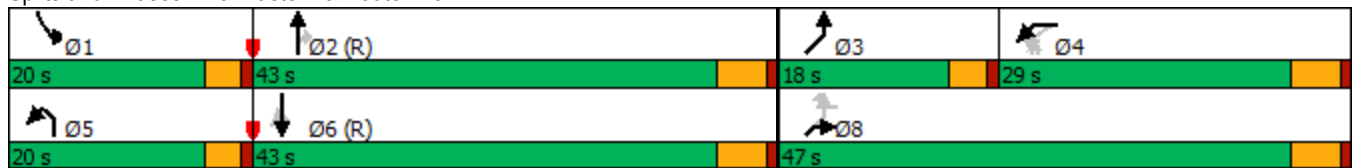
03/06/2020

												
Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2
Permitted Phases	4		8			2		6	6	3 8		4
Detector Phase	4	4	8	5	2	2	1	6	6	3	8	4
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	10.0	10.0	6.0	10.0	10.0	6.0	6.0	6.0
Minimum Split (s)	27.0	27.0	22.5	10.5	23.0	23.0	10.5	22.5	22.5	10.5	22.5	27.0
Total Split (s)	29.0	29.0	47.0	20.0	43.0	43.0	20.0	43.0	43.0	18.0	47.0	29.0
Total Split (%)	26.4%	26.4%	42.7%	18.2%	39.1%	39.1%	18.2%	39.1%	39.1%	16.4%	42.7%	26.4%
Maximum Green (s)	24.0	24.0	42.0	16.0	38.0	38.0	16.0	38.0	38.0	14.0	42.0	24.0
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead		Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None
Walk Time (s)	7.0	7.0			7.0	7.0						7.0
Flash Dont Walk (s)	15.0	15.0			10.0	10.0						15.0
Pedestrian Calls (#/hr)	0	0			0	0						0
Act Effct Green (s)	17.8	17.8	36.6	6.7	19.2	19.2	40.2	58.8	58.8	37.6	36.6	17.8
Actuated g/C Ratio	0.16	0.16	0.33	0.06	0.17	0.17	0.37	0.53	0.53	0.34	0.33	0.16
v/c Ratio	0.29	0.72	0.83	0.15	0.68	0.10	0.66	0.24	0.20	0.59	0.42	0.11
Control Delay	42.9	57.7	18.6	51.5	48.1	0.6	38.8	17.8	3.7	32.8	29.8	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.9	57.7	18.6	51.5	48.1	0.6	38.8	17.8	3.7	32.8	29.8	0.7
LOS	D	E	B	D	D	A	D	B	A	C	C	A
Approach Delay		28.1			44.9			25.0		29.0		
Approach LOS		C			D			C		C		
Queue Length 50th (ft)	33	134	144	11	143	0	242	76	0	113	120	0
Queue Length 95th (ft)	56	165	228	23	183	0	#514	179	35	128	159	0
Internal Link Dist (ft)		820			784			858		289		
Turn Bay Length (ft)	80	80		80						120		
Base Capacity (vph)	244	375	901	262	1187	562	622	967	925	374	609	403
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.53	0.78	0.06	0.34	0.06	0.66	0.24	0.20	0.58	0.36	0.09
Intersection Summary												
Area Type:	Other											
Cycle Length: 110												
Actuated Cycle Length: 110												
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green												
Natural Cycle: 90												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 0.83												
Intersection Signal Delay: 30.1					Intersection LOS: C							
Intersection Capacity Utilization 64.7%					ICU Level of Service C							
Analysis Period (min) 15												

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Eastern & Route 128



Lanes, Volumes, Timings

7: Eastern & Webster

03/06/2020



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	132	27	27	242	227	75
Future Volume (vph)	132	27	27	242	227	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.960				0.967	
Flt Protected	0.966			0.995		
Satd. Flow (prot)	1762	0	0	1808	1784	0
Flt Permitted	0.966			0.995		
Satd. Flow (perm)	1762	0	0	1808	1784	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	274			740	369	
Travel Time (s)	6.2			16.8	8.4	
Peak Hour Factor	0.82	0.40	0.90	0.81	0.78	0.81
Heavy Vehicles (%)	0%	0%	10%	4%	3%	3%
Adj. Flow (vph)	161	68	30	299	291	93
Shared Lane Traffic (%)						
Lane Group Flow (vph)	229	0	0	329	384	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type: Other						
Control Type: Unsignalized						
Intersection Capacity Utilization 49.7% ICU Level of Service A						
Analysis Period (min) 15						

Lanes, Volumes, Timings

9: Friend & Webster

03/06/2020

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	73	2	39	33	0	77
Future Volume (vph)	73	2	39	33	0	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998				0.865	
Flt Protected				0.974		
Satd. Flow (prot)	1896	0	0	1778	1596	0
Flt Permitted				0.974		
Satd. Flow (perm)	1896	0	0	1778	1596	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	468			360	514	
Travel Time (s)	10.6			8.2	11.7	
Peak Hour Factor	0.25	0.50	0.75	0.75	0.25	0.70
Heavy Vehicles (%)	0%	0%	5%	3%	0%	3%
Adj. Flow (vph)	292	4	52	44	0	110
Shared Lane Traffic (%)						
Lane Group Flow (vph)	296	0	0	96	110	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	22.0%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings

11: Main & Eastern

03/06/2020



Lane Group	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	256	304	352	6	5	290
Future Volume (vph)	256	304	352	6	5	290
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.997		0.869	
Flt Protected		0.976			0.998	
Satd. Flow (prot)	0	1749	1806	0	1562	0
Flt Permitted		0.976			0.998	
Satd. Flow (perm)	0	1749	1806	0	1562	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		545	595		740	
Travel Time (s)		12.4	13.5		16.8	
Peak Hour Factor	0.82	0.95	0.93	0.75	0.42	0.83
Heavy Vehicles (%)	4%	8%	5%	0%	20%	5%
Adj. Flow (vph)	312	320	378	8	12	349
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	632	386	0	361	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type: Other						
Control Type: Unsignalized						
Intersection Capacity Utilization 77.3%						
ICU Level of Service D						
Analysis Period (min) 15						

Lanes, Volumes, Timings

13: Webster

03/06/2020



Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	49	101	32	70	58	40
Future Volume (vph)	49	101	32	70	58	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.908		0.945	
Flt Protected		0.984			0.971	
Satd. Flow (prot)	0	1833	1691	0	1709	0
Flt Permitted		0.984			0.971	
Satd. Flow (perm)	0	1833	1691	0	1709	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		360	274		158	
Travel Time (s)		8.2	6.2		3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	53	110	35	76	63	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	163	111	0	106	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 27.0% ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis

7: Eastern & Webster

03/06/2020

						
Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	132	27	27	242	227	75
Future Volume (Veh/h)	132	27	27	242	227	75
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.40	0.90	0.81	0.78	0.81
Hourly flow rate (vph)	161	68	30	299	291	93
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					369	
pX, platoon unblocked						
vC, conflicting volume	696	338	384			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	696	338	384			
tC, single (s)	6.4	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	60	90	97			
cM capacity (veh/h)	400	709	1132			
Direction, Lane #	SE 1	NE 1	SW 1			
Volume Total	229	329	384			
Volume Left	161	30	0			
Volume Right	68	0	93			
cSH	459	1132	1700			
Volume to Capacity	0.50	0.03	0.23			
Queue Length 95th (ft)	68	2	0			
Control Delay (s)	20.4	1.0	0.0			
Lane LOS	C	A				
Approach Delay (s)	20.4	1.0	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			5.3			
Intersection Capacity Utilization		49.7%		ICU Level of Service		A
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

9: Friend & Webster

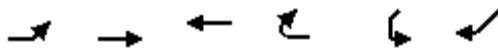
03/06/2020

						
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	73	2	39	33	0	77
Future Volume (Veh/h)	73	2	39	33	0	77
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.25	0.50	0.75	0.75	0.25	0.70
Hourly flow rate (vph)	292	4	52	44	0	110
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			296		442	294
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			296		442	294
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		100	85
cM capacity (veh/h)			1248		553	743
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	296	96	110			
Volume Left	0	52	0			
Volume Right	4	0	110			
cSH	1700	1248	743			
Volume to Capacity	0.17	0.04	0.15			
Queue Length 95th (ft)	0	3	13			
Control Delay (s)	0.0	4.5	10.7			
Lane LOS		A	B			
Approach Delay (s)	0.0	4.5	10.7			
Approach LOS			B			
Intersection Summary						
Average Delay			3.2			
Intersection Capacity Utilization		22.0%		ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

11: Main & Eastern

03/06/2020



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↰	↰		↰	↰
Traffic Volume (veh/h)	256	304	352	6	5	290
Future Volume (Veh/h)	256	304	352	6	5	290
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.82	0.95	0.93	0.75	0.42	0.83
Hourly flow rate (vph)	312	320	378	8	12	349
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	386				1326	382
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	386				1326	382
tC, single (s)	4.1				6.6	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.7	3.3
p0 queue free %	73				90	47
cM capacity (veh/h)	1162				115	659
Direction, Lane #	EB 1	WB 1	SW 1			
Volume Total	632	386	361			
Volume Left	312	0	12			
Volume Right	0	8	349			
cSH	1162	1700	569			
Volume to Capacity	0.27	0.23	0.63			
Queue Length 95th (ft)	27	0	111			
Control Delay (s)	6.1	0.0	21.6			
Lane LOS	A		C			
Approach Delay (s)	6.1	0.0	21.6			
Approach LOS			C			
Intersection Summary						
Average Delay			8.5			
Intersection Capacity Utilization			77.3%	ICU Level of Service		D
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

13: Webster

03/06/2020

						
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	49	101	32	70	58	40
Future Volume (Veh/h)	49	101	32	70	58	40
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	53	110	35	76	63	43
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	111				289	73
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	111				289	73
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				91	96
cM capacity (veh/h)	1479				676	989
Direction, Lane #	SE 1	NW 1	SW 1			
Volume Total	163	111	106			
Volume Left	53	0	63			
Volume Right	0	76	43			
cSH	1479	1700	776			
Volume to Capacity	0.04	0.07	0.14			
Queue Length 95th (ft)	3	0	12			
Control Delay (s)	2.6	0.0	10.4			
Lane LOS	A		B			
Approach Delay (s)	2.6	0.0	10.4			
Approach LOS			B			
Intersection Summary						
Average Delay			4.0			
Intersection Capacity Utilization			27.0%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings

3: Eastern & Route 128

03/06/2020

												
Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2
Lane Configurations												
Traffic Volume (vph)	37	240	451	15	289	38	536	327	219	182	230	24
Future Volume (vph)	37	240	451	15	289	38	536	327	219	182	230	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		80	0	80		0	0		0	120	0	
Storage Lanes		2	1	2		1	1		1	0	2	
Taper Length (ft)		25		25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.850	0.850
Flt Protected	0.950	0.950		0.950			0.950			0.950		
Satd. Flow (prot)	1752	1770	1553	1805	3471	1429	1770	1845	1553	1752	1553	1495
Flt Permitted	0.593	0.950		0.950			0.950			0.283		
Satd. Flow (perm)	1094	1770	1553	1805	3471	1429	1770	1845	1553	522	1553	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			557			121			241			121
Link Speed (mph)		25			25			25		25		
Link Distance (ft)		900			864			938		361		
Travel Time (s)		24.5			23.6			25.6		9.8		
Peak Hour Factor	0.71	0.90	0.81	0.42	0.93	0.79	0.93	0.86	0.91	0.25	0.85	0.55
Heavy Vehicles (%)	3%	2%	4%	0%	4%	13%	2%	3%	4%	3%	4%	8%
Adj. Flow (vph)	52	267	557	36	311	48	576	380	241	728	271	44
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	267	557	36	311	48	576	380	241	728	271	44
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right	Right
Median Width(ft)		24			12			12		12		
Link Offset(ft)		0			0			0		0		
Crosswalk Width(ft)		16			16			16		16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15	9	15		9	15		9	15	9	9
Number of Detectors	1	1	1	1	2	1	1	2	1	1	1	1
Detector Template	Left	Left	Right	Left	Thru	Right	Left	Thru	Right	Left	Right	Right
Leading Detector (ft)	20	20	20	20	100	20	20	100	20	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	20	6	20	20	6	20	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)					94			94				
Detector 2 Size(ft)					6			6				
Detector 2 Type					Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0				
Turn Type	Perm	Prot	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	Prot	Perm
Protected Phases		4		5	2		1	6		3	8	

Baseline

Synchro 10 Report
Page 1

Lanes, Volumes, Timings
3: Eastern & Route 128

03/06/2020

												
Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2
Permitted Phases	4		8			2		6	6	3 8		4
Detector Phase	4	4	8	5	2	2	1	6	6	3	8	4
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	10.0	10.0	6.0	10.0	10.0	6.0	6.0	6.0
Minimum Split (s)	27.0	27.0	22.5	10.5	23.0	23.0	10.5	22.5	22.5	10.0	22.5	27.0
Total Split (s)	27.0	27.0	37.0	30.0	23.0	23.0	30.0	23.0	23.0	10.0	37.0	27.0
Total Split (%)	30.0%	30.0%	41.1%	33.3%	25.6%	25.6%	33.3%	25.6%	25.6%	11.1%	41.1%	30.0%
Maximum Green (s)	22.0	22.0	32.0	26.0	18.0	18.0	26.0	18.0	18.0	6.0	32.0	22.0
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead		Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None
Walk Time (s)	7.0	7.0			7.0	7.0						7.0
Flash Dont Walk (s)	15.0	15.0			10.0	10.0						15.0
Pedestrian Calls (#/hr)	0	0			0	0						0
Act Effct Green (s)	18.0	18.0	28.0	7.4	18.0	18.0	30.0	44.6	44.6	29.0	28.0	18.0
Actuated g/C Ratio	0.20	0.20	0.31	0.08	0.20	0.20	0.33	0.50	0.50	0.32	0.31	0.20
v/c Ratio	0.24	0.75	0.64	0.24	0.45	0.13	0.98	0.42	0.27	2.91	0.56	0.11
Control Delay	31.5	47.3	5.8	42.1	34.0	0.7	64.9	18.9	3.5	887.9	30.1	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.5	47.3	5.8	42.1	34.0	0.7	64.9	18.9	3.5	887.9	30.1	0.6
LOS	C	D	A	D	C	A	E	B	A	F	C	A
Approach Delay		20.0			30.7			37.9		627.6		
Approach LOS		B			C			D		F		
Queue Length 50th (ft)	25	143	0	20	82	0	325	146	0	~718	126	0
Queue Length 95th (ft)	42	218	36	22	123	0	#582	237	46	104	179	0
Internal Link Dist (ft)		820			784			858		281		
Turn Bay Length (ft)	80	80		80						120		
Base Capacity (vph)	267	432	911	521	694	382	589	913	890	250	552	456
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.62	0.61	0.07	0.45	0.13	0.98	0.42	0.27	2.91	0.49	0.10
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 90												
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green												
Natural Cycle: 150												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 2.91												
Intersection Signal Delay: 207.8					Intersection LOS: F							
Intersection Capacity Utilization 76.4%					ICU Level of Service D							
Analysis Period (min) 15												

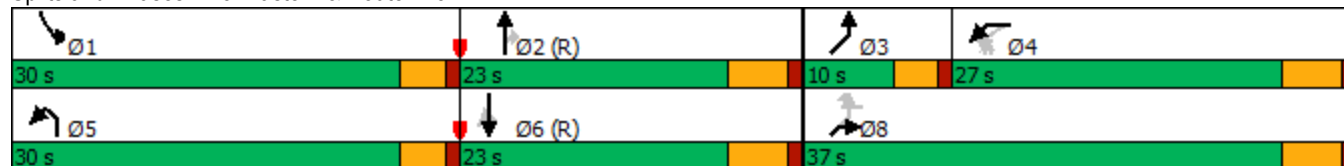
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Eastern & Route 128



Lanes, Volumes, Timings

7: Eastern & Webster

03/06/2020



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	108	27	32	320	334	130
Future Volume (vph)	108	27	32	320	334	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.954				0.963	
Flt Protected	0.968			0.996		
Satd. Flow (prot)	1743	0	0	1811	1776	0
Flt Permitted	0.968			0.996		
Satd. Flow (perm)	1743	0	0	1811	1776	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	300			746	361	
Travel Time (s)	6.8			17.0	8.2	
Peak Hour Factor	0.82	0.40	0.90	0.81	0.78	0.81
Heavy Vehicles (%)	0%	2%	10%	4%	3%	3%
Adj. Flow (vph)	132	68	36	395	428	160
Shared Lane Traffic (%)						
Lane Group Flow (vph)	200	0	0	431	588	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type: Other						
Control Type: Unsignalized						
Intersection Capacity Utilization 57.7% ICU Level of Service B						
Analysis Period (min) 15						

Lanes, Volumes, Timings

9: Friend

03/06/2020

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	56	11	74	86	8	57
Future Volume (vph)	56	11	74	86	8	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.972				0.890	
Flt Protected				0.974	0.991	
Satd. Flow (prot)	1758	0	0	1764	1649	0
Flt Permitted				0.974	0.991	
Satd. Flow (perm)	1758	0	0	1764	1649	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	468			345	514	
Travel Time (s)	10.6			7.8	11.7	
Peak Hour Factor	0.61	0.46	0.60	0.78	0.50	0.79
Heavy Vehicles (%)	4%	9%	3%	7%	0%	2%
Adj. Flow (vph)	92	24	123	110	16	72
Shared Lane Traffic (%)						
Lane Group Flow (vph)	116	0	0	233	88	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	25.9%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
11: Main & Eastern

03/06/2020

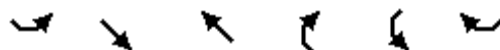


Lane Group	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	337	471	352	6	3	357
Future Volume (vph)	337	471	352	6	3	357
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.996		0.868	
Flt Protected		0.979			0.999	
Satd. Flow (prot)	0	1798	1796	0	1601	0
Flt Permitted		0.979			0.999	
Satd. Flow (perm)	0	1798	1796	0	1601	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		476	595		746	
Travel Time (s)		10.8	13.5		17.0	
Peak Hour Factor	0.80	0.87	0.90	0.50	0.34	0.89
Heavy Vehicles (%)	4%	3%	4%	50%	0%	3%
Adj. Flow (vph)	421	541	391	12	9	401
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	962	403	0	410	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type: Other						
Control Type: Unsignalized						
Intersection Capacity Utilization 94.6%						
ICU Level of Service F						
Analysis Period (min) 15						

Lanes, Volumes, Timings

13: Webster

03/06/2020



Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	35	78	118	44	57	42
Future Volume (vph)	35	78	118	44	57	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.963		0.942	
Flt Protected		0.985			0.972	
Satd. Flow (prot)	0	1835	1794	0	1706	0
Flt Permitted		0.985			0.972	
Satd. Flow (perm)	0	1835	1794	0	1706	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		345	300		172	
Travel Time (s)		7.8	6.8		3.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	85	128	48	62	46
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	123	176	0	108	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 30.7% ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis

7: Eastern & Webster

03/06/2020

						
Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	108	27	32	320	334	130
Future Volume (Veh/h)	108	27	32	320	334	130
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.40	0.90	0.81	0.78	0.81
Hourly flow rate (vph)	132	68	36	395	428	160
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					361	
pX, platoon unblocked						
vC, conflicting volume	975	508	588			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	975	508	588			
tC, single (s)	6.4	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	51	88	96			
cM capacity (veh/h)	271	565	949			
Direction, Lane #	SE 1	NE 1	SW 1			
Volume Total	200	431	588			
Volume Left	132	36	0			
Volume Right	68	0	160			
cSH	329	949	1700			
Volume to Capacity	0.61	0.04	0.35			
Queue Length 95th (ft)	94	3	0			
Control Delay (s)	31.6	1.2	0.0			
Lane LOS	D	A				
Approach Delay (s)	31.6	1.2	0.0			
Approach LOS	D					
Intersection Summary						
Average Delay			5.6			
Intersection Capacity Utilization			57.7%	ICU Level of Service		B
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9: Friend

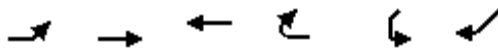
03/06/2020

						
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	56	11	74	86	8	57
Future Volume (Veh/h)	56	11	74	86	8	57
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.61	0.46	0.60	0.78	0.50	0.79
Hourly flow rate (vph)	92	24	123	110	16	72
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			116		460	104
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			116		460	104
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			92		97	92
cM capacity (veh/h)			1466		516	951
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	116	233	88			
Volume Left	0	123	16			
Volume Right	24	0	72			
cSH	1700	1466	824			
Volume to Capacity	0.07	0.08	0.11			
Queue Length 95th (ft)	0	7	9			
Control Delay (s)	0.0	4.4	9.9			
Lane LOS		A	A			
Approach Delay (s)	0.0	4.4	9.9			
Approach LOS			A			
Intersection Summary						
Average Delay			4.3			
Intersection Capacity Utilization			25.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

11: Main & Eastern

03/06/2020



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↩	↩		↩	↩
Traffic Volume (veh/h)	337	471	352	6	3	357
Future Volume (Veh/h)	337	471	352	6	3	357
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.87	0.90	0.50	0.34	0.89
Hourly flow rate (vph)	421	541	391	12	9	401
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	403				1780	397
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	403				1780	397
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	63				84	38
cM capacity (veh/h)	1145				58	650
Direction, Lane #	EB 1	WB 1	SW 1			
Volume Total	962	403	410			
Volume Left	421	0	9			
Volume Right	0	12	401			
cSH	1145	1700	531			
Volume to Capacity	0.37	0.24	0.77			
Queue Length 95th (ft)	43	0	174			
Control Delay (s)	7.4	0.0	31.1			
Lane LOS	A		D			
Approach Delay (s)	7.4	0.0	31.1			
Approach LOS			D			
Intersection Summary						
Average Delay			11.2			
Intersection Capacity Utilization			94.6%	ICU Level of Service		F
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

13: Webster

03/06/2020

						
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	35	78	118	44	57	42
Future Volume (Veh/h)	35	78	118	44	57	42
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	85	128	48	62	46
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	176				313	152
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	176				313	152
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				91	95
cM capacity (veh/h)	1400				661	894
Direction, Lane #	SE 1	NW 1	SW 1			
Volume Total	123	176	108			
Volume Left	38	0	62			
Volume Right	0	48	46			
cSH	1400	1700	744			
Volume to Capacity	0.03	0.10	0.15			
Queue Length 95th (ft)	2	0	13			
Control Delay (s)	2.5	0.0	10.7			
Lane LOS	A		B			
Approach Delay (s)	2.5	0.0	10.7			
Approach LOS			B			
Intersection Summary						
Average Delay			3.6			
Intersection Capacity Utilization			30.7%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings

3: Eastern & Route 128

03/06/2020

												
Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2
Lane Configurations												
Traffic Volume (vph)	46	172	678	11	424	29	449	243	179	189	219	27
Future Volume (vph)	46	172	678	11	424	29	449	243	179	189	219	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		80	0	80		0	0		0	120	0	
Storage Lanes		2	1	2		1	1		1	0	2	
Taper Length (ft)		25		25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.850	0.850
Flt Protected	0.950	0.950		0.950			0.950			0.950		
Satd. Flow (prot)	1719	1719	1553	1805	3438	1442	1533	1810	1568	1770	1568	1495
Flt Permitted	0.603	0.950		0.950			0.950			0.352		
Satd. Flow (perm)	1091	1719	1553	1805	3438	1442	1533	1810	1568	656	1568	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			454			99			213			99
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		900			864			938			369	
Travel Time (s)		24.5			23.6			25.6			10.1	
Peak Hour Factor	0.77	0.76	0.85	0.63	0.91	0.78	0.96	0.92	0.84	0.77	0.87	0.67
Heavy Vehicles (%)	5%	5%	4%	0%	5%	12%	6%	5%	3%	2%	3%	8%
Parking (#/hr)							0					
Adj. Flow (vph)	60	226	798	17	466	37	468	264	213	245	252	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	226	798	17	466	37	468	264	213	245	252	40
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right	Right
Median Width(ft)		24			12			12		12		
Link Offset(ft)		0			0			0		0		
Crosswalk Width(ft)		16			16			16		16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.14	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15	9	15		9	15		9	15	9	9
Number of Detectors	1	1	1	1	2	1	1	2	1	1	1	1
Detector Template	Left	Left	Right	Left	Thru	Right	Left	Thru	Right	Left	Right	Right
Leading Detector (ft)	20	20	20	20	100	20	20	100	20	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	20	6	20	20	6	20	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)					94			94				
Detector 2 Size(ft)					6			6				
Detector 2 Type					Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0				
Turn Type	Perm	Prot	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	Prot	Perm

Baseline

Synchro 10 Report
Page 1

Lanes, Volumes, Timings

3: Eastern & Route 128

03/06/2020

												
Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2
Protected Phases		4		5	2		1	6		3	8	
Permitted Phases	4		8			2		6	6	3	8	4
Detector Phase	4	4	8	5	2	2	1	6	6	3	8	4
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	10.0	10.0	6.0	10.0	10.0	6.0	6.0	6.0
Minimum Split (s)	27.0	27.0	22.5	10.5	23.0	23.0	10.5	22.5	22.5	10.5	22.5	27.0
Total Split (s)	29.0	29.0	47.0	20.0	43.0	43.0	20.0	43.0	43.0	18.0	47.0	29.0
Total Split (%)	26.4%	26.4%	42.7%	18.2%	39.1%	39.1%	18.2%	39.1%	39.1%	16.4%	42.7%	26.4%
Maximum Green (s)	24.0	24.0	42.0	16.0	38.0	38.0	16.0	38.0	38.0	14.0	42.0	24.0
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead		Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None
Walk Time (s)	7.0	7.0			7.0	7.0						7.0
Flash Dont Walk (s)	15.0	15.0			10.0	10.0						15.0
Pedestrian Calls (#/hr)	0	0			0	0						0
Act Effct Green (s)	22.8	22.8	41.8	6.8	21.3	21.3	33.0	53.6	53.6	42.8	41.8	22.8
Actuated g/C Ratio	0.21	0.21	0.38	0.06	0.19	0.19	0.30	0.49	0.49	0.39	0.38	0.21
v/c Ratio	0.27	0.64	0.92	0.15	0.70	0.10	1.02	0.30	0.24	0.60	0.42	0.10
Control Delay	37.3	47.2	29.0	51.5	46.9	0.6	87.9	22.0	4.3	29.0	26.0	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.3	47.2	29.0	51.5	46.9	0.6	87.9	22.0	4.3	29.0	26.0	0.5
LOS	D	D	C	D	D	A	F	C	A	C	C	A
Approach Delay		33.3			43.8			50.7		25.5		
Approach LOS		C			D			D		C		
Queue Length 50th (ft)	35	142	255	12	163	0	~376	104	0	116	124	0
Queue Length 95th (ft)	59	175	345	24	202	0	#727	224	40	129	163	0
Internal Link Dist (ft)		820			784			858		289		
Turn Bay Length (ft)	80	80		80						120		
Base Capacity (vph)	258	407	909	262	1187	562	459	888	877	412	650	429
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.56	0.88	0.06	0.39	0.07	1.02	0.30	0.24	0.59	0.39	0.09

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 39.0

Intersection LOS: D

Intersection Capacity Utilization 71.6%

ICU Level of Service C

Lanes, Volumes, Timings

3: Eastern & Route 128

03/06/2020

Analysis Period (min) 15

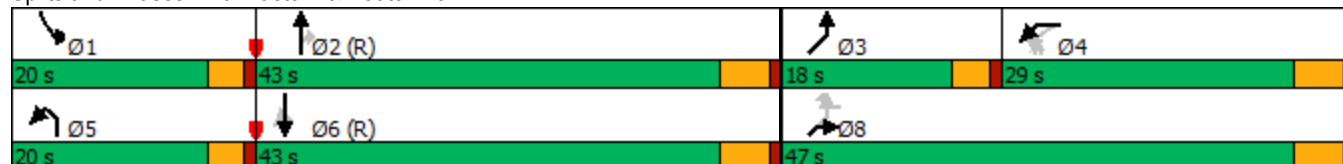
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Eastern & Route 128



Lanes, Volumes, Timings

7: Eastern & Webster

03/06/2020



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	151	31	31	276	259	86
Future Volume (vph)	151	31	31	276	259	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.960				0.967	
Flt Protected	0.966			0.995		
Satd. Flow (prot)	1762	0	0	1808	1784	0
Flt Permitted	0.966			0.995		
Satd. Flow (perm)	1762	0	0	1808	1784	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	274			740	369	
Travel Time (s)	6.2			16.8	8.4	
Peak Hour Factor	0.82	0.40	0.90	0.81	0.78	0.81
Heavy Vehicles (%)	0%	0%	10%	4%	3%	3%
Adj. Flow (vph)	184	78	34	341	332	106
Shared Lane Traffic (%)						
Lane Group Flow (vph)	262	0	0	375	438	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type: Other						
Control Type: Unsignalized						
Intersection Capacity Utilization 55.4% ICU Level of Service B						
Analysis Period (min) 15						

Lanes, Volumes, Timings

9: Friend & Webster

03/06/2020

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	83	2	45	38	0	88
Future Volume (vph)	83	2	45	38	0	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998				0.865	
Flt Protected				0.974		
Satd. Flow (prot)	1896	0	0	1778	1596	0
Flt Permitted				0.974		
Satd. Flow (perm)	1896	0	0	1778	1596	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	468			360	514	
Travel Time (s)	10.6			8.2	11.7	
Peak Hour Factor	0.25	0.50	0.75	0.75	0.25	0.70
Heavy Vehicles (%)	0%	0%	5%	3%	0%	3%
Adj. Flow (vph)	332	4	60	51	0	126
Shared Lane Traffic (%)						
Lane Group Flow (vph)	336	0	0	111	126	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	23.3%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings

11: Main & Eastern

03/06/2020

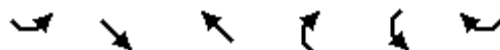


Lane Group	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	292	347	401	7	6	331
Future Volume (vph)	292	347	401	7	6	331
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.997		0.870	
Flt Protected		0.976			0.998	
Satd. Flow (prot)	0	1749	1806	0	1564	0
Flt Permitted		0.976			0.998	
Satd. Flow (perm)	0	1749	1806	0	1564	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		545	595		740	
Travel Time (s)		12.4	13.5		16.8	
Peak Hour Factor	0.82	0.95	0.93	0.75	0.42	0.83
Heavy Vehicles (%)	4%	8%	5%	0%	20%	5%
Adj. Flow (vph)	356	365	431	9	14	399
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	721	440	0	413	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	86.8%			ICU Level of Service E		
Analysis Period (min)	15					

Lanes, Volumes, Timings

13: Webster

03/06/2020



Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	49	115	37	70	58	40
Future Volume (vph)	49	115	37	70	58	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.912		0.945	
Flt Protected		0.985			0.971	
Satd. Flow (prot)	0	1872	1733	0	1743	0
Flt Permitted		0.985			0.971	
Satd. Flow (perm)	0	1872	1733	0	1743	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		360	274		158	
Travel Time (s)		8.2	6.2		3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	53	125	40	76	63	43
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	178	116	0	106	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	27.8%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

7: Eastern & Webster

03/06/2020

						
Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	151	31	31	276	259	86
Future Volume (Veh/h)	151	31	31	276	259	86
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.40	0.90	0.81	0.78	0.81
Hourly flow rate (vph)	184	78	34	341	332	106
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					369	
pX, platoon unblocked						
vC, conflicting volume	794	385	438			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	794	385	438			
tC, single (s)	6.4	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	47	88	97			
cM capacity (veh/h)	349	667	1081			
Direction, Lane #	SE 1	NE 1	SW 1			
Volume Total	262	375	438			
Volume Left	184	34	0			
Volume Right	78	0	106			
cSH	406	1081	1700			
Volume to Capacity	0.64	0.03	0.26			
Queue Length 95th (ft)	110	2	0			
Control Delay (s)	28.6	1.1	0.0			
Lane LOS	D	A				
Approach Delay (s)	28.6	1.1	0.0			
Approach LOS	D					
Intersection Summary						
Average Delay			7.3			
Intersection Capacity Utilization		55.4%		ICU Level of Service		B
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

9: Friend & Webster

03/06/2020

						
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	83	2	45	38	0	88
Future Volume (Veh/h)	83	2	45	38	0	88
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.25	0.50	0.75	0.75	0.25	0.70
Hourly flow rate (vph)	332	4	60	51	0	126
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			336		505	334
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			336		505	334
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		100	82
cM capacity (veh/h)			1207		504	706
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	336	111	126			
Volume Left	0	60	0			
Volume Right	4	0	126			
cSH	1700	1207	706			
Volume to Capacity	0.20	0.05	0.18			
Queue Length 95th (ft)	0	4	16			
Control Delay (s)	0.0	4.6	11.2			
Lane LOS		A	B			
Approach Delay (s)	0.0	4.6	11.2			
Approach LOS			B			
Intersection Summary						
Average Delay			3.4			
Intersection Capacity Utilization			23.3%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

11: Main & Eastern

03/06/2020



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↱	↱		↰	↰
Traffic Volume (veh/h)	292	347	401	7	6	331
Future Volume (Veh/h)	292	347	401	7	6	331
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.82	0.95	0.93	0.75	0.42	0.83
Hourly flow rate (vph)	356	365	431	9	14	399
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	440				1512	436
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	440				1512	436
tC, single (s)	4.1				6.6	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.7	3.3
p0 queue free %	68				83	35
cM capacity (veh/h)	1109				82	614
Direction, Lane #	EB 1	WB 1	SW 1			
Volume Total	721	440	413			
Volume Left	356	0	14			
Volume Right	0	9	399			
cSH	1109	1700	503			
Volume to Capacity	0.32	0.26	0.82			
Queue Length 95th (ft)	35	0	201			
Control Delay (s)	6.8	0.0	37.2			
Lane LOS	A		E			
Approach Delay (s)	6.8	0.0	37.2			
Approach LOS			E			
Intersection Summary						
Average Delay		12.9				
Intersection Capacity Utilization		86.8%		ICU Level of Service		E
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

13: Webster

03/06/2020

						
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	49	115	37	70	58	40
Future Volume (Veh/h)	49	115	37	70	58	40
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	53	125	40	76	63	43
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	116				309	78
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	116				309	78
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				90	96
cM capacity (veh/h)	1485				663	988
Direction, Lane #	SE 1	NW 1	SW 1			
Volume Total	178	116	106			
Volume Left	53	0	63			
Volume Right	0	76	43			
cSH	1485	1700	765			
Volume to Capacity	0.04	0.07	0.14			
Queue Length 95th (ft)	3	0	12			
Control Delay (s)	2.4	0.0	10.5			
Lane LOS	A		B			
Approach Delay (s)	2.4	0.0	10.5			
Approach LOS			B			
Intersection Summary						
Average Delay			3.9			
Intersection Capacity Utilization		27.8%		ICU Level of Service		A
Analysis Period (min)		15				

Lanes, Volumes, Timings

3: Eastern & Route 128

03/06/2020

												
Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2
Lane Configurations												
Traffic Volume (vph)	42	274	514	17	330	43	611	373	250	208	262	27
Future Volume (vph)	42	274	514	17	330	43	611	373	250	208	262	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		80	0	80		0	0		0	120	0	
Storage Lanes		2	1	2		1	1		1	0	2	
Taper Length (ft)		25		25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.850	0.850
Flt Protected	0.950	0.950		0.950			0.950			0.950		
Satd. Flow (prot)	1752	1770	1553	1805	3471	1429	1770	1845	1553	1752	1553	1495
Flt Permitted	0.573	0.950		0.950			0.950			0.243		
Satd. Flow (perm)	1057	1770	1553	1805	3471	1429	1770	1845	1553	448	1553	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			635			121			275			121
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		900			864			938			361	
Travel Time (s)		24.5			23.6			25.6			9.8	
Peak Hour Factor	0.71	0.90	0.81	0.42	0.93	0.79	0.93	0.86	0.91	0.25	0.85	0.55
Heavy Vehicles (%)	3%	2%	4%	0%	4%	13%	2%	3%	4%	3%	4%	8%
Adj. Flow (vph)	59	304	635	40	355	54	657	434	275	832	308	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	304	635	40	355	54	657	434	275	832	308	49
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right	Right
Median Width(ft)		24			12			12		12		
Link Offset(ft)		0			0			0		0		
Crosswalk Width(ft)		16			16			16		16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15	9	15		9	15		9	15	9	9
Number of Detectors	1	1	1	1	2	1	1	2	1	1	1	1
Detector Template	Left	Left	Right	Left	Thru	Right	Left	Thru	Right	Left	Right	Right
Leading Detector (ft)	20	20	20	20	100	20	20	100	20	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	20	6	20	20	6	20	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)					94			94				
Detector 2 Size(ft)					6			6				
Detector 2 Type					Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0				
Turn Type	Perm	Prot	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	Prot	Perm
Protected Phases		4		5	2		1	6		3	8	

Baseline

Synchro 10 Report
Page 1

Lanes, Volumes, Timings

3: Eastern & Route 128

03/06/2020

												
Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2
Permitted Phases	4		8			2		6	6	3 8		4
Detector Phase	4	4	8	5	2	2	1	6	6	3	8	4
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	10.0	10.0	6.0	10.0	10.0	6.0	6.0	6.0
Minimum Split (s)	27.0	27.0	22.5	10.5	23.0	23.0	10.5	22.5	22.5	10.0	22.5	27.0
Total Split (s)	27.0	27.0	37.0	30.0	23.0	23.0	30.0	23.0	23.0	10.0	37.0	27.0
Total Split (%)	30.0%	30.0%	41.1%	33.3%	25.6%	25.6%	33.3%	25.6%	25.6%	11.1%	41.1%	30.0%
Maximum Green (s)	22.0	22.0	32.0	26.0	18.0	18.0	26.0	18.0	18.0	6.0	32.0	22.0
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead		Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None
Walk Time (s)	7.0	7.0			7.0	7.0						7.0
Flash Dont Walk (s)	15.0	15.0			10.0	10.0						15.0
Pedestrian Calls (#/hr)	0	0			0	0						0
Act Effct Green (s)	19.2	19.2	29.2	7.6	18.0	18.0	28.8	43.2	43.2	30.2	29.2	19.2
Actuated g/C Ratio	0.21	0.21	0.32	0.08	0.20	0.20	0.32	0.48	0.48	0.34	0.32	0.21
v/c Ratio	0.26	0.80	0.68	0.26	0.51	0.14	1.16	0.49	0.31	3.51	0.61	0.12
Control Delay	31.5	50.1	6.1	42.3	35.1	0.8	122.3	20.8	3.5	1154.5	30.9	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.5	50.1	6.1	42.3	35.1	0.8	122.3	20.8	3.5	1154.5	30.9	0.6
LOS	C	D	A	D	D	A	F	C	A	F	C	A
Approach Delay		21.0			31.6			66.1		815.9		
Approach LOS		C			C			E		F		
Queue Length 50th (ft)	28	162	0	22	95	0	~463	181	0	~848	142	0
Queue Length 95th (ft)	47	#253	35	24	139	0	#689	279	48	#141	206	0
Internal Link Dist (ft)		820			784			858		281		
Turn Bay Length (ft)	80	80		80						120		
Base Capacity (vph)	258	432	961	521	694	382	565	886	889	237	552	456
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.70	0.66	0.08	0.51	0.14	1.16	0.49	0.31	3.51	0.56	0.11
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 90												
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green												
Natural Cycle: 150												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 3.51												
Intersection Signal Delay: 273.8						Intersection LOS: F						
Intersection Capacity Utilization 84.7%						ICU Level of Service E						
Analysis Period (min) 15												

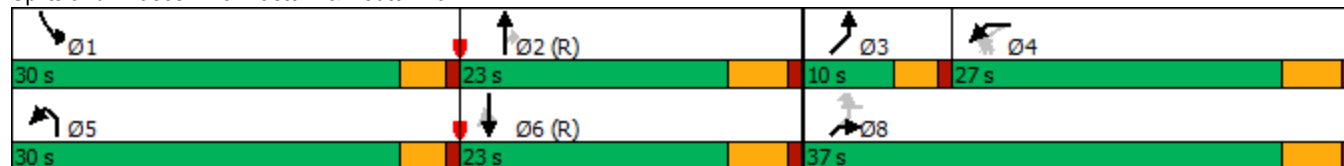
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Eastern & Route 128



Lanes, Volumes, Timings

7: Eastern & Webster

03/06/2020



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	123	31	37	365	381	148
Future Volume (vph)	123	31	37	365	381	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.954				0.963	
Flt Protected	0.968			0.996		
Satd. Flow (prot)	1743	0	0	1811	1776	0
Flt Permitted	0.968			0.996		
Satd. Flow (perm)	1743	0	0	1811	1776	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	300			746	361	
Travel Time (s)	6.8			17.0	8.2	
Peak Hour Factor	0.82	0.40	0.90	0.81	0.78	0.81
Heavy Vehicles (%)	0%	2%	10%	4%	3%	3%
Adj. Flow (vph)	150	78	41	451	488	183
Shared Lane Traffic (%)						
Lane Group Flow (vph)	228	0	0	492	671	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type: Other						
Control Type: Unsignalized						
Intersection Capacity Utilization 65.4%						
ICU Level of Service C						
Analysis Period (min) 15						

Lanes, Volumes, Timings

9: Friend

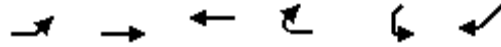
03/06/2020

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	64	13	84	98	9	65
Future Volume (vph)	64	13	84	98	9	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.972				0.889	
Flt Protected				0.974	0.991	
Satd. Flow (prot)	1758	0	0	1764	1647	0
Flt Permitted				0.974	0.991	
Satd. Flow (perm)	1758	0	0	1764	1647	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	468			345	514	
Travel Time (s)	10.6			7.8	11.7	
Peak Hour Factor	0.61	0.46	0.60	0.78	0.50	0.79
Heavy Vehicles (%)	4%	9%	3%	7%	0%	2%
Adj. Flow (vph)	105	28	140	126	18	82
Shared Lane Traffic (%)						
Lane Group Flow (vph)	133	0	0	266	100	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	27.7%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings

11: Main & Eastern

03/06/2020



Lane Group	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	384	537	486	5	3	407
Future Volume (vph)	384	537	486	5	3	407
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.998		0.868	
Flt Protected		0.979			0.999	
Satd. Flow (prot)	0	1798	1809	0	1600	0
Flt Permitted		0.979			0.999	
Satd. Flow (perm)	0	1798	1809	0	1600	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		476	595		746	
Travel Time (s)		10.8	13.5		17.0	
Peak Hour Factor	0.80	0.87	0.90	0.50	0.34	0.89
Heavy Vehicles (%)	4%	3%	4%	50%	0%	3%
Adj. Flow (vph)	480	617	540	10	9	457
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1097	550	0	466	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type: Other						
Control Type: Unsignalized						
Intersection Capacity Utilization 110.8% ICU Level of Service H						
Analysis Period (min) 15						

Lanes, Volumes, Timings

13: Webster

03/06/2020



Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	35	89	135	44	57	42
Future Volume (vph)	35	89	135	44	57	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.967		0.942	
Flt Protected		0.986			0.972	
Satd. Flow (prot)	0	1837	1801	0	1706	0
Flt Permitted		0.986			0.972	
Satd. Flow (perm)	0	1837	1801	0	1706	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		345	300		172	
Travel Time (s)		7.8	6.8		3.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	97	147	48	62	46
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	135	195	0	108	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 32.1% ICU Level of Service A

Analysis Period (min) 15

HCM Unsignalized Intersection Capacity Analysis

7: Eastern & Webster

03/06/2020

						
Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	123	31	37	365	381	148
Future Volume (Veh/h)	123	31	37	365	381	148
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.82	0.40	0.90	0.81	0.78	0.81
Hourly flow rate (vph)	150	78	41	451	488	183
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					361	
pX, platoon unblocked						
vC, conflicting volume	1112	580	671			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1112	580	671			
tC, single (s)	6.4	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	32	85	95			
cM capacity (veh/h)	222	515	883			
Direction, Lane #	SE 1	NE 1	SW 1			
Volume Total	228	492	671			
Volume Left	150	41	0			
Volume Right	78	0	183			
cSH	276	883	1700			
Volume to Capacity	0.83	0.05	0.39			
Queue Length 95th (ft)	168	4	0			
Control Delay (s)	59.0	1.3	0.0			
Lane LOS	F	A				
Approach Delay (s)	59.0	1.3	0.0			
Approach LOS	F					
Intersection Summary						
Average Delay		10.1				
Intersection Capacity Utilization		65.4%		ICU Level of Service		C
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

9: Friend

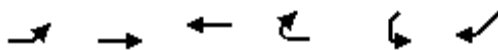
03/06/2020

						
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	64	13	84	98	9	65
Future Volume (Veh/h)	64	13	84	98	9	65
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.61	0.46	0.60	0.78	0.50	0.79
Hourly flow rate (vph)	105	28	140	126	18	82
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			133		525	119
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			133		525	119
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			90		96	91
cM capacity (veh/h)			1446		466	933
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	133	266	100			
Volume Left	0	140	18			
Volume Right	28	0	82			
cSH	1700	1446	790			
Volume to Capacity	0.08	0.10	0.13			
Queue Length 95th (ft)	0	8	11			
Control Delay (s)	0.0	4.5	10.2			
Lane LOS		A	B			
Approach Delay (s)	0.0	4.5	10.2			
Approach LOS			B			
Intersection Summary						
Average Delay			4.4			
Intersection Capacity Utilization			27.7%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

11: Main & Eastern

03/06/2020



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↩	↩		↩	↩
Traffic Volume (veh/h)	384	537	486	5	3	407
Future Volume (Veh/h)	384	537	486	5	3	407
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.80	0.87	0.90	0.50	0.34	0.89
Hourly flow rate (vph)	480	617	540	10	9	457
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	550				2122	545
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	550				2122	545
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	52				69	15
cM capacity (veh/h)	1010				29	536
Direction, Lane #	EB 1	WB 1	SW 1			
Volume Total	1097	550	466			
Volume Left	480	0	9			
Volume Right	0	10	457			
cSH	1010	1700	402			
Volume to Capacity	0.48	0.32	1.16			
Queue Length 95th (ft)	65	0	445			
Control Delay (s)	10.1	0.0	126.9			
Lane LOS	B		F			
Approach Delay (s)	10.1	0.0	126.9			
Approach LOS			F			
Intersection Summary						
Average Delay		33.2				
Intersection Capacity Utilization		110.8%		ICU Level of Service		H
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

13: Webster

03/06/2020

						
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	35	89	135	44	57	42
Future Volume (Veh/h)	35	89	135	44	57	42
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	97	147	48	62	46
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	195				344	171
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	195				344	171
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				90	95
cM capacity (veh/h)	1378				634	873
Direction, Lane #	SE 1	NW 1	SW 1			
Volume Total	135	195	108			
Volume Left	38	0	62			
Volume Right	0	48	46			
cSH	1378	1700	718			
Volume to Capacity	0.03	0.11	0.15			
Queue Length 95th (ft)	2	0	13			
Control Delay (s)	2.3	0.0	10.9			
Lane LOS	A		B			
Approach Delay (s)	2.3	0.0	10.9			
Approach LOS			B			
Intersection Summary						
Average Delay			3.4			
Intersection Capacity Utilization			32.1%	ICU Level of Service		A
Analysis Period (min)			15			

Lanes, Volumes, Timings

3: Eastern & Route 128

03/06/2020

												
Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2
Lane Configurations												
Traffic Volume (vph)	46	187	678	27	424	22	449	243	184	192	230	34
Future Volume (vph)	46	187	678	27	424	22	449	243	184	192	230	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		80	0	80		0	0		0	120	0	
Storage Lanes		2	1	2		1	1		1	0	2	
Taper Length (ft)		25		25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.850	0.850
Flt Protected	0.950	0.950		0.950			0.950			0.950		
Satd. Flow (prot)	1719	1719	1553	1805	3438	1442	1533	1810	1568	1770	1568	1495
Flt Permitted	0.604	0.950		0.950			0.950			0.353		
Satd. Flow (perm)	1093	1719	1553	1805	3438	1442	1533	1810	1568	658	1568	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			457			99			200			99
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		900			864			938			369	
Travel Time (s)		24.5			23.6			25.6			10.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	5%	4%	0%	5%	12%	6%	5%	3%	2%	3%	8%
Parking (#/hr)							0					
Adj. Flow (vph)	50	203	737	29	461	24	488	264	200	209	250	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	50	203	737	29	461	24	488	264	200	209	250	37
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right	Right
Median Width(ft)		24			12			12		12		
Link Offset(ft)		0			0			0		0		
Crosswalk Width(ft)		16			16			16		16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.14	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15	9	15		9	15		9	15	9	9
Number of Detectors	1	1	1	1	2	1	1	2	1	1	1	1
Detector Template	Left	Left	Right	Left	Thru	Right	Left	Thru	Right	Left	Right	Right
Leading Detector (ft)	20	20	20	20	100	20	20	100	20	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	20	6	20	20	6	20	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)					94			94				
Detector 2 Size(ft)					6			6				
Detector 2 Type					Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0				
Turn Type	Perm	Prot	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	Prot	Perm

Baseline

Synchro 10 Report
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Lanes, Volumes, Timings
3: Eastern & Route 128

03/06/2020

												
Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2
Protected Phases		4		5	2		1	6		3	8	
Permitted Phases	4		8			2		6	6	3	8	4
Detector Phase	4	4	8	5	2	2	1	6	6	3	8	4
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	10.0	10.0	6.0	10.0	10.0	6.0	6.0	6.0
Minimum Split (s)	27.0	27.0	22.5	10.5	23.0	23.0	10.5	22.5	22.5	10.5	22.5	27.0
Total Split (s)	29.0	29.0	47.0	20.0	43.0	43.0	20.0	43.0	43.0	18.0	47.0	29.0
Total Split (%)	26.4%	26.4%	42.7%	18.2%	39.1%	39.1%	18.2%	39.1%	39.1%	16.4%	42.7%	26.4%
Maximum Green (s)	24.0	24.0	42.0	16.0	38.0	38.0	16.0	38.0	38.0	14.0	42.0	24.0
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead		Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None
Walk Time (s)	7.0	7.0			7.0	7.0						7.0
Flash Dont Walk (s)	15.0	15.0			10.0	10.0						15.0
Pedestrian Calls (#/hr)	0	0			0	0						0
Act Effct Green (s)	19.8	19.8	37.9	7.4	21.1	21.1	37.0	54.7	54.7	38.9	37.9	19.8
Actuated g/C Ratio	0.18	0.18	0.34	0.07	0.19	0.19	0.34	0.50	0.50	0.35	0.34	0.18
v/c Ratio	0.26	0.66	0.88	0.24	0.70	0.07	0.95	0.29	0.23	0.56	0.46	0.11
Control Delay	39.1	51.1	24.7	52.9	47.0	0.4	67.3	21.6	4.3	30.2	29.4	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.1	51.1	24.7	52.9	47.0	0.4	67.3	21.6	4.3	30.2	29.4	0.6
LOS	D	D	C	D	D	A	E	C	A	C	C	A
Approach Delay		30.8			45.1			41.4		27.6		
Approach LOS		C			D			D		C		
Queue Length 50th (ft)	31	137	212	20	161	0	328	112	0	109	138	0
Queue Length 95th (ft)	60	188	330	49	199	0	#758	227	51	135	170	0
Internal Link Dist (ft)		820			784			858		289		
Turn Bay Length (ft)	80	80		80						120		
Base Capacity (vph)	250	394	897	262	1187	562	515	910	887	386	629	419
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.52	0.82	0.11	0.39	0.04	0.95	0.29	0.23	0.54	0.40	0.09

Intersection Summary

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 36.2

Intersection LOS: D

Intersection Capacity Utilization 72.6%

ICU Level of Service C

Lanes, Volumes, Timings

3: Eastern & Route 128

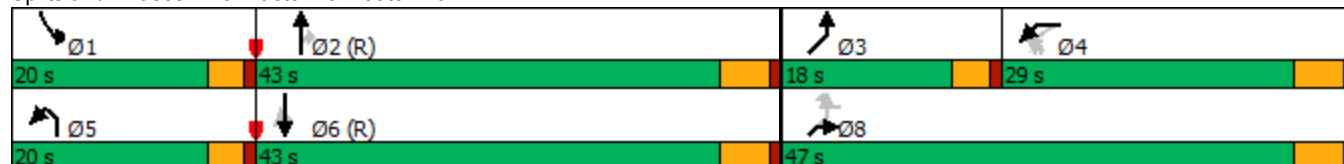
03/06/2020

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Eastern & Route 128



Lanes, Volumes, Timings

7: Eastern & Webster

03/06/2020



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	171	58	68	276	259	118
Future Volume (vph)	171	58	68	276	259	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.966				0.958	
Flt Protected	0.964			0.990		
Satd. Flow (prot)	1769	0	0	1788	1767	0
Flt Permitted	0.964			0.990		
Satd. Flow (perm)	1769	0	0	1788	1767	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	274			740	369	
Travel Time (s)	6.2			16.8	8.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	10%	4%	3%	3%
Adj. Flow (vph)	186	63	74	300	282	128
Shared Lane Traffic (%)						
Lane Group Flow (vph)	249	0	0	374	410	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12			0	0	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15			9
Sign Control	Stop			Free	Free	
Intersection Summary						
Area Type: Other						
Control Type: Unsignalized						
Intersection Capacity Utilization 62.1%				ICU Level of Service B		
Analysis Period (min) 15						

Lanes, Volumes, Timings

9: Friend & Webster

03/06/2020

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	93	2	64	47	0	115
Future Volume (vph)	93	2	64	47	0	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997				0.865	
Flt Protected				0.972		
Satd. Flow (prot)	1894	0	0	1773	1596	0
Flt Permitted				0.972		
Satd. Flow (perm)	1894	0	0	1773	1596	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	468			360	514	
Travel Time (s)	10.6			8.2	11.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	5%	3%	0%	3%
Adj. Flow (vph)	101	2	70	51	0	125
Shared Lane Traffic (%)						
Lane Group Flow (vph)	103	0	0	121	125	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	26.5%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings

11: Main & Eastern

03/06/2020



Lane Group	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↶	↶		↶	
Traffic Volume (vph)	329	347	401	7	6	358
Future Volume (vph)	329	347	401	7	6	358
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.998		0.867	
Flt Protected		0.976			0.999	
Satd. Flow (prot)	0	1749	1807	0	1563	0
Flt Permitted		0.976			0.999	
Satd. Flow (perm)	0	1749	1807	0	1563	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		545	595		740	
Travel Time (s)		12.4	13.5		16.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	8%	5%	0%	20%	5%
Adj. Flow (vph)	358	377	436	8	7	389
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	735	444	0	396	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	90.5%			ICU Level of Service E		
Analysis Period (min)	15					

Lanes, Volumes, Timings

13: Webster

03/06/2020

						
Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	86	115	37	139	106	68
Future Volume (vph)	86	115	37	139	106	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.893		0.947	
Flt Protected		0.979			0.970	
Satd. Flow (prot)	0	1860	1697	0	1745	0
Flt Permitted		0.979			0.970	
Satd. Flow (perm)	0	1860	1697	0	1745	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		360	274		158	
Travel Time (s)		8.2	6.2		3.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	93	125	40	151	115	74
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	218	191	0	189	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	41.4%			ICU Level of Service A		
Analysis Period (min)	15					

HCM Unsignalized Intersection Capacity Analysis

7: Eastern & Webster

03/06/2020

						
Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	171	58	68	276	259	118
Future Volume (Veh/h)	171	58	68	276	259	118
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	186	63	74	300	282	128
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					369	
pX, platoon unblocked						
vC, conflicting volume	794	346	410			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	794	346	410			
tC, single (s)	6.4	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	45	91	93			
cM capacity (veh/h)	336	702	1107			
Direction, Lane #	SE 1	NE 1	SW 1			
Volume Total	249	374	410			
Volume Left	186	74	0			
Volume Right	63	0	128			
cSH	387	1107	1700			
Volume to Capacity	0.64	0.07	0.24			
Queue Length 95th (ft)	108	5	0			
Control Delay (s)	29.7	2.2	0.0			
Lane LOS	D	A				
Approach Delay (s)	29.7	2.2	0.0			
Approach LOS	D					
Intersection Summary						
Average Delay			8.0			
Intersection Capacity Utilization			62.1%	ICU Level of Service		B
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9: Friend & Webster

03/06/2020

						
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	93	2	64	47	0	115
Future Volume (Veh/h)	93	2	64	47	0	115
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	101	2	70	51	0	125
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			103		293	102
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			103		293	102
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			95		100	87
cM capacity (veh/h)			1470		669	950
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	103	121	125			
Volume Left	0	70	0			
Volume Right	2	0	125			
cSH	1700	1470	950			
Volume to Capacity	0.06	0.05	0.13			
Queue Length 95th (ft)	0	4	11			
Control Delay (s)	0.0	4.5	9.4			
Lane LOS		A	A			
Approach Delay (s)	0.0	4.5	9.4			
Approach LOS			A			
Intersection Summary						
Average Delay			4.9			
Intersection Capacity Utilization			26.5%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

11: Main & Eastern

03/06/2020



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↱	↱		↱	↱
Traffic Volume (veh/h)	329	347	401	7	6	358
Future Volume (Veh/h)	329	347	401	7	6	358
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	358	377	436	8	7	389
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	444				1533	440
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	444				1533	440
tC, single (s)	4.1				6.6	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.7	3.3
p0 queue free %	68				91	36
cM capacity (veh/h)	1106				79	611
Direction, Lane #	EB 1	WB 1	SW 1			
Volume Total	735	444	396			
Volume Left	358	0	7			
Volume Right	0	8	389			
cSH	1106	1700	546			
Volume to Capacity	0.32	0.26	0.73			
Queue Length 95th (ft)	35	0	150			
Control Delay (s)	6.9	0.0	27.1			
Lane LOS	A		D			
Approach Delay (s)	6.9	0.0	27.1			
Approach LOS			D			
Intersection Summary						
Average Delay			10.0			
Intersection Capacity Utilization			90.5%	ICU Level of Service		E
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

13: Webster

03/06/2020

						
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	86	115	37	139	106	68
Future Volume (Veh/h)	86	115	37	139	106	68
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	93	125	40	151	115	74
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	191				426	116
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	191				426	116
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				79	92
cM capacity (veh/h)	1395				549	942
Direction, Lane #	SE 1	NW 1	SW 1			
Volume Total	218	191	189			
Volume Left	93	0	115			
Volume Right	0	151	74			
cSH	1395	1700	657			
Volume to Capacity	0.07	0.11	0.29			
Queue Length 95th (ft)	5	0	30			
Control Delay (s)	3.6	0.0	12.7			
Lane LOS	A		B			
Approach Delay (s)	3.6	0.0	12.7			
Approach LOS			B			
Intersection Summary						
Average Delay			5.3			
Intersection Capacity Utilization		41.4%		ICU Level of Service		A
Analysis Period (min)		15				

Lanes, Volumes, Timings

3: Eastern & Route 128

03/06/2020

												
Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2
Lane Configurations												
Traffic Volume (vph)	42	284	514	24	330	43	611	373	253	213	279	39
Future Volume (vph)	42	284	514	24	330	43	611	373	253	213	279	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		80	0	80		0	0		0	120	0	
Storage Lanes		2	1	2		1	1		1	0	2	
Taper Length (ft)		25		25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850		0.850	0.850
Flt Protected	0.950	0.950		0.950			0.950			0.950		
Satd. Flow (prot)	1752	1770	1553	1805	3471	1429	1770	1845	1553	1752	1553	1495
Flt Permitted	0.575	0.950		0.950			0.950			0.239		
Satd. Flow (perm)	1061	1770	1553	1805	3471	1429	1770	1845	1553	441	1553	1495
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			559			121			275			121
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		900			864			938			361	
Travel Time (s)		24.5			23.6			25.6			9.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	2%	4%	0%	4%	13%	2%	3%	4%	3%	4%	8%
Adj. Flow (vph)	46	309	559	26	359	47	664	405	275	232	303	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	46	309	559	26	359	47	664	405	275	232	303	42
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Right	Right
Median Width(ft)		24			12			12		12		
Link Offset(ft)		0			0			0		0		
Crosswalk Width(ft)		16			16			16		16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15	9	15		9	15		9	15	9	9
Number of Detectors	1	1	1	1	2	1	1	2	1	1	1	1
Detector Template	Left	Left	Right	Left	Thru	Right	Left	Thru	Right	Left	Right	Right
Leading Detector (ft)	20	20	20	20	100	20	20	100	20	20	20	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	20	20	20	6	20	20	6	20	20	20	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)					94			94				
Detector 2 Size(ft)					6			6				
Detector 2 Type					Cl+Ex			Cl+Ex				
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0				
Turn Type	Perm	Prot	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	Prot	Perm
Protected Phases		4		5	2		1	6		3	8	

Baseline

Synchro 10 Report
Page 1

Lanes, Volumes, Timings

3: Eastern & Route 128

03/06/2020

												
Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2
Permitted Phases	4		8			2		6	6	3 8		4
Detector Phase	4	4	8	5	2	2	1	6	6	3	8	4
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	10.0	10.0	6.0	10.0	10.0	6.0	6.0	6.0
Minimum Split (s)	27.0	27.0	22.5	10.5	23.0	23.0	10.5	22.5	22.5	10.0	22.5	27.0
Total Split (s)	27.0	27.0	37.0	30.0	23.0	23.0	30.0	23.0	23.0	10.0	37.0	27.0
Total Split (%)	30.0%	30.0%	41.1%	33.3%	25.6%	25.6%	33.3%	25.6%	25.6%	11.1%	41.1%	30.0%
Maximum Green (s)	22.0	22.0	32.0	26.0	18.0	18.0	26.0	18.0	18.0	6.0	32.0	22.0
Yellow Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0	3.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0
Lead/Lag	Lag	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead		Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None
Walk Time (s)	7.0	7.0			7.0	7.0						7.0
Flash Dont Walk (s)	15.0	15.0			10.0	10.0						15.0
Pedestrian Calls (#/hr)	0	0			0	0						0
Act Effct Green (s)	19.4	19.4	29.4	7.0	18.0	18.0	28.6	45.7	45.7	30.4	29.4	19.4
Actuated g/C Ratio	0.22	0.22	0.33	0.08	0.20	0.20	0.32	0.51	0.51	0.34	0.33	0.22
v/c Ratio	0.20	0.81	0.63	0.19	0.52	0.12	1.18	0.43	0.30	0.98	0.60	0.10
Control Delay	30.0	50.4	5.6	41.5	35.2	0.7	130.1	18.1	3.3	82.5	30.4	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.0	50.4	5.6	41.5	35.2	0.7	130.1	18.1	3.3	82.5	30.4	0.5
LOS	C	D	A	D	D	A	F	B	A	F	C	A
Approach Delay		22.0			31.8			70.4		49.1		
Approach LOS		C			C			E		D		
Queue Length 50th (ft)	21	164	0	14	96	0	~475	126	0	97	139	0
Queue Length 95th (ft)	50	#271	69	39	141	0	#697	267	47	#227	219	0
Internal Link Dist (ft)		820			784			858		281		
Turn Bay Length (ft)	80	80		80						120		
Base Capacity (vph)	259	432	912	521	694	382	562	937	924	236	552	456
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.72	0.61	0.05	0.52	0.12	1.18	0.43	0.30	0.98	0.55	0.09
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 90												
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green												
Natural Cycle: 100												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 1.18												
Intersection Signal Delay: 48.0						Intersection LOS: D						
Intersection Capacity Utilization 85.5%						ICU Level of Service E						
Analysis Period (min) 15												

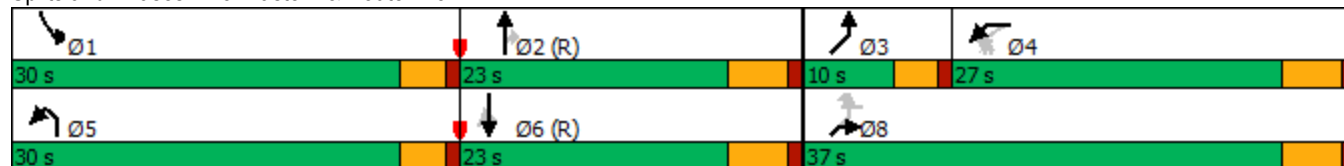
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Eastern & Route 128



Lanes, Volumes, Timings

7: Eastern & Webster

03/06/2020



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	156	71	62	365	381	168
Future Volume (vph)	156	71	62	365	381	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.958				0.959	
Flt Protected	0.967				0.993	
Satd. Flow (prot)	1749	0	0	1799	1769	0
Flt Permitted	0.967				0.993	
Satd. Flow (perm)	1749	0	0	1799	1769	0
Link Speed (mph)	30				30	
Link Distance (ft)	300				746	361
Travel Time (s)	6.8				17.0	8.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	10%	4%	3%	3%
Adj. Flow (vph)	170	77	67	397	414	183
Shared Lane Traffic (%)						
Lane Group Flow (vph)	247	0	0	464	597	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	12				0	0
Link Offset(ft)	0				0	0
Crosswalk Width(ft)	16				16	16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9		
Sign Control	Stop				Free	Free
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	75.9%			ICU Level of Service D		
Analysis Period (min)	15					

Lanes, Volumes, Timings

9: Friend

03/06/2020

						
Lane Group	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (vph)	72	13	112	110	9	82
Future Volume (vph)	72	13	112	110	9	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.979				0.879	
Flt Protected				0.975	0.995	
Satd. Flow (prot)	1776	0	0	1765	1632	0
Flt Permitted				0.975	0.995	
Satd. Flow (perm)	1776	0	0	1765	1632	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	468			345	514	
Travel Time (s)	10.6			7.8	11.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	9%	3%	7%	0%	2%
Adj. Flow (vph)	78	14	122	120	10	89
Shared Lane Traffic (%)						
Lane Group Flow (vph)	92	0	0	242	99	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	30.9%			ICU Level of Service A		
Analysis Period (min)	15					

Lanes, Volumes, Timings
11: Main & Eastern

03/06/2020



Lane Group	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	409	537	486	5	3	447
Future Volume (vph)	409	537	486	5	3	447
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.999		0.866	
Flt Protected		0.979				
Satd. Flow (prot)	0	1798	1818	0	1598	0
Flt Permitted		0.979				
Satd. Flow (perm)	0	1798	1818	0	1598	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		476	595		746	
Travel Time (s)		10.8	13.5		17.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	3%	4%	50%	0%	3%
Adj. Flow (vph)	445	584	528	5	3	486
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1029	533	0	489	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	114.6%			ICU Level of Service H		
Analysis Period (min)	15					

Lanes, Volumes, Timings

13: Webster

03/06/2020



Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (vph)	60	89	135	89	130	82
Future Volume (vph)	60	89	135	89	130	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.946		0.948	
Flt Protected		0.980			0.970	
Satd. Flow (prot)	0	1825	1762	0	1713	0
Flt Permitted		0.980			0.970	
Satd. Flow (perm)	0	1825	1762	0	1713	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		345	300		172	
Travel Time (s)		7.8	6.8		3.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	97	147	97	141	89
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	162	244	0	230	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	42.8%
Analysis Period (min)	15
	ICU Level of Service A

HCM Unsignalized Intersection Capacity Analysis

7: Eastern & Webster

03/06/2020

						
Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	156	71	62	365	381	168
Future Volume (Veh/h)	156	71	62	365	381	168
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	170	77	67	397	414	183
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)					361	
pX, platoon unblocked						
vC, conflicting volume	1036	506	597			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1036	506	597			
tC, single (s)	6.4	6.2	4.2			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.3			
p0 queue free %	29	86	93			
cM capacity (veh/h)	240	567	942			
Direction, Lane #	SE 1	NE 1	SW 1			
Volume Total	247	464	597			
Volume Left	170	67	0			
Volume Right	77	0	183			
cSH	293	942	1700			
Volume to Capacity	0.84	0.07	0.35			
Queue Length 95th (ft)	180	6	0			
Control Delay (s)	59.0	2.0	0.0			
Lane LOS	F	A				
Approach Delay (s)	59.0	2.0	0.0			
Approach LOS	F					
Intersection Summary						
Average Delay			11.9			
Intersection Capacity Utilization			75.9%	ICU Level of Service		D
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

9: Friend

03/06/2020

						
Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	72	13	112	110	9	82
Future Volume (Veh/h)	72	13	112	110	9	82
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	78	14	122	120	10	89
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			92		449	85
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			92		449	85
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			92		98	91
cM capacity (veh/h)			1496		525	974
Direction, Lane #	SE 1	NW 1	NE 1			
Volume Total	92	242	99			
Volume Left	0	122	10			
Volume Right	14	0	89			
cSH	1700	1496	896			
Volume to Capacity	0.05	0.08	0.11			
Queue Length 95th (ft)	0	7	9			
Control Delay (s)	0.0	4.2	9.5			
Lane LOS		A	A			
Approach Delay (s)	0.0	4.2	9.5			
Approach LOS			A			
Intersection Summary						
Average Delay			4.5			
Intersection Capacity Utilization			30.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

11: Main & Eastern

03/06/2020



Movement	EBL	EBT	WBT	WBR	SWL	SWR
Lane Configurations		↩	↩		↩	↩
Traffic Volume (veh/h)	409	537	486	5	3	447
Future Volume (Veh/h)	409	537	486	5	3	447
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	445	584	528	5	3	486
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	533				2004	530
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	533				2004	530
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	57				92	11
cM capacity (veh/h)	1025				37	547
Direction, Lane #	EB 1	WB 1	SW 1			
Volume Total	1029	533	489			
Volume Left	445	0	3			
Volume Right	0	5	486			
cSH	1025	1700	505			
Volume to Capacity	0.43	0.31	0.97			
Queue Length 95th (ft)	56	0	315			
Control Delay (s)	9.0	0.0	61.4			
Lane LOS	A		F			
Approach Delay (s)	9.0	0.0	61.4			
Approach LOS			F			
Intersection Summary						
Average Delay		19.2				
Intersection Capacity Utilization		114.6%		ICU Level of Service		H
Analysis Period (min)		15				

HCM Unsignalized Intersection Capacity Analysis

13: Webster

03/06/2020

						
Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	60	89	135	89	130	82
Future Volume (Veh/h)	60	89	135	89	130	82
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	65	97	147	97	141	89
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	244				422	196
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	244				422	196
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				75	89
cM capacity (veh/h)	1322				559	846
Direction, Lane #	SE 1	NW 1	SW 1			
Volume Total	162	244	230			
Volume Left	65	0	141			
Volume Right	0	97	89			
cSH	1322	1700	643			
Volume to Capacity	0.05	0.14	0.36			
Queue Length 95th (ft)	4	0	40			
Control Delay (s)	3.4	0.0	13.7			
Lane LOS	A		B			
Approach Delay (s)	3.4	0.0	13.7			
Approach LOS			B			
Intersection Summary						
Average Delay			5.8			
Intersection Capacity Utilization		42.8%		ICU Level of Service		A
Analysis Period (min)		15				