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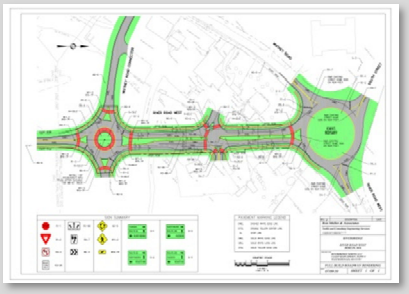
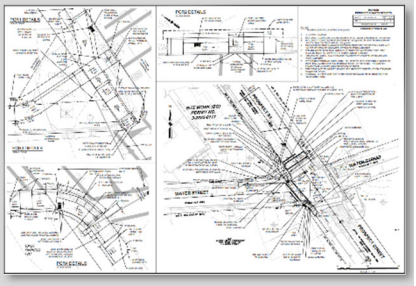
Quality



Traffic Impact and Access Study

Residential Development
Freetown Street
Lakeville, Massachusetts

Accuracy



Prepared for:

Stonebridge Homes, Inc.
South Easton, MA 02375

Integrity

June 14, 2024

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Traffic Impact and Access Study

\To:	Mr. Muhammad M. Itani, President Stonebridge Homes, Inc. 32 Norfolk Avenue South Easton, MA 02375	Reg:	Residential Development Freetown Street Lakeville, Massachusetts
		Date:	June 14, 2024
From:	Shaun Kelly, Sr. Project Manager Patrick Bradley, Traffic Engineer	Project #:	24021

INTRODUCTION

Chappell Engineering Associates, LLC (CEA) has conducted this Traffic Impact and Access Study to evaluate the traffic impacts associated with a proposed residential development to be located off Freetown Street in Lakeville, Massachusetts. As proposed, the project entails the construction of 200 residential units on an undeveloped parcel of land that has two access points onto Freetown Street. The development as currently proposed will include 44 single family homes, 46 residential duplex units, and 110 condominium units, for a total of 200 residential units, of which 50 units will be designed for affordable housing. Access to the development is proposed via two full access driveways onto the eastern side of Freetown Street. The site is generally bordered by residential properties to the south and west, vacant land to the north, and Route 140 to the east. The site location in relation to the surrounding roadway network is shown on Figure 1.

This study evaluates existing and future traffic and safety characteristics of area roadways and intersections, provides an estimate of the expected traffic generation and distribution patterns for the project, evaluates the impact of that traffic on the adjacent roadways and nearby intersections, and identifies proposed roadway geometric improvements to address existing operational deficiencies and to mitigate the impacts of the project. This study was prepared in accordance with Massachusetts Department of Transportation (MassDOT) guidelines for the preparation of traffic impact studies.

As documented in this report, development of the project is expected to result in only minimal increases to both delays and vehicle queues at most of the study area intersections. Recommended

geometric and traffic control improvements to the intersection of County Street with Freetown Street are expected to enhance future traffic operations at this location, and provide additional intersection capacity to improve existing traffic operations and accommodate increases in traffic associated with the project. Additionally, adequate sight distance is provided at the site driveways to allow safe operation.

Figure 1
Site Location Map

EXISTING CONDITIONS

Study Area

Evaluation of the traffic impacts associated with the proposed development requires an evaluation of existing and projected traffic volumes, the volume of traffic expected to be generated by the project, and the impact that this traffic will have on the adjacent streets and nearby intersections. The study area includes locations expected to accommodate the majority of project-related traffic, including the following intersections:

- Freetown Street at County Street
- Freetown Street at Howland Road/Apponequet Regional High School driveway
- County Street at Route 140 northbound ramps
- County Street at Route 140 southbound ramps

The study area intersections and roadways are described in detail below.

Freetown Street is classified as an urban minor arterial (U4) roadway under Town of Lakeville jurisdiction that traverses the study area in a general north/south orientation, between County Street to the north, and Howland Road to the south. Within the study area, Freetown Street is a two-way roadway that provides a single lane of travel in each direction, separated by a double yellow center line. Marked shoulders are not provided along the corridor. Pavement along the corridor is generally in good condition. Within the study area, there are no sidewalks or formal bicycle accommodations provided along the corridor. The posted speed limit on Freetown Street is 35 mph within the study area. Land use along Freetown Street consists primarily of a mix of residential and limited commercial uses.

County Street is classified as an urban minor arterial (U4) roadway under MassDOT jurisdiction that traverses the study area in a general east/west orientation, providing access to the Route 140 interchange east of Freetown Street. Within the study area, County Street provides a single lane of travel in each direction, separated by a double yellow center line. Approximate 1- to 2-foot marked shoulders are provided along the corridor. The pavement on Country Street is in fair condition. Within the study area, there are no sidewalks or bicycle accommodations provided along the corridor. The posted speed limit on Country Street is 40 mph within the study area. Land use along County Street within the study area includes a mix of residential and commercial uses.

Howland Road is classified as an urban minor arterial (U4) roadway under Town of Lakeville jurisdiction that traverses the study area in a general east/west orientation between the East Howland Road to the east and the Assonet town line to the west. Within the study area, Howland Road provides a single lane of travel in each direction, separated by a double yellow center line. The pavement on Howland Road is in fair condition. Within the study area, there are no sidewalks or bicycle accommodations provided along the corridor. This section of Howland Road is within a School Zone and the speed limit is reduced to 20 mph when children are present. Land use along

Howland Road consists of the Freetown Lakeville Regional School District schools and residential uses.

Route 140, also referred to as the Alfred M. Bessette Memorial Highway is classified as a principal arterial (U3) roadway. Route 140 traverses the study area in a general northeast/southwest orientation between US Route 6 in New Bedford to the south, and Route 12 in Winchendon to the north, servicing cities and towns in Bristol, Norfolk and Worcester counties. The southern segment of Route 140 between Taunton and New Bedford is a freeway and consists of two 12-foot-wide travel lanes, an outer 12-foot-wide shoulder and an inner four-foot-wide shoulder. Route 140 forms a semi-cloverleaf interchange with County Street, east of Freetown Road, with the southbound off-ramp and northbound on-ramp intersecting the north side of County Street, and the northbound off-ramp and southbound on-ramp intersecting the south side of County Street.

Freetown Street meets County Street from the south to form a three-way unsignalized intersection. The County Street eastbound and westbound approaches operates freely while the Freetown Street northbound approach operates under STOP control. All three intersection approaches consist of a single general purpose travel lane. Neither sidewalks nor crosswalks are provided at the intersection.

Freetown Street and the Apponequet Regional High School driveway intersect Howland Road from the north and south to form a four-way unsignalized intersection. All four intersection approaches consist of a single general purpose travel lane. The intersection operates under all-way STOP-sign control. Sidewalks are not provided along any intersection approaches, however painted crosswalks are provided across the Howland Road eastbound and westbound approaches and the Freetown Street southbound approach.

County Street and the Route 140 Northbound Ramps meet to form a four-way, unsignalized intersection. County Street operates freely with a single general purpose travel lane provided in both directions. The Route 140 northbound off-ramp approach provides an exclusive left-turn lane that operates under STOP control and an exclusive channelized right-turn lane that operates under YEILD control. The Route 140 northbound on-ramp provides a single receiving lane for left-turns onto the highway and a channelized on-ramp to receive right-turns onto the highway.

County Street and the Route 140 Southbound Ramps meet to form a four-way, unsignalized intersection. County Street operates freely with a single general purpose travel lane provided in both directions. The Route 140 southbound off-ramp approach provides an exclusive left-turn lane that operates under STOP control and an exclusive channelized right-turn lane that operates under YEILD control. The Route 140 southbound on-ramp provides a single receiving lane for left-turns onto the highway and a channelized on-ramp to receive right-turns onto the highway.

Traffic Volumes

Base traffic conditions within the study area were developed by conducting automatic traffic recorder (ATR) counts on Freetown Street near the site as well as manual turning movement and vehicle classification counts (TMCs) at the study intersections. The ATR and TMCs were collected in June 2024. The ATR counts were conducted to collect weekday daily volumes over an extended period and vehicle speeds along the corridor. The TMCs were conducted during the weekday AM peak period (7:00 to 9:00 AM) and the weekday PM peak period (4:00 PM to 6:00 PM). These time periods were selected as they represent the peak impact periods for residential commuter traffic. All traffic count data are provided in the Appendix. Individual intersection peak hours were used to present a conservative analysis framework.

To determine if the count data needed to be adjusted to represent annual average month conditions consistent with MassDOT guidelines for traffic impact assessment, historical traffic volume data were obtained from MassDOT's Weekday Seasonal Adjustment Factors for the latest year available. This document provides a monthly adjustment factor based on the roadway classification of the study roadways. Freetown Street, County Street, and Howland Road are classified as minor arterial (U4) roadways and Route 140 is classified as a principal arterial (U3) roadway. The MassDOT seasonal adjustment data indicates traffic volumes for the month of April represent above average month conditions. Therefore, no seasonal adjustments were made to the collected data and represent a conservative analysis scenario. The MassDOT Seasonal Adjustment Factors are provided in the Appendix.

The MassDOT *Traffic and Safety Engineering 25% Design Submission Guidelines* were updated on May 31, 2022, to note that traffic volume data collected after March 1, 2022, are no longer subject to any adjustments to represent pre-pandemic traffic volume conditions, except in areas where land use is predominantly office. Since the counts were taken in April 2024 and land use in the area is predominantly residential, no adjustments were made for COVID. Table 1 summarizes the 2024 Existing traffic volumes on the study area roadways and the peak hour traffic flow networks provided on Figure 2.

Table 1
Existing Traffic Volume Summary

Location	Daily Volume [a]	Peak Hour Volume [b]		K-Factor [c]	Directional Distribution [d]
Freetown Street, north of Howland Road	2,871	AM:	471	16.4%	62% NB
		PM:	291	10.1%	56% SB

[a] In vehicles per day.
[b] In vehicles per hour.
[c] Percentage of daily traffic occurring during the peak hour.
[d] NB = northbound, SB = southbound.

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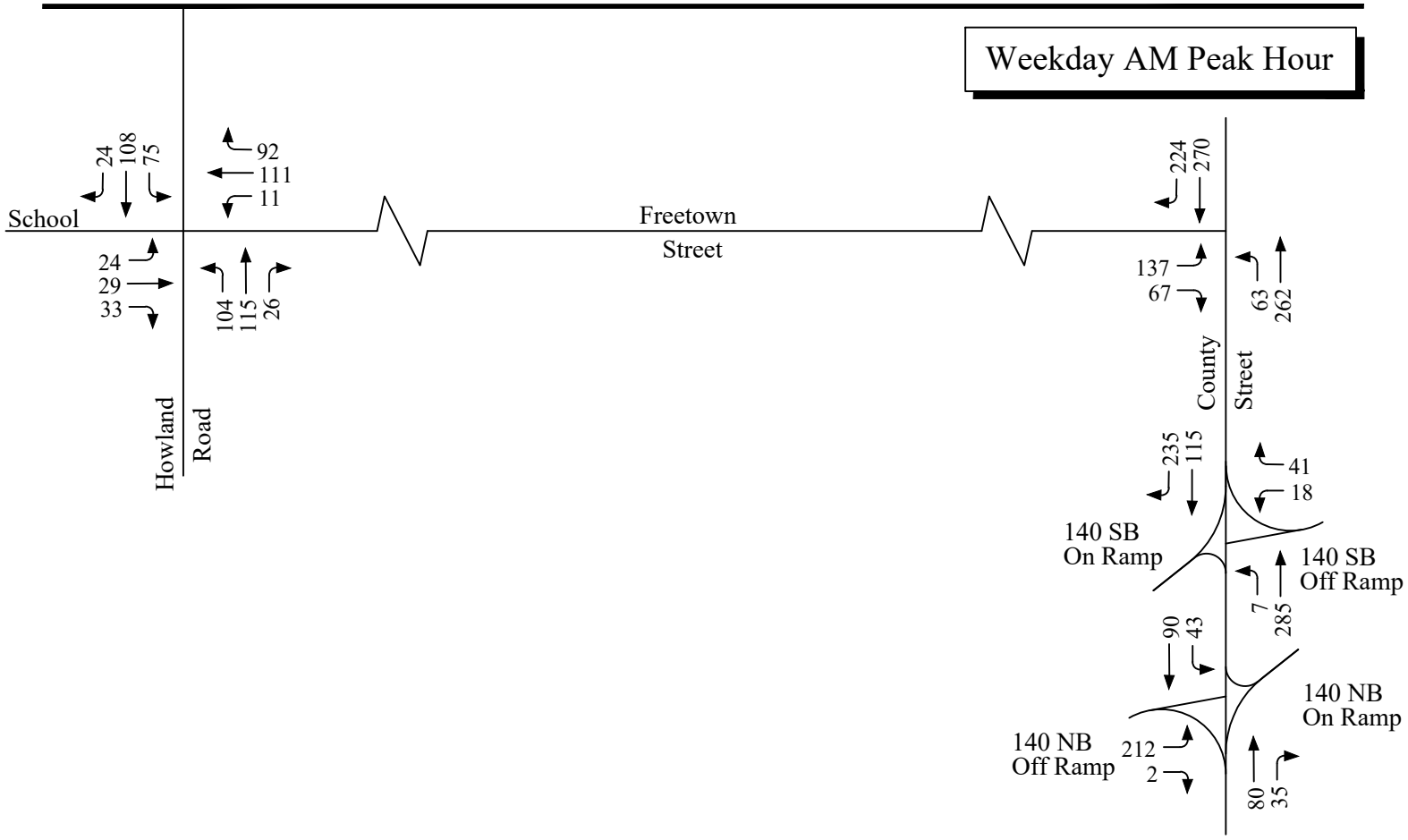
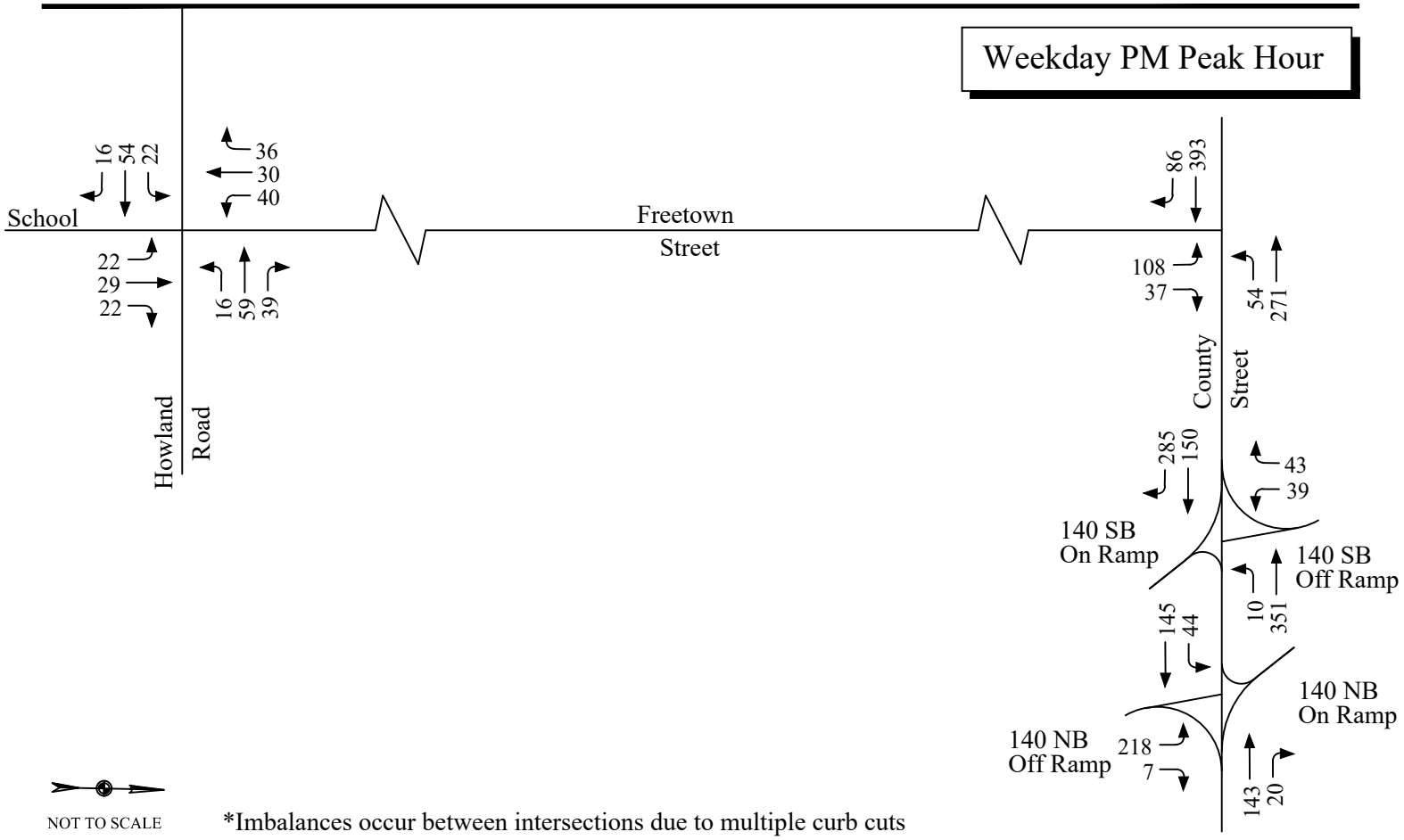
Figure 2
2024 Existing
Peak Hour Traffic Volumes





NOT TO SCALE

*Imbalances occur between intersections due to multiple curb cuts

Crash Data

Crash data for the study area intersections were obtained from MassDOT for the period between 2015 and 2019, the latest five years of available data, excluding 2020 when traffic volumes were impacted by COVID. A summary of the MassDOT crash data at the study area intersections is provided in Table 2. In addition to the summary, crash occurrences should also be compared to the volume of traffic through a particular intersection to determine any significance. Accordingly, a crash rate was calculated for each intersection and compared with the statewide and district-wide averages.

An intersection crash rate is a measure of the frequency of crashes compared to the volume of traffic through an intersection and is presented in crashes per million entering vehicles (crashes/MEV). For unsignalized intersections, the statewide average and the district-wide (MassDOT District 5) crash rate is 0.57 crashes/MEV. A comparison of the calculated crash rate to the statewide and district-wide averages can be used to establish the significance of crash occurrence and whether or not potential safety problems exist. The crash rate worksheets are provided in the Appendix.

Table 2
Crash Summary

Location	Number of Crashes			Severity[a]			Crash Type[b]							% During Wet/Icy Conditions
	Total	Avg./ Year	Crash Rate [c]	PD	PI	U	CM	RE	SW	HO	SV	RR	UN	
County Street at Route 140 NB Ramps	9	1.80	0.77	5	3	1	5	0	1	1	2	0	0	0%
Freetown Street at County Street	8	1.60	0.47	5	3	0	2	3	0	0	3	0	0	50%
Freetown Street at Howland Road	4	0.80	0.57	3	1	0	0	3	1	0	0	0	0	0%
County Street at Route 140 SB Ramps	3	0.60	0.17	2	1	0	0	0	0	0	3	0	0	33%

Source: MassDOT Traffic Operations Safety Management System – 2015 through 2019 data.
[a] PD = property damage only; PI = personal injury; U = unknown.
[b] CM = cross movement/angle; RE = rear end; SW = sideswipe; HO = head-on; SV = single vehicle; RR = rear-to-rear; UN = unknown.
[c] Measured in crashes per million entering vehicles.

As shown in Table 2, the intersection of County Street and the Route 140 northbound ramps experienced nine crashes over the five-year review period, averaging approximately two motor vehicle crashes per year. Of the nine total collisions, five resulted in property damage only. There

were five angle type, one sideswipe collision, one head-on collision, and two single vehicle collisions. None of the crashes occurred under wet or icy/snowy roadway conditions. The calculated crash rate of 0.77 exceeds the district wide and statewide average crash rate for unsignalized intersections.

The intersection of Freetown Street and County Street experienced eight crashes over the five-year review period, averaging approximately two motor vehicle crashes per year. Of the eight total collisions, five resulted in property damage only. Of the reported collisions, two were angle type collisions, three were rear-end collisions, and three were single vehicle collisions. Approximately 50 percent of the crashes occurred under wet or icy/snowy roadway conditions. The calculated crash rate of 0.47 is lower than both the district wide and statewide averages for unsignalized intersections.

The intersection of Freetown Street and Howland Road experienced four crashes over the five-year review period, averaging less than one collision per year. Of the four total collisions, three resulted in property damage only. There were three rear-end collisions and one sideswipe collision. None of the reported crashes occurred under wet or icy/snowy roadway conditions. The calculated crash rate of 0.57 equals both the district wide and statewide average crash rate for unsignalized intersections.

The intersection of County Street and the Route 140 southbound ramps experienced three reported crashes over the five-year review period, averaging less than one crash per year. Of the three total collisions, two resulted in property damage only. All three crashes were single vehicle type collisions. One of the crashes occurred under wet or icy/snowy roadway conditions. The calculated crash rate of 0.17 falls well below the district wide and statewide averages for unsignalized intersections.

It should be noted that none of the study area intersections are listed as top crash locations in the MassDOT database of Highway Safety Improvement Program (HSIP) eligible clusters.

Vehicle Speeds

Speed measurements were conducted over an extended period along Freetown Street, in the vicinity of the site, in conjunction with the ATR counts conducted along the corridor. The results of the speed measurements are summarized in Table 3.

Table 3
Observed Travel Speeds [a]

Location/Direction	Posted Speed Limit	Average Speed	85th Percentile Speed [b]
Freetown Street:			
Northbound	35	44	49
Southbound	35	41	46

[a] In miles per hour (mph).
[b] Speed at, or below which 85 percent of all observed vehicles travel.

As shown in Table 3, the average travel speeds along Freetown Street in the vicinity of the project site exceed the posted speed limit of 35 miles per hour (mph), with average travel speeds of 44 mph in the northbound direction and 41 mph in the southbound direction. The 85th percentile speeds were determined to be 49 mph traveling northbound and 46 mph traveling southbound. The higher 85th percentile travel speeds were used in the calculation of minimum sight distance requirements, as described below.

Sight Distance

To identify potential safety concerns associated with site access and egress, sight distances have been evaluated at the proposed site driveway intersections with Freetown Street to determine if the available sight distances for vehicles exiting the site meet or exceed the minimum distances required for approaching vehicles to safely stop. The available sight distances were compared with minimum requirements, as established by the American Association of State Highway and Transportation Officials (AASHTO).[1] The AASHTO guidelines is the national standard by which vehicle sight distance is calculated, measured, and reported. The MassDOT and the Executive Office of Energy and Environmental Affairs (EEA) require the use of AASHTO sight distance standards when preparing traffic impact assessments and studies, as stated in their guidelines for traffic impact assessments.

Sight distance is the length of roadway ahead that is visible to the driver. Stopping Sight Distance (SSD) is the minimum distance required for a vehicle traveling at a certain speed to safely stop before reaching a stationary object in its path. The values are based on a driver perception and reaction time of 2.5 seconds and a braking distance calculated for wet, level pavements. When the roadway is either on an upgrade or downgrade, grade correction factors are applied. Stopping sight distance is measured from an eye height of 3.5 feet to an object height of 2 feet above street level,

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

equivalent to the taillight height of a passenger car. The SSD is measured along the centerline of the traveled way of the major road.

Intersection sight distance (ISD) is provided on minor street approaches to allow the drivers of stopped vehicles a sufficient view of the major roadway to decide when to enter the major roadway. By definition, ISD is the minimum distance required for a motorist exiting a minor street to turn onto the major street, without being overtaken by an approaching vehicle reducing its speed from the design speed to 70 percent of the design speed. ISD is measured from an eye height of 3.5 feet to an object height of 3.5 feet above street level. The use of an object height equal to the driver eye height makes intersection sight distances reciprocal (i.e., if one driver can see another vehicle, then the driver of that vehicle can also see the first vehicle). When the minor street is on an upgrade that exceeds 3 percent, grade correction factors are applied.

SSD is generally more important as it represents the minimum distance required for safe stopping while ISD is based only upon acceptable speed reductions to the approaching traffic stream. However, the ISD must be equal to or greater than the minimum required SSD in order to provide safe operations at the intersection. In accordance with the AASHTO manual, *"If the available sight distance for an entering or crossing vehicle is at least equal to the appropriate stopping sight distance for the major road, then drivers have sufficient sight distance to anticipate and avoid collisions. However, in some cases, this may require a major-road vehicle to stop or slow to accommodate the maneuver by a minor-road vehicle. To enhance traffic operations, intersection sight distances that exceed stopping sight distances are desirable along the major road."* Accordingly, ISD should be at least equal to the distance required to allow a driver approaching the minor road to safely stop.

The available sight distances at the proposed site driveway intersections with Freetown Street were measured and compared to minimum requirements as established by AASHTO based on the observed 85th percentile speeds and are shown in Table 4.

Table 4
Sight Distance Summary

Location/Direction	Sight Distance (feet)		
	Measured	Minimum Required (SSD)[a]	Desirable (ISD)[b]
Freetown St at North Site Driveway			
North of intersection	585	372	493
South of intersection	710	410	549
Freetown St at South Site Driveway			
North of intersection	475	372	493
South of intersection	490	410	549

[a] Values based on AASHTO SSD requirements for the 85th percentile speeds of 49 mph traveling northbound and 44 mph traveling southbound.
[b] Values based on AASHTO ISD requirements for the 85th percentile speeds of 49 mph traveling northbound and 44 mph traveling southbound.

As shown in Table 4, sight distances for vehicles exiting the proposed site driveway locations exceed the minimum required stopping sight distances in both directions, and therefore safe operation can be expected. It should be noted that the available sight distances also far exceed the desirable intersection sight distance requirements based on the posted speed limit. To ensure the above sight lines are maintained, it is recommended that any proposed landscaping, fences, walls, or signs in the vicinity of the site driveways be kept low (maximum 2 feet in height from street level) or set back outside the sight triangles (as defined by AASHTO) so as not to impede the available sight distances.

Public Transportation

There are currently no public transportation services provided within the Town of Lakeville. The Town's Council on Aging does offer van services to seniors aged 60 and over and to disabled Lakeville residents, providing service within Lakeville and Middleboro. There is also a volunteer service for out of town medical appointments for seniors. More information can be found from the Town's Council on Aging webpage.

Existing Pedestrian and Bicycle Accommodations

Within the study area, there are no pedestrian or bicycle facilities outside of the marked crosswalks provided at the intersection of Howland Road with Freetown Street.

FUTURE CONDITIONS

Traffic Growth

Future traffic conditions were projected to the year 2031, representing a 7-year design horizon consistent with state requirements for traffic impact analysis. To project traffic conditions within this design horizon, two components of traffic growth were included. First, an annual average traffic growth rate was determined to account for general population growth and smaller development projects (such as residential developments) that may impact traffic along roadways in the site vicinity. Historical traffic volume data (excluding traffic volume years impacted by COVID) within the vicinity of the site were reviewed. Based on MassDOT continuous count station on I-495 in Middleboro (Station 7111), traffic volumes have increased an average of 1.19 percent over the past 10 years and 0.98 percent over the last five years. Therefore, a one percent per year compounded growth rate was used to adjust the 2024 existing volumes to a future 2031 (7-year growth) horizon.

Second, any planned or approved development projects in the area that would generate a significant volume of traffic on study area roadways were identified. Based on discussions with the Town of Lakeville, no projects were identified that would result in a notable impact on traffic within the study area.

No-Build Conditions

The 2031 No-Build peak hour traffic volume networks were accordingly developed by applying a compounded one percent annual background growth rate (7.2 percent compounded over 7 years) to the 2024 Existing peak hour traffic volumes. The 2031 No-Build peak-hour traffic-flow networks are shown in Figure 3.

Trip Generation

The traffic to be generated by the proposed residential development project was estimated using data published in the Institute of Transportation Engineering (ITE) *Trip Generation Manual*.[2] As proposed, the project includes a total of 200 residential units, including 44 single family homes, 46 duplex units, and 110 condominium units. Accordingly, Land Use Code 210 (*Single Family, Detached Housing*) and Land Use Code 215 (*Single Family, Attached Housing*) were used to estimate the traffic generation characteristics of the project, as summarized in Table 5 below. The trip generation calculations are provided in the Appendix.

[2] *Trip Generation Manual, 11th Edition;* Institute of Transportation Engineers; Washington, DC; 2021.

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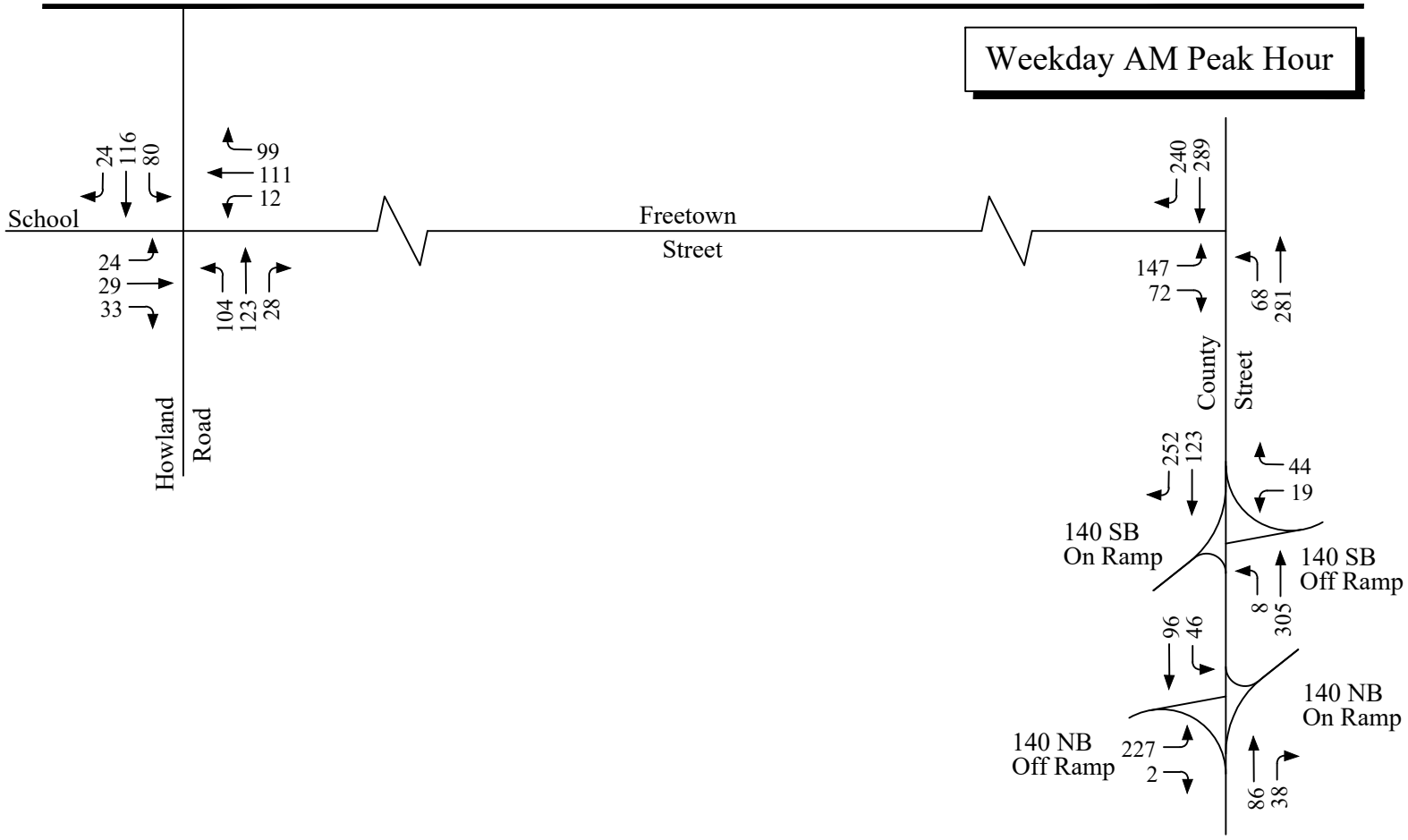
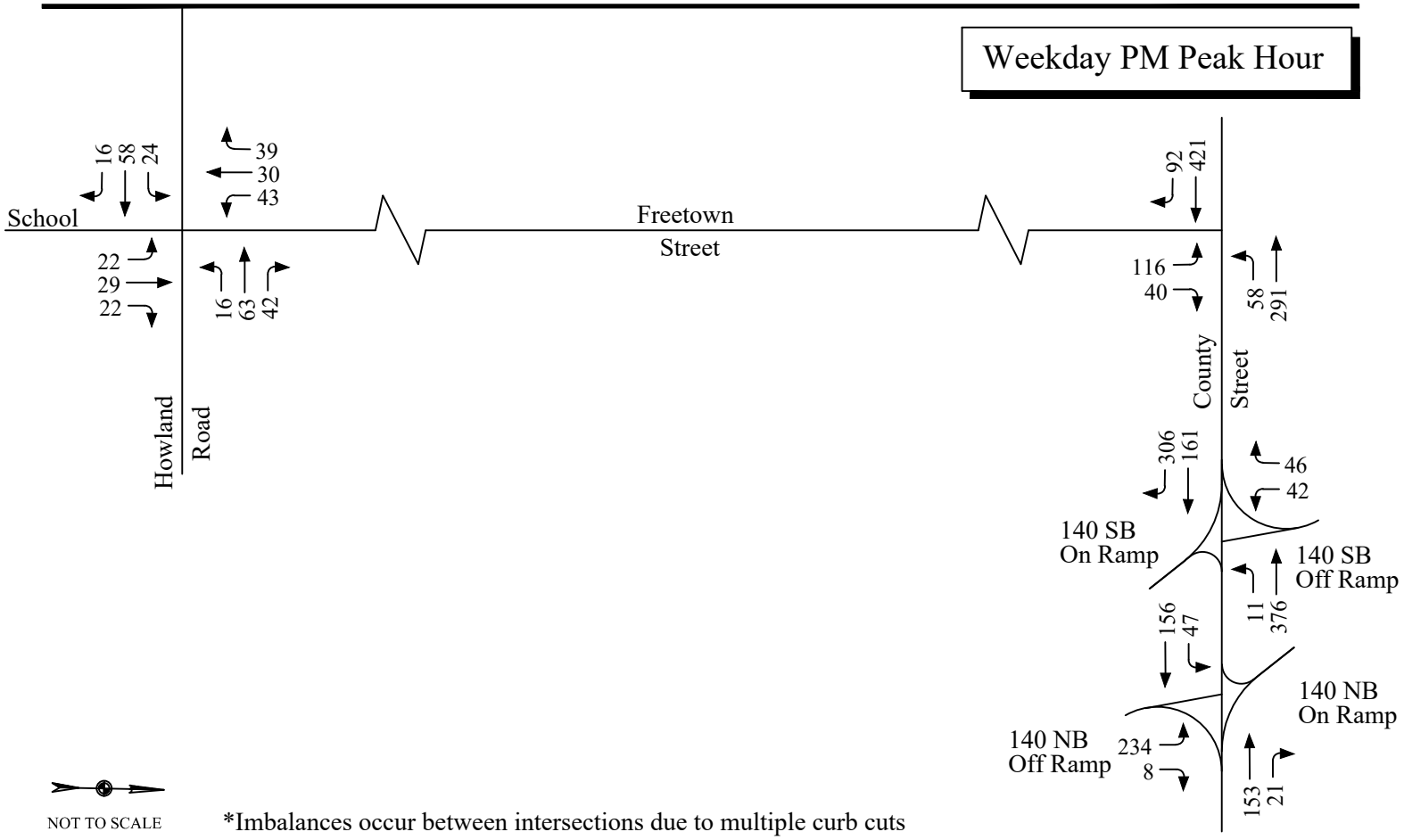
Figure 3
2031 No Build
Peak Hour Traffic Volumes





NOT TO SCALE

*Imbalances occur between intersections due to multiple curb cuts

Table 5
Trip Generation Summary

Time Period	44 Detached Units [a]	156 Attached Units [b]	Total Trips [b]
Weekday Daily	470	1,140	1,610
Weekday AM Peak Hour			
Enter	9	19	28
Exit	26	56	82
Total	35	75	110
Weekday PM Peak Hour			
Enter	29	53	82
Exit	17	37	54
Total	46	90	136

[a] ITE Land Use Code 210 (Single Family Housing – Detached Housing) applied to 44 units.
[b] ITE Land Use Code 215 (Single Family Housing – Attached Housing) applied to 156 units.

As shown in Table 5, the proposed residential development is expected to generate 1,610 vehicle trips (805 entering and 805 exiting) on a typical weekday, including 110 trips (28 entering and 82 exiting) during the weekday AM peak hour and 136 trips (82 entering and 54 exiting) during the weekday PM peak hour.

Of note, the ITE has specified the long-term effects of the COVID-19 pandemic on trip generation and how it relates to various land uses. Specifically, for residential uses, it is expected that *"the proportion of the overall labor force that will be permitted to and will choose to work from home is expected to remain higher than it was pre-pandemic. This shift will likely result in an overall reduction in weekday peak period commuting trips. Individuals working from home may also experience shifts in trip patterns resulting in home-based trips being spread more broadly throughout the day".* Based on this information, the trip generation of the site will likely be lower than estimated in Table 5 and therefore this study provides a conservative assessment.

Trip Distribution

As the development is residential in nature, the U.S. Census Bureau's Journey to Work data for residents of Lakeville were utilized to estimate the expected distribution of the site generated trips based on likely commuter patterns. Based on these data, it is expected that 60 percent of project-related traffic will arrive and depart the site to and from the east on County Street, of which 45 percent are oriented to and from the north on Route 140, 10 percent to and from the south on Route 140, and 5 percent to and from the east on Country Street. Thirty percent of site traffic is expected to and from the west on County Street and 5 percent to and from Howland Road east and 5 percent

to and from Howland Road west. The US Census Bureau's Journey to Work data are included in the Appendix.

Build Conditions

Based on the trip generation projections and anticipated trip distribution for this project, the traffic volumes generated by the proposed project were assigned to the roadway network as shown on Figure 4 and were added to the 2031 No-Build traffic volumes to develop the 2031 Build traffic volumes. The 2031 Build peak hour traffic volumes are graphically depicted on Figure 5.

Traffic Increases

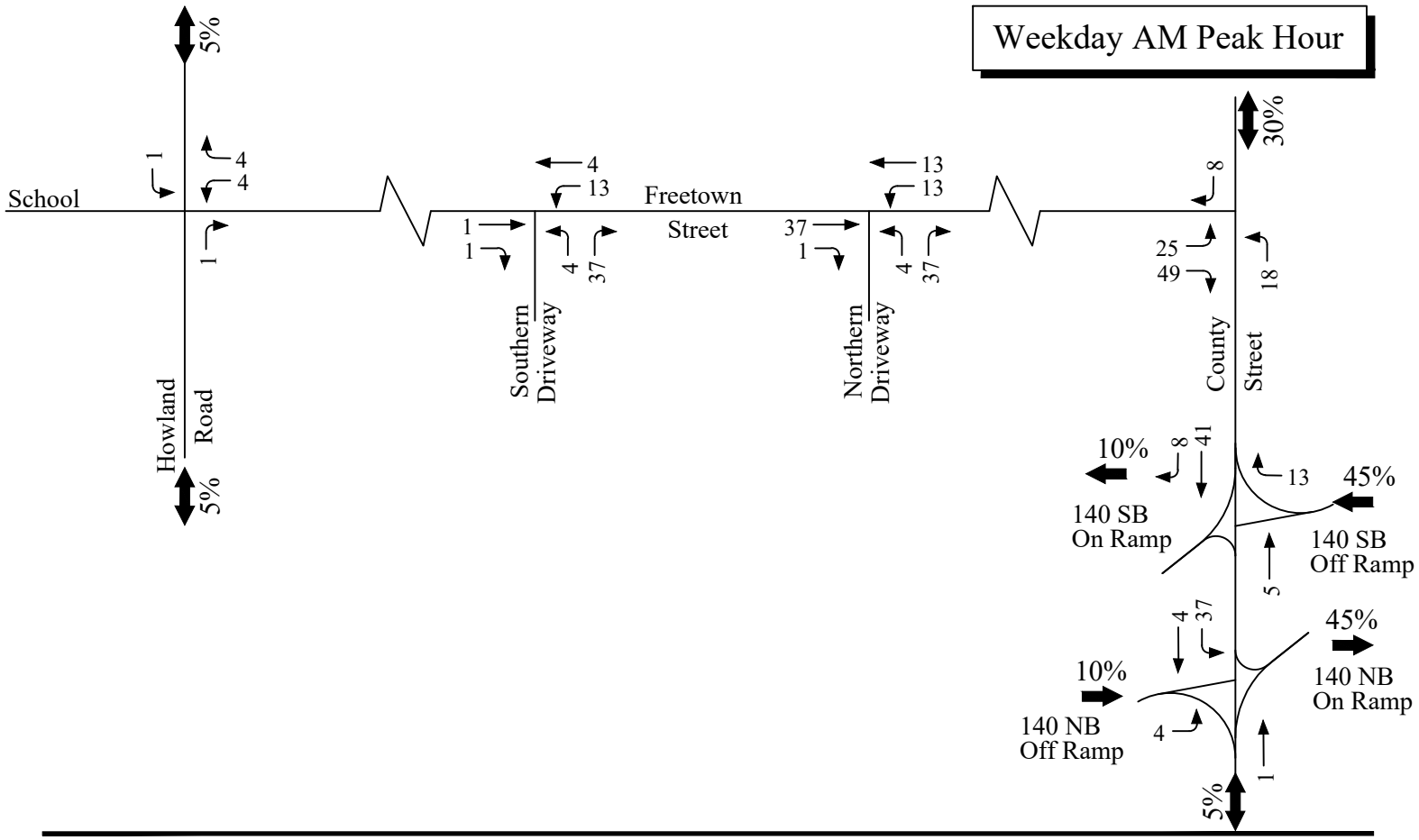
Peak hour traffic volume increases on Freetown Street are expected to be greatest north of the site, with 100 to 122 additional vehicles expected during peak hours of roadway traffic. These increases represent, on average, two additional vehicles per minute during peak hours. On County Street, east of Freetown Street, peak hour traffic increases are expected to range from 67 to 81 additional vehicles during per hour, or slightly more than one vehicle per minute during peak hours. Traffic increases on County Street, west of Freetown Street are expected to range from 33 to 41 additional vehicles per hour during peak hours of roadway traffic, or approximately one additional vehicle every two minutes. Traffic increases in both directions on Howland Street are expected to range from 5 to 7 additional vehicles per hour, or approximately one additional vehicle every eight to twelve minutes. Smaller increases in traffic are expected during all other hours of the day.

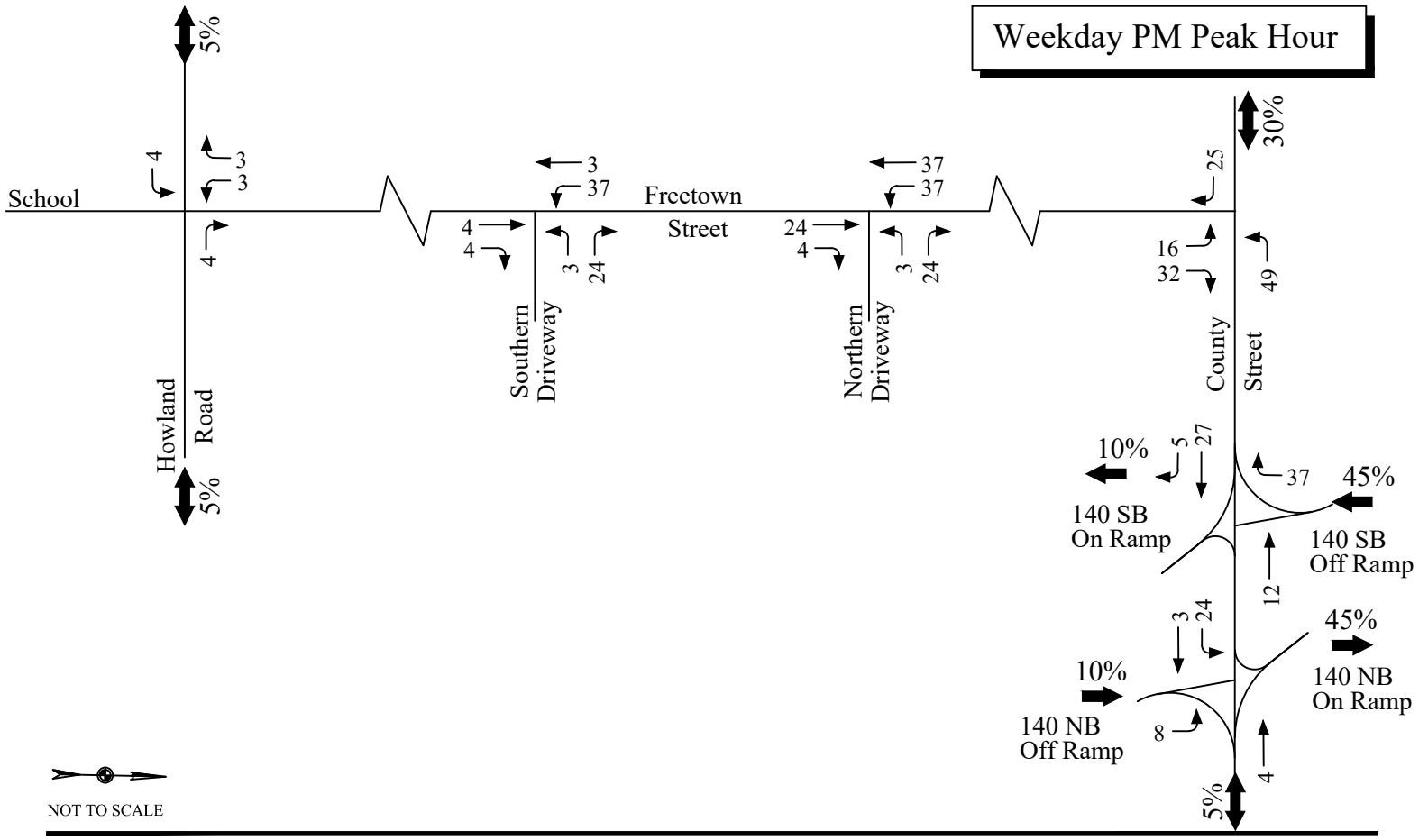
Site Access and On-Site Circulation

Access to the project is proposed via two driveways onto the eastern side of Freetown Street. The southern driveway would be located between residential properties located at 45 and 47 Freetown Street, with the northern driveway located in the general vicinity of an existing gated access road that currently provides access to a cellphone tower. The site access driveways will connect to an internal network of four roadways that will provide access the proposed residential units.

It is recommended that the internal subdivision roadways provide a minimum of 22-feet in width, to accommodate an 11-foot travel lane in each direction. Additionally, it is recommended that sidewalk be provided along at least one side of all subdivision roadways, with wheelchair ramps and painted crosswalks provided at all internal intersections to ensure safe pedestrian access is provided. All minor street approaches at the internal intersections (stem of the T) should be placed under STOP-sign (R1-1) control, with painted stop lines provided. The corner radii of the site access intersections as well as the internal site intersections should be designed to accommodate the largest anticipated emergency response vehicle utilized by the Town of Lakeville fire department. Any proposed landscaping or signage, either adjacent to the internal intersections, or

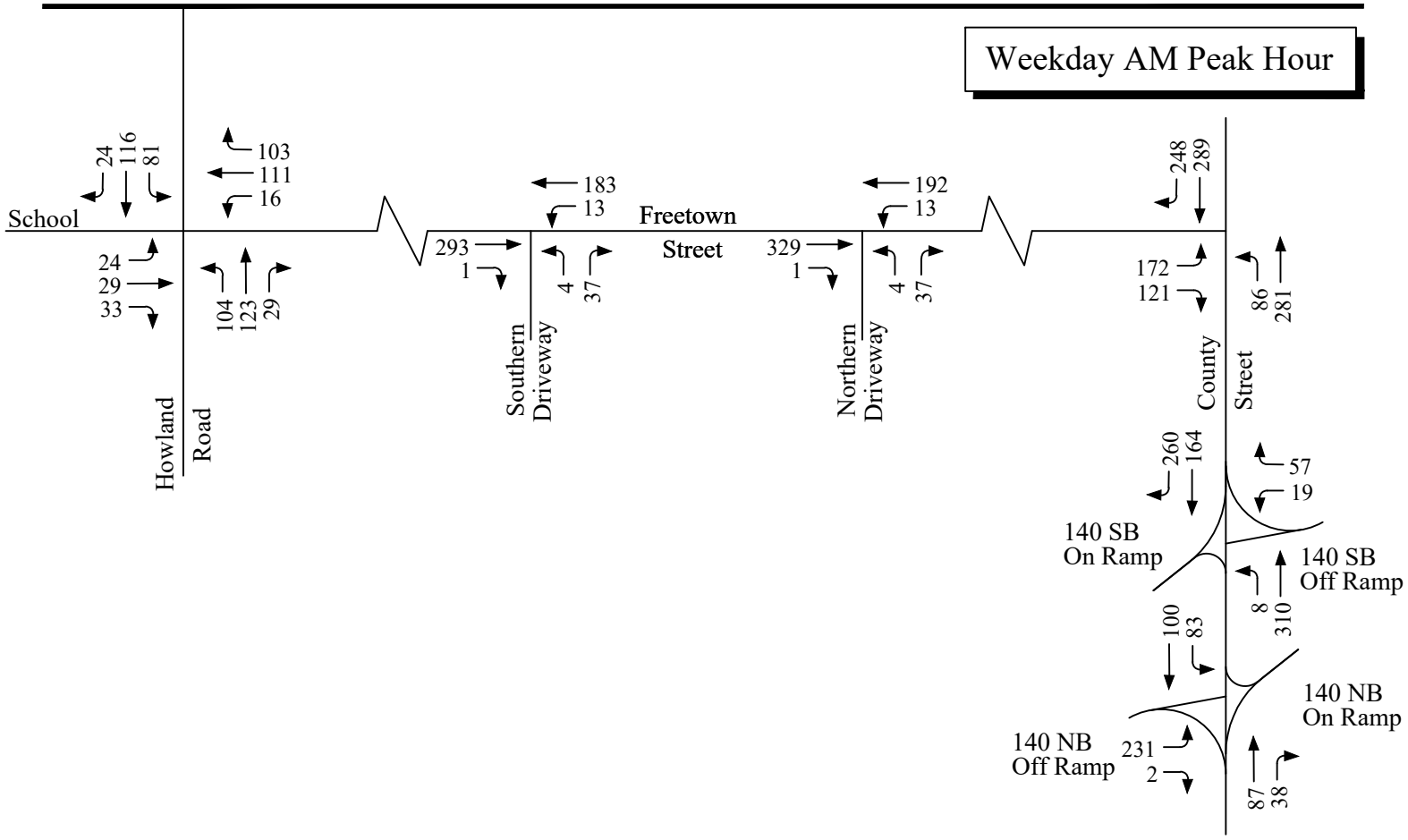
Figure 4
Site Generated Traffic
Peak Hour Traffic Volumes

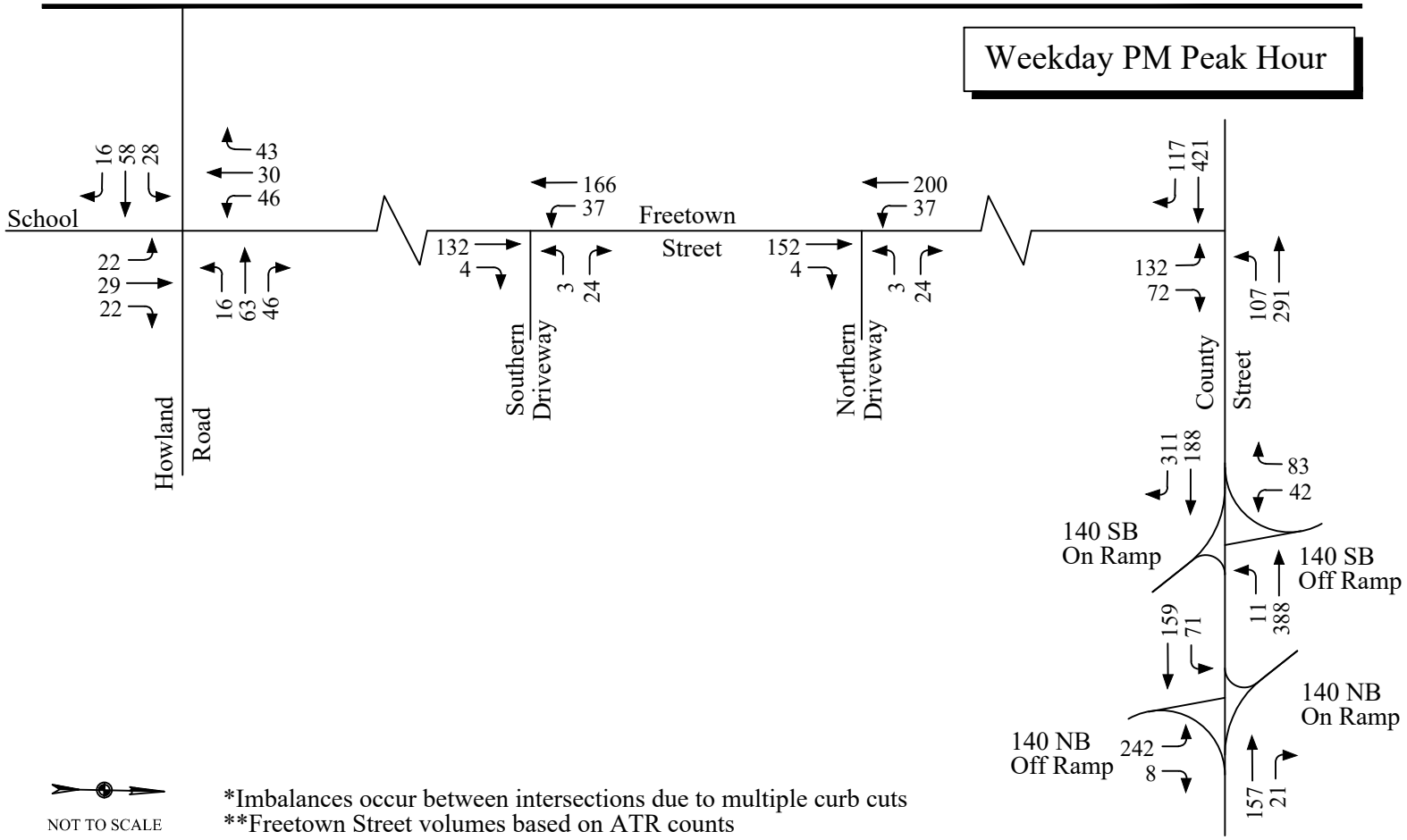




NOT TO SCALE

Figure 5
2031 Build
Peak Hour Traffic Volumes





NOT TO SCALE

*Imbalances occur between intersections due to multiple curb cuts
**Freetown Street volumes based on ATR counts

at the intersections of Freetown Street with the proposed subdivision roadways should be set outside the sight triangles, or be regularly maintained to ensure adequate sight lines are provided.

CAPACITY ANALYSIS

Level-of-service (LOS) analyses were conducted at the study area intersections under existing and projected volume conditions to determine the effect that the additional site-generated traffic will have on traffic operations. The capacity analysis methodology is based on the concepts and procedures in the *Highway Capacity Manual*[3] (HCM) and is described in the Appendix. For signalized intersections, the maximum back of queue during an average signal cycle and a 95th percentile signal cycle was calculated for each lane group during the peak periods studied. The back of queue is the length of a backup of vehicles from the stop line of a signalized intersection to the last car in the queue that is required to stop, regardless of the signal indication. The length of this queue depends on a number of factors including signal timing, vehicle arrival patterns, and the saturation flow rate. For unsignalized intersections, the 95th percentile queue represents the length of queue of the critical minor-street movement that is not expected to be exceeded 95 percent of the time during the analysis period (typically one hour). The queue length is a function of the capacity of the movement and the movement's degree of saturation.

The Synchro analysis program was used for all capacity analyses. The level-of-service and queue results for the study area intersections are presented in Table 6. All analysis worksheets are provided in the Appendix.

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

Table 6
Unsignalized Intersection Level-of-Service Analysis Summary

Peak Hour/ Movement	2024 Existing				2031 No-Build				2031 Build (Unmitigated)			
	V/C[a]	Delay[b]	LOS[c]	Q[d]	V/C	Delay	LOS	Q	V/C	Delay	LOS	Q
Freetown Street at Country Street												
Weekday AM Peak Hour												
NB All	0.99	86.5	F	225	1.18	149.8	F	375	1.57	318.4	F	675
WB Left	0.08	9.1	A	25	0.09	9.3	A	25	0.11	9.5	A	25
Weekday PM Peak Hour												
NB All	0.71	37.0	E	125	0.83	53.2	F	175	1.23	173.7	F	400
WB Left	0.06	8.6	A	25	0.06	8.8	A	25	0.12	9.1	A	25
Country Street at Route 140 SB Ramps												
Weekday AM Peak Hour												
WB Left	0.01	7.5	A	0	0.01	7.5	A	0	0.01	7.5	A	0
SB Left	0.05	12.1	B	25	0.06	12.5	B	25	0.07	13.1	B	25
SB Right	0.09	10.5	B	25	0.10	10.8	B	25	0.13	11.0	B	25
Weekday PM Peak Hour												
WB Left	0.01	7.5	A	0	0.01	7.6	A	0	0.01	7.6	A	0
SB Left	0.09	13.2	B	25	0.10	13.8	B	25	0.11	14.4	B	25
SB Right	0.07	10.9	B	25	0.08	11.2	B	25	0.15	11.8	B	25
Country Street at Route 140 NB Ramps												
Weekday AM Peak Hour												
NB Left	0.39	13.9	B	50	0.44	14.8	B	75	0.52	18.5	C	75
NB Right	0.01	8.8	A	0	0.01	8.8	A	0	0.01	8.9	A	0
EB Left	0.04	7.5	A	25	0.04	7.5	A	25	0.07	7.6	A	25
Weekday PM Peak Hour												
NB Left	0.46	17.0	C	75	0.52	19.0	C	75	0.60	23.1	C	100
NB Right	0.01	9.1	A	0	0.01	9.1	A	0	0.01	9.2	A	0
EB Left	0.03	7.7	A	25	0.04	7.7	A	25	0.06	7.8	A	25
Freetown Street at Howland Road												
Weekday AM Peak Hour												
NB All	0.52	21.2	C	75	0.54	23.0	C	75	0.55	23.7	C	75
EB All	0.73	28.1	D	150	0.80	35.9	E	175	0.82	38.3	E	200
WB All	0.88	41.6	E	225	0.95	57.4	F	300	0.97	62.3	F	300
SB All	0.63	22.3	C	100	0.68	26.0	D	125	0.72	28.4	D	175
Weekday PM Peak Hour												
NB All	0.10	8.0	A	25	0.10	8.1	A	25	0.10	8.1	A	25
EB All	0.13	8.1	A	25	0.13	8.2	A	25	0.14	8.3	A	25
WB All	0.16	8.2	A	25	0.17	8.2	A	25	0.18	8.3	A	25
SB All	0.16	8.2	A	25	0.17	8.3	A	25	0.18	8.4	A	25

[a] Volume-to-capacity ratio;
[b] Average control delay in seconds per vehicle;
[c] Level of service;
[d] 95th percentile queue in feet, assuming 25 feet per vehicle.

Table 6 (Cont.)
Unsignalized Intersection Level-of-Service Analysis Summary

Peak Hour/ Movement	2024 Existing				2031 No-Build				2031 Build			
	V/C[a]	Delay[b]	LOS[c]	Q[d]	V/C	Delay	LOS	Q	V/C	Delay	LOS	Q
Freetown Street at North Site Driveway												
Weekday AM Peak Hour												
WB All	--	--	--	--	--	--	--	--	0.07	10.9	B	25
SB Left	--	--	--	--	--	--	--	--	0.01	8.0	A	0
Weekday PM Peak Hour												
WB All	--	--	--	--	--	--	--	--	0.04	9.6	A	25
SB Left	--	--	--	--	--	--	--	--	0.03	7.6	A	25
Freetown Street at South Site Driveway												
Weekday AM Peak Hour												
WB All	--	--	--	--	--	--	--	--	0.06	10.6	B	25
SB Left	--	--	--	--	--	--	--	--	0.01	7.9	A	0
Weekday PM Peak Hour												
WB All	--	--	--	--	--	--	--	--	0.04	9.4	A	25
SB Left	--	--	--	--	--	--	--	--	0.03	7.6	A	25

[a] Volume-to-capacity ratio;
[b] Average control delay in seconds per vehicle;
[c] Level of service;
[d] 95th percentile queue in feet, assuming 25 feet per vehicle.

As summarized in Table 6, critical movements at the intersection of County Street and Freetown Street (all turns from Freetown Street) currently operate at LOS F during the weekday AM peak hour and at LOS E during the weekday PM peak hour, with long queues, particularly during the weekday AM peak hour, during the portion of the peak hour when school drop-off activity occurs. Under future 2031 No Build conditions, northbound traffic is expected to operate at LOS F conditions during both peak periods, with maximum queues of fifteen vehicles expected during the weekday AM peak. Under 2031 Build conditions, absent any mitigation, northbound delays for traffic turning from Freetown Street are expected to continue to operate at LOS F, with increased delays and queuing expected to due project-related traffic. As noted in subsequent sections of this report, significant roadway geometric improvements and traffic control modifications are proposed for this location to improve exiting traffic operations and add additional capacity to accommodate project-related traffic increases.

All movements at the unsignalized intersection of County Street with the Route 140 southbound ramps currently operate at LOS B or better during both the weekday AM and weekday PM peak hours. Under future 2031 No-Build and 2031 Build conditions, all movements are projected to continue to operate at LOS B or better, with project-related traffic increases resulting in no notable change to future traffic operations.

All movements at the unsignalized intersection of County Street with the Route 140 northbound ramps currently operate at LOS C or better during both the weekday AM and weekday PM peak hours. Under future 2031 No-Build and 2031 Build conditions, all movements are projected to continue to operate at LOS C or better, with project-related traffic increases resulting in no notable change to future traffic operations.

During the weekday AM peak hour, all movements at the four-way stop controlled intersection of Freetown Street and Howland Road currently operate at LOS D or better, with the exception of westbound traffic on Howland Road, which currently operates at LOS E. Weekday AM delays at this location are attributable to the high concentration of school related traffic at this location during the weekday AM peak hour. During the weekday PM peak hour all movements at this location currently operate at LOS A conditions. Under future 2031 No-Build conditions, all movements at this location are projected to operate at LOS D or better, with the exception of eastbound and westbound traffic on Howland Road, which are projected to operate at LOS E and LOS F, respectively. During the weekday PM peak hour, all movements are projected to continue to operate at LOS A. Under 2031 Build conditions, no change to the LOS for any intersection approaches are projected due to project-related traffic increases, with approach delays expected to increase by approximatley 1 to 5 seconds, or less as compared to future 2031 No-Build conditions.

PROPOSED MITIGATION MEASURES

As previously noted, under 2024 Existing conditions and 2031 No-Build conditions, independent of the project, the intersection of County Street with Freetown currently experiences and will continue to experience long delays and associated queuing for northbound traffic turning from Freetown Street onto Highland Street. Existing delays and queuing are most evident during the thirty minute period during the weekday AM peak hour when school arrivals and drop-off activity is most concentrated. The current levels of delay and queueing are expected to be further exacerbated due to increases in traffic independent of the project. The lack of a dedicated right-turn lane for northbound traffic turning onto Country Street eastbound, towards the Route 140 interchange, further contributes to the current level of queuing by concentrating all vehicle queuing in a single lane of travel, and disallowing right-turning traffic to bypass vehicles turning left onto Country Street westbound. Additionally, based on a review of existing traffic conditions, eastbound right-turns from Country Street onto Freetown Street represent a significant amount of the total eastbound traffic on Country Street during the weekday AM peak, with approximatley 45 percent of traffic turning onto Freetown Street, without the benefit of an exclusive right-turn lane to accommodate this movement.

In an effort to address existing operational deficiencies and provide additional intersection capacity to accommodate project-related traffic increases, significant geometric and traffic control improvements are proposed as mitigation for the project. Specifically, it is recommended that the Country Street eastbound approach be widened to provide an exclusive right-turn lane in the

eastbound direction to accommodate traffic turning right onto Freetown Steet. Additionally, it is recommended that Freetown Street be widened from its current one lane approach to provide an exclusive left-turn lane and an exclusive channelized right-turn lane that would operate under YIELD-sign control. Lastly, it is recommended that the traffic control at this location be modified from the current free operations on Country Street and stop-controlled operations on Freetown Street to an all-way stop-control, with eastbound and westbound traffic on Country Street, and northbound left-turns from Freetown Street operating under STOP-sign control. To provide enhanced safety, it is recommended that the STOP signs on County Street be equipped with solar-powered flashing lights to alert motorists to the new traffic control and STOP-AHEAD signs should be places on the County Street approaches in advance of the intersection. Consistent with current MassDOT design guidelines and to accommodate bicycle traffic along County Street, it is recommended that a 5-foot-wide bicycle lane be provided through the intersection in the eastbound direction with appropriate pavement marking and signing. A conceptual improvement plan depicting the proposed improvements at this location is provided in the Appendix of this report.

Capacity analyses were performed with the proposed roadway improvements and traffic control modifications in place to document the effects of the proposed improvements on future traffic operations. The results of these analyses can be found in Table 7 and the analysis worksheets are provided in the Appendix.

As summarized in Table 7, with proposed mitigation measures in place, all movements at the intersection of Country Street with Freetown Street are projected to operate at LOS D or better during both the weekday AM and weekday PM peak hours. Approach delays and associated queuing on the Freetown Street northbound approach are significantly improved from 2031 No-Build conditions, with maximum projected queues reduced from approximately 14 vehicles to approximately 3 vehicles.

Table 7
Unsignalized Intersection Level-of-Service Analysis Summary with Mitigation

Peak Hour/ Movement	2024 No-Build				2031 Build (Unmitigated)				2031 Build (Mitigated)			
	V/C[a]	Delay[b]	LOS[c]	Q[d]	V/C	Delay	LOS	Q	V/C	Delay	LOS	Q
Freetown Street at Country Street												
Weekday AM Peak Hour												
NB All	1.18	149.8	F	350	1.56	318.4	F	650	--	--	--	--
NB Left	--	--	--	-	--	--	--	-	0.52	19.5	C	75
NB Right	--	--	--	-	--	--	--	-	0.31	12.4	B	25
EB All	0.00	0.00	A	0	0.00	0.00	A	0	--	--	--	--
EB Thru	--	--	--	--	--	--	--	--	0.68	22.6	C	125
EB Right	--	--	--	--	--	--	--	--	0.53	15.3	C	75
WB All	0.08	1.8	A	0	0.1	2.2	A	0	0.81	32.2	D	200
Weekday PM Peak Hour												
NB All	0.83	53.2	F	175	1.24	173.7	F	400	--	--	--	--
NB Left	--	--	--	-	--	--	--	-	0.43	16.1	C	50
NB Right	--	--	--	-	--	--	--	-	0.20	10.7	B	25
EB All	0.00	0.00	A	0	0.00	0.00	A	0	--	--	--	--
EB Thru	--	--	--	--	--	--	--	--	0.77	27.1	D	175
EB Right	--	--	--	--	--	--	--	--	0.19	9.6	A	25
WB All	0.06	1.5	A	0	0.12	2.4	A	0	0.75	25.9	D	175

[a] Volume-to-capacity ratio;
[b] Average control delay in seconds per vehicle;
[c] Level of service;
[d] 95th percentile queue in feet, assuming 25 feet per vehicle.

CONCLUSIONS

Existing and future conditions at the study area intersections have been described and analyzed with respect to traffic operations and the impact of the proposed site redevelopment. Conclusions of this effort and recommendations are presented below:

- As proposed, the project consists of constructing 200 residential units behind a group of existing residential homes. The development will consist of 44 single family homes, 46 duplex units, and 110 condo units, for a total of 200 residential units, of which 50 units will be affordable housing.

- Access to the housing development will be via two proposed full access driveways on Freetown Street. An internal network of roads will be developed to access all the residential units.

- The scope of the traffic analysis included in this report is consistent with the MassDOT *Transportation Impact Assessment Guidelines* and focuses on the intersections mostly impacted by the development including:

  - Freetown Street at County Street
  - Freetown Street at Howland Road/Apponequet Regional High School driveway
  - County Street at Route 140 northbound ramps
  - County Street at Route 140 southbound ramps

- The calculated crash rates at most study intersections are well below statewide and district-wide averages for unsignalized intersections and no trend in crash occurrence is apparent. The County Street intersection with the Route 140 northbound ramps had a higher crash rate than both the statewide and district-wide averages, but none of the study area intersections are listed as top crash locations in the MassDOT database of Highway Safety Improvement Program eligible clusters.

- Ample sight distances exist at the proposed site driveway locations to allow for safe operation, exceeding minimum requirements. It is recommended that any proposed landscaping or signs in the vicinity of the site driveways be kept low or set back outside the sight triangles so as not to impede the available sight distances.

- Future traffic conditions were projected to the year 2031, representing a 7-year design horizon consistent with state requirements for traffic impact analysis. Future No-Build conditions were developed by applying an annual traffic growth rate to the existing adjacent street volumes.

- Based on ITE trip generation data, the project is expected to generate 1,610 vehicle trips (805 entering and 805 exiting) on a typical weekday, including 110 trips (28 entering and 82 exiting) during the weekday AM peak hour and 136 trips (82 entering and 54 exiting) during the weekday PM peak hour. However, based on studies by the ITE on the long-term effects of the COVID-19 pandemic on residential traffic generation, the actual trips generated by the site will likely be lower than estimated in this report.

- Distribution of site traffic was based on the US Census Bureau's Journey to Work data for those living in Lakeville. Based on these data, it is expected that 60 percent of site traffic will be oriented to/from the east on County Street (with the majority of that traffic to/from Route 140), 30 percent to/from the west on County Street, and 10 percent to/from Howland Road.

- Within the study area, project related traffic increases generally amount to approximately 1 to 2 new vehicle trips per minute, or less, during peak hours of roadway traffic.

- The site driveways are projected to operate at acceptable levels during the peak hours with queues of one vehicle and no notable impact to mainline traffic operations on Freetown Street at either location.

- Most of the study intersections operate at acceptable levels of service during both peak hours. Slight increases are expected during the No-Build and Build conditions with minimal increases in delay (less than 5 seconds per vehicle) expected with the addition of site traffic.

- Under 2024 Existing conditions, long delays are currently experienced along the northbound Freetown Street approach to County Street, especially during the AM peak period, independent of the project. These delays and queues will be exacerbated under No Build conditions, and would be further increased by the inclusion of project-generated traffic, absent mitigation.

- As mitigation for the project, the proponent is committed to implementing both roadway geometric and traffic control enhancements to the intersection of County Street with Freetown Street, including provision of new exclusive right-turn lanes on both Country Street eastbound and Freetown Street northbound and modifications to the current traffic control to all-way stop conditions. With implementation of these measures, traffic operations under 2031 Build mitigated conditions will be improved from 2031 No-Build conditions.

APPENDIX

Traffic Count Data
Seasonal/Historical/Background Growth Adjustment Data
Crash Rate, Trip Generation, and Distribution Worksheets
Capacity Analysis Methodology and Worksheets
Conceptual Improvement Plan

Traffic Count Data

50 Freetown Street
south of Brookstone Road
City, State: Lakeville, MA
Client: Chappell/ S. Kelly
Site Code: 24021

Count Date: **Tuesday, April 23, 2024**
Direction: **NB**

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File #: **249958 ATR-A**

AM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 AM	0	0	4	0	0	0	4
12:15 AM	0	0	4	0	0	0	4
12:30 AM	0	0	3	0	0	0	3
12:45 AM	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	0
1:30 AM	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0
2:15 AM	0	0	0	0	0	0	0
2:30 AM	0	0	0	0	0	0	0
2:45 AM	0	0	0	0	0	0	0
3:00 AM	0	0	1	0	0	0	1
3:15 AM	0	0	1	0	0	0	1
3:30 AM	0	0	0	0	0	0	0
3:45 AM	0	0	0	0	0	0	0
4:00 AM	0	0	1	0	0	0	1
4:15 AM	0	0	1	0	0	0	1
4:30 AM	0	0	1	0	0	0	1
4:45 AM	0	0	2	0	0	0	2
5:00 AM	0	0	1	0	0	0	1
5:15 AM	0	0	0	0	0	0	0
5:30 AM	0	0	2	0	0	0	2
5:45 AM	0	0	3	0	0	0	3
6:00 AM	0	0	3	1	0	0	4
6:15 AM	0	0	8	0	0	0	8
6:30 AM	0	0	8	0	0	1	9
6:45 AM	0	0	12	0	0	0	12
7:00 AM	0	0	65	0	0	0	65
7:15 AM	0	0	115	12	2	0	129
7:30 AM	0	0	84	1	0	0	85
7:45 AM	0	0	11	0	0	1	12
8:00 AM	0	0	20	1	0	0	21
8:15 AM	0	0	32	7	1	0	40
8:30 AM	0	0	9	0	0	0	9
8:45 AM	0	0	6	0	0	0	6
9:00 AM	0	0	11	0	0	0	11
9:15 AM	0	0	22	0	2	0	24
9:30 AM	0	0	6	0	1	0	7
9:45 AM	0	0	8	0	0	1	9
10:00 AM	0	0	7	0	0	0	7
10:15 AM	0	0	10	0	1	0	11
10:30 AM	0	0	9	0	0	0	9
10:45 AM	0	0	13	0	2	0	15
11:00 AM	0	1	8	0	0	0	9
11:15 AM	0	0	10	0	1	0	11
11:30 AM	0	0	8	0	2	0	10
11:45 AM	0	0	15	0	1	0	16
AM Total	**0**	**1**	**524**	**22**	**13**	**3**	**563**
Percentage	**0.00%**	**0.18%**	**93.07%**	**3.91%**	**2.31%**	**0.53%**	
AM Peak	**12:00 AM**	**10:15 AM**	**6:45 AM**	**7:15 AM**	**10:45 AM**	**5:45 AM**	**6:45 AM**
Volume	**0**	**1**	**276**	**14**	**5**	**1**	**291**

PM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 PM	0	0	11	0	2	0	13
12:15 PM	0	0	7	0	0	0	7
12:30 PM	0	0	9	1	0	0	10
12:45 PM	0	0	14	0	0	0	14
1:00 PM	0	0	13	0	0	0	13
1:15 PM	0	0	16	0	0	0	16
1:30 PM	0	0	22	0	1	0	23
1:45 PM	0	0	27	0	2	0	29
2:00 PM	0	0	28	2	1	0	31
2:15 PM	0	0	29	0	0	0	29
2:30 PM	0	0	17	3	1	0	21
2:45 PM	0	0	20	6	0	0	26
3:00 PM	0	0	19	2	1	0	22
3:15 PM	0	0	24	1	0	0	25
3:30 PM	0	0	21	0	0	0	21
3:45 PM	0	0	49	1	1	0	51
4:00 PM	0	0	35	1	0	0	36
4:15 PM	0	1	32	0	0	0	33
4:30 PM	0	0	31	0	0	0	31
4:45 PM	0	0	28	0	0	0	28
5:00 PM	0	0	32	0	0	0	32
5:15 PM	0	0	32	0	0	0	32
5:30 PM	0	0	25	0	0	0	25
5:45 PM	0	0	28	0	0	0	28
6:00 PM	0	0	26	0	0	0	26
6:15 PM	0	0	27	0	0	0	27
6:30 PM	0	0	14	0	0	0	14
6:45 PM	0	0	18	0	1	0	19
7:00 PM	0	0	15	0	0	0	15
7:15 PM	0	0	24	0	0	0	24
7:30 PM	0	0	16	0	0	0	16
7:45 PM	0	0	19	0	0	0	19
8:00 PM	0	0	11	0	0	0	11
8:15 PM	0	0	15	0	0	0	15
8:30 PM	0	0	12	0	0	0	12
8:45 PM	0	0	7	0	0	0	7
9:00 PM	0	0	10	0	0	0	10
9:15 PM	0	0	10	0	0	0	10
9:30 PM	0	0	5	0	0	0	5
9:45 PM	0	0	6	0	0	0	6
10:00 PM	0	0	5	0	0	0	5
10:15 PM	0	0	1	0	0	0	1
10:30 PM	0	0	2	0	0	0	2
10:45 PM	0	0	2	0	0	0	2
11:00 PM	0	0	1	0	0	0	1
11:15 PM	0	0	0	0	0	0	0
11:30 PM	0	0	0	0	0	0	0
11:45 PM	0	0	2	0	0	0	2
PM Total	**0**	**1**	**817**	**17**	**10**	**0**	**845**
Percentage	**0.00%**	**0.12%**	**96.69%**	**2.01%**	**1.18%**	**0.00%**	
PM Peak	**12:00 PM**	**3:30 PM**	**3:45 PM**	**2:30 PM**	**1:15 PM**	**12:00 PM**	**3:45 PM**
Volume	**0**	**1**	**147**	**12**	**4**	**0**	**151**

Day Total	**0**	**2**	**1341**	**39**	**23**	**3**	**1408**
Percentage	**0.00%**	**0.14%**	**95.24%**	**2.77%**	**1.63%**	**0.21%**	

50 Freetown Street
south of Brookstone Road
City, State: Lakeville, MA
Client: Chappell/ S. Kelly
Site Code: 24021

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File #: 249958 ATR-A

Count Date: Wednesday, April 24, 2024
Direction: NB

AM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 AM	0	0	0	0	0	0	0
12:15 AM	0	0	2	0	0	0	2
12:30 AM	0	0	2	0	0	0	2
12:45 AM	0	0	1	0	0	0	1
1:00 AM	0	0	0	0	0	0	0
1:15 AM	0	0	2	0	0	0	2
1:30 AM	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0
2:15 AM	0	0	0	0	0	0	0
2:30 AM	0	0	1	0	0	0	1
2:45 AM	0	0	0	0	0	0	0
3:00 AM	0	0	1	0	0	0	1
3:15 AM	0	0	0	0	0	0	0
3:30 AM	0	0	2	0	0	0	2
3:45 AM	0	0	0	0	0	0	0
4:00 AM	0	0	1	0	0	0	1
4:15 AM	0	0	0	0	0	0	0
4:30 AM	0	0	1	0	0	0	1
4:45 AM	0	0	1	0	0	0	1
5:00 AM	0	0	5	0	0	0	5
5:15 AM	0	0	1	0	0	0	1
5:30 AM	0	0	1	0	0	0	1
5:45 AM	0	0	2	0	0	0	2
6:00 AM	0	0	5	1	0	0	6
6:15 AM	0	0	8	0	0	0	8
6:30 AM	0	0	1	0	0	0	1
6:45 AM	0	0	19	0	0	1	20
7:00 AM	0	0	68	0	0	0	68
7:15 AM	0	0	142	12	0	1	155
7:30 AM	0	0	71	1	0	0	72
7:45 AM	0	0	15	0	0	0	15
8:00 AM	0	0	24	1	1	0	26
8:15 AM	0	0	40	5	1	0	46
8:30 AM	0	0	11	0	3	0	14
8:45 AM	0	0	8	0	0	0	8
9:00 AM	0	0	8	0	1	0	9
9:15 AM	0	0	12	0	1	0	13
9:30 AM	0	0	11	0	2	0	13
9:45 AM	0	0	8	0	0	0	8
10:00 AM	0	0	11	1	3	0	15
10:15 AM	0	0	8	0	0	0	8
10:30 AM	0	0	5	0	0	0	5
10:45 AM	0	0	14	0	2	0	16
11:00 AM	0	0	7	0	2	0	9
11:15 AM	0	0	14	0	0	1	15
11:30 AM	0	0	11	1	0	0	12
11:45 AM	0	0	7	1	1	0	9
AM Total	**0**	**0**	**551**	**23**	**17**	**3**	**594**
Percentage	**0.00%**	**0.00%**	**92.76%**	**3.87%**	**2.86%**	**0.51%**	
AM Peak	**12:00 AM**	**12:00 AM**	**6:45 AM**	**7:15 AM**	**9:15 AM**	**6:30 AM**	**6:45 AM**
Volume	**0**	**0**	**300**	**14**	**6**	**2**	**315**

PM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 PM	0	0	12	0	0	0	12
12:15 PM	0	0	7	0	2	0	9
12:30 PM	0	0	8	0	0	0	8
12:45 PM	0	0	21	1	1	0	23
1:00 PM	0	0	23	0	1	0	24
1:15 PM	0	0	26	1	2	0	29
1:30 PM	0	0	16	4	1	0	21
1:45 PM	0	0	33	5	0	0	38
2:00 PM	0	0	24	6	0	0	30
2:15 PM	0	0	33	0	0	0	33
2:30 PM	0	0	24	7	1	0	32
2:45 PM	0	0	20	2	0	0	22
3:00 PM	0	0	21	1	0	0	22
3:15 PM	0	0	29	0	0	0	29
3:30 PM	0	0	27	1	0	0	28
3:45 PM	0	0	39	1	0	0	40
4:00 PM	0	0	42	1	0	0	43
4:15 PM	0	0	26	0	0	0	26
4:30 PM	0	0	30	0	1	0	31
4:45 PM	0	0	28	0	0	0	28
5:00 PM	0	0	30	0	0	0	30
5:15 PM	0	0	32	0	0	0	32
5:30 PM	0	0	30	0	0	0	30
5:45 PM	0	0	27	0	0	0	27
6:00 PM	0	0	19	0	0	0	19
6:15 PM	0	0	21	0	0	0	21
6:30 PM	0	0	24	0	0	0	24
6:45 PM	0	0	25	1	0	0	26
7:00 PM	0	0	15	0	0	0	15
7:15 PM	0	0	14	0	0	0	14
7:30 PM	0	0	15	0	0	0	15
7:45 PM	0	0	14	0	0	0	14
8:00 PM	0	0	14	0	0	0	14
8:15 PM	0	0	12	0	0	0	12
8:30 PM	0	0	11	0	0	0	11
8:45 PM	0	0	5	0	0	0	5
9:00 PM	0	0	8	0	0	0	8
9:15 PM	0	0	6	0	0	0	6
9:30 PM	0	0	6	0	0	0	6
9:45 PM	0	0	8	0	0	0	8
10:00 PM	0	0	6	0	0	0	6
10:15 PM	0	0	4	0	0	0	4
10:30 PM	0	0	3	0	0	0	3
10:45 PM	0	0	2	0	0	0	2
11:00 PM	0	0	2	0	0	0	2
11:15 PM	0	0	0	0	0	0	0
11:30 PM	0	0	3	0	0	0	3
11:45 PM	0	0	2	0	0	0	2
PM Total	**0**	**0**	**847**	**31**	**9**	**0**	**887**
Percentage	**0.00%**	**0.00%**	**95.49%**	**3.49%**	**1.01%**	**0.00%**	
PM Peak	**12:00 PM**	**12:00 PM**	**3:15 PM**	**1:45 PM**	**12:45 PM**	**12:00 PM**	**3:15 PM**
Volume	**0**	**0**	**137**	**18**	**5**	**0**	**140**
Day Total	**0**	**0**	**1398**	**54**	**26**	**3**	**1481**
Percentage	**0.00%**	**0.00%**	**94.40%**	**3.65%**	**1.76%**	**0.20%**	

50 Freetown Street
south of Brookstone Road
City, State: Lakeville, MA
Client: Chappell/ S. Kelly
Site Code: 24021

Count Date: Tuesday, April 23, 2024
Direction: SB

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File #: 249958 ATR-A

AM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 AM	0	0	0	0	0	0	0
12:15 AM	0	0	1	0	0	0	1
12:30 AM	0	0	0	0	0	0	0
12:45 AM	0	0	1	0	0	0	1
1:00 AM	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	0
1:30 AM	0	0	0	0	0	0	0
1:45 AM	0	0	1	0	0	0	1
2:00 AM	0	0	1	0	0	0	1
2:15 AM	0	0	0	0	0	0	0
2:30 AM	0	0	0	0	0	0	0
2:45 AM	0	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0	0
3:15 AM	0	0	0	0	0	0	0
3:30 AM	0	0	4	0	0	0	4
3:45 AM	0	0	0	0	0	0	0
4:00 AM	0	0	1	0	0	0	1
4:15 AM	0	0	2	0	0	0	2
4:30 AM	0	0	5	0	0	0	5
4:45 AM	0	0	2	0	0	0	2
5:00 AM	0	0	3	0	0	0	3
5:15 AM	0	0	8	0	0	0	8
5:30 AM	0	0	7	0	0	0	7
5:45 AM	0	0	7	0	0	0	7
6:00 AM	0	0	13	0	0	0	13
6:15 AM	0	0	16	0	0	0	16
6:30 AM	0	0	21	0	0	0	21
6:45 AM	0	0	15	0	0	0	15
7:00 AM	0	0	21	0	1	0	22
7:15 AM	0	0	49	0	0	0	49
7:30 AM	0	0	65	8	1	0	74
7:45 AM	0	0	33	2	0	0	35
8:00 AM	0	0	18	2	0	0	20
8:15 AM	0	0	41	4	0	0	45
8:30 AM	0	0	24	6	0	0	30
8:45 AM	0	0	10	1	0	0	11
9:00 AM	0	0	20	0	0	0	20
9:15 AM	0	0	12	0	0	0	12
9:30 AM	0	0	15	0	0	0	15
9:45 AM	0	0	11	0	3	0	14
10:00 AM	0	0	7	0	0	0	7
10:15 AM	0	0	10	0	1	0	11
10:30 AM	0	0	5	0	1	0	6
10:45 AM	0	0	15	0	1	0	16
11:00 AM	0	0	12	0	0	0	12
11:15 AM	0	0	4	0	2	0	6
11:30 AM	0	1	10	1	0	0	12
11:45 AM	0	0	13	0	2	0	15
AM Total	**0**	**1**	**503**	**24**	**12**	**0**	**540**
Percentage	**0.00%**	**0.19%**	**93.15%**	**4.44%**	**2.22%**	**0.00%**	
AM Peak	**12:00 AM**	**10:45 AM**	**7:00 AM**	**7:30 AM**	**9:45 AM**	**12:00 AM**	**7:00 AM**
Volume	**0**	**1**	**168**	**16**	**5**	**0**	**180**

PM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 PM	0	0	14	0	1	0	15
12:15 PM	0	0	17	0	0	0	17
12:30 PM	0	0	5	0	0	0	5
12:45 PM	0	0	11	0	0	0	11
1:00 PM	0	0	8	0	1	0	9
1:15 PM	0	0	25	0	1	0	26
1:30 PM	0	0	19	0	2	0	21
1:45 PM	0	0	8	0	0	0	8
2:00 PM	0	0	36	2	1	0	39
2:15 PM	0	0	84	8	1	0	93
2:30 PM	0	0	47	1	0	0	48
2:45 PM	0	0	29	1	2	0	32
3:00 PM	0	0	28	4	0	0	32
3:15 PM	0	0	21	2	0	0	23
3:30 PM	0	0	16	0	2	0	18
3:45 PM	0	0	22	0	1	0	23
4:00 PM	0	1	53	0	1	0	55
4:15 PM	0	0	26	0	0	0	26
4:30 PM	0	0	40	0	1	0	41
4:45 PM	0	0	41	0	0	0	41
5:00 PM	0	0	32	0	0	0	32
5:15 PM	0	0	25	0	0	0	25
5:30 PM	0	0	18	0	1	0	19
5:45 PM	0	0	25	0	0	0	25
6:00 PM	0	0	16	0	2	0	18
6:15 PM	0	0	11	0	0	0	11
6:30 PM	0	0	7	0	0	0	7
6:45 PM	0	0	13	0	1	0	14
7:00 PM	0	0	8	0	1	0	9
7:15 PM	0	0	11	0	0	0	11
7:30 PM	0	0	3	0	0	0	3
7:45 PM	0	0	4	0	0	0	4
8:00 PM	0	0	20	0	0	0	20
8:15 PM	0	0	6	0	0	0	6
8:30 PM	0	0	4	0	0	0	4
8:45 PM	0	0	4	0	0	0	4
9:00 PM	0	0	6	0	0	0	6
9:15 PM	0	0	5	0	0	0	5
9:30 PM	0	0	0	0	1	0	1
9:45 PM	0	0	3	0	0	0	3
10:00 PM	0	0	4	0	0	0	4
10:15 PM	0	0	1	0	0	0	1
10:30 PM	0	0	3	0	0	0	3
10:45 PM	0	0	1	0	0	0	1
11:00 PM	0	0	2	0	0	0	2
11:15 PM	0	0	3	0	0	0	3
11:30 PM	0	0	1	0	0	0	1
11:45 PM	0	0	2	0	0	0	2
PM Total	**0**	**1**	**788**	**18**	**20**	**0**	**827**
Percentage	**0.00%**	**0.12%**	**95.28%**	**2.18%**	**2.42%**	**0.00%**	
PM Peak	**12:00 PM**	**3:15 PM**	**2:00 PM**	**2:15 PM**	**12:45 PM**	**12:00 PM**	**2:00 PM**
Volume	**0**	**1**	**196**	**14**	**4**	**0**	**212**
Day Total	**0**	**2**	**1291**	**42**	**32**	**0**	**1367**
Percentage	**0.00%**	**0.15%**	**94.44%**	**3.07%**	**2.34%**	**0.00%**	

50 Freetown Street
south of Brookstone Road
City, State: Lakeville, MA
Client: Chappell/ S. Kelly
Site Code: 24021

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File #: 249958 ATR-A

Count Date: Wednesday, April 24, 2024
Direction: SB

AM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 AM	0	0	1	0	0	0	1
12:15 AM	0	0	0	0	0	0	0
12:30 AM	0	0	1	0	0	0	1
12:45 AM	0	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0	0
1:15 AM	0	0	0	0	0	0	0
1:30 AM	0	0	0	0	0	0	0
1:45 AM	0	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0	0
2:15 AM	0	0	0	0	0	0	0
2:30 AM	0	0	0	0	0	0	0
2:45 AM	0	0	1	0	0	0	1
3:00 AM	0	0	0	0	0	0	0
3:15 AM	0	0	0	0	0	0	0
3:30 AM	0	0	2	0	0	0	2
3:45 AM	0	0	1	0	0	0	1
4:00 AM	0	0	2	0	0	0	2
4:15 AM	0	0	2	0	0	0	2
4:30 AM	0	0	4	0	0	0	4
4:45 AM	0	0	5	0	0	0	5
5:00 AM	0	0	9	0	0	0	9
5:15 AM	0	0	5	0	0	0	5
5:30 AM	0	0	6	0	0	0	6
5:45 AM	0	0	6	0	0	0	6
6:00 AM	0	0	17	0	0	0	17
6:15 AM	0	0	12	0	0	0	12
6:30 AM	0	0	18	0	0	0	18
6:45 AM	0	0	14	0	0	0	14
7:00 AM	0	0	15	0	1	0	16
7:15 AM	0	0	68	0	0	0	68
7:30 AM	0	0	64	6	0	0	70
7:45 AM	0	0	40	4	0	0	44
8:00 AM	0	0	18	2	0	0	20
8:15 AM	0	0	28	4	0	0	32
8:30 AM	0	0	29	5	1	1	36
8:45 AM	0	0	16	1	3	0	20
9:00 AM	0	0	14	0	1	0	15
9:15 AM	0	0	14	0	1	0	15
9:30 AM	0	0	13	0	0	0	13
9:45 AM	0	0	14	1	3	0	18
10:00 AM	0	0	13	0	2	0	15
10:15 AM	0	0	19	0	2	0	21
10:30 AM	0	0	12	0	0	0	12
10:45 AM	0	0	16	0	1	0	17
11:00 AM	0	0	12	1	1	0	14
11:15 AM	0	0	5	0	1	0	6
11:30 AM	0	0	12	0	1	0	13
11:45 AM	0	0	15	0	1	0	16
AM Total	**0**	**0**	**543**	**24**	**19**	**1**	**587**
Percentage	**0.00%**	**0.00%**	**92.50%**	**4.09%**	**3.24%**	**0.17%**	
AM Peak	**12:00 AM**	**12:00 AM**	**7:15 AM**	**7:30 AM**	**9:30 AM**	**7:45 AM**	**7:15 AM**
Volume	**0**	**0**	**190**	**16**	**7**	**1**	**202**

PM	Bicycles	Motorcycle	Cars & Light Goods	Buses	Single Unit Heavy	Multi Unit Heavy	Total
12:00 PM	0	0	19	0	0	1	20
12:15 PM	0	0	18	0	1	0	19
12:30 PM	0	0	9	1	0	0	10
12:45 PM	0	0	63	0	1	0	64
1:00 PM	0	0	17	2	2	0	21
1:15 PM	0	0	44	10	0	0	54
1:30 PM	0	0	18	0	2	0	20
1:45 PM	0	0	12	0	2	0	14
2:00 PM	0	0	31	5	0	0	36
2:15 PM	0	0	45	7	0	0	52
2:30 PM	0	0	32	0	1	0	33
2:45 PM	0	0	42	7	0	0	49
3:00 PM	0	0	36	1	0	0	37
3:15 PM	0	0	16	0	0	0	16
3:30 PM	0	0	29	1	1	0	31
3:45 PM	0	0	17	0	1	0	18
4:00 PM	0	0	45	0	0	0	45
4:15 PM	0	0	29	0	0	0	29
4:30 PM	0	0	16	0	0	0	16
4:45 PM	0	0	15	0	0	0	15
5:00 PM	0	0	29	0	0	0	29
5:15 PM	0	0	36	0	0	0	36
5:30 PM	0	0	21	1	0	0	22
5:45 PM	0	0	11	0	0	0	11
6:00 PM	0	0	8	0	1	0	9
6:15 PM	0	0	18	0	0	0	18
6:30 PM	0	0	18	0	0	0	18
6:45 PM	0	0	31	0	0	0	31
7:00 PM	0	0	21	0	0	0	21
7:15 PM	0	0	20	0	0	0	20
7:30 PM	0	0	7	0	0	0	7
7:45 PM	0	0	13	0	0	0	13
8:00 PM	0	0	4	0	0	0	4
8:15 PM	0	0	7	0	0	0	7
8:30 PM	0	0	8	0	0	0	8
8:45 PM	0	0	5	0	0	0	5
9:00 PM	0	0	8	0	0	0	8
9:15 PM	0	0	6	0	0	0	6
9:30 PM	0	0	5	0	0	0	5
9:45 PM	0	0	3	0	0	0	3
10:00 PM	0	0	4	0	0	0	4
10:15 PM	0	0	2	0	0	0	2
10:30 PM	0	0	5	0	0	0	5
10:45 PM	0	0	3	0	0	0	3
11:00 PM	0	0	1	0	0	0	1
11:15 PM	0	0	0	0	0	0	0
11:30 PM	0	0	1	0	0	0	1
11:45 PM	0	0	1	0	0	0	1
PM Total	**0**	**0**	**849**	**35**	**12**	**1**	**897**
Percentage	**0.00%**	**0.00%**	**94.65%**	**3.90%**	**1.34%**	**0.11%**	
PM Peak	**12:00 PM**	**12:00 PM**	**2:15 PM**	**2:00 PM**	**1:00 PM**	**12:00 PM**	**2:15 PM**
Volume	**0**	**0**	**155**	**19**	**6**	**1**	**171**
Day Total	**0**	**0**	**1392**	**59**	**31**	**2**	**1484**
Percentage	**0.00%**	**0.00%**	**93.80%**	**3.98%**	**2.09%**	**0.13%**	

50 Freetown Street
south of Brookstone Road
City, State: Lakeville, MA
Client: Chappell/ S. Kelly
Site Code: 24021

PRECISION
D A T A
INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File # **249958 ATR-A**

Direction: **NB**

Weekly Report

Day	Tuesday		Wednesday												Week	
Date	04/23/24		04/24/24												Ave	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
12:00	4	13	0	12	0	0	0	0	0	0	0	0	0	0	2	13
12:15	4	7	2	9	0	0	0	0	0	0	0	0	0	0	3	8
12:30	3	10	2	8	0	0	0	0	0	0	0	0	0	0	3	9
12:45	0	14	1	23	0	0	0	0	0	0	0	0	0	0	1	19
1:00	0	13	0	24	0	0	0	0	0	0	0	0	0	0	0	19
1:15	0	16	2	29	0	0	0	0	0	0	0	0	0	0	1	23
1:30	0	23	0	21	0	0	0	0	0	0	0	0	0	0	0	22
1:45	0	29	0	38	0	0	0	0	0	0	0	0	0	0	0	34
2:00	0	31	0	30	0	0	0	0	0	0	0	0	0	0	0	31
2:15	0	29	0	33	0	0	0	0	0	0	0	0	0	0	0	31
2:30	0	21	1	32	0	0	0	0	0	0	0	0	0	0	1	27
2:45	0	26	0	22	0	0	0	0	0	0	0	0	0	0	0	24
3:00	1	22	1	22	0	0	0	0	0	0	0	0	0	0	1	22
3:15	1	25	0	29	0	0	0	0	0	0	0	0	0	0	1	27
3:30	0	21	2	28	0	0	0	0	0	0	0	0	0	0	1	25
3:45	0	51	0	40	0	0	0	0	0	0	0	0	0	0	0	46
4:00	1	36	1	43	0	0	0	0	0	0	0	0	0	0	1	40
4:15	1	33	0	26	0	0	0	0	0	0	0	0	0	0	1	30
4:30	1	31	1	31	0	0	0	0	0	0	0	0	0	0	1	31
4:45	2	28	1	28	0	0	0	0	0	0	0	0	0	0	2	28
5:00	1	32	5	30	0	0	0	0	0	0	0	0	0	0	3	31
5:15	0	32	1	32	0	0	0	0	0	0	0	0	0	0	1	32
5:30	2	25	1	30	0	0	0	0	0	0	0	0	0	0	2	28
5:45	3	28	2	27	0	0	0	0	0	0	0	0	0	0	3	28
6:00	4	26	6	19	0	0	0	0	0	0	0	0	0	0	5	23
6:15	8	27	8	21	0	0	0	0	0	0	0	0	0	0	8	24
6:30	9	14	1	24	0	0	0	0	0	0	0	0	0	0	5	19
6:45	12	19	20	26	0	0	0	0	0	0	0	0	0	0	16	23
7:00	65	15	68	15	0	0	0	0	0	0	0	0	0	0	67	15
7:15	129	24	155	14	0	0	0	0	0	0	0	0	0	0	142	19
7:30	85	16	72	15	0	0	0	0	0	0	0	0	0	0	79	16
7:45	12	19	15	14	0	0	0	0	0	0	0	0	0	0	14	17
8:00	21	11	26	14	0	0	0	0	0	0	0	0	0	0	24	13
8:15	40	15	46	12	0	0	0	0	0	0	0	0	0	0	43	14
8:30	9	12	14	11	0	0	0	0	0	0	0	0	0	0	12	12
8:45	6	7	8	5	0	0	0	0	0	0	0	0	0	0	7	6
9:00	11	10	9	8	0	0	0	0	0	0	0	0	0	0	10	9
9:15	24	10	13	6	0	0	0	0	0	0	0	0	0	0	19	8
9:30	7	5	13	6	0	0	0	0	0	0	0	0	0	0	10	6
9:45	9	6	8	8	0	0	0	0	0	0	0	0	0	0	9	7
10:00	7	5	15	6	0	0	0	0	0	0	0	0	0	0	11	6
10:15	11	1	8	4	0	0	0	0	0	0	0	0	0	0	10	3
10:30	9	2	5	3	0	0	0	0	0	0	0	0	0	0	7	3
10:45	15	2	16	2	0	0	0	0	0	0	0	0	0	0	16	2
11:00	9	1	9	2	0	0	0	0	0	0	0	0	0	0	9	2
11:15	11	0	15	0	0	0	0	0	0	0	0	0	0	0	13	0
11:30	10	0	12	3	0	0	0	0	0	0	0	0	0	0	11	2
11:45	16	2	9	2	0	0	0	0	0	0	0	0	0	0	13	2
Total	**563**	**845**	**594**	**887**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**579**	**866**
Day Total	**1408**		**1481**		**0**		**0**		**0**		**0**		**0**		**1445**	
Peak HR	**6:45 AM**	**3:45 PM**	**6:45 AM**	**3:15 PM**											**6:45 AM**	**3:45 PM**
Volume	**291**	**151**	**315**	**140**											**303**	**146**

50 Freetown Street
south of Brookstone Road
City, State: Lakeville, MA
Client: Chappell/ S. Kelly
Site Code: 24021

PRECISION
D A T A
INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File # **249958 ATR-A**

Direction: **SB**

Weekly Report

Day	Tuesday		Wednesday												Week	
Date	04/23/24		04/24/24												Ave	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
12:00	0	15	1	20	0	0	0	0	0	0	0	0	0	0	1	18
12:15	1	17	0	19	0	0	0	0	0	0	0	0	0	0	1	18
12:30	0	5	1	10	0	0	0	0	0	0	0	0	0	0	1	8
12:45	1	11	0	64	0	0	0	0	0	0	0	0	0	0	1	38
1:00	0	9	0	21	0	0	0	0	0	0	0	0	0	0	0	15
1:15	0	26	0	54	0	0	0	0	0	0	0	0	0	0	0	40
1:30	0	21	0	20	0	0	0	0	0	0	0	0	0	0	0	21
1:45	1	8	0	14	0	0	0	0	0	0	0	0	0	0	1	11
2:00	1	39	0	36	0	0	0	0	0	0	0	0	0	0	1	38
2:15	0	93	0	52	0	0	0	0	0	0	0	0	0	0	0	73
2:30	0	48	0	33	0	0	0	0	0	0	0	0	0	0	0	41
2:45	0	32	1	49	0	0	0	0	0	0	0	0	0	0	1	41
3:00	0	32	0	37	0	0	0	0	0	0	0	0	0	0	0	35
3:15	0	23	0	16	0	0	0	0	0	0	0	0	0	0	0	20
3:30	4	18	2	31	0	0	0	0	0	0	0	0	0	0	3	25
3:45	0	23	1	18	0	0	0	0	0	0	0	0	0	0	1	21
4:00	1	55	2	45	0	0	0	0	0	0	0	0	0	0	2	50
4:15	2	26	2	29	0	0	0	0	0	0	0	0	0	0	2	28
4:30	5	41	4	16	0	0	0	0	0	0	0	0	0	0	5	29
4:45	2	41	5	15	0	0	0	0	0	0	0	0	0	0	4	28
5:00	3	32	9	29	0	0	0	0	0	0	0	0	0	0	6	31
5:15	8	25	5	36	0	0	0	0	0	0	0	0	0	0	7	31
5:30	7	19	6	22	0	0	0	0	0	0	0	0	0	0	7	21
5:45	7	25	6	11	0	0	0	0	0	0	0	0	0	0	7	18
6:00	13	18	17	9	0	0	0	0	0	0	0	0	0	0	15	14
6:15	16	11	12	18	0	0	0	0	0	0	0	0	0	0	14	15
6:30	21	7	18	18	0	0	0	0	0	0	0	0	0	0	20	13
6:45	15	14	14	31	0	0	0	0	0	0	0	0	0	0	15	23
7:00	22	9	16	21	0	0	0	0	0	0	0	0	0	0	19	15
7:15	49	11	68	20	0	0	0	0	0	0	0	0	0	0	59	16
7:30	74	3	70	7	0	0	0	0	0	0	0	0	0	0	72	5
7:45	35	4	44	13	0	0	0	0	0	0	0	0	0	0	40	9
8:00	20	20	20	4	0	0	0	0	0	0	0	0	0	0	20	12
8:15	45	6	32	7	0	0	0	0	0	0	0	0	0	0	39	7
8:30	30	4	36	8	0	0	0	0	0	0	0	0	0	0	33	6
8:45	11	4	20	5	0	0	0	0	0	0	0	0	0	0	16	5
9:00	20	6	15	8	0	0	0	0	0	0	0	0	0	0	18	7
9:15	12	5	15	6	0	0	0	0	0	0	0	0	0	0	14	6
9:30	15	1	13	5	0	0	0	0	0	0	0	0	0	0	14	3
9:45	14	3	18	3	0	0	0	0	0	0	0	0	0	0	16	3
10:00	7	4	15	4	0	0	0	0	0	0	0	0	0	0	11	4
10:15	11	1	21	2	0	0	0	0	0	0	0	0	0	0	16	2
10:30	6	3	12	5	0	0	0	0	0	0	0	0	0	0	9	4
10:45	16	1	17	3	0	0	0	0	0	0	0	0	0	0	17	2
11:00	12	2	14	1	0	0	0	0	0	0	0	0	0	0	13	2
11:15	6	3	6	0	0	0	0	0	0	0	0	0	0	0	6	2
11:30	12	1	13	1	0	0	0	0	0	0	0	0	0	0	13	1
11:45	15	2	16	1	0	0	0	0	0	0	0	0	0	0	16	2
Total	**540**	**827**	**587**	**897**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**564**	**862**
Day Total	**1367**		**1484**		**0**		**0**		**0**		**0**		**0**		**1426**	
Peak HR	**7:00 AM**	**2:00 PM**	**7:15 AM**	**2:15 PM**											**7:15 AM**	**2:00 PM**
Volume	**180**	**212**	**202**	**171**											**190**	**191**

50 Freetown Street
south of Brookstone Road
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Client: Chappell/ S. Kelly
Site Code: 24021

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File #: 249958 ATR-A (Speed)

Count Date
Tuesday, April 23, 2024

Speed (60-minute)

NB

Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	0	0	0	0	0	1	3	1	3	0	0	0	0	8	51.0	46.1
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
3:00 AM	0	0	0	0	0	0	1	0	1	0	0	0	0	2	49.1	47.0
4:00 AM	0	0	0	0	0	1	2	0	1	0	0	0	0	4	47.6	42.5
5:00 AM	0	0	0	0	0	0	2	3	2	0	0	0	0	7	52.0	46.9
6:00 AM	0	0	0	0	1	2	11	13	6	0	0	0	0	33	50.2	45.3
7:00 AM	0	0	0	0	7	45	126	87	14	2	0	0	0	281	47.0	43.1
8:00 AM	0	0	0	0	1	20	26	24	6	2	0	0	0	79	48.0	43.3
9:00 AM	0	0	1	3	1	5	15	25	5	0	0	0	0	55	49.0	43.5
10:00 AM	0	0	0	0	0	4	14	17	8	0	0	0	0	43	50.0	45.1
11:00 AM	0	0	0	0	2	6	20	14	5	1	0	0	0	48	48.0	43.6
12:00 PM	0	0	0	0	1	1	16	21	5	0	0	0	0	44	48.0	44.8
1:00 PM	0	0	0	1	0	8	34	33	3	2	0	0	0	81	48.0	44.3
2:00 PM	0	0	0	0	5	24	30	46	6	1	0	0	0	112	47.4	43.1
3:00 PM	0	0	0	0	5	11	54	36	9	0	0	0	0	115	47.9	43.5
4:00 PM	0	0	0	0	1	16	48	49	15	2	0	0	0	131	49.0	44.4
5:00 PM	0	0	0	1	0	3	38	60	17	1	0	0	0	120	49.2	45.6
6:00 PM	0	0	0	1	4	6	30	40	8	1	0	0	0	90	48.0	44.3
7:00 PM	1	0	0	0	1	9	24	29	9	0	0	0	0	73	49.0	43.7
8:00 PM	0	0	0	0	0	6	20	19	0	2	0	0	0	47	48.0	43.9
9:00 PM	0	0	1	0	0	4	11	10	5	1	0	0	0	32	50.0	44.4
10:00 PM	0	0	0	0	0	1	3	4	2	0	0	0	0	10	48.6	45.1
11:00 PM	0	0	0	0	0	2	0	1	0	0	0	0	0	3	44.6	40.3
Total	1	0	2	6	29	175	528	532	130	15	0	0	0	1418	48.0	44.0
Percent	0.07%	0.00%	0.14%	0.42%	2.05%	12.34%	37.24%	37.52%	9.17%	1.06%	0.00%	0.00%	0.00%			
AM Peak			9:00 AM	9:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM				7:00 AM		
Volume	0	0	1	3	7	45	126	87	14	2	0	0	0	281		
PM Peak	7:00 PM		9:00 PM	1:00 PM	2:00 PM	2:00 PM	3:00 PM	5:00 PM	5:00 PM	1:00 PM				4:00 PM		
Volume	1	0	1	1	5	24	54	60	17	2	0	0	0	131		

15th Percentile:	39.6 MPH	Average Speed:	44.0 MPH	Posted Speed Limit:	40 MPH
50th Percentile:	44.0 MPH	10 MPH Pace:	40 to 49 MPH	Number of Vehicles > 40 MPH:	1130
85th Percentile:	48.0 MPH	Number in Pace:	1060	Percent of Vehicles > 40 MPH:	79.7%
95th Percentile:	51.0 MPH	Percent in Pace:	74.8%		

50 Freetown Street
south of Brookstone Road
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Site Code: 24021

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File #: 249958 ATR-A (Speed)

Count Date
Tuesday, April 23, 2024

Speed (60-minute)

SB																
Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	2	40.1	38.0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
2:00 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	51.0	51.0
3:00 AM	0	0	0	0	0	0	3	0	1	0	0	0	0	4	46.0	43.0
4:00 AM	0	0	0	0	0	2	3	3	0	2	0	0	0	10	53.2	45.3
5:00 AM	0	0	0	0	0	11	6	5	3	0	0	0	0	25	48.4	42.3
6:00 AM	0	0	1	4	1	10	30	15	5	0	0	0	0	66	47.0	41.9
7:00 AM	0	0	0	2	24	51	75	24	3	1	0	0	0	180	45.0	40.0
8:00 AM	0	0	0	1	10	45	40	12	2	0	0	0	0	110	44.0	39.5
9:00 AM	0	1	0	3	4	20	23	8	0	1	0	0	0	60	44.2	39.3
10:00 AM	0	0	0	0	5	10	16	7	2	0	0	0	0	40	48.0	41.1
11:00 AM	0	0	0	0	4	14	19	7	0	0	0	0	0	44	44.6	40.3
12:00 PM	0	0	0	0	3	18	17	9	1	0	0	0	0	48	45.0	40.6
1:00 PM	0	0	0	0	4	15	33	11	1	0	0	0	0	64	45.0	41.3
2:00 PM	1	1	0	3	15	87	75	31	2	0	0	0	0	215	44.9	39.6
3:00 PM	0	0	0	1	12	20	47	10	2	1	0	0	0	93	44.0	40.4
4:00 PM	0	0	0	1	6	51	71	28	2	0	0	0	0	159	45.3	41.1
5:00 PM	0	0	0	0	0	28	45	24	4	1	0	0	0	102	47.0	42.3
6:00 PM	0	0	0	2	0	15	21	11	1	0	0	0	0	50	45.7	41.4
7:00 PM	0	0	0	1	0	7	11	7	0	0	0	0	0	26	47.0	41.5
8:00 PM	0	0	0	2	8	5	13	7	0	0	0	0	0	35	45.0	38.9
9:00 PM	0	0	0	0	1	7	5	2	0	0	0	0	0	15	43.9	40.2
10:00 PM	0	0	0	0	0	2	3	1	3	0	0	0	0	9	51.6	43.8
11:00 PM	0	0	0	0	3	1	1	3	0	0	0	0	0	8	48.9	39.6
Total	1	2	1	20	100	420	558	225	33	6	0	0	0	1366	45.0	40.6
Percent	0.07%	0.15%	0.07%	1.46%	7.32%	30.75%	40.85%	16.47%	2.42%	0.44%	0.00%	0.00%	0.00%			
AM Peak		9:00 AM	6:00 AM	6:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	6:00 AM	4:00 AM				7:00 AM		
Volume	0	1	1	4	24	51	75	24	5	2	0	0	0	180		
PM Peak	2:00 PM	2:00 PM		2:00 PM	2:00 PM	2:00 PM	2:00 PM	2:00 PM	5:00 PM	3:00 PM				2:00 PM		
Volume	1	1	0	3	15	87	75	31	4	1	0	0	0	215		

15th Percentile:	36.0 MPH	Average Speed:	40.6 MPH	Posted Speed Limit:	40 MPH
50th Percentile:	41.0 MPH	10 MPH Pace:	36 to 45 MPH	Number of Vehicles > 40 MPH:	707
85th Percentile:	45.0 MPH	Number in Pace:	980	Percent of Vehicles > 40 MPH:	51.8%
95th Percentile:	48.0 MPH	Percent in Pace:	71.7%		

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Office: 508-875-0100 Fax: 508-875-0118

PDI File #: 249958 ATR-A (Speed)

Count Date
Tuesday, April 23, 2024

Speed (60-minute)

Combined NB and SB

Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	0	0	0	0	0	2	4	1	3	0	0	0	0	10	50.7	44.5
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
2:00 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	51.0	51.0
3:00 AM	0	0	0	0	0	0	4	0	2	0	0	0	0	6	50.0	44.3
4:00 AM	0	0	0	0	0	3	5	3	1	2	0	0	0	14	53.2	44.5
5:00 AM	0	0	0	0	0	11	8	8	5	0	0	0	0	32	50.1	43.3
6:00 AM	0	0	1	4	2	12	41	28	11	0	0	0	0	99	48.0	43.1
7:00 AM	0	0	0	2	31	96	201	111	17	3	0	0	0	461	46.0	41.9
8:00 AM	0	0	0	1	11	65	66	36	8	2	0	0	0	189	46.0	41.1
9:00 AM	0	1	1	6	5	25	38	33	5	1	0	0	0	115	47.9	41.3
10:00 AM	0	0	0	0	5	14	30	24	10	0	0	0	0	83	49.0	43.2
11:00 AM	0	0	0	0	6	20	39	21	5	1	0	0	0	92	47.0	42.0
12:00 PM	0	0	0	0	4	19	33	30	6	0	0	0	0	92	46.4	42.6
1:00 PM	0	0	0	1	4	23	67	44	4	2	0	0	0	145	47.0	43.0
2:00 PM	1	1	0	3	20	111	105	77	8	1	0	0	0	327	46.0	40.8
3:00 PM	0	0	0	1	17	31	101	46	11	1	0	0	0	208	47.0	42.1
4:00 PM	0	0	0	1	7	67	119	77	17	2	0	0	0	290	47.0	42.6
5:00 PM	0	0	0	1	0	31	83	84	21	2	0	0	0	222	48.0	44.1
6:00 PM	0	0	0	3	4	21	51	51	9	1	0	0	0	140	48.0	43.3
7:00 PM	1	0	0	1	1	16	35	36	9	0	0	0	0	99	48.0	43.1
8:00 PM	0	0	0	2	8	11	33	26	0	2	0	0	0	82	47.0	41.8
9:00 PM	0	0	1	0	1	11	16	12	5	1	0	0	0	47	49.0	43.0
10:00 PM	0	0	0	0	0	3	6	5	5	0	0	0	0	19	50.0	44.5
11:00 PM	0	0	0	0	3	3	1	4	0	0	0	0	0	11	48.0	39.8
Total	2	2	3	26	129	595	1086	757	163	21	0	0	0	2784	47.0	42.3
Percent	0.07%	0.07%	0.11%	0.93%	4.63%	21.37%	39.01%	27.19%	5.85%	0.75%	0.00%	0.00%	0.00%			
AM Peak		9:00 AM	6:00 AM	9:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM				7:00 AM		
Volume	0	1	1	6	31	96	201	111	17	3	0	0	0	461		
PM Peak	2:00 PM	2:00 PM	9:00 PM	2:00 PM	2:00 PM	2:00 PM	4:00 PM	5:00 PM	5:00 PM	1:00 PM				2:00 PM		
Volume	1	1	1	3	20	111	119	84	21	2	0	0	0	327		

15th Percentile:	37.0 MPH	Average Speed:	42.3 MPH	Posted Speed Limit:	40 MPH
50th Percentile:	43.0 MPH	10 MPH Pace:	38 to 47 MPH	Number of Vehicles > 40 MPH:	1837
85th Percentile:	47.0 MPH	Number in Pace:	1963	Percent of Vehicles > 40 MPH:	66.0%
95th Percentile:	50.0 MPH	Percent in Pace:	70.5%		

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PDI File #: 249958 ATR-A (Speed)

Count Date
Wednesday, April 24, 2024

Speed (60-minute)

NB

Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	0	0	0	0	2	0	0	2	1	0	0	0	0	5	49.6	42.8
1:00 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	2	44.9	44.5
2:00 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	54.0	54.0
3:00 AM	0	0	0	0	0	0	0	2	1	0	0	0	0	3	52.2	49.0
4:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	2	44.4	40.5
5:00 AM	0	0	0	0	1	0	4	4	0	0	0	0	0	9	47.0	43.4
6:00 AM	0	0	0	0	0	2	17	13	3	1	0	0	0	36	48.0	44.6
7:00 AM	1	0	0	4	17	45	114	92	20	1	0	0	0	294	48.0	42.5
8:00 AM	0	0	0	0	4	24	20	29	10	5	1	0	0	93	50.0	43.7
9:00 AM	0	0	1	0	0	8	17	12	5	1	0	0	0	44	48.6	43.9
10:00 AM	0	1	0	0	2	10	17	13	2	0	0	0	0	45	46.0	41.2
11:00 AM	0	0	0	0	0	4	17	20	5	0	0	0	0	46	49.0	44.9
12:00 PM	0	0	0	0	0	4	24	19	4	4	0	0	0	55	49.0	45.3
1:00 PM	0	0	0	0	6	23	43	35	5	0	1	0	0	113	47.0	42.6
2:00 PM	0	0	0	0	8	21	45	39	12	1	0	0	0	126	49.0	43.4
3:00 PM	0	0	0	0	3	6	50	49	11	1	0	0	0	120	49.0	44.5
4:00 PM	0	0	0	0	2	14	45	58	10	3	0	0	0	132	48.0	44.5
5:00 PM	0	0	0	0	4	7	42	52	19	0	0	0	0	124	49.6	45.2
6:00 PM	0	0	1	1	0	2	24	56	6	1	0	0	0	91	49.0	45.4
7:00 PM	0	0	0	0	1	4	25	22	7	0	0	0	0	59	49.0	44.5
8:00 PM	0	0	0	0	0	7	15	17	4	1	1	0	0	45	48.4	44.7
9:00 PM	0	0	0	0	0	3	16	8	0	0	1	0	0	28	47.0	43.8
10:00 PM	0	0	0	0	0	2	2	9	2	0	0	0	0	15	48.9	45.5
11:00 PM	0	0	0	0	1	1	1	2	1	1	0	0	0	7	50.7	44.6
Total	1	1	2	5	51	188	539	555	129	20	4	0	0	1495	49.0	43.9
Percent	0.07%	0.07%	0.13%	0.33%	3.41%	12.58%	36.05%	37.12%	8.63%	1.34%	0.27%	0.00%	0.00%			
AM Peak	7:00 AM	10:00 AM	9:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	8:00 AM	8:00 AM			7:00 AM		
Volume	1	1	1	4	17	45	114	92	20	5	1	0	0	294		
PM Peak			6:00 PM	6:00 PM	2:00 PM	1:00 PM	3:00 PM	4:00 PM	5:00 PM	12:00 PM	1:00 PM			4:00 PM		
Volume	0	0	1	1	8	23	50	58	19	4	1	0	0	132		

15th Percentile:	39.0 MPH	Average Speed:	43.9 MPH	Posted Speed Limit:	40 MPH
50th Percentile:	44.0 MPH	10 MPH Pace:	40 to 49 MPH	Number of Vehicles > 40 MPH:	1163
85th Percentile:	49.0 MPH	Number in Pace:	1094	Percent of Vehicles > 40 MPH:	77.8%
95th Percentile:	51.0 MPH	Percent in Pace:	73.2%		

50 Freetown Street
south of Brookstone Road
City, State: Lakeville, MA
Client: Chappell/ S. Kelly
Site Code: 24021

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File #: 249958 ATR-A (Speed)

Count Date
Wednesday, April 24, 2024

Speed (60-minute)

SB

Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	2	41.4	40.0
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
2:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	40.0	40.0
3:00 AM	0	0	0	0	0	0	1	1	1	0	0	0	0	3	48.5	46.0
4:00 AM	0	0	0	0	3	1	3	4	2	0	0	0	0	13	48.0	42.6
5:00 AM	0	0	0	0	0	9	12	3	1	1	0	0	0	26	46.3	42.2
6:00 AM	0	0	0	1	2	14	25	14	5	0	0	0	0	61	47.0	42.3
7:00 AM	0	0	0	3	23	44	89	32	5	0	0	0	0	196	45.0	40.5
8:00 AM	2	3	1	1	18	24	37	22	1	0	0	0	0	109	46.0	38.7
9:00 AM	0	0	0	1	2	19	22	14	1	0	0	0	0	59	47.0	41.2
10:00 AM	0	0	0	0	7	20	21	14	1	0	0	0	0	63	46.0	40.5
11:00 AM	0	0	0	0	6	18	21	4	3	0	0	0	0	52	44.0	40.4
12:00 PM	0	0	2	0	8	28	45	22	7	0	0	0	0	112	46.0	41.2
1:00 PM	0	1	2	3	17	37	36	11	5	1	0	0	0	113	44.2	38.8
2:00 PM	0	0	2	2	13	66	56	28	3	0	0	0	0	170	45.0	39.7
3:00 PM	0	0	1	1	5	24	46	20	4	1	0	0	0	102	46.9	41.6
4:00 PM	0	0	0	0	5	30	43	21	7	0	0	0	0	106	47.0	41.8
5:00 PM	0	0	0	2	9	30	36	18	4	0	0	0	0	99	46.0	40.6
6:00 PM	0	0	0	0	11	24	31	8	2	0	0	0	0	76	44.0	39.9
7:00 PM	0	0	0	0	3	26	21	10	4	0	0	0	0	64	47.0	41.0
8:00 PM	0	0	0	1	0	9	7	3	3	1	0	0	0	24	49.7	42.0
9:00 PM	0	0	0	0	1	11	7	1	1	1	0	1	0	23	46.1	41.6
10:00 PM	0	0	0	0	1	2	5	4	1	0	0	0	0	13	48.0	43.2
11:00 PM	0	0	0	0	1	1	0	0	1	0	0	0	0	3	45.8	39.3
Total	2	4	8	15	135	438	566	254	62	5	0	1	0	1490	46.0	40.6
Percent	0.13%	0.27%	0.54%	1.01%	9.06%	29.40%	37.99%	17.05%	4.16%	0.34%	0.00%	0.07%	0.00%			
AM Peak	8:00 AM	8:00 AM	8:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	6:00 AM	5:00 AM				7:00 AM		
Volume	2	3	1	3	23	44	89	32	5	1	0	0	0	196		
PM Peak		1:00 PM	12:00 PM	1:00 PM	1:00 PM	2:00 PM	2:00 PM	2:00 PM	12:00 PM	1:00 PM		9:00 PM		2:00 PM		
Volume	0	1	2	3	17	66	56	28	7	1	0	1	0	170		

15th Percentile:	35.0 MPH	Average Speed:	40.6 MPH	Posted Speed Limit:	40 MPH
50th Percentile:	41.0 MPH	10 MPH Pace:	35 to 44 MPH	Number of Vehicles > 40 MPH:	763
85th Percentile:	46.0 MPH	Number in Pace:	1004	Percent of Vehicles > 40 MPH:	51.2%
95th Percentile:	49.0 MPH	Percent in Pace:	67.4%		

50 Freetown Street
south of Brookstone Road
City, State: Lakeville, MA
Client: Chappell/ S. Kelly
Site Code: 24021

PRECISION DATA INDUSTRIES, LLC
157 Washington Street, Suite 2
Hudson, MA 01749
Office: 508-875-0100 Fax: 508-875-0118

PDI File #: 249958 ATR-A (Speed)

Count Date
Wednesday, April 24, 2024

Speed (60-minute)

Combined NB and SB

Start Time:	1 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70+	Total	85th %ile	Ave Speed
12:00 AM	0	0	0	0	2	1	1	2	1	0	0	0	0	7	48.4	42.0
1:00 AM	0	0	0	0	0	0	1	1	0	0	0	0	0	2	44.9	44.5
2:00 AM	0	0	0	0	0	0	1	0	1	0	0	0	0	2	51.9	47.0
3:00 AM	0	0	0	0	0	0	1	3	2	0	0	0	0	6	51.0	47.5
4:00 AM	0	0	0	0	3	2	3	5	2	0	0	0	0	15	47.0	42.3
5:00 AM	0	0	0	0	1	9	16	7	1	1	0	0	0	35	47.0	42.5
6:00 AM	0	0	0	1	2	16	42	27	8	1	0	0	0	97	48.0	43.2
7:00 AM	1	0	0	7	40	89	203	124	25	1	0	0	0	490	47.0	41.7
8:00 AM	2	3	1	1	22	48	57	51	11	5	1	0	0	202	47.9	41.0
9:00 AM	0	0	1	1	2	27	39	26	6	1	0	0	0	103	47.0	42.4
10:00 AM	0	1	0	0	9	30	38	27	3	0	0	0	0	108	46.0	40.8
11:00 AM	0	0	0	0	6	22	38	24	8	0	0	0	0	98	48.0	42.5
12:00 PM	0	0	2	0	8	32	69	41	11	4	0	0	0	167	47.1	42.5
1:00 PM	0	1	2	3	23	60	79	46	10	1	1	0	0	226	46.0	40.7
2:00 PM	0	0	2	2	21	87	101	67	15	1	0	0	0	296	47.0	41.3
3:00 PM	0	0	1	1	8	30	96	69	15	2	0	0	0	222	48.0	43.2
4:00 PM	0	0	0	0	7	44	88	79	17	3	0	0	0	238	48.0	43.3
5:00 PM	0	0	0	2	13	37	78	70	23	0	0	0	0	223	49.0	43.1
6:00 PM	0	0	1	1	11	26	55	64	8	1	0	0	0	167	48.0	42.9
7:00 PM	0	0	0	0	4	30	46	32	11	0	0	0	0	123	48.7	42.7
8:00 PM	0	0	0	1	0	16	22	20	7	2	1	0	0	69	48.8	43.8
9:00 PM	0	0	0	0	1	14	23	9	1	1	1	1	0	51	47.0	42.8
10:00 PM	0	0	0	0	1	4	7	13	3	0	0	0	0	28	48.0	44.4
11:00 PM	0	0	0	0	2	2	1	2	2	1	0	0	0	10	50.0	43.0
Total	3	5	10	20	186	626	1105	809	191	25	4	1	0	2985	48.0	42.2
Percent	0.10%	0.17%	0.34%	0.67%	6.23%	20.97%	37.02%	27.10%	6.40%	0.84%	0.13%	0.03%	0.00%			
AM Peak	8:00 AM	8:00 AM	8:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	7:00 AM	8:00 AM	8:00 AM			7:00 AM		
Volume	2	3	1	7	40	89	203	124	25	5	1	0	0	490		
PM Peak		1:00 PM	12:00 PM	1:00 PM	1:00 PM	2:00 PM	2:00 PM	4:00 PM	5:00 PM	12:00 PM	1:00 PM	9:00 PM		2:00 PM		
Volume	0	1	2	3	23	87	101	79	23	4	1	1	0	296		

15th Percentile:	37.0 MPH	Average Speed:	42.2 MPH	Posted Speed Limit:	40 MPH
50th Percentile:	42.0 MPH	10 MPH Pace:	38 to 47 MPH	Number of Vehicles > 40 MPH:	1926
85th Percentile:	48.0 MPH	Number in Pace:	2009	Percent of Vehicles > 40 MPH:	64.5%
95th Percentile:	51.0 MPH	Percent in Pace:	67.3%		

Ron Müller & Associates

Traffic Engineering and Consulting Services

File Name : 24021 Lakeville County at Freetown AM
Site Code : 24021
E-W Street:County St
Start Date : 4/10/2024
N-S Street:Freetown St
Page No : 1

Groups Printed- Cars - Trucks

	County Street From East				Freetown Street From South				County Street From West				
Start Time	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	11	66	0	77	10	16	0	26	83	63	0	146	249
07:15 AM	22	76	0	98	34	16	0	50	57	102	0	159	307
07:30 AM	23	63	0	86	55	20	0	75	69	50	0	119	280
07:45 AM	7	57	0	64	38	15	0	53	61	9	0	70	187
Total	63	262	0	325	137	67	0	204	270	224	0	494	1023
08:00 AM	7	63	0	70	14	8	0	22	68	20	0	88	180
08:15 AM	8	50	0	58	26	9	0	35	49	35	0	84	177
08:30 AM	6	50	0	56	27	15	0	42	52	11	1	64	162
08:45 AM	3	47	0	50	15	15	0	30	55	5	0	60	140
Total	24	210	0	234	82	47	0	129	224	71	1	296	659
Grand Total	87	472	0	559	219	114	0	333	494	295	1	790	1682
Apprch %	15.6	84.4	0		65.8	34.2	0		62.5	37.3	0.1		
Total %	5.2	28.1	0	33.2	13	6.8	0	19.8	29.4	17.5	0.1	47	
Cars	85	454	0	539	190	108	0	298	471	273	1	745	1582
% Cars	97.7	96.2	0	96.4	86.8	94.7	0	89.5	95.3	92.5	100	94.3	94.1
Trucks	2	18	0	20	29	6	0	35	23	22	0	45	100
% Trucks	2.3	3.8	0	3.6	13.2	5.3	0	10.5	4.7	7.5	0	5.7	5.9

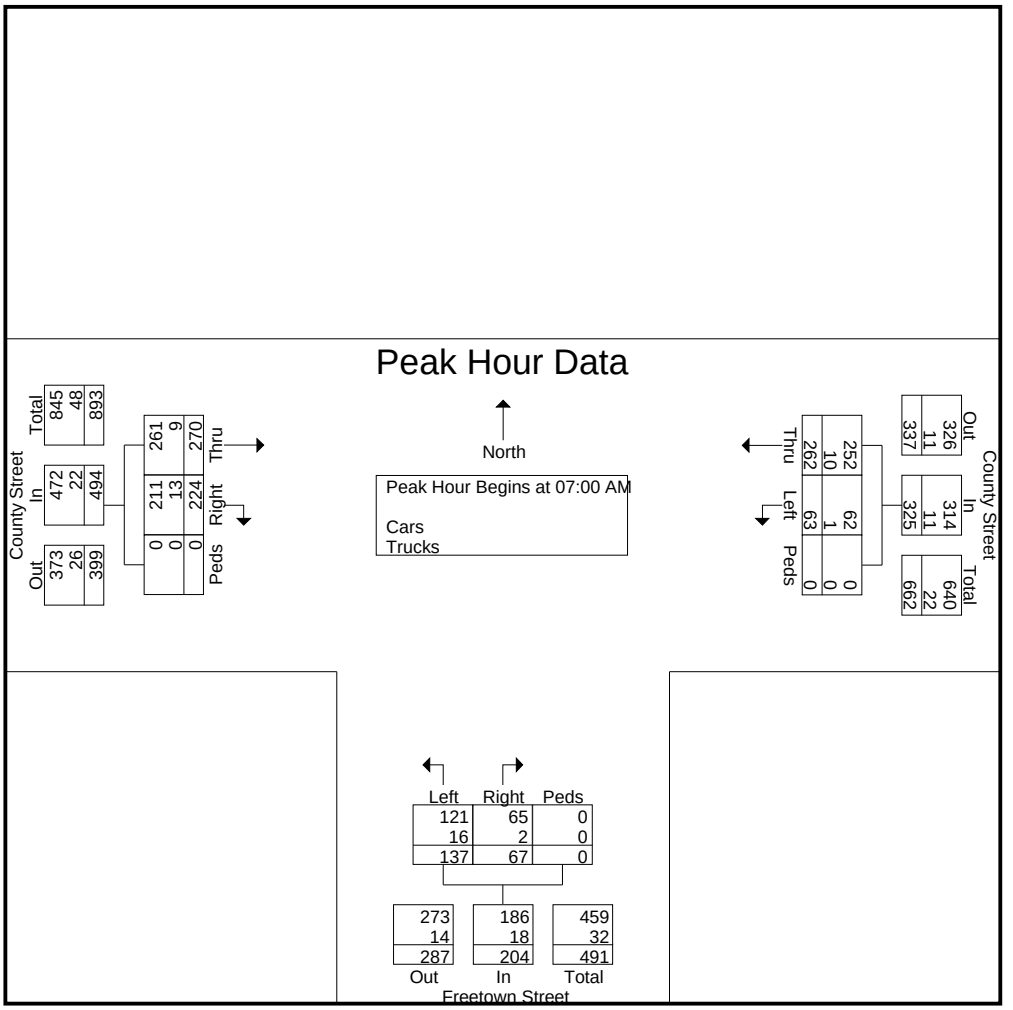
Ron Müller & Associates

Traffic Engineering and Consulting Services

File Name : 24021 Lakeville County at Freetown AM
Site Code : 24021
Start Date : 4/10/2024
Page No : 2

E-W Street:County St
N-S Street:Freetown St

	County Street From East				Freetown Street From South				County Street From West				
Start Time	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	11	66	0	77	10	16	0	26	**83**	63	0	146	249
07:15 AM	22	**76**	0	**98**	34	16	0	50	57	**102**	0	**159**	**307**
07:30 AM	**23**	63	0	86	**55**	**20**	0	**75**	69	50	0	119	280
07:45 AM	7	57	0	64	38	15	0	53	61	9	0	70	187
Total Volume	63	262	0	325	137	67	0	204	270	224	0	494	1023
% App. Total	19.4	80.6	0		67.2	32.8	0		54.7	45.3	0		
PHF	.685	.862	.000	.829	.623	.838	.000	.680	.813	.549	.000	.777	.833
Cars	62	252	0	314	121	65	0	186	261	211	0	472	972
% Cars	98.4	96.2	0	96.6	88.3	97.0	0	91.2	96.7	94.2	0	95.5	95.0
Trucks	1	10	0	11	16	2	0	18	9	13	0	22	51
% Trucks	1.6	3.8	0	3.4	11.7	3.0	0	8.8	3.3	5.8	0	4.5	5.0



Ron Müller & Associates

Traffic Engineering and Consulting Services

File Name : 24021 Lakeville County at Freetown PM
Site Code : 24021
E-W Street:County St
Start Date : 4/10/2024
N-S Street:Freetown St
Page No : 1

Groups Printed- Cars - Trucks

	County Street From East				Freetown Street From South				County Street From West				
Start Time	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	12	61	0	73	30	16	0	46	92	16	0	108	227
04:15 PM	10	66	2	78	25	5	0	30	107	21	0	128	236
04:30 PM	12	70	0	82	17	6	0	23	95	22	1	118	223
04:45 PM	15	64	0	79	45	15	0	60	99	22	0	121	260
Total	49	261	2	312	117	42	0	159	393	81	1	475	946
05:00 PM	17	71	0	88	21	11	0	32	92	21	0	113	233
05:15 PM	16	89	0	105	14	8	0	22	69	24	1	94	221
05:30 PM	9	76	0	85	4	12	0	16	87	25	0	112	213
05:45 PM	20	55	0	75	33	12	0	45	76	26	0	102	222
Total	62	291	0	353	72	43	0	115	324	96	1	421	889
Grand Total	111	552	2	665	189	85	0	274	717	177	2	896	1835
Apprch %	16.7	83	0.3		69	31	0		80	19.8	0.2		
Total %	6	30.1	0.1	36.2	10.3	4.6	0	14.9	39.1	9.6	0.1	48.8	
Cars	109	551	2	662	186	85	0	271	708	174	2	884	1817
% Cars	98.2	99.8	100	99.5	98.4	100	0	98.9	98.7	98.3	100	98.7	99
Trucks	2	1	0	3	3	0	0	3	9	3	0	12	18
% Trucks	1.8	0.2	0	0.5	1.6	0	0	1.1	1.3	1.7	0	1.3	1

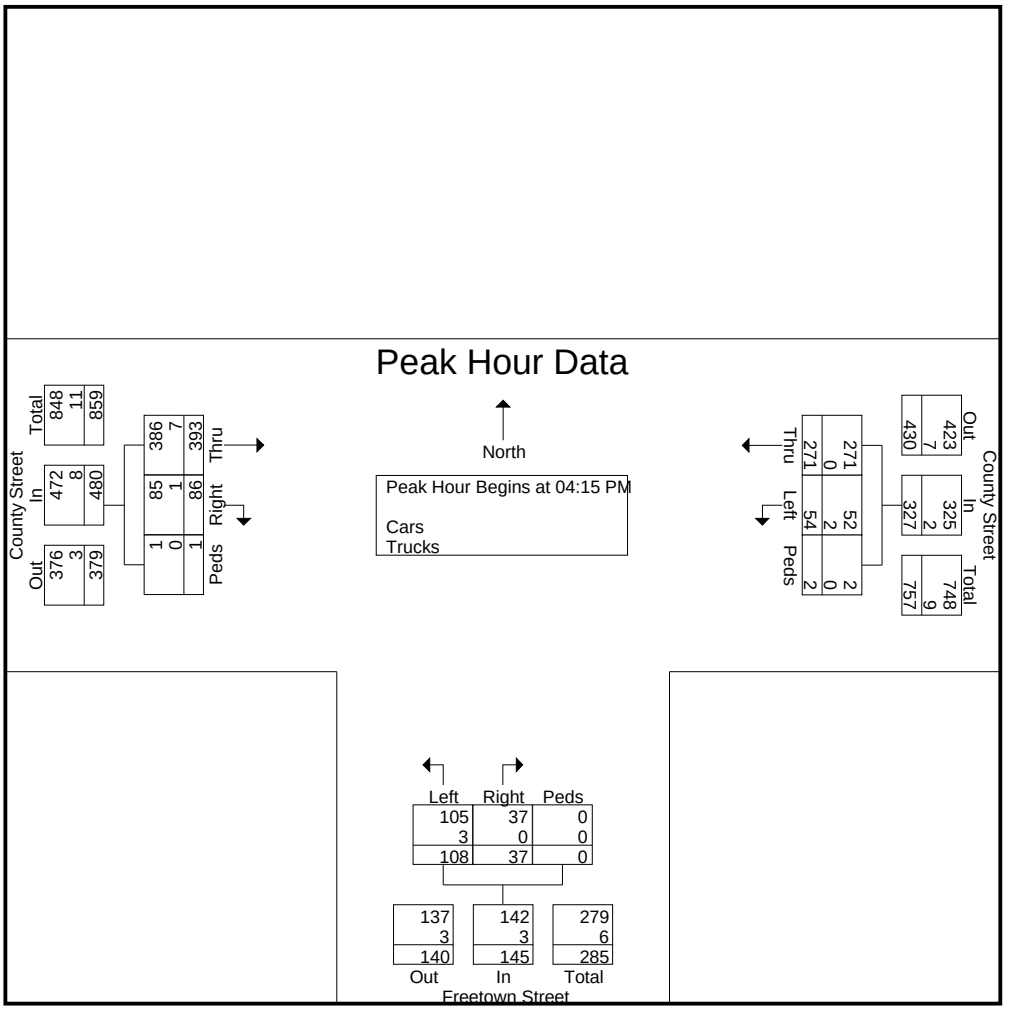
Ron Müller & Associates

Traffic Engineering and Consulting Services

File Name : 24021 Lakeville County at Freetown PM
Site Code : 24021
Start Date : 4/10/2024
Page No : 2

E-W Street:County St
N-S Street:Freetown St

	County Street From East				Freetown Street From South				County Street From West				
Start Time	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:15 PM													
04:15 PM	10	66	**2**	78	25	5	0	30	**107**	21	0	**128**	236
04:30 PM	12	70	0	82	17	6	0	23	95	**22**	**1**	118	223
04:45 PM	15	64	0	79	**45**	**15**	0	**60**	99	22	0	121	**260**
05:00 PM	**17**	**71**	0	**88**	21	11	0	32	92	21	0	113	233
Total Volume	54	271	2	327	108	37	0	145	393	86	1	480	952
% App. Total	16.5	82.9	0.6		74.5	25.5	0		81.9	17.9	0.2		
PHF	.794	.954	.250	.929	.600	.617	.000	.604	.918	.977	.250	.938	.915
Cars	52	271	2	325	105	37	0	142	386	85	1	472	939
% Cars	96.3	100	100	99.4	97.2	100	0	97.9	98.2	98.8	100	98.3	98.6
Trucks	2	0	0	2	3	0	0	3	7	1	0	8	13
% Trucks	3.7	0	0	0.6	2.8	0	0	2.1	1.8	1.2	0	1.7	1.4



Ron Müller & Associates

Traffic Engineering and Consulting Services

File Name : 24021 Lakeville County at NB ramps AM 1
Site Code : 24021
Start Date : 4/9/2024
Page No : 1

E-W Street:County St
N-S Street:RTE140 NB ramps

Groups Printed- Cars - Trucks

	Rte 140 Northbound On-Ramp From North					County Street From East					Rte 140 Northbound Off-Ramp From South					County Street From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	18	11	0	29	51	0	0	0	51	9	20	0	0	29	109
07:15 AM	0	0	0	0	0	0	20	10	0	30	65	0	1	0	66	10	21	0	0	31	127
07:30 AM	0	0	0	0	0	0	24	4	1	29	50	0	1	0	51	14	27	0	0	41	121
07:45 AM	0	0	0	0	0	0	18	10	0	28	46	0	0	0	46	10	22	0	0	32	106
Total	0	0	0	0	0	0	80	35	1	116	212	0	2	0	214	43	90	0	0	133	463
08:00 AM	0	0	0	0	0	0	27	7	0	34	45	0	1	0	46	10	13	0	0	23	103
08:15 AM	0	0	0	0	0	0	8	3	0	11	45	0	1	0	46	12	14	0	0	26	83
08:30 AM	0	0	0	0	0	0	16	5	0	21	37	0	2	0	39	13	16	0	0	29	89
08:45 AM	0	0	0	0	0	0	21	4	0	25	30	0	1	0	31	14	22	0	0	36	92
Total	0	0	0	0	0	0	72	19	0	91	157	0	5	0	162	49	65	0	0	114	367
Grand Total	0	0	0	0	0	0	152	54	1	207	369	0	7	0	376	92	155	0	0	247	830
Apprch %	0	0	0	0		0	73.4	26.1	0.5		98.1	0	1.9	0		37.2	62.8	0	0		
Total %	0	0	0	0	0	0	18.3	6.5	0.1	24.9	44.5	0	0.8	0	45.3	11.1	18.7	0	0	29.8	
Cars	0	0	0	0	0	0	145	49	1	195	364	0	5	0	369	89	145	0	0	234	798
% Cars	0	0	0	0	0	0	95.4	90.7	100	94.2	98.6	0	71.4	0	98.1	96.7	93.5	0	0	94.7	96.1
Trucks	0	0	0	0	0	0	7	5	0	12	5	0	2	0	7	3	10	0	0	13	32
% Trucks	0	0	0	0	0	0	4.6	9.3	0	5.8	1.4	0	28.6	0	1.9	3.3	6.5	0	0	5.3	3.9

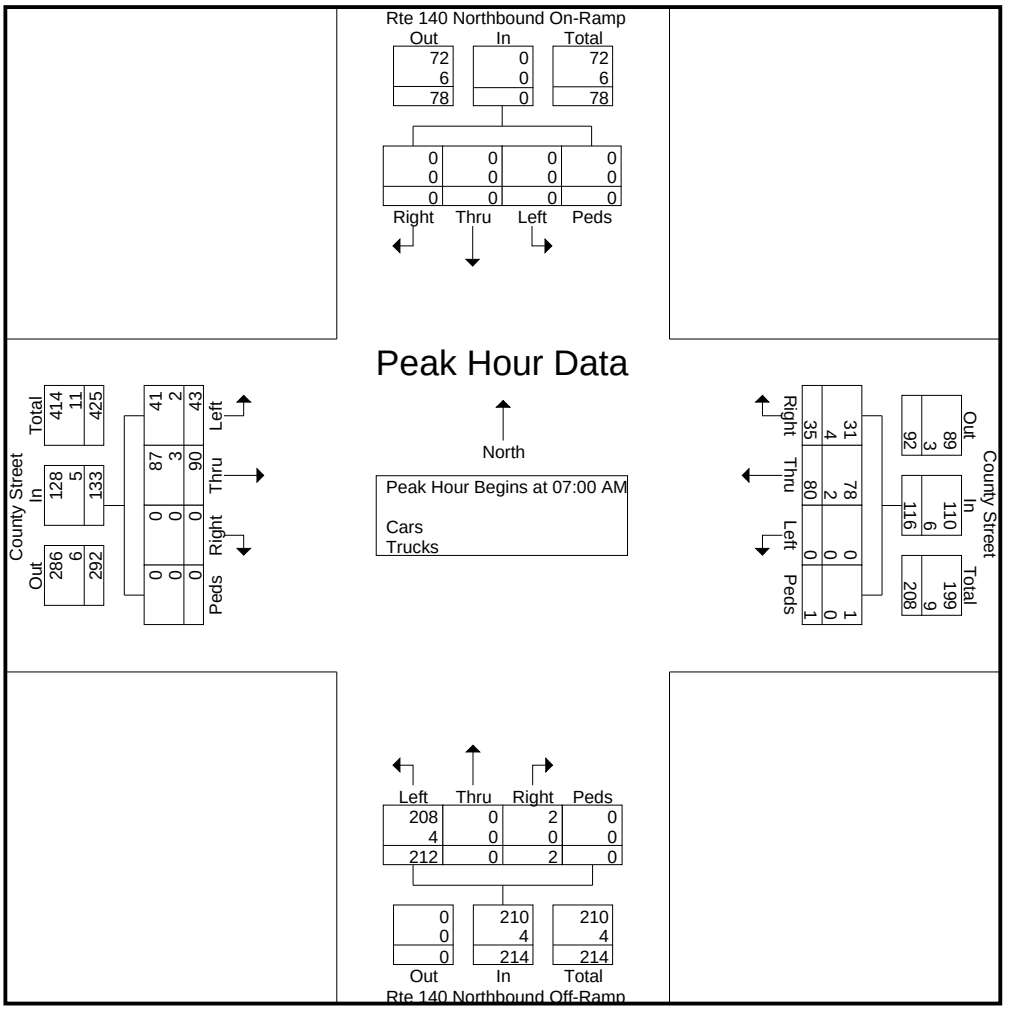
Ron Müller & Associates

Traffic Engineering and Consulting Services

File Name : 24021 Lakeville County at NB ramps AM 1
Site Code : 24021
Start Date : 4/9/2024
Page No : 2

E-W Street:County St
N-S Street:RTE140 NB ramps

	Rte 140 Northbound On-Ramp From North					County Street From East					Rte 140 Northbound Off-Ramp From South					County Street From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0	0	0	18	**11**	0	29	51	0	0	0	51	9	20	0	0	29	109
07:15 AM	0	0	0	0	0	0	20	10	0	**30**	**65**	0	**1**	0	**66**	10	21	0	0	31	**127**
07:30 AM	0	0	0	0	0	0	**24**	4	**1**	29	50	0	1	0	51	**14**	**27**	0	0	**41**	121
07:45 AM	0	0	0	0	0	0	18	10	0	28	46	0	0	0	46	10	22	0	0	32	106
Total Volume	0	0	0	0	0	0	80	35	1	116	212	0	2	0	214	43	90	0	0	133	463
% App. Total	0	0	0	0		0	69	30.2	0.9		99.1	0	0.9	0		32.3	67.7	0	0		
PHF	.000	.000	.000	.000	.000	.000	.833	.795	.250	.967	.815	.000	.500	.000	.811	.768	.833	.000	.000	.811	.911
Cars	0	0	0	0	0	0	78	31	1	110	208	0	2	0	210	41	87	0	0	128	448
% Cars	0	0	0	0	0	0	97.5	88.6	100	94.8	98.1	0	100	0	98.1	95.3	96.7	0	0	96.2	96.8
Trucks	0	0	0	0	0	0	2	4	0	6	4	0	0	0	4	2	3	0	0	5	15
% Trucks	0	0	0	0	0	0	2.5	11.4	0	5.2	1.9	0	0	0	1.9	4.7	3.3	0	0	3.8	3.2



Ron Müller & Associates

Traffic Engineering and Consulting Services

File Name : 24021 Lakeville County at NB ramps PM 1
Site Code : 24021
Start Date : 4/9/2024
Page No : 1

E-W Street:County St
N-S Street:RTE140 NB Ramps

Groups Printed- Cars - Trucks

	Rte 140 Northbound On-Ramp From North					County Street From East					Rte 140 Northbound Off-Ramp From South					County Street From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	27	3	0	30	53	0	2	0	55	3	45	0	0	48	133
04:15 PM	0	0	0	0	0	0	27	4	0	31	58	0	3	0	61	5	44	0	0	49	141
04:30 PM	0	0	0	0	0	0	23	3	0	26	46	0	2	0	48	7	34	0	0	41	115
04:45 PM	0	0	0	0	0	0	26	8	0	34	55	0	2	0	57	11	39	0	0	50	141
Total	0	0	0	0	0	0	103	18	0	121	212	0	9	0	221	26	162	0	0	188	530
05:00 PM	0	0	0	0	0	0	36	3	0	39	55	0	2	0	57	14	35	0	0	49	145
05:15 PM	0	0	0	0	0	0	47	7	0	54	63	0	3	0	66	12	33	0	0	45	165
05:30 PM	0	0	0	0	0	0	34	2	0	36	45	0	0	0	45	6	33	0	0	39	120
05:45 PM	0	0	0	0	0	0	24	5	0	29	49	0	0	0	49	8	38	0	0	46	124
Total	0	0	0	0	0	0	141	17	0	158	212	0	5	0	217	40	139	0	0	179	554
Grand Total	0	0	0	0	0	0	244	35	0	279	424	0	14	0	438	66	301	0	0	367	1084
Apprch %	0	0	0	0		0	87.5	12.5	0		96.8	0	3.2	0		18	82	0	0		
Total %	0	0	0	0	0	0	22.5	3.2	0	25.7	39.1	0	1.3	0	40.4	6.1	27.8	0	0	33.9	
Cars	0	0	0	0	0	0	243	33	0	276	423	0	14	0	437	66	300	0	0	366	1079
% Cars	0	0	0	0	0	0	99.6	94.3	0	98.9	99.8	0	100	0	99.8	100	99.7	0	0	99.7	99.5
Trucks	0	0	0	0	0	0	1	2	0	3	1	0	0	0	1	0	1	0	0	1	5
% Trucks	0	0	0	0	0	0	0.4	5.7	0	1.1	0.2	0	0	0	0.2	0	0.3	0	0	0.3	0.5

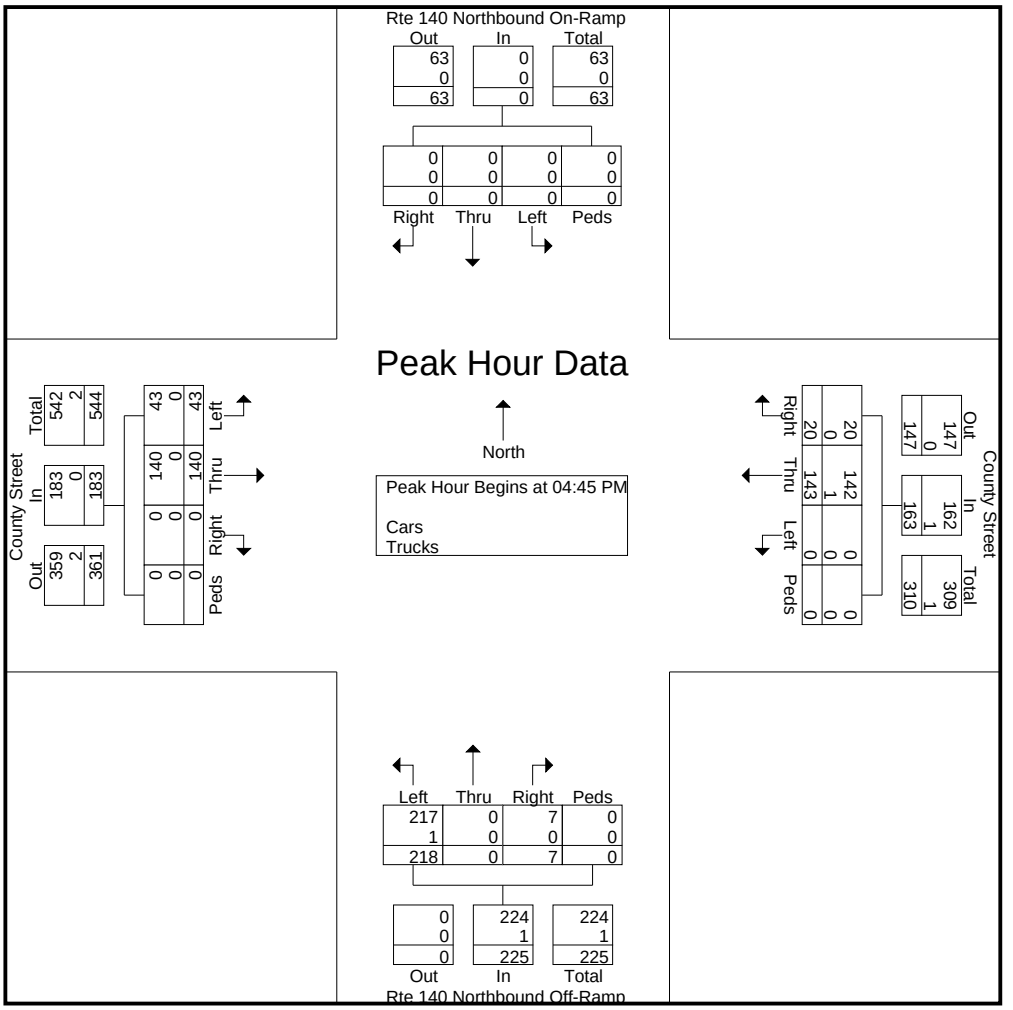
Ron Müller & Associates

Traffic Engineering and Consulting Services

File Name : 24021 Lakeville County at NB ramps PM 1
Site Code : 24021
Start Date : 4/9/2024
Page No : 2

E-W Street:County St
N-S Street:RTE140 NB Ramps

	Rte 140 Northbound On-Ramp From North					County Street From East					Rte 140 Northbound Off-Ramp From South					County Street From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	0	0	0	0	0	26	**8**	0	34	55	0	2	0	57	11	**39**	0	0	**50**	141
05:00 PM	0	0	0	0	0	0	36	3	0	39	55	0	2	0	57	**14**	35	0	0	49	145
05:15 PM	0	0	0	0	0	0	**47**	7	0	**54**	**63**	0	**3**	0	**66**	12	33	0	0	45	**165**
05:30 PM	0	0	0	0	0	0	34	2	0	36	45	0	0	0	45	6	33	0	0	39	120
Total Volume	0	0	0	0	0	0	143	20	0	163	218	0	7	0	225	43	140	0	0	183	571
% App. Total	0	0	0	0		0	87.7	12.3	0		96.9	0	3.1	0		23.5	76.5	0	0		
PHF	.000	.000	.000	.000	.000	.000	.761	.625	.000	.755	.865	.000	.583	.000	.852	.768	.897	.000	.000	.915	.865
Cars	0	0	0	0	0	0	142	20	0	162	217	0	7	0	224	43	140	0	0	183	569
% Cars	0	0	0	0	0	0	99.3	100	0	99.4	99.5	0	100	0	99.6	100	100	0	0	100	99.6
Trucks	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	2
% Trucks	0	0	0	0	0	0	0.7	0	0	0.6	0.5	0	0	0	0.4	0	0	0	0	0	0.4



Ron Müller & Associates

Traffic Engineering and Consulting Services

File Name : 24021 Lakeville County at SB ramps AM
Site Code : 24021
Start Date : 4/9/2024
Page No : 1

E-W Street:County St
N-S Street:RTE140 SB ramps

Groups Printed- Cars - Trucks

	Rte 140 Southbound Off-Ramp From North					County Street From East					Rte 140 Southbound On-Ramp From South					County Street From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	2	0	9	0	11	1	68	0	0	69	0	0	0	0	0	0	27	74	0	101	181
07:15 AM	6	0	18	0	24	3	82	0	0	85	0	0	0	0	0	0	25	50	0	75	184
07:30 AM	5	0	10	0	15	2	72	0	0	74	0	0	0	0	0	0	36	60	0	96	185
07:45 AM	5	0	4	0	9	1	63	0	0	64	0	0	0	0	0	0	27	51	0	78	151
Total	18	0	41	0	59	7	285	0	0	292	0	0	0	0	0	0	115	235	0	350	701
08:00 AM	3	0	6	0	9	3	69	0	0	72	0	0	0	0	0	0	20	58	0	78	159
08:15 AM	5	0	10	0	15	0	53	0	0	53	0	0	0	0	0	0	21	38	0	59	127
08:30 AM	1	0	6	0	7	4	49	0	0	53	0	0	0	0	0	1	28	42	0	71	131
08:45 AM	1	0	1	0	2	2	49	0	0	51	0	0	0	0	0	0	35	36	0	71	124
Total	10	0	23	0	33	9	220	0	0	229	0	0	0	0	0	1	104	174	0	279	541
Grand Total	28	0	64	0	92	16	505	0	0	521	0	0	0	0	0	1	219	409	0	629	1242
Apprch %	30.4	0	69.6	0		3.1	96.9	0	0		0	0	0	0		0.2	34.8	65	0		
Total %	2.3	0	5.2	0	7.4	1.3	40.7	0	0	41.9	0	0	0	0	0	0.1	17.6	32.9	0	50.6	
Cars	27	0	62	0	89	15	494	0	0	509	0	0	0	0	0	1	207	401	0	609	1207
% Cars	96.4	0	96.9	0	96.7	93.8	97.8	0	0	97.7	0	0	0	0	0	100	94.5	98	0	96.8	97.2
Trucks	1	0	2	0	3	1	11	0	0	12	0	0	0	0	0	0	12	8	0	20	35
% Trucks	3.6	0	3.1	0	3.3	6.2	2.2	0	0	2.3	0	0	0	0	0	0	5.5	2	0	3.2	2.8

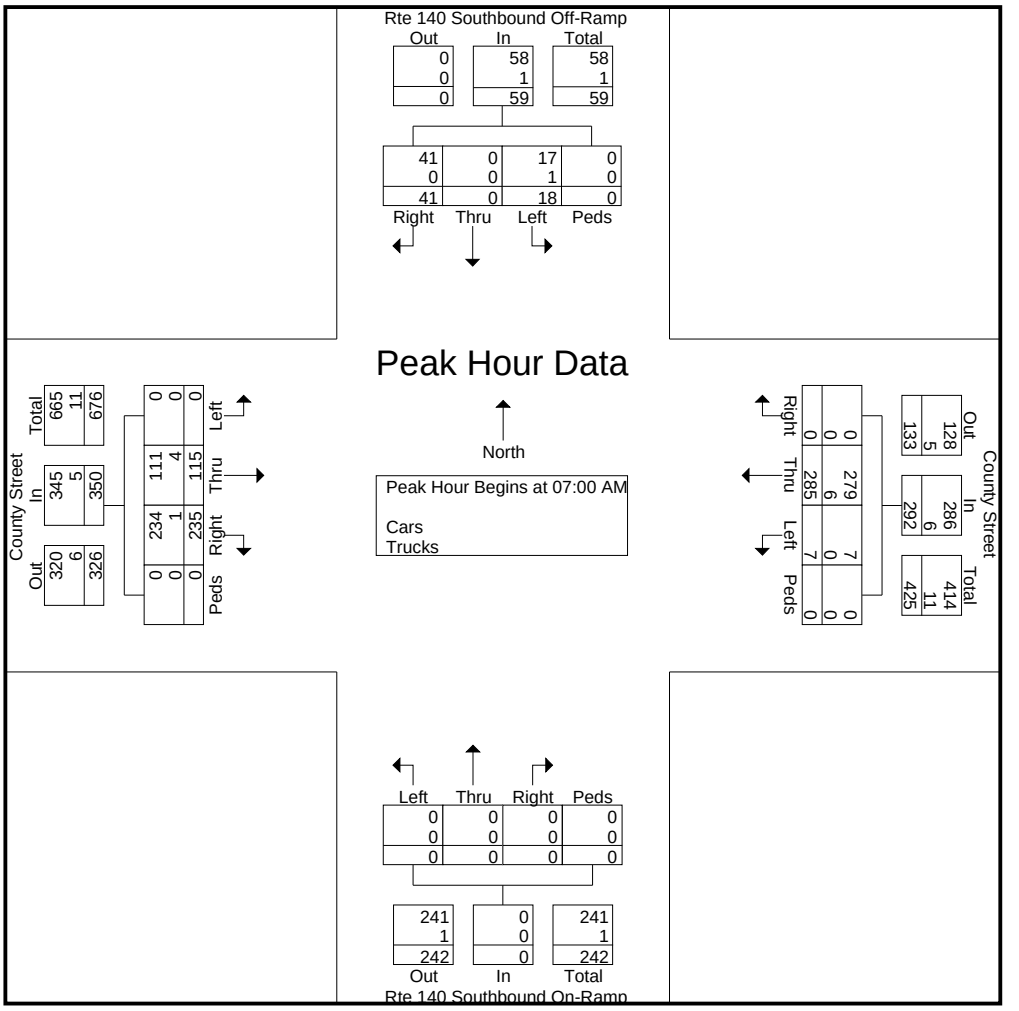
Ron Müller & Associates

Traffic Engineering and Consulting Services

File Name : 24021 Lakeville County at SB ramps AM
Site Code : 24021
Start Date : 4/9/2024
Page No : 2

E-W Street:County St
N-S Street:RTE140 SB ramps

	Rte 140 Southbound Off-Ramp From North					County Street From East					Rte 140 Southbound On-Ramp From South					County Street From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	2	0	9	0	11	1	68	0	0	69	0	0	0	0	0	0	27	**74**	0	**101**	181
07:15 AM	**6**	0	**18**	0	**24**	**3**	**82**	0	0	**85**	0	0	0	0	0	0	25	50	0	75	184
07:30 AM	5	0	10	0	15	2	72	0	0	74	0	0	0	0	0	0	**36**	60	0	96	**185**
07:45 AM	5	0	4	0	9	1	63	0	0	64	0	0	0	0	0	0	27	51	0	78	151
Total Volume	18	0	41	0	59	7	285	0	0	292	0	0	0	0	0	0	115	235	0	350	701
% App. Total	30.5	0	69.5	0		2.4	97.6	0	0		0	0	0	0		0	32.9	67.1	0		
PHF	.750	.000	.569	.000	.615	.583	.869	.000	.000	.859	.000	.000	.000	.000	.000	.000	.799	.794	.000	.866	.947
Cars	17	0	41	0	58	7	279	0	0	286	0	0	0	0	0	0	111	234	0	345	689
% Cars	94.4	0	100	0	98.3	100	97.9	0	0	97.9	0	0	0	0	0	0	96.5	99.6	0	98.6	98.3
Trucks	1	0	0	0	1	0	6	0	0	6	0	0	0	0	0	0	4	1	0	5	12
% Trucks	5.6	0	0	0	1.7	0	2.1	0	0	2.1	0	0	0	0	0	0	3.5	0.4	0	1.4	1.7



Ron Müller & Associates

Traffic Engineering and Consulting Services

File Name : 24021 Lakeville County at SB ramps PM
Site Code : 24021
Start Date : 4/9/2024
Page No : 1

E-W Street:County St
N-S Street:RTE140 SB ramps

Groups Printed- Cars - Trucks

	Rte 140 Southbound Off-Ramp From North					County Street From East					Rte 140 Southbound On-Ramp From South					County Street From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	11	0	12	0	23	1	69	0	0	70	0	0	0	0	0	0	37	65	0	102	195
04:15 PM	12	0	9	2	23	1	73	0	0	74	0	0	0	0	0	0	37	77	0	114	211
04:30 PM	8	1	12	0	21	2	61	0	0	63	0	0	0	1	1	0	33	73	0	106	191
04:45 PM	8	0	9	0	17	3	73	0	0	76	0	0	0	0	0	0	42	73	0	115	208
Total	39	1	42	2	84	7	276	0	0	283	0	0	0	1	1	0	149	288	0	437	805
05:00 PM	11	0	13	0	24	2	80	0	0	82	0	0	0	0	0	0	38	62	0	100	206
05:15 PM	13	0	16	1	30	1	97	0	0	98	0	0	0	0	0	0	32	47	0	79	207
05:30 PM	5	0	9	0	14	3	74	0	0	77	0	0	0	0	0	0	34	65	0	99	190
05:45 PM	12	1	12	0	25	3	61	0	0	64	0	0	0	0	0	0	34	55	0	89	178
Total	41	1	50	1	93	9	312	0	0	321	0	0	0	0	0	0	138	229	0	367	781
Grand Total	80	2	92	3	177	16	588	0	0	604	0	0	0	1	1	0	287	517	0	804	1586
Apprch %	45.2	1.1	52	1.7		2.6	97.4	0	0		0	0	0	100		0	35.7	64.3	0		
Total %	5	0.1	5.8	0.2	11.2	1	37.1	0	0	38.1	0	0	0	0.1	0.1	0	18.1	32.6	0	50.7	
Cars	80	2	91	3	176	16	586	0	0	602	0	0	0	1	1	0	286	512	0	798	1577
% Cars	100	100	98.9	100	99.4	100	99.7	0	0	99.7	0	0	0	100	100	0	99.7	99	0	99.3	99.4
Trucks	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	0	1	5	0	6	9
% Trucks	0	0	1.1	0	0.6	0	0.3	0	0	0.3	0	0	0	0	0	0	0.3	1	0	0.7	0.6

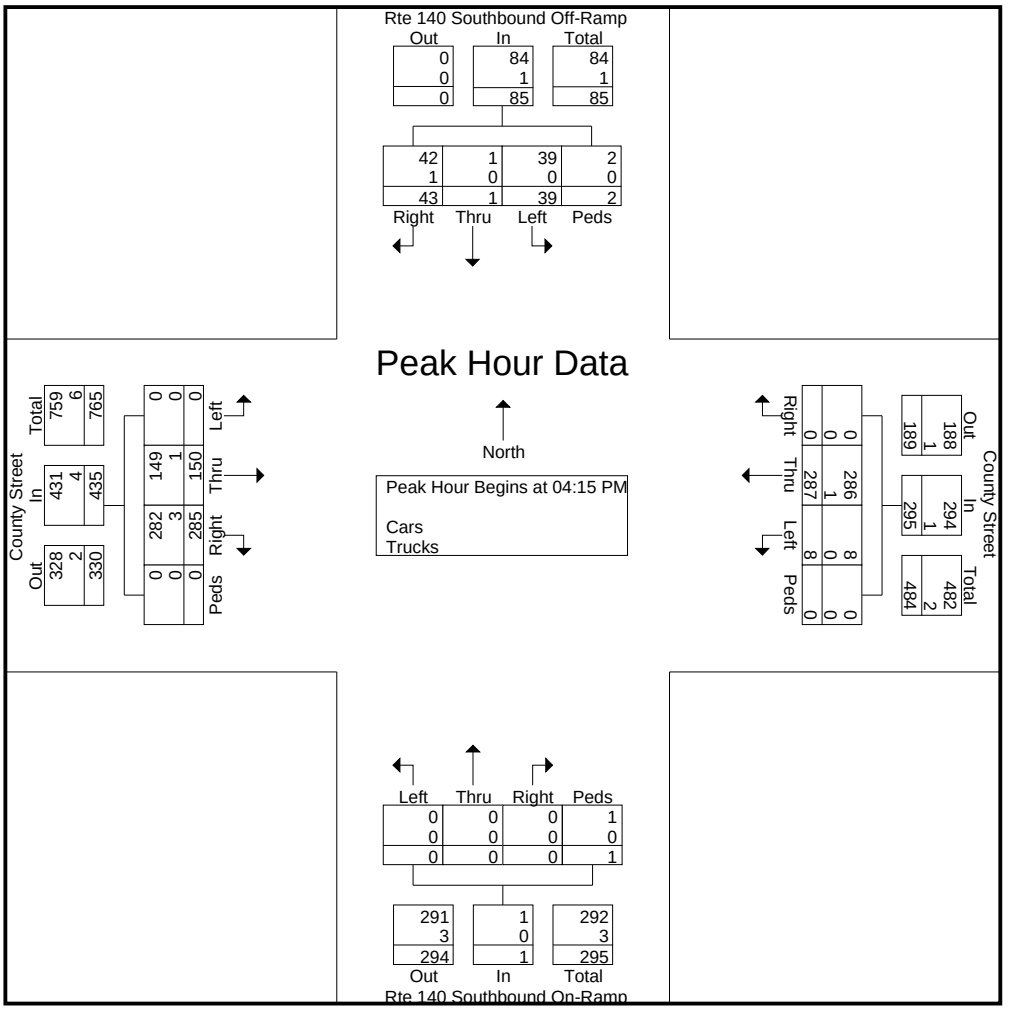
Ron Müller & Associates

Traffic Engineering and Consulting Services

File Name : 24021 Lakeville County at SB ramps PM
Site Code : 24021
Start Date : 4/9/2024
Page No : 2

E-W Street:County St
N-S Street:RTE140 SB ramps

	Rte 140 Southbound Off-Ramp From North					County Street From East					Rte 140 Southbound On-Ramp From South					County Street From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	**12**	0	9	**2**	23	1	73	0	0	74	0	0	0	0	0	0	37	**77**	0	114	**211**
04:30 PM	8	**1**	12	0	21	2	61	0	0	63	0	0	0	**1**	**1**	0	33	73	0	106	191
04:45 PM	8	0	9	0	17	**3**	73	0	0	76	0	0	0	0	0	0	**42**	73	0	**115**	208
05:00 PM	11	0	**13**	0	**24**	2	**80**	0	0	**82**	0	0	0	0	0	0	38	62	0	100	206
Total Volume	39	1	43	2	85	8	287	0	0	295	0	0	0	1	1	0	150	285	0	435	816
% App. Total	45.9	1.2	50.6	2.4		2.7	97.3	0	0		0	0	0	100		0	34.5	65.5	0		
PHF	.813	.250	.827	.250	.885	.667	.897	.000	.000	.899	.000	.000	.000	.250	.250	.000	.893	.925	.000	.946	.967
Cars	39	1	42	2	84	8	286	0	0	294	0	0	0	1	1	0	149	282	0	431	810
% Cars	100	100	97.7	100	98.8	100	99.7	0	0	99.7	0	0	0	100	100	0	99.3	98.9	0	99.1	99.3
Trucks	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	1	3	0	4	6
% Trucks	0	0	2.3	0	1.2	0	0.3	0	0	0.3	0	0	0	0	0	0	0.7	1.1	0	0.9	0.7



Ron Müller & Associates

Traffic Engineering and Consulting Services

File Name : 24021 Lakeville Howland-Freetown-drwy AM
Site Code : 24021
E-W Street:Howland Rd — Start Date : 4/11/2024
N-S Street:Freetown St/SchoolDrwy — Page No : 1

Groups Printed- Cars - Trucks

	Freetown Street From North					Howland Road From East					Freetown-Lakeville Regional School Driveway From South					Howland Road From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	5	20	29	0	54	22	25	11	0	58	2	2	5	0	9	3	20	5	0	28	149
07:15 AM	1	42	34	0	77	46	60	5	0	111	3	7	8	0	18	23	36	8	0	67	273
07:30 AM	2	41	22	0	65	28	22	7	0	57	19	16	17	0	52	40	41	7	0	88	262
07:45 AM	3	8	7	0	18	8	8	3	0	19	0	4	3	0	7	9	11	4	0	24	68
Total	11	111	92	0	214	104	115	26	0	245	24	29	33	0	86	75	108	24	0	207	752
08:00 AM	4	11	3	0	18	15	7	7	0	29	0	2	1	0	3	11	8	5	0	24	74
08:15 AM	4	32	4	0	40	29	6	6	0	41	8	24	24	0	56	11	15	16	0	42	179
08:30 AM	6	7	5	0	18	7	10	5	0	22	8	14	13	0	35	9	13	3	0	25	100
08:45 AM	5	5	2	0	12	8	6	4	0	18	0	0	1	0	1	6	7	0	0	13	44
Total	19	55	14	0	88	59	29	22	0	110	16	40	39	0	95	37	43	24	0	104	397
Grand Total	30	166	106	0	302	163	144	48	0	355	40	69	72	0	181	112	151	48	0	311	1149
Apprch %	9.9	55	35.1	0		45.9	40.6	13.5	0		22.1	38.1	39.8	0		36	48.6	15.4	0		
Total %	2.6	14.4	9.2	0	26.3	14.2	12.5	4.2	0	30.9	3.5	6	6.3	0	15.8	9.7	13.1	4.2	0	27.1	
Cars	30	159	93	0	282	155	135	46	0	336	21	59	61	0	141	102	143	44	0	289	1048
% Cars	100	95.8	87.7	0	93.4	95.1	93.8	95.8	0	94.6	52.5	85.5	84.7	0	77.9	91.1	94.7	91.7	0	92.9	91.2
Trucks	0	7	13	0	20	8	9	2	0	19	19	10	11	0	40	10	8	4	0	22	101
% Trucks	0	4.2	12.3	0	6.6	4.9	6.2	4.2	0	5.4	47.5	14.5	15.3	0	22.1	8.9	5.3	8.3	0	7.1	8.8

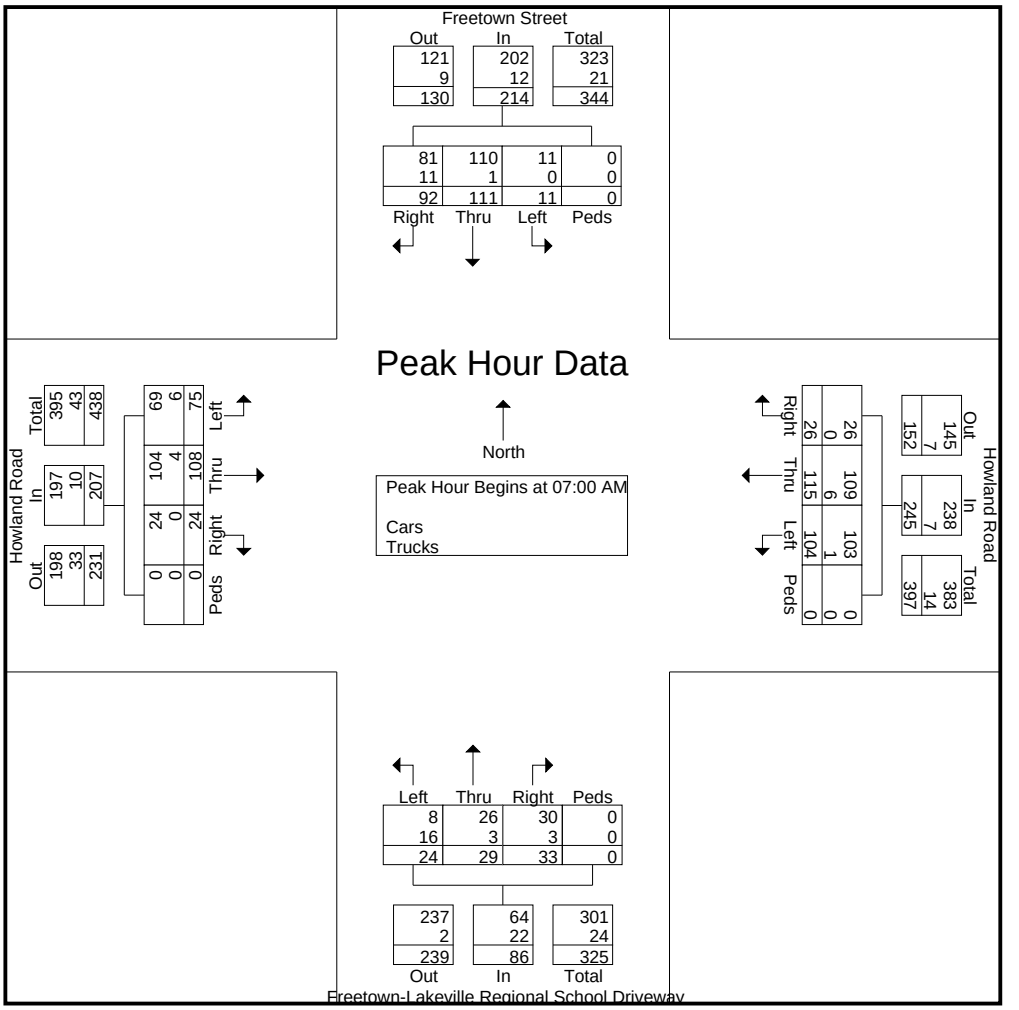
Ron Müller & Associates

Traffic Engineering and Consulting Services

File Name : 24021 Lakeville Howland-Freetown-drwy AM
Site Code : 24021
Start Date : 4/11/2024
Page No : 2

E-W Street:Howland Rd
N-S Street:Freetown St/SchoolDrwy

	Freetown Street From North					Howland Road From East					Freetown-Lakeville Regional School Driveway From South					Howland Road From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	**5**	20	29	0	54	22	25	**11**	0	58	2	2	5	0	9	3	20	5	0	28	149
07:15 AM	1	**42**	**34**	0	**77**	**46**	**60**	5	0	**111**	3	7	8	0	18	23	36	**8**	0	67	**273**
07:30 AM	2	41	22	0	65	28	22	7	0	57	**19**	**16**	**17**	0	**52**	**40**	**41**	7	0	**88**	262
07:45 AM	3	8	7	0	18	8	8	3	0	19	0	4	3	0	7	9	11	4	0	24	68
Total Volume	11	111	92	0	214	104	115	26	0	245	24	29	33	0	86	75	108	24	0	207	752
% App. Total	5.1	51.9	43	0		42.4	46.9	10.6	0		27.9	33.7	38.4	0		36.2	52.2	11.6	0		
PHF	.550	.661	.676	.000	.695	.565	.479	.591	.000	.552	.316	.453	.485	.000	.413	.469	.659	.750	.000	.588	.689
Cars	11	110	81	0	202	103	109	26	0	238	8	26	30	0	64	69	104	24	0	197	701
% Cars	100	99.1	88.0	0	94.4	99.0	94.8	100	0	97.1	33.3	89.7	90.9	0	74.4	92.0	96.3	100	0	95.2	93.2
Trucks	0	1	11	0	12	1	6	0	0	7	16	3	3	0	22	6	4	0	0	10	51
% Trucks	0	0.9	12.0	0	5.6	1.0	5.2	0	0	2.9	66.7	10.3	9.1	0	25.6	8.0	3.7	0	0	4.8	6.8



Ron Müller & Associates

Traffic Engineering and Consulting Services

File Name : 24021 Lakeville Howland-Freetown-drwy PM
Site Code : 24021
E-W Street:Howland Rd — Start Date : 4/10/2024
N-S Street:Freetown/School Drwy — Page No : 1

Groups Printed- Cars - Trucks

	Freetown Street From North					Howland Road From East					Freetown-Lakeville Regional School Driveway From South					Howland Road From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	10	11	9	0	30	7	19	3	0	29	2	8	10	0	20	6	16	4	0	26	105
04:15 PM	11	5	4	0	20	6	11	7	0	24	4	6	10	2	22	8	17	7	0	32	98
04:30 PM	12	4	9	0	25	2	14	4	0	20	1	4	2	0	7	4	14	4	0	22	74
04:45 PM	12	7	13	0	32	3	17	13	0	33	5	3	7	0	15	3	16	4	0	23	103
Total	45	27	35	0	107	18	61	27	0	106	12	21	29	2	64	21	63	19	0	103	380
05:00 PM	8	14	9	0	31	7	10	10	0	27	6	9	5	0	20	7	10	6	0	23	101
05:15 PM	8	5	5	0	18	1	23	8	0	32	7	7	5	0	19	3	15	3	0	21	90
05:30 PM	12	4	9	0	25	5	9	8	0	22	4	10	5	0	19	9	13	3	0	25	91
05:45 PM	11	2	9	0	22	2	15	4	0	21	2	7	10	1	20	11	27	2	0	40	103
Total	39	25	32	0	96	15	57	30	0	102	19	33	25	1	78	30	65	14	0	109	385
Grand Total	84	52	67	0	203	33	118	57	0	208	31	54	54	3	142	51	128	33	0	212	765
Apprch %	41.4	25.6	33	0		15.9	56.7	27.4	0		21.8	38	38	2.1		24.1	60.4	15.6	0		
Total %	11	6.8	8.8	0	26.5	4.3	15.4	7.5	0	27.2	4.1	7.1	7.1	0.4	18.6	6.7	16.7	4.3	0	27.7	
Cars	83	52	67	0	202	33	115	57	0	205	30	54	54	3	141	50	123	33	0	206	754
% Cars	98.8	100	100	0	99.5	100	97.5	100	0	98.6	96.8	100	100	100	99.3	98	96.1	100	0	97.2	98.6
Trucks	1	0	0	0	1	0	3	0	0	3	1	0	0	0	1	1	5	0	0	6	11
% Trucks	1.2	0	0	0	0.5	0	2.5	0	0	1.4	3.2	0	0	0	0.7	2	3.9	0	0	2.8	1.4

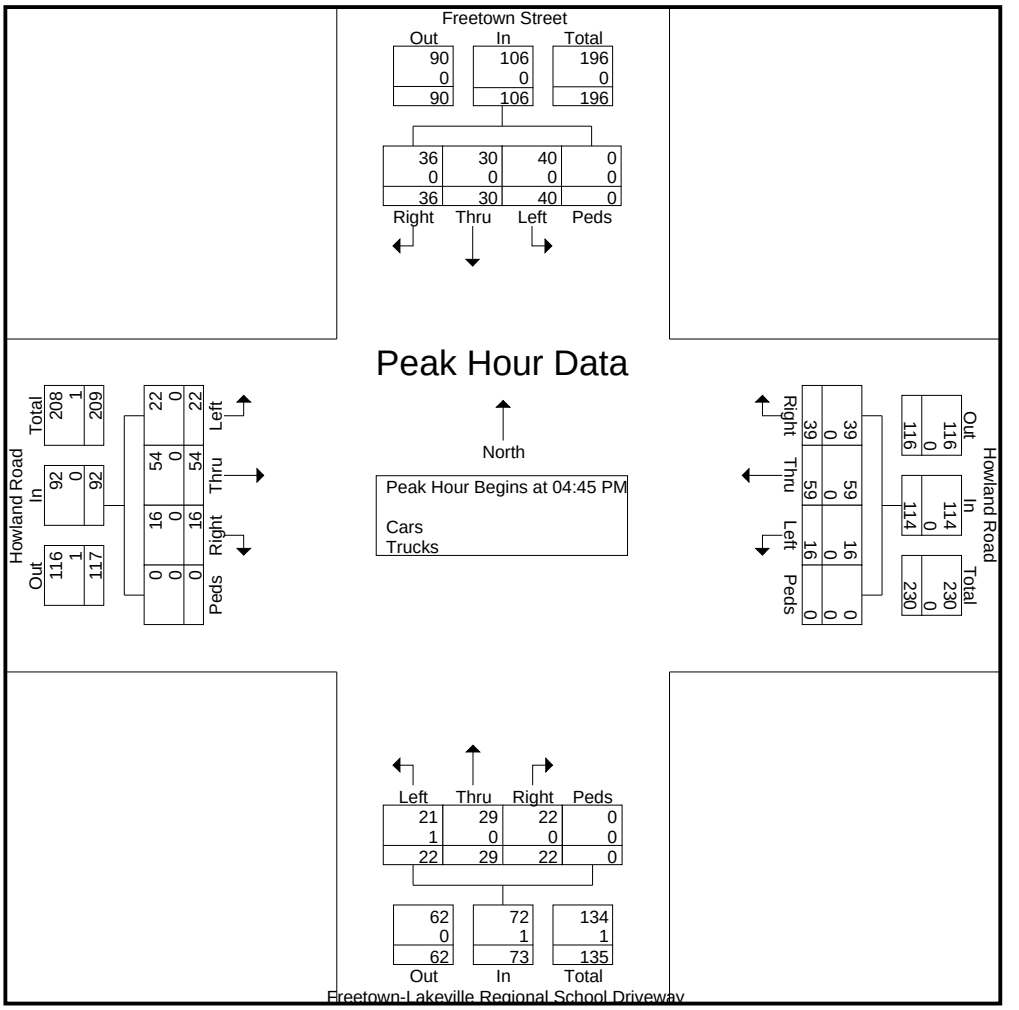
Ron Müller & Associates

Traffic Engineering and Consulting Services

File Name : 24021 Lakeville Howland-Freetown-drwy PM
Site Code : 24021
Start Date : 4/10/2024
Page No : 2

E-W Street:Howland Rd
N-S Street:Freetown/School Drwy

	Freetown Street From North					Howland Road From East					Freetown-Lakeville Regional School Driveway From South					Howland Road From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	**12**	7	**13**	0	**32**	3	17	**13**	0	**33**	5	3	**7**	0	15	3	**16**	4	0	23	**103**
05:00 PM	8	**14**	9	0	31	**7**	10	10	0	27	6	9	5	0	**20**	7	10	**6**	0	23	101
05:15 PM	8	5	5	0	18	1	**23**	8	0	32	**7**	7	5	0	19	3	15	3	0	21	90
05:30 PM	12	4	9	0	25	5	9	8	0	22	4	**10**	5	0	19	**9**	13	3	0	**25**	91
Total Volume	40	30	36	0	106	16	59	39	0	114	22	29	22	0	73	22	54	16	0	92	385
% App. Total	37.7	28.3	34	0		14	51.8	34.2	0		30.1	39.7	30.1	0		23.9	58.7	17.4	0		
PHF	.833	.536	.692	.000	.828	.571	.641	.750	.000	.864	.786	.725	.786	.000	.913	.611	.844	.667	.000	.920	.934
Cars	40	30	36	0	106	16	59	39	0	114	21	29	22	0	72	22	54	16	0	92	384
% Cars	100	100	100	0	100	100	100	100	0	100	95.5	100	100	0	98.6	100	100	100	0	100	99.7
Trucks	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
% Trucks	0	0	0	0	0	0	0	0	0	0	4.5	0	0	0	1.4	0	0	0	0	0	0.3



Seasonal/Historical/Background Growth Adjustment Data

Massachusetts Highway Department
Statewide Traffic Data Collection
2019 Weekday Seasonal Factors

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

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

U = Urban
R = Rural

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

Recreational - East Group - Cape Cod (all towns) including the town of Plymouth south of Route 3A (stations 7014,7079,7080,7090,7091,7092,7093,7094,7095,7096,7097,7108 and 7178), Martha's Vineyard and Nantucket.

Recreational - West Group - Continuous Stations 2 and 189 including stations 1066,1067,1083,1084,1085,1086,1087,1088,1089,1090,1091,1092,1093,1094,1095,1096,1097,1098,1099,1100,1101,1102,1103,1104,1105,1106,1107,1108,1113, 1114,1116,2196,2197 and 2198.

Massachusetts Highway Department

AADT Summary By Year for 1/1/2010 - 12/31/2019
Criteria: Location ID = 7111, From 1/1/1900 To 12/31/2049 12:00:00 AM

Community	Station	Station Information		2010	2011	2012	2013	2014	2015	2016	2017	2018
Middleborough	7111	**Location**	INTERSTATE 495	42857	44997	43491	43321	43766	44864	47945	47428	46800
		Description		1	1	1	1	1	1	1	1	1
		FC	1	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual	Actual

Crash Rate, Trip Generation, and Distribution Worksheets

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Lakeville COUNT DATE : April. 2024

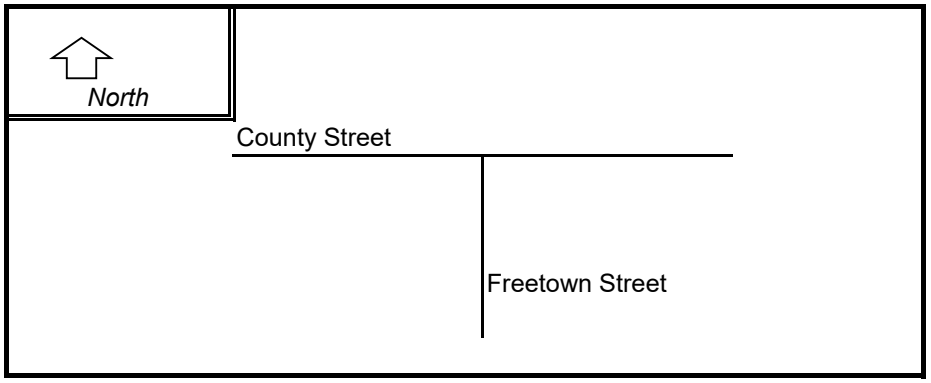
DISTRICT : 5 UNSIGNALIZED : x SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : County Street

MINOR STREET(S) : Freetown 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 (PM) :		325	145	479		**949**

" K " FACTOR : **0.101** APPROACH VOLUME : **9,396**

TOTAL # OF CRASHES : 8 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **1.60**

CRASH RATE CALCULATION : **0.47** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : MassDOT Crash Portal 2015-2019

Project Title & Date: Residential Development 05/07/24

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Lakeville COUNT DATE : April. 2024

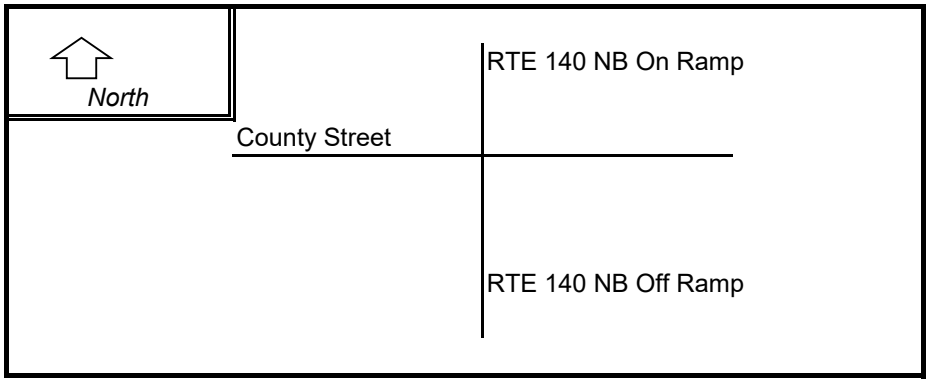
DISTRICT : 5 UNSIGNALIZED : x SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : County Street

MINOR STREET(S) : RTE 140 NB Ramps

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 (PM) :		163	225	189		**577**

" K " FACTOR : **0.090** APPROACH VOLUME : **6,411**

TOTAL # OF CRASHES : 9 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **1.80**

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

Comments : MassDOT Crash Portal 2015-2019

Project Title & Date: Residential Development 05/07/24

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Lakeville COUNT DATE : April. 2024

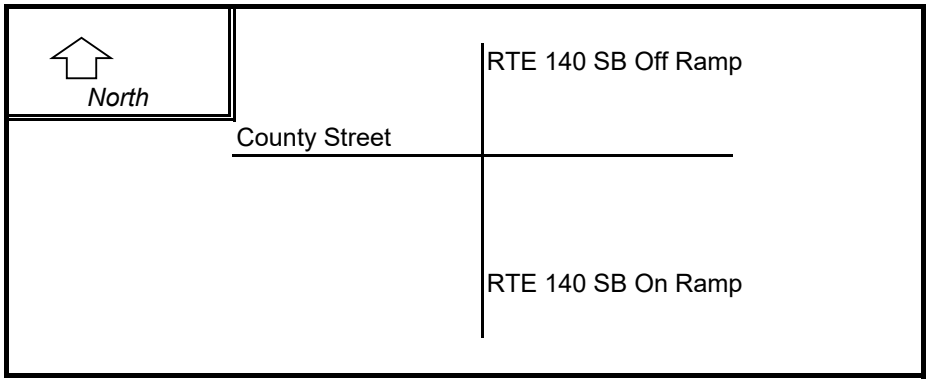
DISTRICT : 5 UNSIGNALIZED : x SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : County Street

MINOR STREET(S) : RTE 140 SB Ramps

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 (PM) :	82	361	0	435		**878**

" K " FACTOR : **0.090** APPROACH VOLUME : **9,756**

TOTAL # OF CRASHES : 3 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **0.60**

CRASH RATE CALCULATION : **0.17** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : MassDOT Crash Portal 2015-2019

Project Title & Date: Residential Development 05/07/24

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Lakeville COUNT DATE : April. 2024

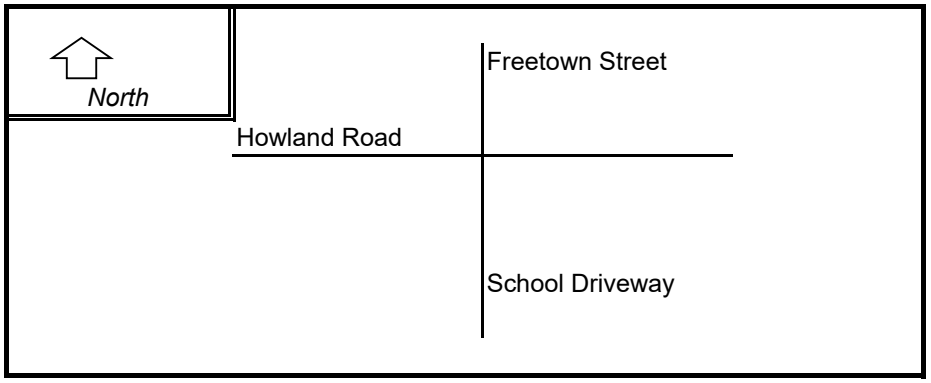
DISTRICT : 5 UNSIGNALIZED : x SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Howland Road

MINOR STREET(S) : Freetown Street, School Driveway

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 (PM) :	106	114	73	92		**385**

" K " FACTOR : **0.101** APPROACH VOLUME : **3,812**

TOTAL # OF CRASHES : 4 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR (**A**) : **0.80**

CRASH RATE CALCULATION : **0.57** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : MassDOT Crash Portal 2015-2019

Project Title & Date: Residential Development 05/07/24

Home	Destination	# of Commuters	% of Trips
Lakeville town	Lakeville town	903	18.7%
Lakeville town	Middleborough town	591	12.3%
Lakeville town	New Bedford city	409	8.5%
Lakeville town	Taunton city	378	7.8%
Lakeville town	Brockton city	344	7.1%
Lakeville town	Boston city	326	6.8%
Lakeville town	Bridgewater town	220	4.6%
Lakeville town	Plymouth town	177	3.7%
Lakeville town	Raynham town	153	3.2%
Lakeville town	Dartmouth town	137	2.8%
Lakeville town	Fall River city	122	2.5%
Lakeville town	Canton town	108	2.2%
Lakeville town	Freetown town	95	2.0%
Lakeville town	Quincy city	88	1.8%
Lakeville town	Berkley town	86	1.8%
Lakeville town	Easton town	83	1.7%
Lakeville town	East Bridgewater town	81	1.7%
Lakeville town	Pembroke town	79	1.6%
Lakeville town	Hingham town	78	1.6%
Lakeville town	Carver town	69	1.4%
Lakeville town	Falmouth town	64	1.3%
Lakeville town	Braintree Town city	61	1.3%
Lakeville town	Westwood town	58	1.2%
Lakeville town	Norton town	56	1.2%
Lakeville town	Wareham town	54	1.1%

Total Trips: 4,820

Outbound Trips

140 NB	140 SB	County Street East	County Street West	Howland Street East	Howland Street West
30%		10%	50%		10%
50%			50%		
	80%			20%	
75%					25%
50%			50%		
100%					
50%			50%		
25%			75%		
40%			60%		
	100%				
	25%				75%
50%			50%		
				100%	
100%					
30%			30%		40%
50%			50%		
50%			50%		
40%			60%		
50%			50%		
	25%	25%	25%	25%	
100%					
100%					
60%			40%		
	25%	25%	25%	25%	

Outbound Trips

140 NB	140 SB	County Street East	County Street West	Howland Street East	Howland Street West
5.6%	0.0%	1.87%	9.37%	0.0%	1.87%
6.1%	0.0%	0.00%	6.13%	0.0%	0.00%
0.0%	6.8%	0.00%	0.00%	1.7%	0.00%
5.9%	0.0%	0.00%	0.00%	0.0%	1.96%
3.6%	0.0%	0.00%	3.57%	0.0%	0.00%
6.8%	0.0%	0.00%	0.00%	0.0%	0.00%
2.3%	0.0%	0.00%	2.28%	0.0%	0.00%
0.9%	0.0%	0.00%	2.75%	0.0%	0.00%
1.3%	0.0%	0.00%	1.90%	0.0%	0.00%
0.0%	2.8%	0.00%	0.00%	0.0%	0.00%
0.0%	0.6%	0.00%	0.00%	0.0%	1.90%
1.1%	0.0%	0.00%	1.12%	0.0%	0.00%
0.0%	0.0%	0.00%	0.00%	2.0%	0.00%
1.8%	0.0%	0.00%	0.00%	0.0%	0.00%
0.5%	0.0%	0.00%	0.54%	0.0%	0.71%
0.9%	0.0%	0.00%	0.86%	0.0%	0.00%
0.8%	0.0%	0.00%	0.84%	0.0%	0.00%
0.7%	0.0%	0.00%	0.98%	0.0%	0.00%
0.8%	0.0%	0.00%	0.81%	0.0%	0.00%
0.0%	0.0%	0.72%	0.72%	0.0%	0.00%
0.0%	0.3%	0.33%	0.33%	0.3%	0.00%
1.3%	0.0%	0.00%	0.00%	0.0%	0.00%
1.2%	0.0%	0.00%	0.00%	0.0%	0.00%
0.7%	0.0%	0.00%	0.46%	0.0%	0.00%
0.0%	0.3%	0.28%	0.28%	0.3%	0.00%
Total:	42.2%	10.9%	3.2%	32.9%	4.3%	6.4%
SAY:	**45%**	**10%**	**5%**	**30%**	**5%**	**5%**

Inbound Trips

140 NB	140 SB	County Street East	County Street West	Howland Street East	Howland Street West
	30%	10%	50%		10%
	50%		50%		
80%				20%	
	75%				25%
	50%		50%		
	100%				
	50%		50%		
	25%		75%		
	40%		60%		
100%					
25%					75%
	50%		50%		
				100%	
	100%				
	30%		30%		40%
	50%		50%		
	50%		50%		
	40%		60%		
	50%		50%		
		50%	50%		
25%		25%	25%	25%	
	100%				
	100%				
	60%		40%		
25%		25%	25%	25%	

Inbound Trips

140 NB	140 SB	County Street East	County Street West	Howland Street East	Howland Street West
0.0%	5.6%	1.87%	9.37%	0.0%	1.87%
0.0%	6.1%	0.00%	6.13%	0.0%	0.00%
6.8%	0.0%	0.00%	0.00%	1.7%	0.00%
0.0%	5.9%	0.00%	0.00%	0.0%	1.96%
0.0%	3.6%	0.00%	3.57%	0.0%	0.00%
0.0%	6.8%	0.00%	0.00%	0.0%	0.00%
0.0%	2.3%	0.00%	2.28%	0.0%	0.00%
0.0%	0.9%	0.00%	2.75%	0.0%	0.00%
0.0%	1.3%	0.00%	1.90%	0.0%	0.00%
2.8%	0.0%	0.00%	0.00%	0.0%	0.00%
0.6%	0.0%	0.00%	0.00%	0.0%	1.90%
0.0%	1.1%	0.00%	1.12%	0.0%	0.00%
0.0%	0.0%	0.00%	0.00%	2.0%	0.00%
0.0%	1.8%	0.00%	0.00%	0.0%	0.00%
0.0%	0.5%	0.00%	0.54%	0.0%	0.71%
0.0%	0.9%	0.00%	0.86%	0.0%	0.00%
0.0%	0.8%	0.00%	0.84%	0.0%	0.00%
0.0%	0.7%	0.00%	0.98%	0.0%	0.00%
0.0%	0.8%	0.00%	0.81%	0.0%	0.00%
0.0%	0.0%	0.72%	0.72%	0.0%	0.00%
0.3%	0.0%	0.33%	0.33%	0.3%	0.00%
0.0%	1.3%	0.00%	0.00%	0.0%	0.00%
0.0%	1.2%	0.00%	0.00%	0.0%	0.00%
0.0%	0.7%	0.00%	0.46%	0.0%	0.00%
0.3%	0.0%	0.28%	0.28%	0.3%	0.00%
Total:	10.9%	42.2%	3.2%	32.9%	4.3%	6.4%
SAY:	**10%**	**45%**	**5%**	**30%**	**5%**	**5%**

Institute of Transportation Engineers (ITE); 11th Edition
Land Use Code (LUC) 210 - Single-Family Detached Housing

Average Vehicle Trips Ends vs: Dwelling Units
Independent Variable (X): 44

AVERAGE WEEKDAY DAILY

Ln T = 0.92 Ln (X) + 2.68
Ln T = 6.16
T = 473.43
T = 470 vehicle trips
with 50% (235 vpd) entering and 50% (235 vpd) exiting.

WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC

Ln T = 0.91 Ln (X) + 0.12
Ln T = 3.56
T = 35.16
T = 35 vehicle trips
with 26% (9 vph) entering and 74% (26 vph) exiting.

WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC

Ln T = 0.94 Ln (X) + 0.27
Ln T = 3.83
T = 46.06
T = 46 vehicle trips
with 63% (29 vpd) entering and 37% (17 vpd) exiting.

SATURDAY DAILY

Ln T = 0.97 Ln (X) + 2.40
Ln T = 6.07
T = 432.68
T = 430 vehicle trips
with 50% (215 vpd) entering and 50% (215 vpd) exiting.

SATURDAY MIDDAY PEAK HOUR OF GENERATOR

T = 0.86 (X) + 9.72
T = 47.56
T = 48 vehicle trips
with 54% (26 vph) entering and 46% (22 vph) exiting.

Institute of Transportation Engineers (ITE); 11th Edition
Land Use Code (LUC) 215 - Single-Family Attached Housing
General Urban/Suburban

Average Vehicle Trips Ends vs: Dwelling Units
Independent Variable (X): 156 Units

AVERAGE WEEKDAY DAILY (8-585 Units)
T = 7.62 * (X) - 50.48
T = 1138.24
T = 1,140 vehicle trips
with 50% (570 vpd) entering and 50% (570 vpd) exiting.

Weekday Daily Average Rate
T = 7.20 * (X)
T = 1123.20
T = 1120 vehicle trips
with 560 vpd entering and 560 vpd exiting.

WEEKDAY AM PEAK HOUR OF ADJACENT STREET TRAFFIC (8-700 Units)
T = 0.52 * (X) - 5.70
T = 75.42
T = 75 vehicle trips
with 25% (19 vpd) entering and 69% (56 vpd) exiting.

Weekday AM Peak Hour Average Rate
T = 0.48 * (X)
T = 74.88
T = 75 vehicle trips
with 19 vph entering and 56 vph exiting.

WEEKDAY PM PEAK HOUR OF ADJACENT STREET TRAFFIC (8-700 Units)
T = 0.60 * (X) - 3.93
T = 89.67
T = 90 vehicle trips
with 59% (53 vpd) entering and 43% (37 vpd) exiting.

Weekday PM Peak Hour Average Rate
T = 0.57 * (X)
T = 88.92
T = 89 vehicle trips
with 53 vph entering and 36 vph exiting.

SATURDAY DAILY (Caution: Only 5 studies at 48-147 Units)
T = 13.21 * (X) - 444.34
T = 1616.42
T = 1,616 vehicle trips
with 50% (808 vpd) entering and 50% (808 vpd) exiting.

Saturday Daily Average Rate
T = 8.76 * (X)
T = 1366.56
T = 1,367 vehicle trips
with 684 vpd entering and 683 vpd exiting.

SATURDAY PEAK HOUR OF GENERATOR (Caution: Only 7 studies at 48-462 Units)
Ln T = 0.82 * Ln(X) + 0.43
Ln T = 4.57
T = 96.63
T = 97 vehicle trips
with 48% (47 vph) entering and 52% (50 vph) exiting.

Saturday Peak Hour Average Rate
T = 0.57 * (X)
T = 88.92
T = 89 vehicle trips
with 43 vph entering and 46 vph exiting.

Capacity Analysis Methodology and Worksheets

Intersection	
Int Delay, s/veh	20.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	270	224	63	262	137	67
Future Vol, veh/h	270	224	63	262	137	67
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	83	83	68	68
Heavy Vehicles, %	3	6	2	4	12	3
Mvmt Flow	346	287	76	316	201	99

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	633	0	958	490
Stage 1	-	-	-	-	490	-
Stage 2	-	-	-	-	468	-
Critical Hdwy	-	-	4.12	-	6.52	6.23
Critical Hdwy Stg 1	-	-	-	-	5.52	-
Critical Hdwy Stg 2	-	-	-	-	5.52	-
Follow-up Hdwy	-	-	2.218	-	3.608	3.327
Pot Cap-1 Maneuver	-	-	950	-	274	576
Stage 1	-	-	-	-	596	-
Stage 2	-	-	-	-	610	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	950	-	247	576
Mov Cap-2 Maneuver	-	-	-	-	247	-
Stage 1	-	-	-	-	596	-
Stage 2	-	-	-	-	551	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.8	86.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	304	-	-	950	-
HCM Lane V/C Ratio	0.987	-	-	0.08	-
HCM Control Delay (s)	86.5	-	-	9.1	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	10.4	-	-	0.3	-

Intersection	
Int Delay, s/veh	2

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	18	0	41	0	115	235	7	285	0
Future Vol, veh/h	0	0	0	18	0	41	0	115	235	7	285	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	Free	-	-	None
Storage Length	-	-	-	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	62	62	62	87	87	87	86	86	86
Heavy Vehicles, %	0	0	0	6	0	0	0	4	1	0	2	0
Mvmt Flow	0	0	0	29	0	66	0	132	270	8	331	0

Major/Minor	Minor2		Major1				Major2		
Conflicting Flow All	479	-	331	-	0	-	132	0	0
Stage 1	347	-	-	-	-	-	-	-	-
Stage 2	132	-	-	-	-	-	-	-	-
Critical Hdwy	6.46	-	6.2	-	-	-	4.1	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	-	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	538	0	715	0	-	0	1466	-	0
Stage 1	707	0	-	0	-	0	-	-	0
Stage 2	884	0	-	0	-	0	-	-	0
Platoon blocked, %					-			-	
Mov Cap-1 Maneuver	534	0	715	-	-	-	1466	-	-
Mov Cap-2 Maneuver	534	0	-	-	-	-	-	-	-
Stage 1	707	0	-	-	-	-	-	-	-
Stage 2	878	0	-	-	-	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s	11	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NWL	NWT	SET	SBLn1	SBLn2
Capacity (veh/h)	1466	-	-	534	715
HCM Lane V/C Ratio	0.006	-	-	0.054	0.092
HCM Control Delay (s)	7.5	0	-	12.1	10.5
HCM Lane LOS	A	A	-	B	B
HCM 95th %tile Q(veh)	0	-	-	0.2	0.3

Intersection	
Int Delay, s/veh	8

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	212	0	2	0	0	0	43	90	0	0	80	35
Future Vol, veh/h	212	0	2	0	0	0	43	90	0	0	80	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	92	92	92	81	81	81	97	97	97
Heavy Vehicles, %	2	0	0	0	0	0	5	3	0	0	3	11
Mvmt Flow	262	0	2	0	0	0	53	111	0	0	82	36

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	299	-	111	82	0	-	-	-	0
Stage 1	217	-	-	-	-	-	-	-	-
Stage 2	82	-	-	-	-	-	-	-	-
Critical Hdwy	6.42	-	6.2	4.15	-	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	-	3.3	2.245	-	-	-	-	-
Pot Cap-1 Maneuver	692	0	948	1497	-	0	0	-	0
Stage 1	819	0	-	-	-	0	0	-	0
Stage 2	941	0	-	-	-	0	0	-	0
Platoon blocked, %					-			-	
Mov Cap-1 Maneuver	666	0	948	1497	-	-	-	-	-
Mov Cap-2 Maneuver	666	0	-	-	-	-	-	-	-
Stage 1	788	0	-	-	-	-	-	-	-
Stage 2	941	0	-	-	-	-	-	-	-

Approach	NB	SE	NW
HCM Control Delay, s	13.9	2.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	NWT	SEL	SET
Capacity (veh/h)	666	948	-	1497	-
HCM Lane V/C Ratio	0.393	0.003	-	0.035	-
HCM Control Delay (s)	13.9	8.8	-	7.5	0
HCM Lane LOS	B	A	-	A	A
HCM 95th %tile Q(veh)	1.9	0	-	0.1	-

Intersection	
Int Delay, s/veh	8.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	393	86	54	271	108	37
Future Vol, veh/h	393	86	54	271	108	37
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	93	93	60	60
Heavy Vehicles, %	2	1	4	0	3	0
Mvmt Flow	418	91	58	291	180	62

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	509	0	871	464
Stage 1	-	-	-	-	464	-
Stage 2	-	-	-	-	407	-
Critical Hdwy	-	-	4.14	-	6.43	6.2
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.236	-	3.527	3.3
Pot Cap-1 Maneuver	-	-	1046	-	320	602
Stage 1	-	-	-	-	631	-
Stage 2	-	-	-	-	670	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1046	-	299	602
Mov Cap-2 Maneuver	-	-	-	-	299	-
Stage 1	-	-	-	-	631	-
Stage 2	-	-	-	-	626	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	37
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	343	-	-	1046	-
HCM Lane V/C Ratio	0.705	-	-	0.056	-
HCM Control Delay (s)	37	-	-	8.6	0
HCM Lane LOS	E	-	-	A	A
HCM 95th %tile Q(veh)	5.1	-	-	0.2	-

Intersection	
Int Delay, s/veh	1.8

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	39	0	43	0	150	285	10	351	0
Future Vol, veh/h	0	0	0	39	0	43	0	150	285	10	351	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	Free	-	-	None
Storage Length	-	-	-	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	89	89	89	95	95	95	90	90	90
Heavy Vehicles, %	0	0	0	0	0	2	0	1	1	0	1	0
Mvmt Flow	0	0	0	44	0	48	0	158	300	11	390	0

Major/Minor	Minor2		Major1				Major2		
Conflicting Flow All	570	-	390	-	0	-	158	0	0
Stage 1	412	-	-	-	-	-	-	-	-
Stage 2	158	-	-	-	-	-	-	-	-
Critical Hdwy	6.4	-	6.22	-	-	-	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	-	3.318	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	486	0	658	0	-	0	1434	-	0
Stage 1	673	0	-	0	-	0	-	-	0
Stage 2	875	0	-	0	-	0	-	-	0
Platoon blocked, %					-			-	
Mov Cap-1 Maneuver	481	0	658	-	-	-	1434	-	-
Mov Cap-2 Maneuver	481	0	-	-	-	-	-	-	-
Stage 1	673	0	-	-	-	-	-	-	-
Stage 2	866	0	-	-	-	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s	12	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NWL	NWT	SET	SBLn1	SBLn2
Capacity (veh/h)	1434	-	-	481	658
HCM Lane V/C Ratio	0.008	-	-	0.091	0.073
HCM Control Delay (s)	7.5	0	-	13.2	10.9
HCM Lane LOS	A	A	-	B	B
HCM 95th %tile Q(veh)	0	-	-	0.3	0.2

Intersection	
Int Delay, s/veh	7.3

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	218	0	7	0	0	0	44	145	0	0	143	20
Future Vol, veh/h	218	0	7	0	0	0	44	145	0	0	143	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	92	92	92	92	92	92	76	76	76
Heavy Vehicles, %	1	0	0	0	0	0	0	0	0	0	1	0
Mvmt Flow	256	0	8	0	0	0	48	158	0	0	188	26

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	442	-	158	188	0	-	-	-	0
Stage 1	254	-	-	-	-	-	-	-	-
Stage 2	188	-	-	-	-	-	-	-	-
Critical Hdwy	6.41	-	6.2	4.1	-	-	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	-	3.3	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	575	0	893	1398	-	0	0	-	0
Stage 1	791	0	-	-	-	0	0	-	0
Stage 2	846	0	-	-	-	0	0	-	0
Platoon blocked, %					-			-	
Mov Cap-1 Maneuver	553	0	893	1398	-	-	-	-	-
Mov Cap-2 Maneuver	553	0	-	-	-	-	-	-	-
Stage 1	761	0	-	-	-	-	-	-	-
Stage 2	846	0	-	-	-	-	-	-	-

Approach	NB	SE	NW
HCM Control Delay, s	16.8	1.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	NWT	SEL	SET
Capacity (veh/h)	553	893	-	1398	-
HCM Lane V/C Ratio	0.464	0.009	-	0.034	-
HCM Control Delay (s)	17	9.1	-	7.7	0
HCM Lane LOS	C	A	-	A	A
HCM 95th %tile Q(veh)	2.4	0	-	0.1	-

Intersection	
Intersection Delay, s/veh	30.2
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	75	108	24	104	115	26	24	29	33	11	111	92
Future Vol, veh/h	75	108	24	104	115	26	24	29	33	11	111	92
Peak Hour Factor	0.59	0.59	0.59	0.55	0.55	0.55	0.41	0.41	0.41	0.70	0.70	0.70
Heavy Vehicles, %	8	4	0	1	5	0	67	10	9	0	1	12
Mvmt Flow	127	183	41	189	209	47	59	71	80	16	159	131
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	28.1	41.6	21.2	22.3
HCM LOS	D	E	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	28%	36%	42%	5%
Vol Thru, %	34%	52%	47%	52%
Vol Right, %	38%	12%	11%	43%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	86	207	245	214
LT Vol	24	75	104	11
Through Vol	29	108	115	111
RT Vol	33	24	26	92
Lane Flow Rate	210	351	445	306
Geometry Grp	1	1	1	1
Degree of Util (X)	0.519	0.729	0.871	0.631
Departure Headway (Hd)	8.907	7.485	7.169	7.433
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	405	484	508	489
Service Time	6.946	5.507	5.169	5.452
HCM Lane V/C Ratio	0.519	0.725	0.876	0.626
HCM Control Delay	21.2	28.1	41.6	22.3
HCM Lane LOS	C	D	E	C
HCM 95th-tile Q	2.9	5.9	9.4	4.3

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	54	16	16	59	39	22	29	22	40	30	36
Future Vol, veh/h	22	54	16	16	59	39	22	29	22	40	30	36
Peak Hour Factor	0.92	0.92	0.92	0.86	0.86	0.86	0.91	0.91	0.91	0.83	0.83	0.83
Heavy Vehicles, %	0	0	0	0	0	0	4	0	0	0	0	0
Mvmt Flow	24	59	17	19	69	45	24	32	24	48	36	43
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.1	8.2	8	8.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	30%	24%	14%	38%
Vol Thru, %	40%	59%	52%	28%
Vol Right, %	30%	17%	34%	34%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	73	92	114	106
LT Vol	22	22	16	40
Through Vol	29	54	59	30
RT Vol	22	16	39	36
Lane Flow Rate	80	100	133	128
Geometry Grp	1	1	1	1
Degree of Util (X)	0.101	0.124	0.159	0.156
Departure Headway (Hd)	4.515	4.463	4.31	4.387
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	794	803	832	819
Service Time	2.54	2.489	2.334	2.41
HCM Lane V/C Ratio	0.101	0.125	0.16	0.156
HCM Control Delay	8	8.1	8.2	8.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.4	0.6	0.6

Intersection	
Int Delay, s/veh	34.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	289	240	68	281	147	72
Future Vol, veh/h	289	240	68	281	147	72
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	83	83	68	68
Heavy Vehicles, %	3	6	2	4	12	3
Mvmt Flow	371	308	82	339	216	106

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	679	0	1028	525
Stage 1	-	-	-	-	525	-
Stage 2	-	-	-	-	503	-
Critical Hdwy	-	-	4.12	-	6.52	6.23
Critical Hdwy Stg 1	-	-	-	-	5.52	-
Critical Hdwy Stg 2	-	-	-	-	5.52	-
Follow-up Hdwy	-	-	2.218	-	3.608	3.327
Pot Cap-1 Maneuver	-	-	913	-	248	551
Stage 1	-	-	-	-	574	-
Stage 2	-	-	-	-	587	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	913	-	220	551
Mov Cap-2 Maneuver	-	-	-	-	220	-
Stage 1	-	-	-	-	574	-
Stage 2	-	-	-	-	522	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.8	149.8
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	274	-	-	913	-
HCM Lane V/C Ratio	1.175	-	-	0.09	-
HCM Control Delay (s)	149.8	-	-	9.3	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	14.4	-	-	0.3	-

Intersection	
Int Delay, s/veh	2

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	19	0	44	0	123	252	8	305	0
Future Vol, veh/h	0	0	0	19	0	44	0	123	252	8	305	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	Free	-	-	None
Storage Length	-	-	-	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	62	62	62	87	87	87	86	86	86
Heavy Vehicles, %	0	0	0	6	0	0	0	4	1	0	2	0
Mvmt Flow	0	0	0	31	0	71	0	141	290	9	355	0

Major/Minor	Minor2		Major1				Major2		
Conflicting Flow All	514	-	355	-	0	-	141	0	0
Stage 1	373	-	-	-	-	-	-	-	-
Stage 2	141	-	-	-	-	-	-	-	-
Critical Hdwy	6.46	-	6.2	-	-	-	4.1	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	-	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	514	0	693	0	-	0	1455	-	0
Stage 1	688	0	-	0	-	0	-	-	0
Stage 2	876	0	-	0	-	0	-	-	0
Platoon blocked, %					-			-	
Mov Cap-1 Maneuver	510	0	693	-	-	-	1455	-	-
Mov Cap-2 Maneuver	510	0	-	-	-	-	-	-	-
Stage 1	688	0	-	-	-	-	-	-	-
Stage 2	869	0	-	-	-	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s	11.3	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NWL	NWT	SET	SBLn1	SBLn2
Capacity (veh/h)	1455	-	-	510	693
HCM Lane V/C Ratio	0.006	-	-	0.06	0.102
HCM Control Delay (s)	7.5	0	-	12.5	10.8
HCM Lane LOS	A	A	-	B	B
HCM 95th %tile Q(veh)	0	-	-	0.2	0.3

Intersection	
Int Delay, s/veh	8.4

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	227	0	2	0	0	0	46	96	0	0	86	38
Future Vol, veh/h	227	0	2	0	0	0	46	96	0	0	86	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	92	92	92	81	81	81	97	97	97
Heavy Vehicles, %	2	0	0	0	0	0	5	3	0	0	3	11
Mvmt Flow	280	0	2	0	0	0	57	119	0	0	89	39

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	322	-	119	89	0	-	-	-	0
Stage 1	233	-	-	-	-	-	-	-	-
Stage 2	89	-	-	-	-	-	-	-	-
Critical Hdwy	6.42	-	6.2	4.15	-	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	-	3.3	2.245	-	-	-	-	-
Pot Cap-1 Maneuver	672	0	938	1488	-	0	0	-	0
Stage 1	806	0	-	-	-	0	0	-	0
Stage 2	934	0	-	-	-	0	0	-	0
Platoon blocked, %					-			-	
Mov Cap-1 Maneuver	644	0	938	1488	-	-	-	-	-
Mov Cap-2 Maneuver	644	0	-	-	-	-	-	-	-
Stage 1	773	0	-	-	-	-	-	-	-
Stage 2	934	0	-	-	-	-	-	-	-

Approach	NB	SE	NW
HCM Control Delay, s	14.7	2.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	NWT	SEL	SET
Capacity (veh/h)	644	938	-	1488	-
HCM Lane V/C Ratio	0.435	0.003	-	0.038	-
HCM Control Delay (s)	14.8	8.8	-	7.5	0
HCM Lane LOS	B	A	-	A	A
HCM 95th %tile Q(veh)	2.2	0	-	0.1	-

Intersection	
Int Delay, s/veh	12.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	421	92	58	291	116	40
Future Vol, veh/h	421	92	58	291	116	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	93	93	60	60
Heavy Vehicles, %	2	1	4	0	3	0
Mvmt Flow	448	98	62	313	193	67

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	546	0	934	497
Stage 1	-	-	-	-	497	-
Stage 2	-	-	-	-	437	-
Critical Hdwy	-	-	4.14	-	6.43	6.2
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.236	-	3.527	3.3
Pot Cap-1 Maneuver	-	-	1013	-	294	577
Stage 1	-	-	-	-	609	-
Stage 2	-	-	-	-	649	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1013	-	272	577
Mov Cap-2 Maneuver	-	-	-	-	272	-
Stage 1	-	-	-	-	609	-
Stage 2	-	-	-	-	601	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	53.2
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	315	-	-	1013	-
HCM Lane V/C Ratio	0.825	-	-	0.062	-
HCM Control Delay (s)	53.2	-	-	8.8	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	7	-	-	0.2	-

Intersection	
Int Delay, s/veh	1.9

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	42	0	46	0	161	306	11	376	0
Future Vol, veh/h	0	0	0	42	0	46	0	161	306	11	376	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	Free	-	-	None
Storage Length	-	-	-	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	89	89	89	95	95	95	90	90	90
Heavy Vehicles, %	0	0	0	0	0	2	0	1	1	0	1	0
Mvmt Flow	0	0	0	47	0	52	0	169	322	12	418	0

Major/Minor	Minor2		Major1				Major2		
Conflicting Flow All	611	-	418	-	0	-	169	0	0
Stage 1	442	-	-	-	-	-	-	-	-
Stage 2	169	-	-	-	-	-	-	-	-
Critical Hdwy	6.4	-	6.22	-	-	-	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	-	3.318	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	460	0	635	0	-	0	1421	-	0
Stage 1	652	0	-	0	-	0	-	-	0
Stage 2	866	0	-	0	-	0	-	-	0
Platoon blocked, %					-			-	
Mov Cap-1 Maneuver	455	0	635	-	-	-	1421	-	-
Mov Cap-2 Maneuver	455	0	-	-	-	-	-	-	-
Stage 1	652	0	-	-	-	-	-	-	-
Stage 2	856	0	-	-	-	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s	12.4	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NWL	NWT	SET	SBLn1	SBLn2
Capacity (veh/h)	1421	-	-	455	635
HCM Lane V/C Ratio	0.009	-	-	0.104	0.081
HCM Control Delay (s)	7.6	0	-	13.8	11.2
HCM Lane LOS	A	A	-	B	B
HCM 95th %tile Q(veh)	0	-	-	0.3	0.3

Intersection	
Int Delay, s/veh	8.1

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	234	0	8	0	0	0	47	156	0	0	153	21
Future Vol, veh/h	234	0	8	0	0	0	47	156	0	0	153	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	92	92	92	92	92	92	76	76	76
Heavy Vehicles, %	1	0	0	0	0	0	0	0	0	0	1	0
Mvmt Flow	275	0	9	0	0	0	51	170	0	0	201	28

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	473	-	170	201	0	-	-	-	0
Stage 1	272	-	-	-	-	-	-	-	-
Stage 2	201	-	-	-	-	-	-	-	-
Critical Hdwy	6.41	-	6.2	4.1	-	-	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	-	3.3	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	552	0	879	1383	-	0	0	-	0
Stage 1	776	0	-	-	-	0	0	-	0
Stage 2	835	0	-	-	-	0	0	-	0
Platoon blocked, %					-			-	
Mov Cap-1 Maneuver	529	0	879	1383	-	-	-	-	-
Mov Cap-2 Maneuver	529	0	-	-	-	-	-	-	-
Stage 1	744	0	-	-	-	-	-	-	-
Stage 2	835	0	-	-	-	-	-	-	-

Approach	NB	SE	NW
HCM Control Delay, s	18.7	1.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	NWT	SEL	SET
Capacity (veh/h)	529	879	-	1383	-
HCM Lane V/C Ratio	0.52	0.011	-	0.037	-
HCM Control Delay (s)	19	9.1	-	7.7	0
HCM Lane LOS	C	A	-	A	A
HCM 95th %tile Q(veh)	3	0	-	0.1	-

Intersection	
Intersection Delay, s/veh	38.9
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	80	116	24	104	123	28	24	29	33	12	111	99
Future Vol, veh/h	80	116	24	104	123	28	24	29	33	12	111	99
Peak Hour Factor	0.59	0.59	0.59	0.55	0.55	0.55	0.41	0.41	0.41	0.70	0.70	0.70
Heavy Vehicles, %	8	4	0	1	5	0	67	10	9	0	1	12
Mvmt Flow	136	197	41	189	224	51	59	71	80	17	159	141
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	35.9	57.4	23	26
HCM LOS	E	F	C	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	28%	36%	41%	5%
Vol Thru, %	34%	53%	48%	50%
Vol Right, %	38%	11%	11%	45%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	86	220	255	222
LT Vol	24	80	104	12
Through Vol	29	116	123	111
RT Vol	33	24	28	99
Lane Flow Rate	210	373	464	317
Geometry Grp	1	1	1	1
Degree of Util (X)	0.543	0.804	0.953	0.682
Departure Headway (Hd)	9.324	7.763	7.398	7.744
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	386	466	491	466
Service Time	7.408	5.834	5.463	5.815
HCM Lane V/C Ratio	0.544	0.8	0.945	0.68
HCM Control Delay	23	35.9	57.4	26
HCM Lane LOS	C	E	F	D
HCM 95th-tile Q	3.1	7.4	11.8	5

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	24	58	16	16	63	42	22	29	22	43	30	39
Future Vol, veh/h	24	58	16	16	63	42	22	29	22	43	30	39
Peak Hour Factor	0.92	0.92	0.92	0.86	0.86	0.86	0.91	0.91	0.91	0.83	0.83	0.83
Heavy Vehicles, %	0	0	0	0	0	0	4	0	0	0	0	0
Mvmt Flow	26	63	17	19	73	49	24	32	24	52	36	47
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.2	8.2	8.1	8.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	30%	24%	13%	38%
Vol Thru, %	40%	59%	52%	27%
Vol Right, %	30%	16%	35%	35%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	73	98	121	112
LT Vol	22	24	16	43
Through Vol	29	58	63	30
RT Vol	22	16	42	39
Lane Flow Rate	80	107	141	135
Geometry Grp	1	1	1	1
Degree of Util (X)	0.102	0.133	0.169	0.166
Departure Headway (Hd)	4.56	4.502	4.335	4.419
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	786	797	827	812
Service Time	2.587	2.527	2.359	2.444
HCM Lane V/C Ratio	0.102	0.134	0.17	0.166
HCM Control Delay	8.1	8.2	8.2	8.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.5	0.6	0.6

Intersection	
Int Delay, s/veh	88.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	289	248	86	281	172	121
Future Vol, veh/h	289	248	86	281	172	121
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	78	78	83	83	68	68
Heavy Vehicles, %	3	6	2	4	12	3
Mvmt Flow	371	318	104	339	253	178

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	689	0	1077	530
Stage 1	-	-	-	-	530	-
Stage 2	-	-	-	-	547	-
Critical Hdwy	-	-	4.12	-	6.52	6.23
Critical Hdwy Stg 1	-	-	-	-	5.52	-
Critical Hdwy Stg 2	-	-	-	-	5.52	-
Follow-up Hdwy	-	-	2.218	-	3.608	3.327
Pot Cap-1 Maneuver	-	-	905	-	~ 232	547
Stage 1	-	-	-	-	571	-
Stage 2	-	-	-	-	560	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	905	-	~ 199	547
Mov Cap-2 Maneuver	-	-	-	-	~ 199	-
Stage 1	-	-	-	-	571	-
Stage 2	-	-	-	-	480	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	$ 318.4
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	270	-	-	905	-
HCM Lane V/C Ratio	1.596	-	-	0.114	-
HCM Control Delay (s)	$ 318.4	-	-	9.5	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	26.3	-	-	0.4	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	37	329	1	13	192
Future Vol, veh/h	4	37	329	1	13	192
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	40	358	1	14	209

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	596	359	0	0	359	0
Stage 1	359	-	-	-	-	-
Stage 2	237	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	466	685	-	-	1200	-
Stage 1	707	-	-	-	-	-
Stage 2	802	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	460	685	-	-	1200	-
Mov Cap-2 Maneuver	460	-	-	-	-	-
Stage 1	707	-	-	-	-	-
Stage 2	792	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.9	0	0.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	654	1200	-
HCM Lane V/C Ratio	-	-	0.068	0.012	-
HCM Control Delay (s)	-	-	10.9	8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	37	293	1	13	183
Future Vol, veh/h	4	37	293	1	13	183
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	40	318	1	14	199

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	546	319	0	0	319	0
Stage 1	319	-	-	-	-	-
Stage 2	227	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	499	722	-	-	1241	-
Stage 1	737	-	-	-	-	-
Stage 2	811	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	493	722	-	-	1241	-
Mov Cap-2 Maneuver	493	-	-	-	-	-
Stage 1	737	-	-	-	-	-
Stage 2	800	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	0.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	691	1241	-
HCM Lane V/C Ratio	-	-	0.064	0.011	-
HCM Control Delay (s)	-	-	10.6	7.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	2.2

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	19	0	57	0	164	260	8	310	0
Future Vol, veh/h	0	0	0	19	0	57	0	164	260	8	310	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	Free	-	-	None
Storage Length	-	-	-	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	62	62	62	87	87	87	86	86	86
Heavy Vehicles, %	0	0	0	6	0	0	0	4	1	0	2	0
Mvmt Flow	0	0	0	31	0	92	0	189	299	9	360	0

Major/Minor	Minor2		Major1				Major2		
Conflicting Flow All	567	-	360	-	0	-	189	0	0
Stage 1	378	-	-	-	-	-	-	-	-
Stage 2	189	-	-	-	-	-	-	-	-
Critical Hdwy	6.46	-	6.2	-	-	-	4.1	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	-	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	478	0	689	0	-	0	1397	-	0
Stage 1	684	0	-	0	-	0	-	-	0
Stage 2	834	0	-	0	-	0	-	-	0
Platoon blocked, %					-			-	
Mov Cap-1 Maneuver	474	0	689	-	-	-	1397	-	-
Mov Cap-2 Maneuver	474	0	-	-	-	-	-	-	-
Stage 1	684	0	-	-	-	-	-	-	-
Stage 2	827	0	-	-	-	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s	11.5	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NWL	NWT	SET	SBLn1	SBLn2
Capacity (veh/h)	1397	-	-	474	689
HCM Lane V/C Ratio	0.007	-	-	0.065	0.133
HCM Control Delay (s)	7.6	0	-	13.1	11
HCM Lane LOS	A	A	-	B	B
HCM 95th %tile Q(veh)	0	-	-	0.2	0.5

Intersection	
Int Delay, s/veh	10

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	231	0	2	0	0	0	83	100	0	0	87	38
Future Vol, veh/h	231	0	2	0	0	0	83	100	0	0	87	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	92	92	92	81	81	81	97	97	97
Heavy Vehicles, %	2	0	0	0	0	0	5	3	0	0	3	11
Mvmt Flow	285	0	2	0	0	0	102	123	0	0	90	39

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	417	-	123	90	0	-	-	-	0
Stage 1	327	-	-	-	-	-	-	-	-
Stage 2	90	-	-	-	-	-	-	-	-
Critical Hdwy	6.42	-	6.2	4.15	-	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	-	3.3	2.245	-	-	-	-	-
Pot Cap-1 Maneuver	592	0	933	1486	-	0	0	-	0
Stage 1	731	0	-	-	-	0	0	-	0
Stage 2	934	0	-	-	-	0	0	-	0
Platoon blocked, %					-			-	
Mov Cap-1 Maneuver	548	0	933	1486	-	-	-	-	-
Mov Cap-2 Maneuver	548	0	-	-	-	-	-	-	-
Stage 1	677	0	-	-	-	-	-	-	-
Stage 2	934	0	-	-	-	-	-	-	-

Approach	NB	SE	NW
HCM Control Delay, s	18.4	3.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	NWT	SEL	SET
Capacity (veh/h)	548	933	-	1486	-
HCM Lane V/C Ratio	0.52	0.003	-	0.069	-
HCM Control Delay (s)	18.5	8.9	-	7.6	0
HCM Lane LOS	C	A	-	A	A
HCM 95th %tile Q(veh)	3	0	-	0.2	-

Intersection	
Int Delay, s/veh	44.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	421	117	107	291	132	72
Future Vol, veh/h	421	117	107	291	132	72
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	93	93	60	60
Heavy Vehicles, %	2	1	4	0	3	0
Mvmt Flow	448	124	115	313	220	120

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	572	0	1053	510
Stage 1	-	-	-	-	510	-
Stage 2	-	-	-	-	543	-
Critical Hdwy	-	-	4.14	-	6.43	6.2
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.236	-	3.527	3.3
Pot Cap-1 Maneuver	-	-	991	-	249	567
Stage 1	-	-	-	-	601	-
Stage 2	-	-	-	-	580	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	991	-	~ 214	567
Mov Cap-2 Maneuver	-	-	-	-	~ 214	-
Stage 1	-	-	-	-	601	-
Stage 2	-	-	-	-	499	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	173.7
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	274	-	-	991	-
HCM Lane V/C Ratio	1.241	-	-	0.116	-
HCM Control Delay (s)	173.7	-	-	9.1	0
HCM Lane LOS	F	-	-	A	A
HCM 95th %tile Q(veh)	16.1	-	-	0.4	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	24	152	4	37	200
Future Vol, veh/h	3	24	152	4	37	200
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	26	165	4	40	217

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	464	167	0	0	169	0
Stage 1	167	-	-	-	-	-
Stage 2	297	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	556	877	-	-	1409	-
Stage 1	863	-	-	-	-	-
Stage 2	754	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	538	877	-	-	1409	-
Mov Cap-2 Maneuver	538	-	-	-	-	-
Stage 1	863	-	-	-	-	-
Stage 2	730	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	1.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	820	1409	-
HCM Lane V/C Ratio	-	-	0.036	0.029	-
HCM Control Delay (s)	-	-	9.6	7.6	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	24	132	4	37	166
Future Vol, veh/h	3	24	132	4	37	166
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	26	143	4	40	180

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	405	145	0	0	147	0
Stage 1	145	-	-	-	-	-
Stage 2	260	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	602	902	-	-	1435	-
Stage 1	882	-	-	-	-	-
Stage 2	783	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	583	902	-	-	1435	-
Mov Cap-2 Maneuver	583	-	-	-	-	-
Stage 1	882	-	-	-	-	-
Stage 2	759	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	1.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	850	1435	-
HCM Lane V/C Ratio	-	-	0.035	0.028	-
HCM Control Delay (s)	-	-	9.4	7.6	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	2.4

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	42	0	83	0	188	311	11	388	0
Future Vol, veh/h	0	0	0	42	0	83	0	188	311	11	388	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	Yield	-	-	Free	-	-	None
Storage Length	-	-	-	0	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	1	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	89	89	89	95	95	95	90	90	90
Heavy Vehicles, %	0	0	0	0	0	2	0	1	1	0	1	0
Mvmt Flow	0	0	0	47	0	93	0	198	327	12	431	0

Major/Minor	Minor2		Major1				Major2		
Conflicting Flow All	653	-	431	-	0	-	198	0	0
Stage 1	455	-	-	-	-	-	-	-	-
Stage 2	198	-	-	-	-	-	-	-	-
Critical Hdwy	6.4	-	6.22	-	-	-	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	-	3.318	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	435	0	624	0	-	0	1387	-	0
Stage 1	643	0	-	0	-	0	-	-	0
Stage 2	840	0	-	0	-	0	-	-	0
Platoon blocked, %					-			-	
Mov Cap-1 Maneuver	430	0	624	-	-	-	1387	-	-
Mov Cap-2 Maneuver	430	0	-	-	-	-	-	-	-
Stage 1	643	0	-	-	-	-	-	-	-
Stage 2	831	0	-	-	-	-	-	-	-

Approach	SB	SE	NW
HCM Control Delay, s	12.7	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NWL	NWT	SET	SBLn1	SBLn2
Capacity (veh/h)	1387	-	-	430	624
HCM Lane V/C Ratio	0.009	-	-	0.11	0.149
HCM Control Delay (s)	7.6	0	-	14.4	11.8
HCM Lane LOS	A	A	-	B	B
HCM 95th %tile Q(veh)	0	-	-	0.4	0.5

Intersection	
Int Delay, s/veh	9.7

Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	242	0	8	0	0	0	71	159	0	0	157	21
Future Vol, veh/h	242	0	8	0	0	0	71	159	0	0	157	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	Free
Storage Length	0	-	0	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	92	92	92	92	92	92	76	76	76
Heavy Vehicles, %	1	0	0	0	0	0	0	0	0	0	1	0
Mvmt Flow	285	0	9	0	0	0	77	173	0	0	207	28

Major/Minor	Minor1			Major1			Major2		
Conflicting Flow All	534	-	173	207	0	-	-	-	0
Stage 1	327	-	-	-	-	-	-	-	-
Stage 2	207	-	-	-	-	-	-	-	-
Critical Hdwy	6.41	-	6.2	4.1	-	-	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	-	3.3	2.2	-	-	-	-	-
Pot Cap-1 Maneuver	509	0	876	1376	-	0	0	-	0
Stage 1	733	0	-	-	-	0	0	-	0
Stage 2	830	0	-	-	-	0	0	-	0
Platoon blocked, %					-			-	
Mov Cap-1 Maneuver	477	0	876	1376	-	-	-	-	-
Mov Cap-2 Maneuver	477	0	-	-	-	-	-	-	-
Stage 1	688	0	-	-	-	-	-	-	-
Stage 2	830	0	-	-	-	-	-	-	-

Approach	NB	SE	NW
HCM Control Delay, s	22.7	2.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBLn1	NBLn2	NWT	SEL	SET
Capacity (veh/h)	477	876	-	1376	-
HCM Lane V/C Ratio	0.597	0.011	-	0.056	-
HCM Control Delay (s)	23.1	9.2	-	7.8	0
HCM Lane LOS	C	A	-	A	A
HCM 95th %tile Q(veh)	3.8	0	-	0.2	-

Intersection	
Intersection Delay, s/veh	41.8
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	81	116	24	104	123	29	24	29	33	16	111	103
Future Vol, veh/h	81	116	24	104	123	29	24	29	33	16	111	103
Peak Hour Factor	0.59	0.59	0.59	0.55	0.55	0.55	0.41	0.41	0.41	0.70	0.70	0.70
Heavy Vehicles, %	8	4	0	1	5	0	67	10	9	0	1	12
Mvmt Flow	137	197	41	189	224	53	59	71	80	23	159	147
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	38.3	62.3	23.7	28.4
HCM LOS	E	F	C	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	28%	37%	41%	7%
Vol Thru, %	34%	52%	48%	48%
Vol Right, %	38%	11%	11%	45%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	86	221	256	230
LT Vol	24	81	104	16
Through Vol	29	116	123	111
RT Vol	33	24	29	103
Lane Flow Rate	210	375	465	329
Geometry Grp	1	1	1	1
Degree of Util (X)	0.552	0.821	0.972	0.715
Departure Headway (Hd)	9.471	7.893	7.516	7.829
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	380	457	479	460
Service Time	7.567	5.974	5.59	5.912
HCM Lane V/C Ratio	0.553	0.821	0.971	0.715
HCM Control Delay	23.7	38.3	62.3	28.4
HCM Lane LOS	C	E	F	D
HCM 95th-tile Q	3.2	7.8	12.3	5.6

Intersection	
Intersection Delay, s/veh	8.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	28	58	16	16	63	46	22	29	22	46	30	43
Future Vol, veh/h	28	58	16	16	63	46	22	29	22	46	30	43
Peak Hour Factor	0.92	0.92	0.92	0.86	0.86	0.86	0.91	0.91	0.91	0.83	0.83	0.83
Heavy Vehicles, %	0	0	0	0	0	0	4	0	0	0	0	0
Mvmt Flow	30	63	17	19	73	53	24	32	24	55	36	52
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.3	8.3	8.1	8.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	30%	27%	13%	39%
Vol Thru, %	40%	57%	50%	25%
Vol Right, %	30%	16%	37%	36%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	73	102	125	119
LT Vol	22	28	16	46
Through Vol	29	58	63	30
RT Vol	22	16	46	43
Lane Flow Rate	80	111	145	143
Geometry Grp	1	1	1	1
Degree of Util (X)	0.102	0.14	0.176	0.177
Departure Headway (Hd)	4.593	4.537	4.347	4.435
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	780	790	826	809
Service Time	2.625	2.566	2.374	2.463
HCM Lane V/C Ratio	0.103	0.141	0.176	0.177
HCM Control Delay	8.1	8.3	8.3	8.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.5	0.6	0.6

Intersection	
Intersection Delay, s/veh	22.3
Intersection LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	289	248	86	281	172	121
Future Vol, veh/h	289	248	86	281	172	121
Peak Hour Factor	0.79	0.79	0.83	0.83	0.73	0.73
Heavy Vehicles, %	3	6	2	4	12	3
Mvmt Flow	366	314	104	339	236	166
Number of Lanes	1	1	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	19.2	32.2	16.6
HCM LOS	C	D	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1
Vol Left, %	100%	0%	0%	0%	23%
Vol Thru, %	0%	0%	100%	0%	77%
Vol Right, %	0%	100%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	172	121	289	248	367
LT Vol	172	0	0	0	86
Through Vol	0	0	289	0	281
RT Vol	0	121	0	248	0
Lane Flow Rate	236	166	366	314	442
Geometry Grp	5	5	5	5	3b
Degree of Util (X)	0.526	0.306	0.679	0.525	0.81
Departure Headway (Hd)	8.037	6.652	6.683	6.02	6.597
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	448	539	538	593	548
Service Time	5.811	4.424	4.464	3.8	4.667
HCM Lane V/C Ratio	0.527	0.308	0.68	0.53	0.807
HCM Control Delay	19.5	12.4	22.6	15.3	32.2
HCM Lane LOS	C	B	C	C	D
HCM 95th-tile Q	3	1.3	5.1	3.1	7.9

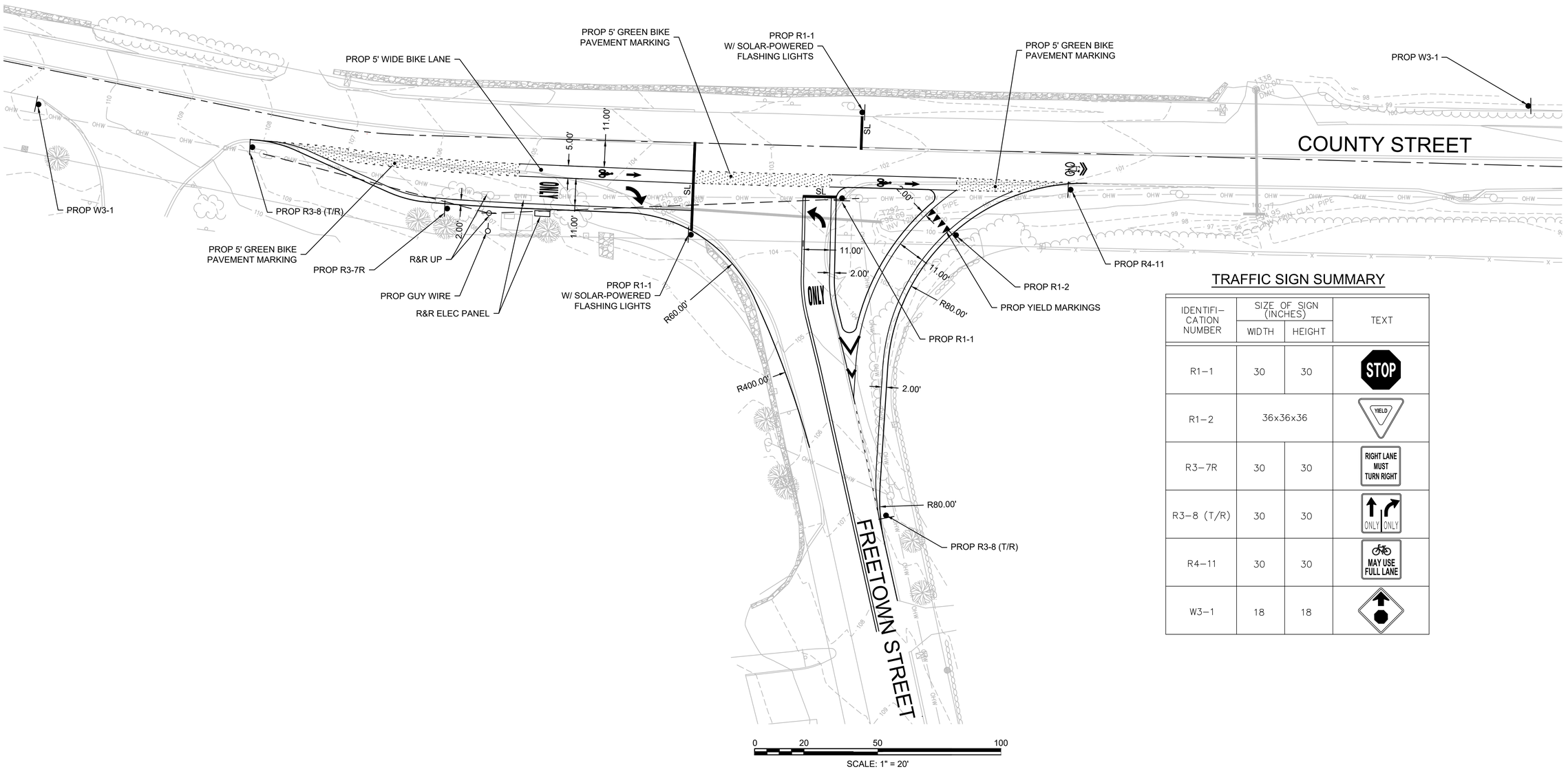
Intersection	
Intersection Delay, s/veh	22
Intersection LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	421	117	107	291	132	72
Future Vol, veh/h	421	117	107	291	132	72
Peak Hour Factor	0.95	0.95	0.93	0.93	0.66	0.66
Heavy Vehicles, %	2	1	4	0	3	0
Mvmt Flow	443	123	115	313	200	109
Number of Lanes	1	1	0	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	1
HCM Control Delay	23.3	25.9	14.2
HCM LOS	C	D	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1
Vol Left, %	100%	0%	0%	0%	27%
Vol Thru, %	0%	0%	100%	0%	73%
Vol Right, %	0%	100%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	132	72	421	117	398
LT Vol	132	0	0	0	107
Through Vol	0	0	421	0	291
RT Vol	0	72	0	117	0
Lane Flow Rate	200	109	443	123	428
Geometry Grp	5	5	5	5	3b
Degree of Util (X)	0.427	0.194	0.771	0.189	0.749
Departure Headway (Hd)	7.686	6.407	6.262	5.532	6.297
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	468	557	576	645	573
Service Time	5.458	4.178	4.025	3.295	4.358
HCM Lane V/C Ratio	0.427	0.196	0.769	0.191	0.747
HCM Control Delay	16.1	10.7	27.1	9.6	25.9
HCM Lane LOS	C	B	D	A	D
HCM 95th-tile Q	2.1	0.7	7	0.7	6.5

Conceptual Improvement Plan



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NAD 83 CORS

TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN (INCHES) WIDTH	HEIGHT	TEXT
R1–1	30	30	STOP
R1–2	36x36x36		YIELD
R3–7R	30	30	RIGHT LANE MUST TURN RIGHT
R3–8 (T/R)	30	30	ONLY / ONLY
R4–11	30	30	MAY USE FULL LANE
W3–1	18	18	

No.	Submittal / Revision	Date
0		
1		

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MARLBOROUGH, MA 01752

Designed: PKB | Drawn: PKB | Checked: KVL

FIGURE 6 -
COUNTY STREET AND
FREETOWN STREET
ALTERATION

PROPOSED CONSTRUCTION

Issue Date: 06-12-2024 | Project No.: 24021 | Scale: 1" = 20'

SHEET 01 OF 01