

## TECHNICAL MEMORANDUM

**TO:** Rob Desmarais  
Director of Public Works  
62 Friend Street  
Amesbury, MA 01913

**DATE:** November 11, 2020

**FROM:** Elizabeth Oltman, PE  
Director of Transportation Planning

**PROJECT NO.:** T0791.01

**RE:** Complete Streets Analysis, Highland Street at Friend Street. Amesbury, MA

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### Introduction

TEC, Inc. (TEC) has been retained by the City of Amesbury to design Complete Streets improvements at the intersection of Highland Street / Lions Mouth Road / Friend Street in accordance with grant funding awarded by MassDOT. The proposed improvements include the realignment of Highland Street to provide a standard T-intersection to promote pedestrian safety, reduce crossing distances and eliminate points of conflict between pedestrians and vehicles. The proposed improvements will also improve sight distances for vehicles exiting Highland Street.

TEC has evaluated the operation of the intersection with the proposed improvements and considering the relocation and expansion of the Amesbury Elementary School to the location of the Cashman Elementary School, in close proximity to the intersection.

The following memorandum details the results of these analyses.

### Study Location

#### *Highland Street / Lions Mouth Road / Friend Street*

Highland Street is a north-south urban collector under the jurisdiction of the City of Amesbury, extending south from its intersection with Lions Mouth Road / Friend Street. At the intersection, Lions Mouth Road / Friend Street is free-flowing and Highland Street is under stop-control. In the existing condition, the intersection is Y-shaped, providing several conflict points for vehicles performing turns entering or exiting Highland Street. All approaches consist of one approach lane with directional flow separated by a double-yellow centerline. Currently, sidewalk is provided along the both sides of Highland Street to the Amesbury High School entrance driveway and along the east side of Highland Street to the south of the High School. Sidewalks are provided along both sides of Lions Mouth Road / Friend Street. There is one crosswalk provided on the westbound approach at the intersection of Highland Street / Lions Mouth Road / Friend Street. There are no ADA-compliant ramp facilities along the sidewalk. There are no bicycle accommodations such as bicycle lanes or shared use markings present; however, striped shoulders of 4-5 feet are present along Lions Mouth Road / Friend Street.

There is no posted speed limit in the study area along Highland Street. Land uses at the intersections include residential homes, a park and Amesbury High School.

### **Cashman Elementary School Future Conditions**

In the *Traffic Impact Analysis for the Amesbury Elementary School*, prepared by Pare Corporation, revision dated June 2020, future traffic volumes were projected for the adjacent roadway system surrounding the Cashman Elementary School (CES) as the proposed location for the expanded Amesbury Elementary School (AES). Below is a description of the project as provided by Pare Corporation:

*“the existing CES building will remain and a new AES building will be constructed adjacent to the existing school. Additionally, Grade 5 will be added to the elementary schools. Currently, the elementary schools hold up to Grade 4. All pre-K through Grade 5 elementary school activity will be located on this one site.”*

TEC used the 2025 Future AM/PM Peak Hour volumes as published within the report to perform an independent analysis of the intersection operations. The trip generation projections for the AES were reviewed and generally approved at the intersection by the City’s peer reviewer, VHB, Inc. in their letter dated August 28, 2020. Future traffic volume discrepancies discussed within the review letter were focused at the school driveways and did not meaningfully impact the study intersection.

### **Proposed Geometry**

The intersection improvement proposal as presented to MassDOT within the Complete Streets funding grant award included realignment of the reconstruction of the intersection of Highland Street / Lions Mouth Road / Friend Street to eliminate the Y-shaped geometry and provide a single T-shaped geometry to decrease pedestrian and vehicle conflict points, reduce pedestrian crossing lengths, provide a clear and consistent path of pedestrian travel and ensure connectivity between area sidewalks and the adjacent Town Park and playground. The improvement project includes reconstructing the sidewalk and resetting or replacing the granite curbing along the south side of Friend Street and both sides of Highland Street to ensure a consistent pedestrian path through the realigned intersection. A new crosswalk will be provided across Highland Street to provide a direct connection for students and other pedestrians traveling along the south side of Lions Mouth Road / Friend Street. The existing crosswalk across Friend Street will be restriped to provide a clear pedestrian crossing with advance warning signage and a flashing pedestrian beacon will be added.

### **Alternatives Considered**

TEC conducted a traffic signal warrant analysis for the intersection of Highland Street / Lions Mouth Road / Friend Street to determine whether a traffic signal is necessary to improve the operations of the intersection. TEC performed the traffic signal warrant analyses based on criteria contained within

the Manual on Uniform Traffic Devices, (*MUTCD*<sup>1</sup>). The intersection does not meet the criteria for the installation of a traffic signal.

TEC considered the provision of an exclusive left turn lane and exclusive right turn lane on the northbound approach of Highland Street. The addition of exclusive lanes on this approach does not measurably impact the vehicular operations of the intersection. However, the additional roadway width would create a longer crossing distance for students and other pedestrians traveling along Lions Mouth Road / Friend Street. The primary focus of the Complete Streets grant program is to promote pedestrian safety and reduce crossing distances for students in the vicinity of schools. Therefore, TEC does not recommend provision of separate turn lanes on the northbound Highland Street approach.

TEC considered the provision of an exclusive left turn lane on the westbound approach of Friend Street. The addition of an additional lane on this approach does not measurably impact the vehicular operations of the intersection. MassDOT defines left turn lane volume warrants at unsignalized intersection that are based upon operating speeds, percentage of left turn movements on an approach and the volume of vehicles opposing the left turns. Based upon the future unsignalized operating conditions along Lions Mouth Road / Friend Street, a left turn lane on the westbound approach of Friend Street is only warranted during the school arrival and dismissal peak hours. Throughout the majority of the day, the left turn lane is not warranted. Provision of a left turn lane on this approach would require significant reconstruction of Friend Street. In order to maintain the current shoulder widths, the roadway would require widening, with impacts to existing sidewalk and sidewalk buffer areas, and potential right of way acquisition from residential homes and/or the park area. As this turn lane is not necessary to improve operations or safety of the intersection for vehicles or pedestrians, TEC does not recommend construction of a separate left turn lane on the westbound Friend Street approach.

The following table summarizes the analyses prepared.

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<sup>1</sup> *Manual on Uniform Traffic Control Devices (MUTCD)* – Federal Highway Administration / U.S. DOT – 2009 Edition.

### Intersection Capacity and Queue Analysis Summary

Intersection / Lane Group	2025 Future Build				2025 Build NB Left Turn Lane				2025 Build WB Left Turn Lane			
	V/C <sup>a</sup>	Delay <sup>b</sup>	LOS <sup>c</sup>	Queue <sup>d</sup>	V/C	Delay	LOS	Queue	V/C	Delay	LOS	Queue
<b>Highland Street / Lions Mouth Road / Friend Street</b>												
<i>Weekday Morning Peak Period</i>												
Friend Street WBL	0.115	8.6	A	<25	0.115	8.6	A	<25	0.115	8.6	A	<25
Highland Street NB	0.667	34.1	D	125					0.653	32.7	D	125
Highland Street NBL					0.593	33.5	D	100				
Highland Street NBR					0.26	12.7	B	25				
<i>Weekday Evening Peak Period</i>												
Friend Street WBL	0.129	8.7	A	<25	0.129	8.7	A	<25	0.129	8.7	A	<25
Highland Street NB	0.717	33.8	D	150					0.709	32.8	D	150
Highland Street NBL					0.564	29.7	D	75				
Highland Street NBR					0.153	11.1	B	25				

<sup>a</sup> Volume-to-capacity ratio  
<sup>b</sup> Delay expressed in seconds per vehicle (average)  
<sup>c</sup> Level of service  
<sup>d</sup> 95<sup>th</sup> Percentile Queue for unsignalized intersections

In the 2025 Future condition, the intersection operates with levels of service D or better on the Highland Street approach and levels of service A on the Friend Street left turn movement. The queue lengths anticipated on the Highland Street approach are less than six vehicles during the school arrival and dismissal peak hours, which can be accommodated on the roadway without blocking the Amesbury High School Exiting Driveway. These are typical operating conditions for unsignalized intersections in suburban areas near schools during their peak hours. The intersection operates with moderate delay and minimal queues during the off-peak periods. In addition, the volume-to-capacity (V/C) ratio on the approach remains well below 1.00 indicating that adequate capacity is provided along the approach.

TEC recommends that the intersection be constructed as proposed within the Complete Streets grant application to promote pedestrian safety, reduce conflict points and increase intersection efficiency while minimizing impact to the adjacent properties.

Lanes, Volumes, Timings  
 1: Highland Street & Lions Mouth Road/Friend Street

2025 Build Conditions (Alternative 1)  
 Weekday Morning

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	171	216	120	242	161	50
Future Volume (vph)	171	216	120	242	161	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	738			727	353	
Travel Time (s)	16.8			16.5	8.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other  
 Control Type: Unsignalized

Intersection

Int Delay, s/veh 8.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	171	216	120	242	161	50
Future Vol, veh/h	171	216	120	242	161	50
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	186	235	130	263	175	54

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	421
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1138
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1138
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.8	34.1
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	344	-	-	1138	-
HCM Lane V/C Ratio	0.667	-	-	0.115	-
HCM Control Delay (s)	34.1	-	-	8.6	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	4.6	-	-	0.4	-

Lanes, Volumes, Timings  
 1: Highland Street & Lions Mouth Road/Friend Street

2025 Build Conditions (Alternative 1)  
 Weekday Evening

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	221	192	132	118	167	98
Future Volume (vph)	221	192	132	118	167	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Link Speed (mph)	30			30	30	
Link Distance (ft)	738			727	353	
Travel Time (s)	16.8			16.5	8.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other  
 Control Type: Unsignalized

Intersection

Int Delay, s/veh	10.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	221	192	132	118	167	98
Future Vol, veh/h	221	192	132	118	167	98
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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	240	209	143	128	182	107

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	449	0	759 345
Stage 1	-	-	-	-	345 -
Stage 2	-	-	-	-	414 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1111	-	374 698
Stage 1	-	-	-	-	717 -
Stage 2	-	-	-	-	667 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1111	-	322 698
Mov Cap-2 Maneuver	-	-	-	-	322 -
Stage 1	-	-	-	-	717 -
Stage 2	-	-	-	-	574 -

Approach	EB	WB	NB
HCM Control Delay, s	0	4.6	33.6
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	402	-	-	1111	-
HCM Lane V/C Ratio	0.717	-	-	0.129	-
HCM Control Delay (s)	33.6	-	-	8.7	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	5.5	-	-	0.4	-

Lanes, Volumes, Timings  
 1: Highland Street & Lions Mouth Road/Friend Street

2025 Build Conditions (Alt. 1) Left Turn Lane  
 Weekday Morning

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	171	216	120	242	161	50
Future Volume (vph)	171	216	120	242	161	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0		75	0
Storage Lanes		0	0		1	1
Taper Length (ft)			25		25	
Link Speed (mph)	30			30	30	
Link Distance (ft)	738			727	353	
Travel Time (s)	16.8			16.5	8.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other  
 Control Type: Unsignalized

HCM 6th TWSC  
 1: Highland Street & Lions Mouth Road/Friend Street

2025 Build Conditions (Alt. 1) Left Turn Lane  
 Weekday Morning

Intersection

Int Delay, s/veh 7.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	171	216	120	242	161	50
Future Vol, veh/h	171	216	120	242	161	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	75	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	186	235	130	263	175	54

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	421
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1138
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1138
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.8	28
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	295	736	-	-	1138	-
HCM Lane V/C Ratio	0.593	0.074	-	-	0.115	-
HCM Control Delay (s)	33.5	10.3	-	-	8.6	0
HCM Lane LOS	D	B	-	-	A	A
HCM 95th %tile Q(veh)	3.5	0.2	-	-	0.4	-

Lanes, Volumes, Timings  
 1: Highland Street & Lions Mouth Road/Friend Street

2025 Build Conditions (Alt. 1) Left Turn Lane  
 Weekday Evening

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	221	192	132	118	167	98
Future Volume (vph)	221	192	132	118	167	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0		75	0
Storage Lanes		0	0		1	1
Taper Length (ft)			25		25	
Link Speed (mph)	30			30	30	
Link Distance (ft)	738			727	353	
Travel Time (s)	16.8			16.5	8.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other  
 Control Type: Unsignalized

HCM 6th TWSC  
 1: Highland Street & Lions Mouth Road/Friend Street

2025 Build Conditions (Alt. 1) Left Turn Lane  
 Weekday Evening

Intersection

Int Delay, s/veh	7.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	221	192	132	118	167	98
Future Vol, veh/h	221	192	132	118	167	98
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	75	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	240	209	143	128	182	107

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	449	0	759 345
Stage 1	-	-	-	-	345 -
Stage 2	-	-	-	-	414 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1111	-	374 698
Stage 1	-	-	-	-	717 -
Stage 2	-	-	-	-	667 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1111	-	322 698
Mov Cap-2 Maneuver	-	-	-	-	322 -
Stage 1	-	-	-	-	717 -
Stage 2	-	-	-	-	574 -

Approach	EB	WB	NB
HCM Control Delay, s	0	4.6	22.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	322	698	-	-	1111	-
HCM Lane V/C Ratio	0.564	0.153	-	-	0.129	-
HCM Control Delay (s)	29.7	11.1	-	-	8.7	0
HCM Lane LOS	D	B	-	-	A	A
HCM 95th %tile Q(veh)	3.3	0.5	-	-	0.4	-

Lanes, Volumes, Timings  
 1: Highland Street & Lions Mouth Road/Friend Street

2025 Build Conditions (Alt. 1) WB Left Turn Lane  
 Weekday Morning

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	171	216	120	242	161	50
Future Volume (vph)	171	216	120	242	161	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	75		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Link Speed (mph)	30			30	30	
Link Distance (ft)	738			727	353	
Travel Time (s)	16.8			16.5	8.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other  
 Control Type: Unsignalized

HCM 6th TWSC  
 1: Highland Street & Lions Mouth Road/Friend Street

2025 Build Conditions (Alt. 1) WB Left Turn Lane

Weekday Morning

Intersection

Int Delay, s/veh 8.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	171	216	120	242	161	50
Future Vol, veh/h	171	216	120	242	161	50
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	75	-	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	186	235	130	263	175	54

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	421
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1138
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1138
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.8	32.7
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	351	-	-	1138	-
HCM Lane V/C Ratio	0.653	-	-	0.115	-
HCM Control Delay (s)	32.7	-	-	8.6	-
HCM Lane LOS	D	-	-	A	-
HCM 95th %tile Q(veh)	4.4	-	-	0.4	-

Lanes, Volumes, Timings  
 1: Highland Street & Lions Mouth Road/Friend Street

2025 Build Conditions (Alt. 1) WB Left Turn Lane  
 Weekday Evening

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	221	192	132	118	167	98
Future Volume (vph)	221	192	132	118	167	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	75		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			25		25	
Link Speed (mph)	30			30	30	
Link Distance (ft)	738			727	353	
Travel Time (s)	16.8			16.5	8.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)						
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other  
 Control Type: Unsignalized

HCM 6th TWSC  
 1: Highland Street & Lions Mouth Road/Friend Street

2025 Build Conditions (Alt. 1) WB Left Turn Lane  
 Weekday Evening

Intersection

Int Delay, s/veh 10.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	221	192	132	118	167	98
Future Vol, veh/h	221	192	132	118	167	98
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	75	-	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	240	209	143	128	182	107

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	449
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	1111
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1111
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.6	32.8
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	406	-	-	1111	-
HCM Lane V/C Ratio	0.709	-	-	0.129	-
HCM Control Delay (s)	32.8	-	-	8.7	-
HCM Lane LOS	D	-	-	A	-
HCM 95th %tile Q(veh)	5.4	-	-	0.4	-