



GREEN INTERNATIONAL AFFILIATES, INC.

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To: Ms. Karen Sherman, Town Planner
Town of Holliston
703 Washington Street
Holliston, MA 01746

From: Corinne Tobias, PE, PTOE
Project Manager
Transportation Planning Group
Green International Affiliates, Inc.
239 Littleton Road, Suite 3
Westford, MA 01886

Cc: Patrick Dunford, PE
Senior Project Manager
Vanasse Hangen Brustlin, Inc.

Date: August 31, 2020

Project Name: Geoffrey Park Residential Community

Project Number: Green No. 20082

Subject: Response to Transportation Peer Review Comments

This memorandum summarizes our responses to the Transportation Peer Review Comments prepared by Vanasse & Associates, Inc. (VAI), dated August 24, 2020.

T1: Comment: *"A letter should be provided by the Professional Engineer attesting to their oversight in preparing the document and providing their Massachusetts Professional Engineer Registration number and discipline."*

Response: The document was prepared with the oversight of a Professional Engineer, Corinne Tobias, Civil Engineering Discipline, License Number 53048. This letter is signed by the same engineer.

T2: Comment: *"The study area should be expanded to include the intersections of Cedar Street at Turner Road and Ashland Street at Turner Road as all Project-related traffic will travel through one of these intersections to access the project site. We note that traffic volumes are provided for both of these intersections on the figures in the July 2020 TIAS."*

Response: Cedar Street at Turner Road and Ashland Street at Road have been added to the crash data calculations, they were already included in the traffic analysis sections.

T3: Comment: *"The data collection effort and establishment of the seasonal adjustment were completed in accordance with standard Traffic Engineering and Transportation Planning practices; however, the traffic count data needs to be adjusted following the guidance issued by MassDOT for Transportation Impact Assessments (TIAs) conducted during the COVID-19 pandemic and the Governor's phased "Reopening Massachusetts" strategy.¹ We would suggest that the Applicant's engineer obtain historic traffic count data for a location proximate to the study area and compare July 2020 traffic count data to historic traffic counts for July in order to develop an appropriate adjustment factor."*

Response: Research was conducted to locate historical traffic data within the study area, however no data was publicly available through MassDOT or the regional planning agencies which would provide insight into this location. As a result, new count data was collected in order to provide a reference for analysis. In the

event that the town has additional data available or is aware of historical traffic data in the vicinity we will update the study accordingly.

T4: Comment: *"The traffic count data was performed during the July 4th week, with the turning movement counts (TMCs) performed on July 1st (not July 8th as referenced in the July 2020 TIAS). Traffic data is not usually collected during holiday periods as traffic volumes and trip patterns are not typical of conditions that exist during the majority of the year. Updated traffic volume and travel speed data should be collected, or adjustments made to the data that was collected with back-up calculations provided to substantiate the adjustments."*

Response: July 4th was on a Saturday this year and the Turning Movement Counts were collected on a Wednesday. As school was not in session at this time it is unlikely that the volumes would have been affected by the holiday.

T5: Comment: *"The traffic count data and speed measurements should be provided for all locations. The automatic traffic recorder (ATR) counts were not provided in the Appendix of the July 2020 TIAS."*

Response: The ATR data has been attached to this response letter.

T6: Comment: *"A 48-hour ATR should be performed on Turner Road in the vicinity of Indian Ridge Road on two consecutive weekdays that should include the collection of vehicle travel speed data to be used in evaluating sight distances at the Turner Road/Indian Ridge Road South intersection."*

Response: Cedar Street has a higher traffic volume and less roadway curvature compared to Turner Road, as a result the ATR data on Cedar Street is likely more conservative data with higher volumes and higher speeds.

T7: Comment: *"The motor vehicle crash analysis should be updated to use reconciled crash data for the most recent 5-year period as available from MassDOT (2013 through 2017) and expanded to include the additional study area intersections."*

Response: The crash data was updated for 2013-2017, please see attachments for updated crash reports. All of the crash records show below average crash rates at the study intersections.

T8: Comment: *"The Applicant's engineer should confirm that there are no roadway improvements by others that are planned to occur within or proximate to the study area that would impact traffic volumes or travel patterns within the study area."*

Response: It is listed in section 3.1.2 that the town of Holliston was contacted, and Green was notified that no new developments were being planned.

T9: Comment: *"The trip-distribution pattern for the Project should be reviewed and revised. The existing traffic pattern indicates that approximately 60 percent of the trips associated with the Project will be oriented to/from Route 126, with 45 percent of these trips using Elliot Street to/from the east and the remaining 15 percent (of the 60 percent) using Ashland Street."*

Response: Existing traffic patterns were used in addition to Census journey to work data in order to develop the trip distribution. Existing traffic patterns may be impacted by outside traffic such as the retail uses along Elliot Street that would not be reflective of traditional commuter behavior. Using the census data, the percent at which that road would be used from the proposed site was determined by looking at the distance from the proposed site to the Town of Workplace. Please see the table below for calculations. The difference between the census and existing traffic patterns averaged to obtain the traffic distribution values used for build volumes.

Direction to Work Destination											
A Elliot Street WB											
B Elliot Street EB											
C Ashland Street WB											
D Ashland Street EB											
E Cedar Street NB											
F Cedar Street SB											
* Based on CTPP 2012-2016 data - ACS surveys provided by US Census Bureau											
Holliston Residents Working in Municipality		Estimated % Splits									
Town of Workplace	#	%	A	B	C	D	E	F			
Holliston town, Middlesex County, Massachusetts	1,535	29%			40%	40%		20%			1.00
Framingham town, Middlesex County, Massachusetts	885	17%	25%	25%	30%		20%				1.00
Boston city, Suffolk County, Massachusetts	825	16%	25%	25%	20%	30%					1.00
Natick town, Middlesex County, Massachusetts	315	6%	25%	25%		45%	5%				1.00
Marlborough city, Middlesex County, Massachusetts	215	4%	20%		75%		5%				1.00
Newton city, Middlesex County, Massachusetts	200	4%		50%		45%	5%				1.00
Cambridge city, Middlesex County, Massachusetts	190	4%	15%	15%	30%	30%	10%				1.00
Wellesley town, Norfolk County, Massachusetts	190	4%		20%		70%	10%				1.00
Hopkinton town, Middlesex County, Massachusetts	175	3%		45%		45%	5%	5%			1.00
Needham town, Norfolk County, Massachusetts	155	3%		20%			80%				1.00
Waltham city, Middlesex County, Massachusetts	145	3%	20%	20%	25%	25%	10%				1.00
Ashland town, Middlesex County, Massachusetts	130	2%	40%		50%		10%				1.00
Milford town, Worcester County, Massachusetts	125	2%				70%		30%			1.00
Quincy city, Norfolk County, Massachusetts	120	2%		10%		80%		10%			1.00
	5,205	100%	13%	16%	26%	33%	6%	7%			1.00
Balanced from Above			13%	16%	26%	33%	6%	7%			1.00
From Existing Volumes			35%	37%	9%	11%	8%	1%			1.00
Say			25%	25%	15%	25%	5%	5%			1.00

T10: Comment: “The traffic operations analysis should be revised to address the comments provided as a part of this review concerning the COVID-19 traffic volume adjustment, expansion of the study area and refinement of the trip distribution pattern. In addition, the peak-hour factors that are used in the analysis should be based on the measured values and not the default value of 0.92. “

Response: Please see attachments for updated Synchro reports with the revised peak hour factors.

T11: Comment: The location of the sight distance measurements that are presented in Table 7 should be clarified as the access to the Project is proposed to be an extension of Indian Ridge Road South and will not create an “intersection” for the purpose of sight distance measurements. Also, the paragraph preceding the sight distance table mentions speed measurements and posted speed limits along Cedar Street. Sight distance measurements should be provided for the following intersections based on the measured 85th percentile vehicle travel speed on the major roadway or the posted speed limit, whichever is higher:

- Turner Road/Indian Ridge Road South
- Cedar Street/Turner Road

– Ashland Street/Turner Road “

Response: Since access to the proposed project is an extension of Indian Ridge Road south table 7 shows the sight distance measurements at Indian Ridge Road South and Turner Road. The paragraph above table 7 has been updated to state that more clearly. The 85th percentile travel speed was from the ATR data collected on Cedar Street.

T12: Comment: *“The recommendations presented in the July 2020 TIAS should be reviewed, revised and expanded as necessary based on the additional analyses and refinements that have been suggested as a part of this review. The recommendations that were provided should reflect the Site Plans and the context of the Project as it relates to Indian Ridge Road South with regard to pedestrian safety and opportunities to implement traffic calming measures to reduce travel speeds.*

Response: Please see the response to comments above as to what has been revised. The Site Access Driveway referenced in the TIAS is the intersection of Indian Ridge Road South at Turner Avenue which should be updated with appropriate pavement markings. As there are no existing pedestrian accommodations to tie into, additional pedestrian facilities along the site drive would not allow for a safe passage into the neighborhood. Given the relatively low trip generation to the site as well as the lack of significant crash history no major impacts to traffic are anticipated.

If there is a need to discuss any of these responses further, please feel free to contact me at (978)-923-0400.

Sincerely,

Green International Affiliates, Inc.



Corinne Tobias, P.E.

Project Manager



SYNCHRO ANALYSIS

HCM 6th TWSC
1: Cedar Street/Cedar Street & Elliot Street

AM Peak Existing
08/31/2020

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	32	350	7	5	213	32	6	12	16	43	3	31
Future Vol, veh/h	32	350	7	5	213	32	6	12	16	43	3	31
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	34	372	7	5	227	34	6	13	17	46	3	33
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	261	0	0	379	0	0	716	715	376	713	701	244
Stage 1	-	-	-	-	-	-	444	444	-	254	254	-
Stage 2	-	-	-	-	-	-	272	271	-	459	447	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1303	-	-	1179	-	-	345	356	670	347	363	795
Stage 1	-	-	-	-	-	-	593	575	-	750	697	-
Stage 2	-	-	-	-	-	-	734	685	-	582	573	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1303	-	-	1179	-	-	319	342	670	319	349	795
Mov Cap-2 Maneuver	-	-	-	-	-	-	319	342	-	319	349	-
Stage 1	-	-	-	-	-	-	573	556	-	725	694	-
Stage 2	-	-	-	-	-	-	697	682	-	536	554	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			0.2			14			15.6		
HCM LOS							B			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	437	1303	-	-	1179	-	-	422				
HCM Lane V/C Ratio	0.083	0.026	-	-	0.005	-	-	0.194				
HCM Control Delay (s)	14	7.8	0	-	8.1	0	-	15.6				
HCM Lane LOS	B	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	0.7				

HCM 6th TWSC
3: Turner Road & Indian Ridge Road (S)

AM Peak Existing
08/31/2020

Intersection						
Int Delay, s/veh	3.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	13	3	6	11	1
Future Vol, veh/h	0	13	3	6	11	1
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	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	17	4	8	14	1
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	12	0	-	0	25	8
Stage 1	-	-	-	-	8	-
Stage 2	-	-	-	-	17	-
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	1607	-	-	-	991	1074
Stage 1	-	-	-	-	1015	-
Stage 2	-	-	-	-	1006	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1607	-	-	-	991	1074
Mov Cap-2 Maneuver	-	-	-	-	991	-
Stage 1	-	-	-	-	1015	-
Stage 2	-	-	-	-	1006	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		8.7		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1607	-	-	-	997	
HCM Lane V/C Ratio	-	-	-	-	0.015	
HCM Control Delay (s)	0	-	-	-	8.7	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	3	108	0	3	75	2	1	0	10	0	4	2
Future Vol, veh/h	3	108	0	3	75	2	1	0	10	0	4	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	138	0	4	96	3	1	0	13	0	5	3
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	99	0	0	138	0	0	256	253	138	259	252	98
Stage 1	-	-	-	-	-	-	146	146	-	106	106	-
Stage 2	-	-	-	-	-	-	110	107	-	153	146	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1494	-	-	1446	-	-	697	650	910	694	651	958
Stage 1	-	-	-	-	-	-	857	776	-	900	807	-
Stage 2	-	-	-	-	-	-	895	807	-	849	776	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1494	-	-	1446	-	-	688	646	910	681	647	958
Mov Cap-2 Maneuver	-	-	-	-	-	-	688	646	-	681	647	-
Stage 1	-	-	-	-	-	-	854	774	-	897	805	-
Stage 2	-	-	-	-	-	-	884	805	-	835	774	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.3			9.1			10		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	884	1494	-	-	1446	-	-	726				
HCM Lane V/C Ratio	0.016	0.003	-	-	0.003	-	-	0.011				
HCM Control Delay (s)	9.1	7.4	0	-	7.5	0	-	10				
HCM Lane LOS	A	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0				

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	117	80	9	17	7
Future Vol, veh/h	1	117	80	9	17	7
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	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	150	103	12	22	9
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	115	0	-	0	261	109
Stage 1	-	-	-	-	109	-
Stage 2	-	-	-	-	152	-
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	1474	-	-	-	728	945
Stage 1	-	-	-	-	916	-
Stage 2	-	-	-	-	876	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1474	-	-	-	727	945
Mov Cap-2 Maneuver	-	-	-	-	727	-
Stage 1	-	-	-	-	915	-
Stage 2	-	-	-	-	876	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.1	0		9.8		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1474	-	-	-	779	
HCM Lane V/C Ratio	0.001	-	-	-	0.039	
HCM Control Delay (s)	7.4	0	-	-	9.8	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	32	307	5	23	454	47	5	8	23	36	12	37
Future Vol, veh/h	32	307	5	23	454	47	5	8	23	36	12	37
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	36	345	6	26	510	53	6	9	26	40	13	42
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	563	0	0	351	0	0	1036	1035	348	1027	1012	537
Stage 1	-	-	-	-	-	-	420	420	-	589	589	-
Stage 2	-	-	-	-	-	-	616	615	-	438	423	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1008	-	-	1208	-	-	210	232	695	213	239	544
Stage 1	-	-	-	-	-	-	611	589	-	494	495	-
Stage 2	-	-	-	-	-	-	478	482	-	597	588	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1008	-	-	1208	-	-	175	215	695	187	221	544
Mov Cap-2 Maneuver	-	-	-	-	-	-	175	215	-	187	221	-
Stage 1	-	-	-	-	-	-	584	563	-	472	479	-
Stage 2	-	-	-	-	-	-	415	467	-	541	562	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.8			0.4			16.1			25.5		
HCM LOS							C			D		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	364	1008	-	-	1208	-	-	270				
HCM Lane V/C Ratio	0.111	0.036	-	-	0.021	-	-	0.354				
HCM Control Delay (s)	16.1	8.7	0	-	8	0	-	25.5				
HCM Lane LOS	C	A	A	-	A	A	-	D				
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.1	-	-	1.5				

HCM 6th TWSC
3: Turner Road & Indian Ridge Road (S)

PM Peak Existing
08/31/2020

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	4	19	6	3	0
Future Vol, veh/h	0	4	19	6	3	0
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	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	5	23	7	4	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	30	0	-	0	32	27
Stage 1	-	-	-	-	27	-
Stage 2	-	-	-	-	5	-
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	1583	-	-	-	982	1048
Stage 1	-	-	-	-	996	-
Stage 2	-	-	-	-	1018	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1583	-	-	-	982	1048
Mov Cap-2 Maneuver	-	-	-	-	982	-
Stage 1	-	-	-	-	996	-
Stage 2	-	-	-	-	1018	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		8.7		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1583	-	-	-	982	
HCM Lane V/C Ratio	-	-	-	-	0.004	
HCM Control Delay (s)	0	-	-	-	8.7	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	4	81	1	15	126	2	1	0	10	10	1	3
Future Vol, veh/h	4	81	1	15	126	2	1	0	10	10	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	89	1	16	138	2	1	0	11	11	1	3
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	140	0	0	90	0	0	271	270	90	274	269	139
Stage 1	-	-	-	-	-	-	98	98	-	171	171	-
Stage 2	-	-	-	-	-	-	173	172	-	103	98	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1443	-	-	1505	-	-	682	636	968	678	637	909
Stage 1	-	-	-	-	-	-	908	814	-	831	757	-
Stage 2	-	-	-	-	-	-	829	756	-	903	814	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1443	-	-	1505	-	-	671	626	968	662	627	909
Mov Cap-2 Maneuver	-	-	-	-	-	-	671	626	-	662	627	-
Stage 1	-	-	-	-	-	-	905	812	-	829	748	-
Stage 2	-	-	-	-	-	-	815	747	-	890	812	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.8			8.9			10.3		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	931	1443	-	-	1505	-	-	700				
HCM Lane V/C Ratio	0.013	0.003	-	-	0.011	-	-	0.022				
HCM Control Delay (s)	8.9	7.5	0	-	7.4	0	-	10.3				
HCM Lane LOS	A	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.1				

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	95	151	26	6	1
Future Vol, veh/h	6	95	151	26	6	1
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	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	114	182	31	7	1
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	213	0	-	0	326	198
Stage 1	-	-	-	-	198	-
Stage 2	-	-	-	-	128	-
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	1357	-	-	-	668	843
Stage 1	-	-	-	-	835	-
Stage 2	-	-	-	-	898	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1357	-	-	-	664	843
Mov Cap-2 Maneuver	-	-	-	-	664	-
Stage 1	-	-	-	-	830	-
Stage 2	-	-	-	-	898	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.5	0		10.3		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1357	-	-	-	685	
HCM Lane V/C Ratio	0.005	-	-	-	0.012	
HCM Control Delay (s)	7.7	0	-	-	10.3	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	34	375	8	5	228	34	6	13	17	46	3	37
Future Vol, veh/h	34	375	8	5	228	34	6	13	17	46	3	37
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	36	399	9	5	243	36	6	14	18	49	3	39
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	279	0	0	408	0	0	768	765	404	763	751	261
Stage 1	-	-	-	-	-	-	476	476	-	271	271	-
Stage 2	-	-	-	-	-	-	292	289	-	492	480	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1284	-	-	1151	-	-	319	333	647	321	340	778
Stage 1	-	-	-	-	-	-	570	557	-	735	685	-
Stage 2	-	-	-	-	-	-	716	673	-	558	554	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1284	-	-	1151	-	-	291	319	647	292	326	778
Mov Cap-2 Maneuver	-	-	-	-	-	-	291	319	-	292	326	-
Stage 1	-	-	-	-	-	-	549	537	-	709	682	-
Stage 2	-	-	-	-	-	-	673	670	-	509	534	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			0.2			14.7			16.6		
HCM LOS							B			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	411	1284	-	-	1151	-	-	401				
HCM Lane V/C Ratio	0.093	0.028	-	-	0.005	-	-	0.228				
HCM Control Delay (s)	14.7	7.9	0	-	8.1	0	-	16.6				
HCM Lane LOS	B	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	0.9				

HCM 6th TWSC
3: Turner Road & Indian Ridge Road (S)

AM Peak No Build
08/31/2020

Intersection						
Int Delay, s/veh	3.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	14	3	6	12	1
Future Vol, veh/h	0	14	3	6	12	1
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	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	18	4	8	15	1
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	12	0	-	0	26	8
Stage 1	-	-	-	-	8	-
Stage 2	-	-	-	-	18	-
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	1607	-	-	-	989	1074
Stage 1	-	-	-	-	1015	-
Stage 2	-	-	-	-	1005	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1607	-	-	-	989	1074
Mov Cap-2 Maneuver	-	-	-	-	989	-
Stage 1	-	-	-	-	1015	-
Stage 2	-	-	-	-	1005	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		8.7		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1607	-	-	-	995	
HCM Lane V/C Ratio	-	-	-	-	0.017	
HCM Control Delay (s)	0	-	-	-	8.7	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	116	0	3	80	2	1	0	10	0	4	2
Future Vol, veh/h	3	116	0	3	80	2	1	0	10	0	4	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	149	0	4	103	3	1	0	13	0	5	3
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	106	0	0	149	0	0	274	271	149	277	270	105
Stage 1	-	-	-	-	-	-	157	157	-	113	113	-
Stage 2	-	-	-	-	-	-	117	114	-	164	157	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1485	-	-	1432	-	-	678	636	898	675	636	949
Stage 1	-	-	-	-	-	-	845	768	-	892	802	-
Stage 2	-	-	-	-	-	-	888	801	-	838	768	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1485	-	-	1432	-	-	669	632	898	662	632	949
Mov Cap-2 Maneuver	-	-	-	-	-	-	669	632	-	662	632	-
Stage 1	-	-	-	-	-	-	842	766	-	889	800	-
Stage 2	-	-	-	-	-	-	877	799	-	824	766	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.3			9.2			10.1		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	871	1485	-	-	1432	-	-	711				
HCM Lane V/C Ratio	0.016	0.003	-	-	0.003	-	-	0.011				
HCM Control Delay (s)	9.2	7.4	0	-	7.5	0	-	10.1				
HCM Lane LOS	A	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0				

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	125	86	10	18	8
Future Vol, veh/h	1	125	86	10	18	8
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	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	160	110	13	23	10
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	123	0	-	0	279	117
Stage 1	-	-	-	-	117	-
Stage 2	-	-	-	-	162	-
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	1464	-	-	-	711	935
Stage 1	-	-	-	-	908	-
Stage 2	-	-	-	-	867	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1464	-	-	-	710	935
Mov Cap-2 Maneuver	-	-	-	-	710	-
Stage 1	-	-	-	-	907	-
Stage 2	-	-	-	-	867	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.1	0		9.9		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1464	-	-	-	767	
HCM Lane V/C Ratio	0.001	-	-	-	0.043	
HCM Control Delay (s)	7.5	0	-	-	9.9	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	34	329	5	25	487	50	5	9	25	39	13	40
Future Vol, veh/h	34	329	5	25	487	50	5	9	25	39	13	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	38	370	6	28	547	56	6	10	28	44	15	45
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	603	0	0	376	0	0	1110	1108	373	1099	1083	575
Stage 1	-	-	-	-	-	-	449	449	-	631	631	-
Stage 2	-	-	-	-	-	-	661	659	-	468	452	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	975	-	-	1182	-	-	187	210	673	190	217	518
Stage 1	-	-	-	-	-	-	589	572	-	469	474	-
Stage 2	-	-	-	-	-	-	452	461	-	575	570	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	975	-	-	1182	-	-	151	193	673	164	199	518
Mov Cap-2 Maneuver	-	-	-	-	-	-	151	193	-	164	199	-
Stage 1	-	-	-	-	-	-	560	544	-	446	457	-
Stage 2	-	-	-	-	-	-	385	444	-	514	542	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.8			0.4			17.4			30.5		
HCM LOS							C			D		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	334	975	-	-	1182	-	-	242				
HCM Lane V/C Ratio	0.131	0.039	-	-	0.024	-	-	0.427				
HCM Control Delay (s)	17.4	8.8	0	-	8.1	0	-	30.5				
HCM Lane LOS	C	A	A	-	A	A	-	D				
HCM 95th %tile O(veh)	0.4	0.1	-	-	0.1	-	-	2				

HCM 6th TWSC
3: Turner Road & Indian Ridge Road (S)

PM Peak No Build
08/31/2020

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	4	20	8	3	0
Future Vol, veh/h	0	4	20	8	3	0
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	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	5	24	10	4	0
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	34	0	-	0	34	29
Stage 1	-	-	-	-	29	-
Stage 2	-	-	-	-	5	-
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	1578	-	-	-	979	1046
Stage 1	-	-	-	-	994	-
Stage 2	-	-	-	-	1018	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1578	-	-	-	979	1046
Mov Cap-2 Maneuver	-	-	-	-	979	-
Stage 1	-	-	-	-	994	-
Stage 2	-	-	-	-	1018	-
Approach	EB	WB		SB		
HCM Control Delay, s	0	0		8.7		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1578	-	-	-	979	
HCM Lane V/C Ratio	-	-	-	-	0.004	
HCM Control Delay (s)	0	-	-	-	8.7	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	4	87	1	16	135	11	1	0	11	11	1	3
Future Vol, veh/h	4	87	1	16	135	11	1	0	11	11	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	96	1	18	148	12	1	0	12	12	1	3
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	160	0	0	97	0	0	297	301	97	301	295	154
Stage 1	-	-	-	-	-	-	105	105	-	190	190	-
Stage 2	-	-	-	-	-	-	192	196	-	111	105	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1419	-	-	1496	-	-	655	612	959	651	616	892
Stage 1	-	-	-	-	-	-	901	808	-	812	743	-
Stage 2	-	-	-	-	-	-	810	739	-	894	808	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1419	-	-	1496	-	-	644	602	959	635	606	892
Mov Cap-2 Maneuver	-	-	-	-	-	-	644	602	-	635	606	-
Stage 1	-	-	-	-	-	-	898	806	-	810	733	-
Stage 2	-	-	-	-	-	-	795	729	-	880	806	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.7			9			10.5		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	921	1419	-	-	1496	-	-	672				
HCM Lane V/C Ratio	0.014	0.003	-	-	0.012	-	-	0.025				
HCM Control Delay (s)	9	7.5	0	-	7.4	0	-	10.5				
HCM Lane LOS	A	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.1				

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	102	162	28	6	1
Future Vol, veh/h	6	102	162	28	6	1
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	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	123	195	34	7	1
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	229	0	-	0	349	212
Stage 1	-	-	-	-	212	-
Stage 2	-	-	-	-	137	-
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	1339	-	-	-	648	828
Stage 1	-	-	-	-	823	-
Stage 2	-	-	-	-	890	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1339	-	-	-	644	828
Mov Cap-2 Maneuver	-	-	-	-	644	-
Stage 1	-	-	-	-	818	-
Stage 2	-	-	-	-	890	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.4	0		10.5		
HCM LOS				B		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1339	-	-	-	665	
HCM Lane V/C Ratio	0.005	-	-	-	0.013	
HCM Control Delay (s)	7.7	0	-	-	10.5	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Traffic Vol, veh/h	34	375	9	7	228	34	10	14	21	36	3	33
Future Vol, veh/h	34	375	9	7	228	34	10	14	21	36	3	33
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	36	399	10	7	243	36	11	15	22	38	3	35
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	279	0	0	409	0	0	770	769	404	770	756	261
Stage 1	-	-	-	-	-	-	476	476	-	275	275	-
Stage 2	-	-	-	-	-	-	294	293	-	495	481	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1284	-	-	1150	-	-	318	332	647	318	337	778
Stage 1	-	-	-	-	-	-	570	557	-	731	683	-
Stage 2	-	-	-	-	-	-	714	670	-	556	554	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1284	-	-	1150	-	-	292	318	647	287	323	778
Mov Cap-2 Maneuver	-	-	-	-	-	-	292	318	-	287	323	-
Stage 1	-	-	-	-	-	-	549	537	-	705	678	-
Stage 2	-	-	-	-	-	-	674	665	-	503	534	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			0.2			15			15.9		
HCM LOS							C			C		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	406	1284	-	-	1150	-	-	406				
HCM Lane V/C Ratio	0.118	0.028	-	-	0.006	-	-	0.189				
HCM Control Delay (s)	15	7.9	0	-	8.2	0	-	15.9				
HCM Lane LOS	C	A	A	-	A	A	-	C				
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0	-	-	0.7				

HCM 6th TWSC
3: Turner Road & Indian Ridge Road (S)

AM Peak Build
08/31/2020

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	14	3	7	1	5
Future Vol, veh/h	2	14	3	7	1	5
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	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	18	4	9	1	6
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	13	0	-	0	33	9
Stage 1	-	-	-	-	9	-
Stage 2	-	-	-	-	24	-
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	1606	-	-	-	980	1073
Stage 1	-	-	-	-	1014	-
Stage 2	-	-	-	-	999	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1606	-	-	-	978	1073
Mov Cap-2 Maneuver	-	-	-	-	978	-
Stage 1	-	-	-	-	1012	-
Stage 2	-	-	-	-	999	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.9	0		8.4		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1606	-	-	-	1056	
HCM Lane V/C Ratio	0.002	-	-	-	0.007	
HCM Control Delay (s)	7.2	0	-	-	8.4	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	3	117	0	4	82	3	0	1	11	1	4	2
Future Vol, veh/h	3	117	0	4	82	3	0	1	11	1	4	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	78	78	78	78	78	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	150	0	5	105	4	0	1	14	1	5	3
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	109	0	0	150	0	0	279	277	150	283	275	107
Stage 1	-	-	-	-	-	-	158	158	-	117	117	-
Stage 2	-	-	-	-	-	-	121	119	-	166	158	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1481	-	-	1431	-	-	673	631	896	669	632	947
Stage 1	-	-	-	-	-	-	844	767	-	888	799	-
Stage 2	-	-	-	-	-	-	883	797	-	836	767	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1481	-	-	1431	-	-	664	627	896	654	628	947
Mov Cap-2 Maneuver	-	-	-	-	-	-	664	627	-	654	628	-
Stage 1	-	-	-	-	-	-	841	765	-	885	796	-
Stage 2	-	-	-	-	-	-	871	794	-	819	765	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.3			9.2			10.2		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	865	1481	-	-	1431	-	-	699				
HCM Lane V/C Ratio	0.018	0.003	-	-	0.004	-	-	0.013				
HCM Control Delay (s)	9.2	7.4	0	-	7.5	0	-	10.2				
HCM Lane LOS	A	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0				

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	125	86	11	20	13
Future Vol, veh/h	3	125	86	11	20	13
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	78	78	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	160	110	14	26	17
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	124	0	-	0	285	117
Stage 1	-	-	-	-	117	-
Stage 2	-	-	-	-	168	-
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	1463	-	-	-	705	935
Stage 1	-	-	-	-	908	-
Stage 2	-	-	-	-	862	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1463	-	-	-	703	935
Mov Cap-2 Maneuver	-	-	-	-	703	-
Stage 1	-	-	-	-	905	-
Stage 2	-	-	-	-	862	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.2	0		9.9		
HCM LOS				A		
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1463	-	-	-	779	
HCM Lane V/C Ratio	0.003	-	-	-	0.054	
HCM Control Delay (s)	7.5	0	-	-	9.9	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.2	

Intersection												
Int Delay, s/veh	3.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	9	329	5	29	487	50	7	10	23	39	13	40
Future Vol, veh/h	9	329	5	29	487	50	7	10	23	39	13	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	370	6	33	547	56	8	11	26	44	15	45
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	603	0	0	376	0	0	1064	1062	373	1053	1037	575
Stage 1	-	-	-	-	-	-	393	393	-	641	641	-
Stage 2	-	-	-	-	-	-	671	669	-	412	396	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	975	-	-	1182	-	-	201	223	673	204	231	518
Stage 1	-	-	-	-	-	-	632	606	-	463	469	-
Stage 2	-	-	-	-	-	-	446	456	-	617	604	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	975	-	-	1182	-	-	167	211	673	180	219	518
Mov Cap-2 Maneuver	-	-	-	-	-	-	167	211	-	180	219	-
Stage 1	-	-	-	-	-	-	624	598	-	457	449	-
Stage 2	-	-	-	-	-	-	378	437	-	575	596	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0.4			17.9			27.7		
HCM LOS							C			D		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	324	975	-	-	1182	-	-	260				
HCM Lane V/C Ratio	0.139	0.01	-	-	0.028	-	-	0.398				
HCM Control Delay (s)	17.9	8.7	0	-	8.1	0	-	27.7				
HCM Lane LOS	C	A	A	-	A	A	-	D				
HCM 95th %tile Q(veh)	0.5	0	-	-	0.1	-	-	1.8				

HCM 6th TWSC
3: Turner Road & Indian Ridge Road (S)

PM Peak Build
08/31/2020

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	6	4	20	10	1	4
Future Vol, veh/h	6	4	20	10	1	4
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	83	83	83	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	5	24	12	1	5
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	36	0	-	0	49	30
Stage 1	-	-	-	-	30	-
Stage 2	-	-	-	-	19	-
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	1575	-	-	-	960	1044
Stage 1	-	-	-	-	993	-
Stage 2	-	-	-	-	1004	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1575	-	-	-	956	1044
Mov Cap-2 Maneuver	-	-	-	-	956	-
Stage 1	-	-	-	-	989	-
Stage 2	-	-	-	-	1004	-
Approach	EB	WB		SB		
HCM Control Delay, s	4.4	0		8.5		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1575	-	-	-	1025	
HCM Lane V/C Ratio	0.005	-	-	-	0.006	
HCM Control Delay (s)	7.3	0	-	-	8.5	
HCM Lane LOS	A	A	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Vol, veh/h	4	91	1	17	137	12	0	1	12	3	11	3
Future Vol, veh/h	4	91	1	17	137	12	0	1	12	3	11	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	100	1	19	151	13	0	1	13	3	12	3
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	164	0	0	101	0	0	312	311	101	312	305	158
Stage 1	-	-	-	-	-	-	109	109	-	196	196	-
Stage 2	-	-	-	-	-	-	203	202	-	116	109	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1414	-	-	1491	-	-	641	604	954	641	608	887
Stage 1	-	-	-	-	-	-	896	805	-	806	739	-
Stage 2	-	-	-	-	-	-	799	734	-	889	805	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1414	-	-	1491	-	-	620	594	954	623	598	887
Mov Cap-2 Maneuver	-	-	-	-	-	-	620	594	-	623	598	-
Stage 1	-	-	-	-	-	-	893	803	-	804	729	-
Stage 2	-	-	-	-	-	-	772	724	-	873	803	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.3			0.8			9			10.8		
HCM LOS							A			B		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	912	1414	-	-	1491	-	-	639				
HCM Lane V/C Ratio	0.016	0.003	-	-	0.013	-	-	0.029				
HCM Control Delay (s)	9	7.6	0	-	7.4	0	-	10.8				
HCM Lane LOS	A	A	A	-	A	A	-	B				
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.1				

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	13	102	162	30	7	5
Future Vol, veh/h	13	102	162	30	7	5
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	83	83	30	83	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	123	540	36	8	6
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	576	0	-	0	713	558
Stage 1	-	-	-	-	558	-
Stage 2	-	-	-	-	155	-
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	997	-	-	-	398	529
Stage 1	-	-	-	-	573	-
Stage 2	-	-	-	-	873	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	997	-	-	-	391	529
Mov Cap-2 Maneuver	-	-	-	-	391	-
Stage 1	-	-	-	-	563	-
Stage 2	-	-	-	-	873	-
Approach	EB	WB		SB		
HCM Control Delay, s	1	0		13.5		
HCM LOS	B					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	997	-	-	-	439	
HCM Lane V/C Ratio	0.016	-	-	-	0.033	
HCM Control Delay (s)	8.7	0	-	-	13.5	
HCM Lane LOS	A	A	-	-	B	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

ATR DATA SUMMARY

Cedar Street

ATR Data Summary

											Weekday Average			Hourly Volumes			Directional Distribution		K-Factor						
											Wed, July 8, 2020			Thu, Jul 09, 2020			Weekday Average			NB	SB	Both	NB	SB	
											NB	SB	Both	NB	SB	Both	NB	SB							Both
12:00 AM to 12:15 AM	0	1	1	0	1	1	0.0	1.0	1.0																
12:15 AM to 12:30 AM	0	0	0	0	0	0	0.0	0.0	0.0																
12:30 AM to 12:45 AM	0	0	0	0	1	1	0.0	0.5	0.5																
12:45 AM to 01:00 AM	0	0	0	0	0	0	0.0	0.0	0.0	12:00 AM to 01:00 AM	0.0	1.5	1.5	0.000%	100.000%	0.003745									
01:00 AM to 01:15 AM	1	0	1	0	0	0	0.5	0.0	0.5	12:15 AM to 01:15 AM	0.5	0.5	1.0	50.000%	50.000%	0.002497									
01:15 AM to 01:30 AM	0	0	0	0	0	0	0.0	0.0	0.0	12:30 AM to 01:30 AM	0.5	0.5	1.0	50.000%	50.000%	0.002497									
01:30 AM to 01:45 AM	0	0	0	0	0	0	0.0	0.0	0.0	12:45 AM to 01:45 AM	0.5	0.0	0.5	100.000%	0.000%	0.001248									
01:45 AM to 02:00 AM	0	0	0	0	0	0	0.0	0.0	0.0	01:00 AM to 02:00 AM	0.5	0.0	0.5	100.000%	0.000%	0.001248									
02:00 AM to 02:15 AM	0	0	0	1	0	1	0.5	0.0	0.5	01:15 AM to 02:15 AM	0.5	0.0	0.5	100.000%	0.000%	0.001248									
02:15 AM to 02:30 AM	0	0	0	0	0	0	0.0	0.0	0.0	01:30 AM to 02:30 AM	0.5	0.0	0.5	100.000%	0.000%	0.001248									
02:30 AM to 02:45 AM	0	0	0	0	0	0	0.0	0.0	0.0	01:45 AM to 02:45 AM	0.5	0.0	0.5	100.000%	0.000%	0.001248									
02:45 AM to 03:00 AM	0	0	0	0	0	0	0.0	0.0	0.0	02:00 AM to 03:00 AM	0.5	0.0	0.5	100.000%	0.000%	0.001248									
03:00 AM to 03:15 AM	0	0	0	0	0	0	0.0	0.0	0.0	02:15 AM to 03:15 AM	0.0	0.0	0.0	#DIV/0!	#DIV/0!	0.000000									
03:15 AM to 03:30 AM	0	1	1	0	1	1	0.0	1.0	1.0	02:30 AM to 03:30 AM	0.0	1.0	1.0	0.000%	100.000%	0.002497									
03:30 AM to 03:45 AM	0	0	0	0	0	0	0.0	0.0	0.0	02:45 AM to 03:45 AM	0.0	1.0	1.0	0.000%	100.000%	0.002497									
03:45 AM to 04:00 AM	0	0	0	0	0	0	0.0	0.0	0.0	03:00 AM to 04:00 AM	0.0	1.0	1.0	0.000%	100.000%	0.002497									
04:00 AM to 04:15 AM	0	0	0	1	1	2	0.5	0.5	1.0	03:15 AM to 04:15 AM	0.5	1.5	2.0	25.000%	75.000%	0.004994									
04:15 AM to 04:30 AM	1	1	2	0	0	0	0.5	0.5	1.0	03:30 AM to 04:30 AM	1.0	1.0	2.0	50.000%	50.000%	0.004994									
04:30 AM to 04:45 AM	1	0	1	1	1	2	1.0	0.5	1.5	03:45 AM to 04:45 AM	2.0	1.5	3.5	57.143%	42.857%	0.008739									
04:45 AM to 05:00 AM	1	0	1	1	0	1	1.0	0.0	1.0	04:00 AM to 05:00 AM	3.0	1.5	4.5	66.667%	33.333%	0.011236									
05:00 AM to 05:15 AM	0	0	0	0	0	0	0.0	0.0	0.0	04:15 AM to 05:15 AM	2.5	1.0	3.5	71.429%	28.571%	0.008739									
05:15 AM to 05:30 AM	0	3	3	0	2	2	0.0	2.5	2.5	04:30 AM to 05:30 AM	2.0	3.0	5.0	40.000%	60.000%	0.012484									
05:30 AM to 05:45 AM	3	0	3	2	2	4	2.5	1.0	3.5	04:45 AM to 05:45 AM	3.5	3.5	7.0	50.000%	50.000%	0.017478									
05:45 AM to 06:00 AM	0	1	1	1	0	1	0.5	0.5	1.0	05:00 AM to 06:00 AM	3.0	4.0	7.0	42.857%	57.143%	0.017478									
06:00 AM to 06:15 AM	2	0	2	3	0	3	2.5	0.0	2.5	05:15 AM to 06:15 AM	5.5	4.0	9.5	57.895%	42.105%	0.023720									
06:15 AM to 06:30 AM	3	1	4	4	2	6	3.5	1.5	5.0	05:30 AM to 06:30 AM	9.0	3.0	12.0	75.000%	25.000%	0.029963									
06:30 AM to 06:45 AM	2	3	5	1	2	3	1.5	2.5	4.0	05:45 AM to 06:45 AM	8.0	4.5	12.5	64.000%	36.000%	0.031211									
06:45 AM to 07:00 AM	3	0	3	2	0	2	2.5	0.0	2.5	06:00 AM to 07:00 AM	10.0	4.0	14.0	71.429%	28.571%	0.034956									
07:00 AM to 07:15 AM	2	1	3	1	3	4	1.5	2.0	3.5	06:15 AM to 07:15 AM	9.0	6.0	15.0	60.000%	40.000%	0.037453									
07:15 AM to 07:30 AM	3	0	3	1	1	2	2.0	0.5	2.5	06:30 AM to 07:30 AM	7.5	5.0	12.5	60.000%	40.000%	0.031211									
07:30 AM to 07:45 AM	5	5	10	2	0	2	3.5	2.5	6.0	06:45 AM to 07:45 AM	9.5	5.0	14.5	65.517%	34.483%	0.036205									
07:45 AM to 08:00 AM	5	5	10	1	2	3	3.0	3.5	6.5	07:00 AM to 08:00 AM	10.0	8.5	18.5	54.054%	45.946%	0.046192									
08:00 AM to 08:15 AM	4	1	5	2	2	4	3.0	1.5	4.5	07:15 AM to 08:15 AM	11.5	8.0	19.5	58.974%	41.026%	0.048689									
08:15 AM to 08:30 AM	4	2	6	0	0	0	2.0	1.0	3.0	07:30 AM to 08:30 AM	11.5	8.5	20.0	57.500%	42.500%	0.049938									
08:30 AM to 08:45 AM	8	4	12	0	0	0	4.0	2.0	6.0	07:45 AM to 08:45 AM	12.0	8.0	20.0	60.000%	40.000%	0.049938									
08:45 AM to 09:00 AM	7	3	10	3	2	5	5.0	2.5	7.5	08:00 AM to 09:00 AM	14.0	7.0	21.0	66.667%	33.333%	0.052434									
09:00 AM to 09:15 AM	1	2	3	0	0	0	0.5	1.0	1.5	08:15 AM to 09:15 AM	11.5	6.5	18.0	63.889%	36.111%	0.044944									
09:15 AM to 09:30 AM	3	4	7	2	1	3	2.5	2.5	5.0	08:30 AM to 09:30 AM	12.0	8.0	20.0	60.000%	40.000%	0.049938									
09:30 AM to 09:45 AM	2	5	7	1	0	1	1.5	2.5	4.0	08:45 AM to 09:45 AM	9.5	8.5	18.0	52.778%	47.222%	0.044944									
09:45 AM to 10:00 AM	2	2	4	0	3	3	1.0	2.5	3.5	09:00 AM to 10:00 AM	5.5	8.5	14.0	39.286%	60.714%	0.034956									
10:00 AM to 10:15 AM	1	0	1	2	2	4	1.5	1.0	2.5	09:15 AM to 10:15 AM	6.5	8.5	15.0	43.333%	56.667%	0.037453									
10:15 AM to 10:30 AM	5	2	7	0	0	0	2.5	1.0	3.5	09:30 AM to 10:30 AM	6.5	7.0	13.5	48.148%	51.852%	0.033708									
10:30 AM to 10:45 AM	5	0	5	1	1	2	3.0	0.5	3.5	09:45 AM to 10:45 AM	8.0	5.0	13.0	61.538%	38.462%	0.032459									
10:45 AM to 11:00 AM	6	2	8	3	2	5	4.5	2.0	6.5	10:00 AM to 11:00 AM	11.5	4.5	16.0	71.875%	28.125%	0.039950									
11:00 AM to 11:15 AM	2	2	4	1	2	3	1.5	2.0	3.5	10:15 AM to 11:15 AM	11.5	5.5	17.0	67.647%	32.353%	0.042447									
11:15 AM to 11:30 AM	3	5	8	2	4	6	2.5	4.5	7.0	10:30 AM to 11:30 AM	11.5	9.0	20.5	56.098%	.	0.051186									
11:30 AM to 11:45 AM	2	1	3	2	2	4	2.0	1.5	3.5	10:45 AM to 11:45 AM	10.5	10.0	20.5	51.220%	48.780%	0.051186									
11:45 AM to 12:00 PM	2	2	4	4	2	6	3.0	2.0	5.0	11:00 AM to 12:00 PM	9.0	10.0	19.0	47.368%	52.632%	0.047441									
12:00 PM to 12:15 PM	0	3	3	3	1	4	1.5	2.0	3.5	11:15 AM to 12:15 PM	9.0	10.0	19.0	47.368%	52.632%	0.047441									
12:15 PM to 12:30 PM	1	1	2	2	1	3	1.5	1.0	2.5	11:30 AM to 12:30 PM	8.0	6.5	14.5	55.172%	44.828%	0.036205									
12:30 PM to 12:45 PM	1	4	5	2	2	4	1.5	3.0	4.5	11:45 AM to 12:45 PM	7.5	8.0	15.5	48.387%	51.613%	0.038702									
12:45 PM to 01:00 PM	5	2	7	2	1	3	3.5	1.5	5.0	12:00 PM to 01:00 PM	8.0	7.5	15.5	51.613%	48.387%	0.038702									
01:00 PM to 01:15 PM	6	3	9	4	2	6	5.0	2.5	7.5	12:15 PM to 01:15 PM	11.5	8.0	19.5	58.974%	41.026%	0.048689									
01:15 PM to 01:30 PM	4	2	6	1	3	4	2.5	2.5	5.0	12:30 PM to 01:30 PM	12.5	9.5	22.0	56.818%	43.182%	0.054931									
01:30 PM to 01:45 PM	2	1	3	2	5	7	2.0	3.0	5.0	12:45 PM to 01:45 PM	13.0	9.5	22.5	57.778%	42.222%	0.056180									
01:45 PM to 02:00 PM	2	2	4	5	2	7	3.5	2.0	5.5	01:00 PM to 02:00 PM	13.0	10.0	23.0	56.522%	43.478%	0.057428									
02:00 PM to 02:15 PM	1	6	7	2	0	2	1.5	3.0	4.5	01:15 PM to 02:15 PM	9.5	10.5	20.0	47.500%	52.500%	0.049938									
02:15 PM to 02:30 PM	1	4	5	4	6	10	2.5	5.0	7.5	01:30 PM to 02:30 PM	9.5	13.0	22.5	42.222%	57.778%	0.056180									
02:30 PM to 02:45 PM	1	3	4	5	1	6	3.0	2.0	5.0	01:45 PM to 02:45 PM	10.5	12.0	22.5	46.667%	53.333%	0.056180									
02:45 PM to 03:00 PM	4	3	7	5	4	9	4.5	3.5	8.0	02:00 PM to 03:00 PM	11.5	13.5	25.0	46.000%	54.000%	0.062422									

Cedar Street

ATR Data Summary

												Weekday Average			Directional Distribution					
												Hourly Volumes								
												Wed, July 8, 2020			Thu, Jul 09, 2020			Weekday Average		
03:00 PM to 03:15 PM	6	12	18	2	4	6	4.0	8.0	12.0	02:15 PM to 03:15 PM	14.0	18.5	32.5	43.077%	56.923%	0.081149				
03:15 PM to 03:30 PM	3	3	6	1	4	5	2.0	3.5	5.5	02:30 PM to 03:30 PM	13.5	17.0	30.5	44.262%	55.738%	0.076155				
03:30 PM to 03:45 PM	6	7	13	3	5	8	4.5	6.0	10.5	02:45 PM to 03:45 PM	15.0	21.0	36.0	41.667%	58.333%	0.089888				
03:45 PM to 04:00 PM	4	8	12	3	6	9	3.5	7.0	10.5	03:00 PM to 04:00 PM	14.0	24.5	38.5	36.364%	63.636%	0.096130				
04:00 PM to 04:15 PM	1	5	6	5	7	12	3.0	6.0	9.0	03:15 PM to 04:15 PM	13.0	22.5	35.5	36.620%	63.380%	0.088639				
04:15 PM to 04:30 PM	3	9	12	2	4	6	2.5	6.5	9.0	03:30 PM to 04:30 PM	13.5	25.5	39.0	34.615%	65.385%	0.097378				
04:30 PM to 04:45 PM	1	12	13	1	6	7	1.0	9.0	10.0	03:45 PM to 04:45 PM	10.0	28.5	38.5	25.974%	74.026%	0.096130				
04:45 PM to 05:00 PM	3	4	7	4	8	12	3.5	6.0	9.5	04:00 PM to 05:00 PM	10.0	27.5	37.5	26.667%	73.333%	0.093633				
05:00 PM to 05:15 PM	3	9	12	3	6	9	3.0	7.5	10.5	04:15 PM to 05:15 PM	10.0	29.0	39.0	25.641%	74.359%	0.097378				
05:15 PM to 05:30 PM	4	10	14	3	6	9	3.5	8.0	11.5	04:30 PM to 05:30 PM	11.0	30.5	41.5	26.506%	73.494%	0.103620				
05:30 PM to 05:45 PM	4	3	7	8	3	11	6.0	3.0	9.0	04:45 PM to 05:45 PM	16.0	24.5	40.5	39.506%	60.494%	0.101124				
05:45 PM to 06:00 PM	4	2	6	3	6	9	3.5	4.0	7.5	05:00 PM to 06:00 PM	16.0	22.5	38.5	41.558%	58.442%	0.096130				
06:00 PM to 06:15 PM	5	4	9	3	0	3	4.0	2.0	6.0	05:15 PM to 06:15 PM	17.0	17.0	34.0	50.000%	50.000%	0.084894				
06:15 PM to 06:30 PM	6	4	10	5	3	8	5.5	3.5	9.0	05:30 PM to 06:30 PM	19.0	12.5	31.5	60.317%	39.683%	0.078652				
06:30 PM to 06:45 PM	6	6	12	3	5	8	4.5	5.5	10.0	05:45 PM to 06:45 PM	17.5	15.0	32.5	53.846%	46.154%	0.081149				
06:45 PM to 07:00 PM	4	2	6	2	4	6	3.0	3.0	6.0	06:00 PM to 07:00 PM	17.0	14.0	31.0	54.839%	45.161%	0.077403				
07:00 PM to 07:15 PM	2	4	6	2	7	9	2.0	5.5	7.5	06:15 PM to 07:15 PM	15.0	17.5	32.5	46.154%	53.846%	0.081149				
07:15 PM to 07:30 PM	0	4	4	3	2	5	1.5	3.0	4.5	06:30 PM to 07:30 PM	11.0	17.0	28.0	39.286%	60.714%	0.069913				
07:30 PM to 07:45 PM	1	8	9	3	4	7	2.0	6.0	8.0	06:45 PM to 07:45 PM	8.5	17.5	26.0	32.692%	67.308%	0.064919				
07:45 PM to 08:00 PM	3	1	4	4	2	6	3.5	1.5	5.0	07:00 PM to 08:00 PM	9.0	16.0	25.0	36.000%	64.000%	0.062422				
08:00 PM to 08:15 PM	2	4	6	1	6	7	1.5	5.0	6.5	07:15 PM to 08:15 PM	8.5	15.5	24.0	35.417%	64.583%	0.059925				
08:15 PM to 08:30 PM	0	3	3	2	5	7	1.0	4.0	5.0	07:30 PM to 08:30 PM	8.0	16.5	24.5	32.653%	67.347%	0.061174				
08:30 PM to 08:45 PM	1	5	6	0	5	5	0.5	5.0	5.5	07:45 PM to 08:45 PM	6.5	15.5	22.0	29.545%	70.455%	0.054931				
08:45 PM to 09:00 PM	1	4	5	2	6	8	1.5	5.0	6.5	08:00 PM to 09:00 PM	4.5	19.0	23.5	19.149%	80.851%	0.058677				
09:00 PM to 09:15 PM	1	6	7	2	4	6	1.5	5.0	6.5	08:15 PM to 09:15 PM	4.5	19.0	23.5	19.149%	80.851%	0.058677				
09:15 PM to 09:30 PM	1	1	2	3	5	8	2.0	3.0	5.0	08:30 PM to 09:30 PM	5.5	18.0	23.5	23.404%	76.596%	0.058677				
09:30 PM to 09:45 PM	2	1	3	3	1	4	2.5	1.0	3.5	08:45 PM to 09:45 PM	7.5	14.0	21.5	34.884%	65.116%	0.053683				
09:45 PM to 10:00 PM	0	2	2	0	4	4	0.0	3.0	3.0	09:00 PM to 10:00 PM	6.0	12.0	18.0	33.333%	66.667%	0.044944				
10:00 PM to 10:15 PM	1	0	1	0	2	2	0.5	1.0	1.5	09:15 PM to 10:15 PM	5.0	8.0	13.0	38.462%	61.538%	0.032459				
10:15 PM to 10:30 PM	2	2	4	2	2	4	2.0	2.0	4.0	09:30 PM to 10:30 PM	5.0	7.0	12.0	41.667%	58.333%	0.029963				
10:30 PM to 10:45 PM	0	0	0	0	0	0	0.0	0.0	0.0	09:45 PM to 10:45 PM	2.5	6.0	8.5	29.412%	70.588%	0.021223				
10:45 PM to 11:00 PM	1	2	3	0	0	0	0.5	1.0	1.5	10:00 PM to 11:00 PM	3.0	4.0	7.0	42.857%	57.143%	0.017478				
11:00 PM to 11:15 PM	0	0	0	0	0	0	0.0	0.0	0.0	10:15 PM to 11:15 PM	2.5	3.0	5.5	45.455%	54.545%	0.013733				
11:15 PM to 11:30 PM	0	0	0	0	0	0	0.0	0.0	0.0	10:30 PM to 11:30 PM	0.5	1.0	1.5	33.333%	66.667%	0.003745				
11:30 PM to 11:45 PM	0	0	0	0	0	0	0.0	0.0	0.0	10:45 PM to 11:45 PM	0.5	1.0	1.5	33.333%	66.667%	0.003745				
11:45 PM to 12:00 AM	0	1	1	0	0	0	0.0	0.5	0.5	11:00 PM to 12:00 AM	0.0	0.5	0.5	0.000%	100.000%	0.001248				
Daily Totals	198.0	241.0	439.0	160.0	202.0	362.0	179.0	221.5	400.5											

CRASH RATE

INTERSECTION CRASH RATE WORKSHEET

TOWN : Holliston COUNT DATE : 2/26/2020

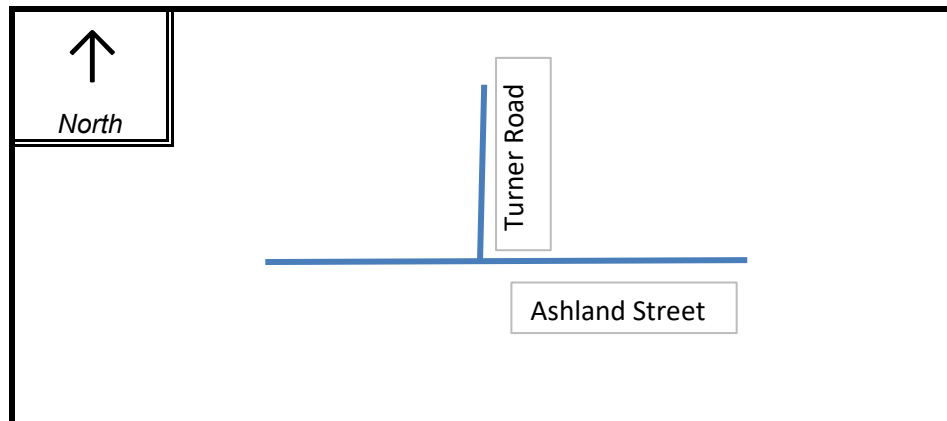
DISTRICT : 3 UNSIGNALIZED : ☒ SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Ashland Street

MINOR STREET(S) : Turner Road

INTERSECTION
DIAGRAM



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (PM) :	32	0	101	152		285

" K " FACTOR :

0.08

INTERSECTION ADT (V) = TOTAL DAILY
APPROACH VOLUME :

3,563

TOTAL # OF CRASHES :

0

OF
YEARS :

5

AVERAGE # OF
CRASHES PER YEAR (A) :

0.20

CRASH RATE CALCULATION :

0.00

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

Comments : The average crash rate for an unsignalized intersection in District is 0.57

Project Title & Date: Geoffery Park 20082

INTERSECTION CRASH RATE WORKSHEET

TOWN : Holliston COUNT DATE : 2/26/2020

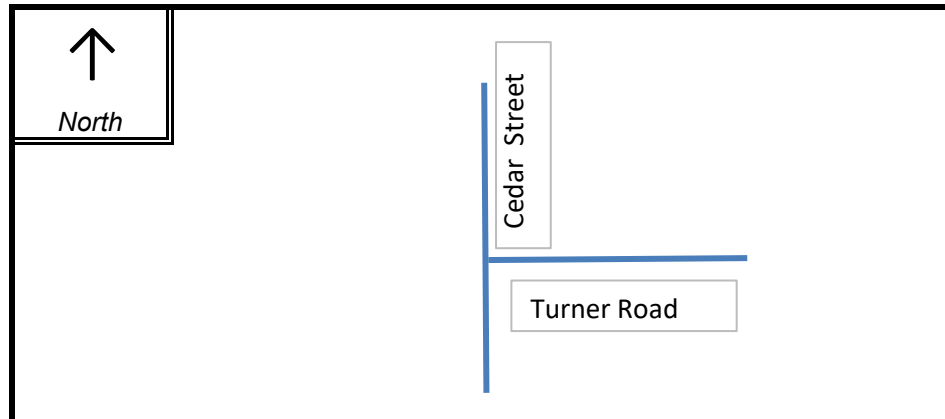
DISTRICT : 3 UNSIGNALIZED : ☒ SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Cedar Street

MINOR STREET(S) : Turner Road

INTERSECTION
DIAGRAM



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (PM) :	25	44	4	0		73

" K " FACTOR :

0.08

INTERSECTION ADT (V) = TOTAL DAILY
APPROACH VOLUME :

913

TOTAL # OF CRASHES :

0

OF
YEARS :

5

AVERAGE # OF
CRASHES PER YEAR (A) :

0.00

CRASH RATE CALCULATION :

0.00

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

Comments : The average crash rate for an unsignalized intersection in District is 0.57

Project Title & Date: Geoffery Park 20082

INTERSECTION CRASH RATE WORKSHEET

TOWN : Holliston COUNT DATE : 2/26/2020

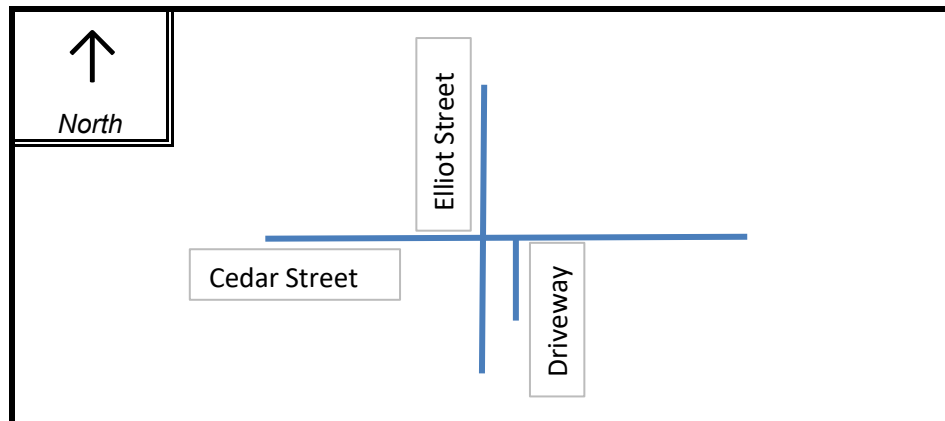
DISTRICT : 3 UNSIGNALIZED : ☒ SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Main Street

MINOR STREET(S) : Shrewsbury Street

INTERSECTION
DIAGRAM



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB	SWB	
PEAK HOURLY VOLUMES (PM) :	87	40	367	496	0	990

" K " FACTOR :

0.08

INTERSECTION ADT (V) = TOTAL DAILY
APPROACH VOLUME :

12,375

TOTAL # OF CRASHES :

10

OF
YEARS :

5

AVERAGE # OF
CRASHES PER YEAR (A) :

2.20

CRASH RATE CALCULATION :

0.44

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

Comments : The average crash rate for an unsignalized intersection in District 5 is 0.57

Project Title & Date: Geoffery Park 20082

INTERSECTION CRASH RATE WORKSHEET

TOWN : Holliston COUNT DATE : 6/24/2020

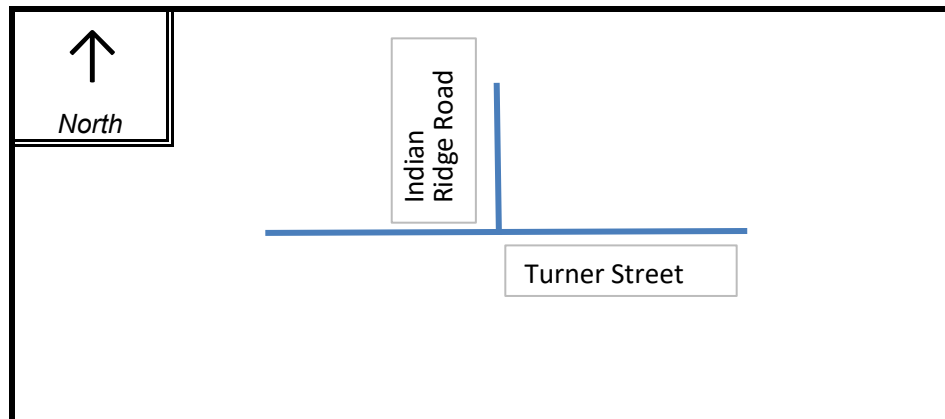
DISTRICT : 3 UNSIGNALIZED : ☒ SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Cedar Street

MINOR STREET(S) : Indian Ridge Road

INTERSECTION
DIAGRAM



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	WB	EB			
PEAK HOURLY VOLUMES (PM) :	7	19	7			33

" K " FACTOR :

0.08

INTERSECTION ADT (V) = TOTAL DAILY
APPROACH VOLUME :

413

TOTAL # OF CRASHES :

0

OF
YEARS :

5

AVERAGE # OF
CRASHES PER YEAR (A) :

0.00

CRASH RATE CALCULATION :

0.00

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

Comments : The average crash rate for an unsignalized intersection in District is 0.57

Project Title & Date: Geoffrey Park 20082

INTERSECTION CRASH RATE WORKSHEET

TOWN : Holliston COUNT DATE : 2/26/2020

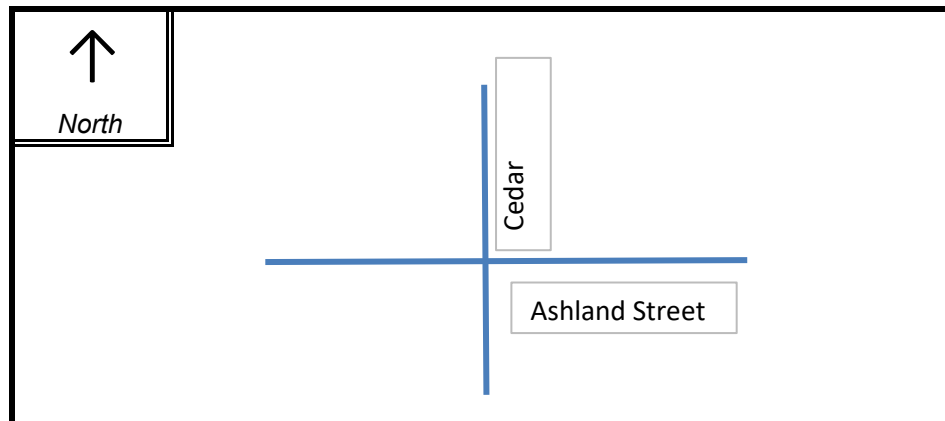
DISTRICT : 3 UNSIGNALIZED : ☒ SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Ashland Street

MINOR STREET(S) : Cedar Street

INTERSECTION
DIAGRAM



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (PM) :	14	17	101	130		262

" K " FACTOR :

0.08

INTERSECTION ADT (V) = TOTAL DAILY
APPROACH VOLUME :

3,275

TOTAL # OF CRASHES :

2

OF
YEARS :

5

AVERAGE # OF
CRASHES PER YEAR (A) :

0.60

CRASH RATE CALCULATION :

0.33

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

Comments : The average crash rate for an unsignalized intersection in District is 0.57

Project Title & Date: Geoffery Park 20082