EPR

TRAFFIC IMPACT STUDY

Manning Road Subdivision
Suffolk, VA

Prepared for:

Coastal Virginia Developers

By:

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EPR

April 2022

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1.0 PROJECT OVERVIEW

This technical memorandum summarizes the work effort undertaken by EPR for Coastal Virginia Developers (Coastal) to document the traffic impacts of the proposed Manning Road subdivision in Suffolk, Virginia. The parcel is located off of Manning Drive in western Suffolk.

This study is based on the conceptual site plan provided by Coastal (see Appendix A). The site plan identifies a development with 262 single family units covering 114.4 acres. However, this study assumes 300 single family units. Access will be provided via two access locations on Manning Road.

As requested by city staff, this study includes an evaluation of traffic impacts at the intersection of Holland Road and Manning Bridge Road.

A vicinity map is provided in Figure 1.

2.0 BACKGROUND

The proposed development is off of Manning Road. City staff requested that the traffic study include an evaluation of impacts at the intersection of Holland Road and Manning Bridge Road.

Traffic Volumes

Turning movement counts were utilized from previous studies in the immediate area. The counts were conducted on Thursday, May 23 from 7 – 9 AM and 4 – 6 PM on a typical day with school in session. The existing 2019 peak hour traffic volumes are illustrated in Figure 2A and the existing year 2022 peak hour traffic volumes are illustrated in Figure 2B (increased by the same percentage as background traffic growth, see the next section for discussion). The count worksheets are provided in Appendix B.

3.0 FUTURE YEAR TRAFFIC VOLUMES

Background Traffic

The development is proposed to be built in four years; thus the build year is 2026. To evaluate a year 2026 no build condition (the background traffic in the study area without considering the proposed development), the existing traffic volumes were projected to the year 2026. A 2.5% per year growth rate was applied to the existing volumes to derive the 2026 background volumes (representing an approximate long-term average utilized in previous studies in the corridor). The no build 2026 volumes are illustrated in Figure 3.

Proposed Site Trip Generation

The trip generation potential of the proposed development was determined using data published in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual* (10^{th} Edition). The resulting number of trips estimated to be generated by the proposed development is identified in Table 1.

TABLE 1
Site Generated Traffic
(Vehicles Per Day and Vehicles Per Hour)

USE	ITE Code	ADT	AM PEAK		PM PEAK	
			IN	OUT	IN	OUT
300 Single Family Detached	210	2857	55	167	184	108

Source: ITE Trip Generation Manual

Traffic Distribution

To assume a worst-case scenario, it was assumed all site trips will utilize the Holland Road and Manning Bridge Road intersection. The trip distribution was assigned based on the current distribution percentages at the intersection. Figure 4 illustrates the resulting site generated trips and Figure 5 illustrates the projected year 2026 build traffic volumes.

4.0 INTERSECTION CAPACITY ANALYSES

The intersection capacity analyses were performed using Synchro per the methodology documented in the Highway Capacity Manual (Transportation Research Board). The Synchro based calculations are provided in this report (note that because of shared lanes, HCM values are not provided for these intersection analyses).

Capacity analyses are utilized to determine a Level of Service (LOS) for a given intersection operating under either signalized or unsignalized control. The LOS is based on estimated delay and range from LOS A, the best, to LOS F, the worst. In general LOS A and LOS B indicate little or no delay, LOS C indicates average delay, LOS D indicates delay is increasing and noticeable, LOS E indicates the limit of acceptable delay and LOS F is characteristic of over saturated conditions. The actual delays associated with these levels of service are identified in Table 2.

TABLE 2
LOS and Delay Thresholds

LOS	UNSIGNALIZED INT. DELAY (secs)	SIGNALIZED INT. DELAY (secs)
A	0 – 10	< 10
B	> 10 – 15	> 10 – 20
C	> 15 – 25	> 20 – 35
D	> 25 – 35	> 35 – 55
E	> 35 – 50	> 55 – 80
F	> 50	> 80

Source: Highway Capacity Manual

Capacity analyses were conducted for the study intersection for existing conditions, year 2026 no build conditions, and year 2026 build conditions. The analysis worksheets are provided in Appendices C, D, and E (existing, no build, and build). The analysis results are summarized by intersection in the following sections.

Analysis Notes – Corridor Improvement Project
The Holland Road corridor improvement project is currently ongoing. For the purposes of this study, no improvements along the corridor are assumed.

Holland Road and Centerpoint Drive / Manning Bridge Road (Signalized Intersection)
Delay and level of service (LOS) are summarized in Table 3 below. All movements are expected to operate at LOS D or better during both peaks for all scenarios with an overall intersection level of service of LOS C.

TABLE 3
Holland Road and Centerpoint Drive / Manning Bridge Road
Delay (sec/veh) and LOS

	Existing		2026 No Build		2026 Build	
	AM	PM	AM	PM	AM	PM
Holland EB Left	33.0 C	45.9 D	33.0 C	46.6 D	33.0 C	46.6 D
Holland EB Thru	28.0 C	20.6 C	33.0 C	18.6 B	38.4 D	29.9 C
Holland EB Right	0.1 A	0.1 A	0.1 A	0.1 A	0.2 A	3.2 A
Holland WB Left	34.2 C	42.5 D	35.2 D	42.7 D	45.2 D	53.0 D
Holland WB Thru	17.4 B	29.5 C	15.2 B	28.3 C	14.0 B	28.1 C
Holland WB Right	0.5 A	0.2 A	0.4 A	0.2 A	0.4 A	0.2 A
Manning Br NB Left-Thru	24.4 C	30.9 C	26.7 C	33.4 C	38.8 D	39.0 D
Manning Br NB Right	0.6 A	0.5 A	0.9 A	0.8 A	8.5 A	8.9 A
Centerpoint SB Left-Thru	31.2 C	36.5 D	39.0 D	44.1 D	49.0 D	48.2 D
Centerpoint SB Right	0.2 A	0.6 A	0.3 A	0.9 A	0.3 A	0.9 A
Intersection	22.6 C	25.2 C	24.9 C	24.3 C	27.5 C	28.6 C

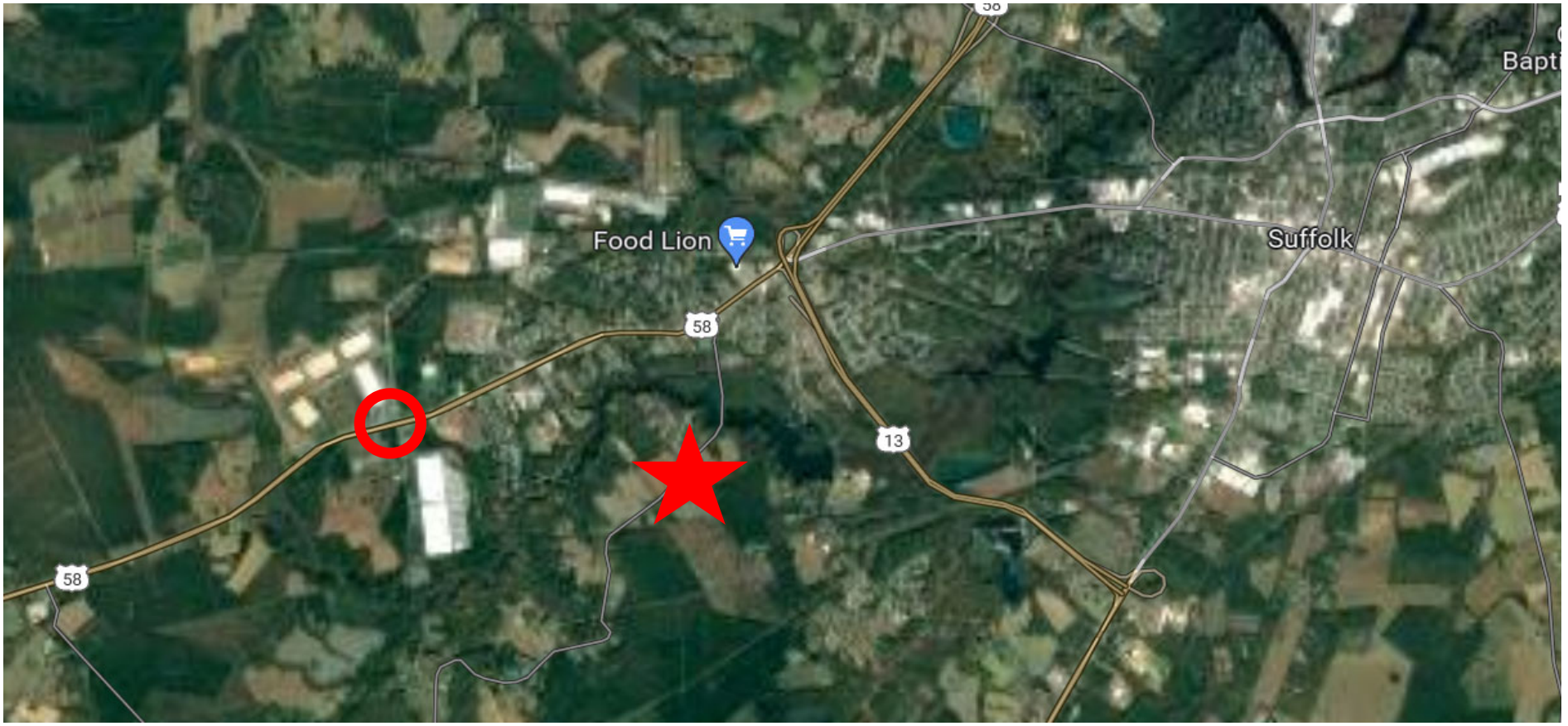
5.0 SUMMARY

A summary of the analysis conducted is provided as follows:

1. Intersection Capacity Analysis
   The intersection operations analyses indicate the study intersection is expected to operate satisfactorily.

2. Access
   The subdivision will have two access locations on Manning Road. The main access location will be a full access location and will include exclusive left and right turns lanes from Manning Road. The secondary access will be a right-in / right-out access location.

FIGURE 1
VICINITY MAP



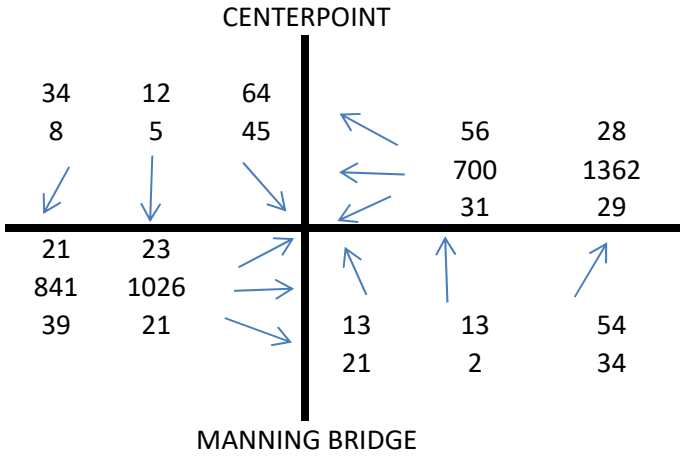
LEGEND

Proposed Site

Study Intersection

NORTH

FIGURE 2A
EXISTING 2019
PEAK HOUR VOLUMES

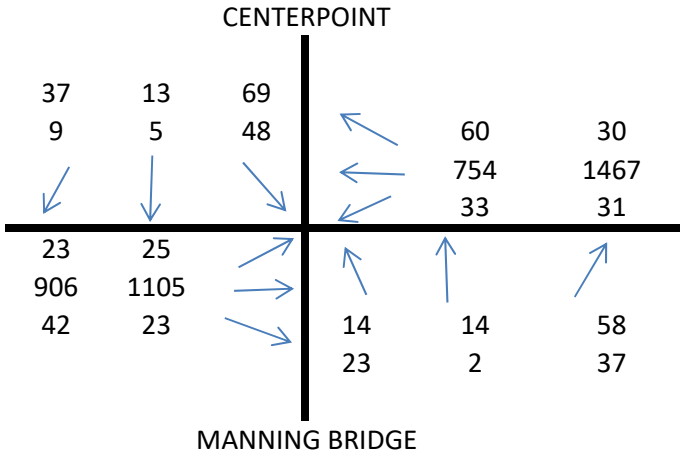


LEGEND
123 456 →
PM AM
(closest to the arrow is AM)

FIGURE 2B
EXISTING 2022
PEAK HOUR VOLUMES

BACKGROUND GROWTH INCREASE

Per year	2.5%
# of years	3
Rate	1.076891



LEGEND

123 456 →

PM AM

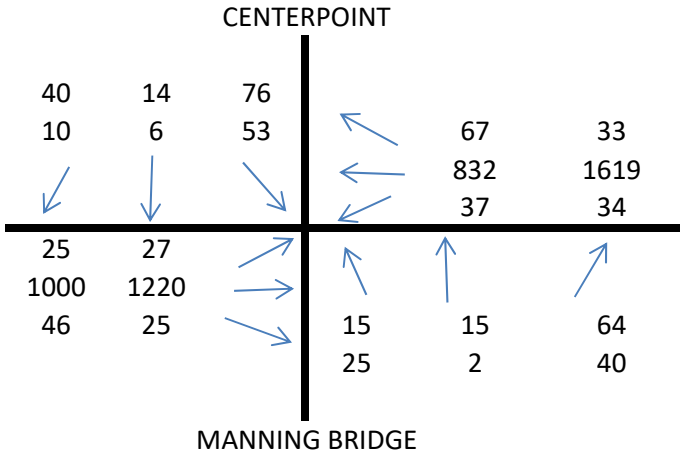
(closest to the arrow is AM)

↑

FIGURE 3
NO BUILD 2026
PEAK HOUR VOLUMES

BACKGROUND GROWTH INCREASE

Per year	2.5%
# of years	4
Rate	1.103813



LEGEND

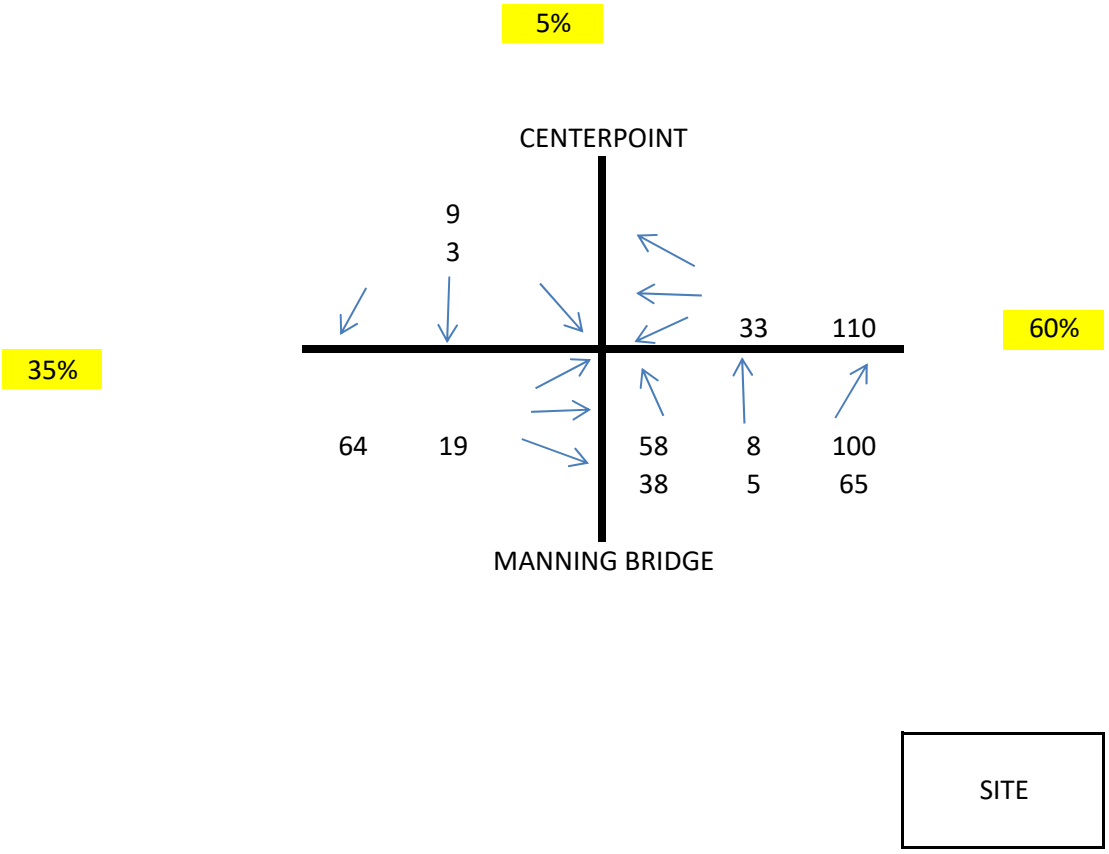
123 456 →

PM AM

(closest to the arrow is AM)

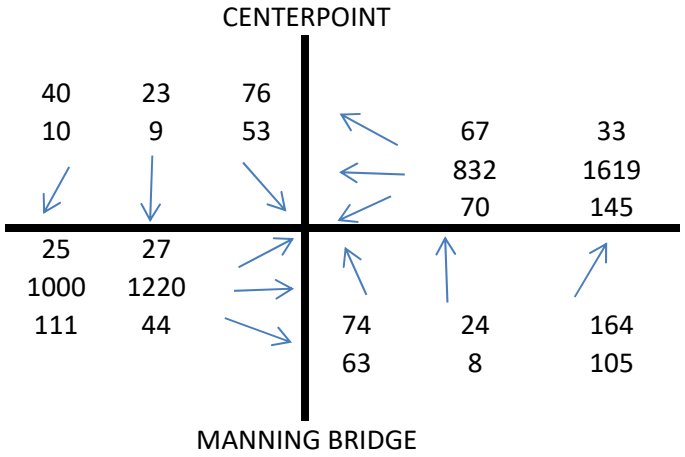
FIGURE 4
SITE TRIPS
PEAK HOUR VOLUMES

	AM		PM	
	In	Out	In	Out
300 SF Houses LU 210	55	167	184	108



LEGEND
123 456 → Distribution %
PM AM
(closest to the arrow is AM)

FIGURE 5
BUILD 2026
PEAK HOUR VOLUMES



LEGEND
123 456 →
PM AM
(closest to the arrow is AM)

↑

Appendix A
Conceptual Site Plan

CONCEPTUAL MASTER PLAN
CLUSTER LAYOUT

SITE DATA:
SINGLE FAMILY LOTS (60'x120' LOTS)
TOTAL LOTS: 262

TOTAL SITE AC: 114.4 AC
TOAL CRITICAL AC: 16.6 AC
TOAL DEVELOPABLE AC: 97.8 AC

RLM DUA: 2.9
PROPOSED DUA: 2.4

REQUIRED OPEN SPACE: 51.48 AC (45%)
PROPOSED OPEN SPACE: 36.83 AC
20% CRITICAL AREA: 3.32 AC
TOTAL PROPOSED OPEN SPACE: 40.15 AC (35%)

OPEN SPACE NEEDED: 11.33 AC

SWM: 2.63 AC
IMPACTED WETLANDS: 0.23 AC

OPEN SPACE
WETLANDS
IMPACTED WETLANDS

BMP
BMP
BMP
BMP
BMP
BMP
MANNING ROAD
100' BUFFER
PARK

*Masterplan is for conceptual use only. Base map is approximate and not based off of survey data.

MANNING ROAD PROPERTY
COASTAL VA DEVELOPERS
Suffolk, Virginia

03/ 01/ 2022

0' 100' 200' 400' FT
SCALE: 1" = 200'
NORTH

CITE DESIGN

Appendix B
Turning Movement Counts

Data Collection Group
LSmith@DataCollectionGroup.net

File Name : Manning Bridge and Holland
Site Code : 00000044
Start Date : 5/23/2019
Page No : 1

Groups Printed- Passenger Veh - Trucks

	Centerpoint From North					Holland From East					Mannning Bridge From South					Holland From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	3	0	8	0	11	26	170	13	0	209	17	0	3	0	20	11	198	11	0	220	460
07:15 AM	6	0	4	0	10	15	162	10	0	187	18	2	3	0	23	12	203	3	0	218	438
07:30 AM	3	0	6	0	9	16	190	5	0	211	14	1	4	0	19	5	285	6	0	296	535
07:45 AM	1	1	20	0	22	16	173	10	0	199	13	7	5	0	25	6	257	8	0	271	517
Total	13	1	38	0	52	73	695	38	0	806	62	10	15	0	87	34	943	28	0	1005	1950
08:00 AM	4	3	8	0	15	15	179	6	0	200	19	3	2	0	24	5	244	5	0	254	493
08:15 AM	0	1	11	0	12	9	158	10	0	177	8	2	2	0	12	5	240	4	0	249	450
08:30 AM	2	2	11	0	15	22	206	13	0	241	9	2	6	0	17	5	205	2	0	212	485
08:45 AM	7	1	15	0	23	15	204	10	0	229	10	5	5	0	20	3	191	6	0	200	472
Total	13	7	45	0	65	61	747	39	0	847	46	12	15	0	73	18	880	17	0	915	1900
*** BREAK ***																					
04:00 PM	13	3	12	0	28	13	270	9	0	292	6	7	5	0	18	11	162	6	0	179	517
04:15 PM	8	1	11	0	20	13	320	14	0	347	8	3	5	0	16	4	176	8	0	188	571
04:30 PM	8	5	13	0	26	6	340	6	0	352	9	1	3	0	13	9	242	6	0	257	648
04:45 PM	13	2	23	0	38	10	348	5	0	363	3	0	4	0	7	5	193	7	0	205	613
Total	42	11	59	0	112	42	1278	34	0	1354	26	11	17	0	54	29	773	27	0	829	2349
05:00 PM	9	5	15	0	29	6	310	10	0	326	10	1	9	0	20	10	184	6	0	200	575
05:15 PM	4	0	13	0	17	6	364	8	0	378	12	0	5	0	17	15	222	2	0	239	651
05:30 PM	7	7	8	0	22	15	318	14	0	347	16	3	6	0	25	24	180	10	0	214	608
05:45 PM	8	2	8	0	18	6	296	8	0	310	10	3	3	0	16	13	155	6	0	174	518
Total	28	14	44	0	86	33	1288	40	0	1361	48	7	23	0	78	62	741	24	0	827	2352
Grand Total	96	33	186	0	315	209	4008	151	0	4368	182	40	70	0	292	143	3337	96	0	3576	8551
Apprch %	30.5	10.5	59	0		4.8	91.8	3.5	0		62.3	13.7	24	0		4	93.3	2.7	0		
Total %	1.1	0.4	2.2	0	3.7	2.4	46.9	1.8	0	51.1	2.1	0.5	0.8	0	3.4	1.7	39	1.1	0	41.8	
Passenger Veh	46	27	95	0	168	83	3497	129	0	3709	159	30	58	0	247	132	2886	64	0	3082	7206
% Passenger Veh	47.9	81.8	51.1	0	53.3	39.7	87.3	85.4	0	84.9	87.4	75	82.9	0	84.6	92.3	86.5	66.7	0	86.2	84.3
Trucks	50	6	91	0	147	126	511	22	0	659	23	10	12	0	45	11	451	32	0	494	1345
% Trucks	52.1	18.2	48.9	0	46.7	60.3	12.7	14.6	0	15.1	12.6	25	17.1	0	15.4	7.7	13.5	33.3	0	13.8	15.7

Data Collection Group
LSmith@DataCollectionGroup.net

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Site Code : 00000044
Start Date : 5/23/2019
Page No : 2

	Centerpoint From North					Holland From East					Mannning Bridge From South					Holland From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	3	0	6	0	9	**16**	**190**	5	0	**211**	14	1	4	0	19	5	**285**	6	0	**296**	**535**
07:45 AM	1	1	**20**	0	**22**	16	173	**10**	0	199	13	**7**	**5**	0	**25**	**6**	257	**8**	0	271	517
08:00 AM	**4**	**3**	8	0	15	15	179	6	0	200	**19**	3	2	0	24	5	244	5	0	254	493
08:15 AM	0	1	11	0	12	9	158	10	0	177	8	2	2	0	12	5	240	4	0	249	450
Total Volume	8	5	45	0	58	56	700	31	0	787	54	13	13	0	80	21	1026	23	0	1070	1995
% App. Total	13.8	8.6	77.6	0		7.1	88.9	3.9	0		67.5	16.2	16.2	0		2	95.9	2.1	0		
PHF	.500	.417	.563	.000	.659	.875	.921	.775	.000	.932	.711	.464	.650	.000	.800	.875	.900	.719	.000	.904	.932
Passenger Veh	1	4	18	0	23	22	560	24	0	606	48	10	12	0	70	16	856	14	0	886	1585
% Passenger Veh	12.5	80.0	40.0	0	39.7	39.3	80.0	77.4	0	77.0	88.9	76.9	92.3	0	87.5	76.2	83.4	60.9	0	82.8	79.4
Trucks	7	1	27	0	35	34	140	7	0	181	6	3	1	0	10	5	170	9	0	184	410
% Trucks	87.5	20.0	60.0	0	60.3	60.7	20.0	22.6	0	23.0	11.1	23.1	7.7	0	12.5	23.8	16.6	39.1	0	17.2	20.6

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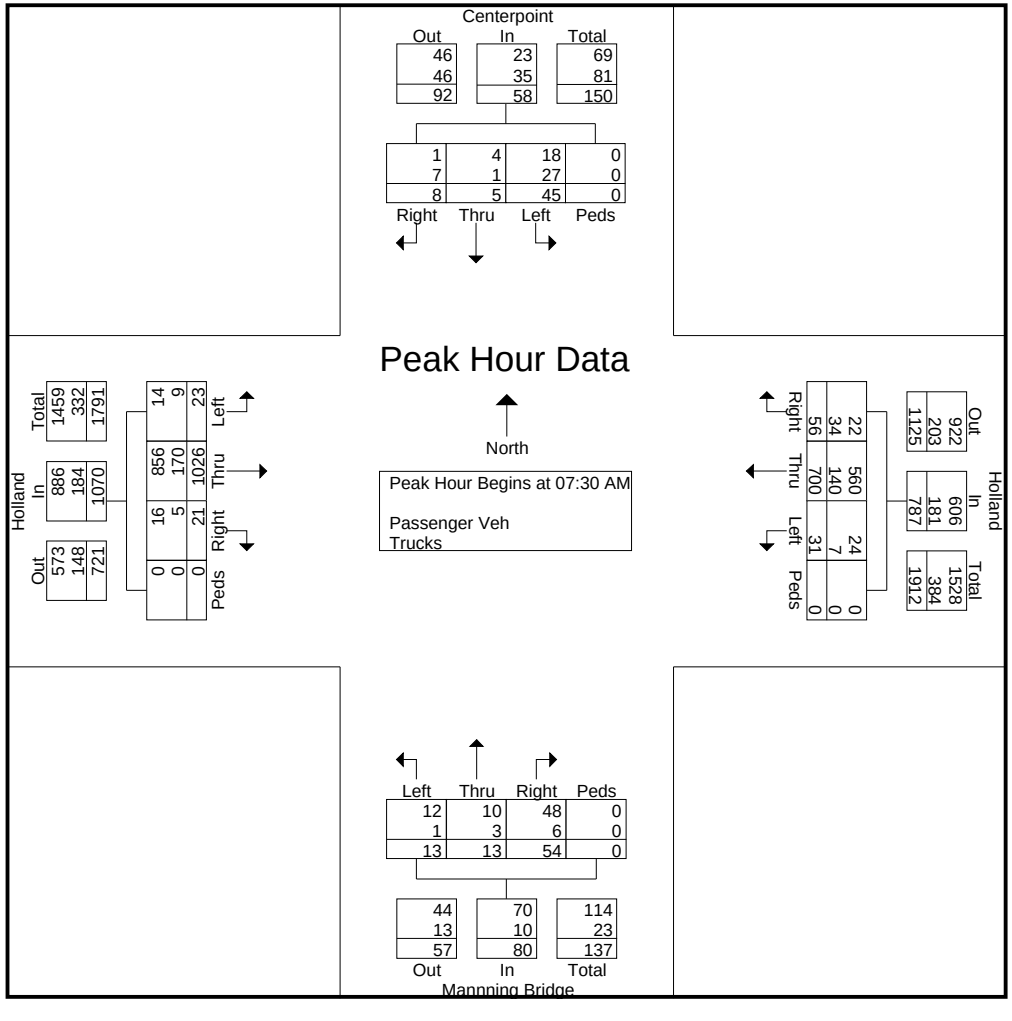
Page No : 3



Data Collection Group
LSmith@DataCollectionGroup.net

File Name : Manning Bridge and Holland
Site Code : 00000044
Start Date : 5/23/2019
Page No : 4

	Centerpoint From North					Holland From East					Mannning Bridge From South					Holland From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	8	**5**	13	0	26	6	340	6	0	352	9	**1**	3	0	13	9	**242**	6	0	**257**	648
04:45 PM	**13**	2	**23**	0	**38**	**10**	348	5	0	363	3	0	4	0	7	5	193	**7**	0	205	613
05:00 PM	9	5	15	0	29	6	310	**10**	0	326	10	1	**9**	0	**20**	10	184	6	0	200	575
05:15 PM	4	0	13	0	17	6	**364**	8	0	**378**	**12**	0	5	0	17	**15**	222	2	0	239	**651**
Total Volume	34	12	64	0	110	28	1362	29	0	1419	34	2	21	0	57	39	841	21	0	901	2487
% App. Total	30.9	10.9	58.2	0		2	96	2	0		59.6	3.5	36.8	0		4.3	93.3	2.3	0		
PHF	.654	.600	.696	.000	.724	.700	.935	.725	.000	.938	.708	.500	.583	.000	.713	.650	.869	.750	.000	.876	.955
Passenger Veh	22	9	44	0	75	11	1244	26	0	1281	27	2	18	0	47	38	761	15	0	814	2217
% Passenger Veh	64.7	75.0	68.8	0	68.2	39.3	91.3	89.7	0	90.3	79.4	100	85.7	0	82.5	97.4	90.5	71.4	0	90.3	89.1
Trucks	12	3	20	0	35	17	118	3	0	138	7	0	3	0	10	1	80	6	0	87	270
% Trucks	35.3	25.0	31.3	0	31.8	60.7	8.7	10.3	0	9.7	20.6	0	14.3	0	17.5	2.6	9.5	28.6	0	9.7	10.9

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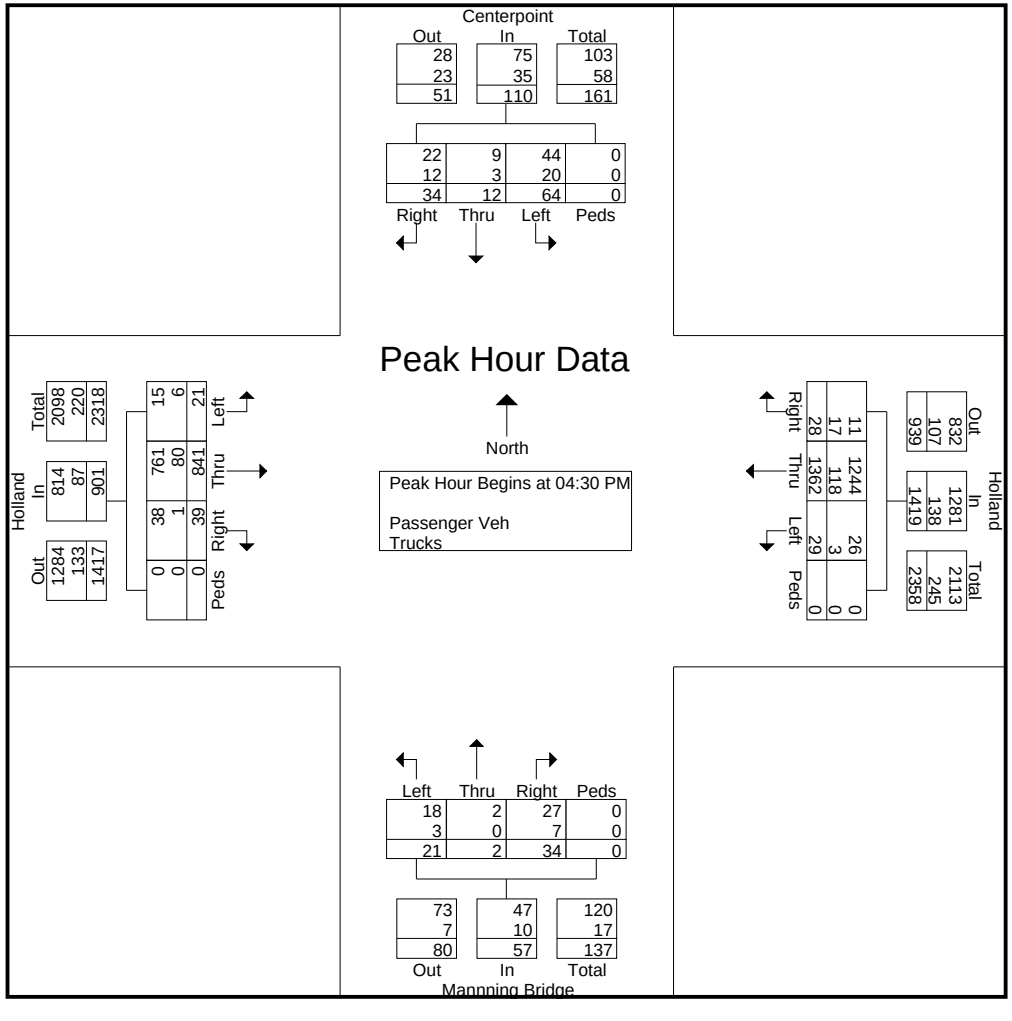
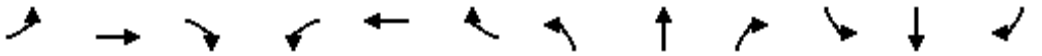


Appendix C
Intersection Capacity Analysis
Existing

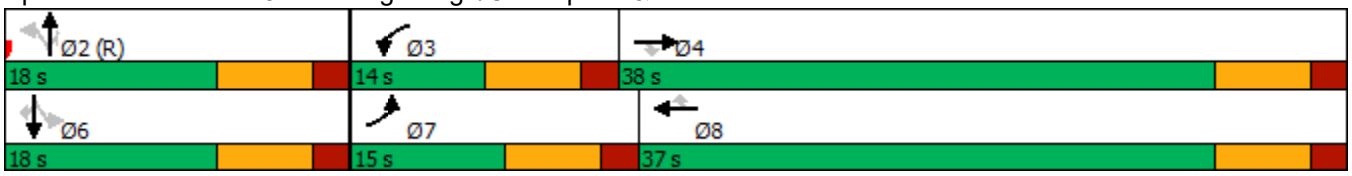


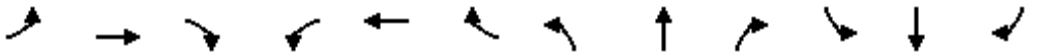
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	1105	23	33	754	60	14	14	58	48	5	9
Future Volume (vph)	25	1105	23	33	754	60	14	14	58	48	5	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		225	250		200	500		0	0		300
Storage Lanes	1		1	1		1	1		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1299	3085	1302	1467	3008	1003	0	1606	1455	0	1165	859
Flt Permitted	0.950			0.950				0.834			0.721	
Satd. Flow (perm)	1299	3085	1302	1467	3008	1003	0	1372	1455	0	878	859
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			171			171			171			171
Link Speed (mph)		55			55			30			30	
Link Distance (ft)		581			694			747			588	
Travel Time (s)		7.2			8.6			17.0			13.4	
Peak Hour Factor	0.90	0.90	0.90	0.93	0.93	0.93	0.80	0.80	0.80	0.66	0.66	0.66
Heavy Vehicles (%)	39%	17%	24%	23%	20%	61%	8%	23%	11%	60%	20%	88%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	1228	26	35	811	65	0	36	73	0	81	14
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	12.0	20.0	20.0	12.0	20.0	20.0	12.0	12.0	12.0	12.0	12.0	12.0
Total Split (s)	15.0	38.0	38.0	14.0	37.0	37.0	18.0	18.0	18.0	18.0	18.0	18.0
Total Split (%)	21.4%	54.3%	54.3%	20.0%	52.9%	52.9%	25.7%	25.7%	25.7%	25.7%	25.7%	25.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	Max	Max	Max
Act Effct Green (s)	6.8	31.3	31.3	6.5	30.9	30.9		19.1	19.1		19.1	19.1
Actuated g/C Ratio	0.10	0.45	0.45	0.09	0.44	0.44		0.27	0.27		0.27	0.27
v/c Ratio	0.22	0.89	0.04	0.26	0.61	0.12		0.10	0.14		0.34	0.04
Control Delay	33.0	28.0	0.1	34.2	17.4	0.5		24.4	0.6		31.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	33.0	28.0	0.1	34.2	17.4	0.5		24.4	0.6		31.2	0.2
LOS	C	C	A	C	B	A		C	A		C	A
Approach Delay		27.6			16.9			8.4			26.6	
Approach LOS		C			B			A			C	
Queue Length 50th (ft)	11	225	0	14	122	0		11	0		26	0
Queue Length 95th (ft)	34	#383	0	40	195	0		34	0		53	0
Internal Link Dist (ft)		501			614			667			508	
Turn Bay Length (ft)	150		225	250		200						300
Base Capacity (vph)	148	1400	684	146	1340	541		375	522		239	359

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0	0	0	0	0		0	0		0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0		0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0		0	0
Reduced v/c Ratio	0.19	0.88	0.04	0.24	0.61	0.12		0.10	0.14		0.34	0.04

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 22.6		Intersection LOS: C	
Intersection Capacity Utilization 56.4%		ICU Level of Service B	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 5: Manning Bridge/Centerpoint & Holland



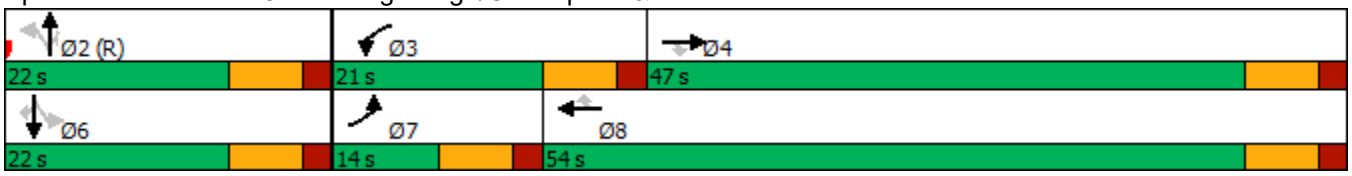


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	906	42	31	1467	30	23	2	37	69	13	37
Future Volume (vph)	23	906	42	31	1467	30	23	2	37	69	13	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		225	250		200	500		0	0		300
Storage Lanes	1		1	1		1	1		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1399	3282	1568	1641	3312	1003	0	1610	1335	0	1403	1196
Flt Permitted	0.950			0.950				0.704			0.735	
Satd. Flow (perm)	1399	3282	1568	1641	3312	1003	0	1186	1335	0	1074	1196
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			133			133			133			133
Link Speed (mph)		55			55			30			30	
Link Distance (ft)		581			694			747			588	
Travel Time (s)		7.2			8.6			17.0			13.4	
Peak Hour Factor	0.88	0.88	0.88	0.94	0.94	0.94	0.71	0.71	0.71	0.72	0.72	0.72
Heavy Vehicles (%)	29%	10%	3%	10%	9%	61%	14%	0%	21%	31%	25%	35%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	1030	48	33	1561	32	0	35	52	0	114	51
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	12.0	20.0	20.0	12.0	20.0	20.0	12.0	12.0	12.0	12.0	12.0	12.0
Total Split (s)	14.0	47.0	47.0	21.0	54.0	54.0	22.0	22.0	22.0	22.0	22.0	22.0
Total Split (%)	15.6%	52.2%	52.2%	23.3%	60.0%	60.0%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	Max	Max	Max
Act Effct Green (s)	6.5	42.9	42.9	7.4	46.5	46.5		23.9	23.9		23.9	23.9
Actuated g/C Ratio	0.07	0.48	0.48	0.08	0.52	0.52		0.27	0.27		0.27	0.27
v/c Ratio	0.26	0.66	0.06	0.25	0.91	0.05		0.11	0.12		0.40	0.12
Control Delay	45.9	20.6	0.1	42.5	29.5	0.2		30.9	0.5		36.5	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	45.9	20.6	0.1	42.5	29.5	0.2		30.9	0.5		36.5	0.6
LOS	D	C	A	D	C	A		C	A		D	A
Approach Delay		20.3			29.1			12.7			25.4	
Approach LOS		C			C			B			C	
Queue Length 50th (ft)	14	276	0	18	390	0		14	0		50	0
Queue Length 95th (ft)	39	274	0	46	#572	0		35	0		91	0
Internal Link Dist (ft)		501			614			667			508	
Turn Bay Length (ft)	150		225	250		200						300
Base Capacity (vph)	108	1610	837	255	1737	589		314	452		285	415

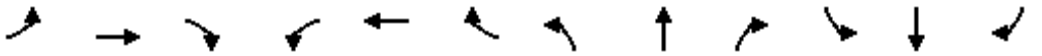
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0	0	0	0	0		0	0		0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0		0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0		0	0
Reduced v/c Ratio	0.24	0.64	0.06	0.13	0.90	0.05		0.11	0.12		0.40	0.12

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 25.2		Intersection LOS: C	
Intersection Capacity Utilization 66.4%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 5: Manning Bridge/Centerpoint & Holland



Appendix D
Intersection Capacity Analysis
No Build 2026

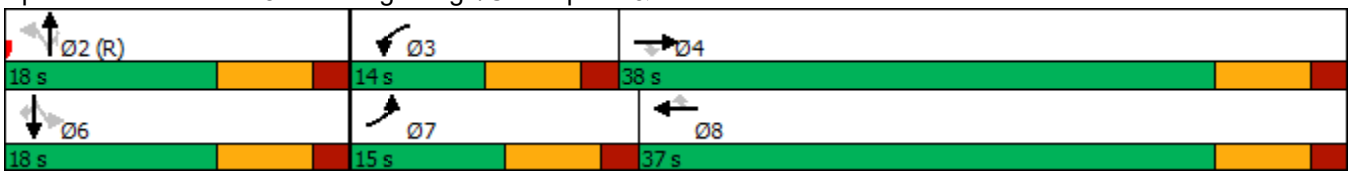


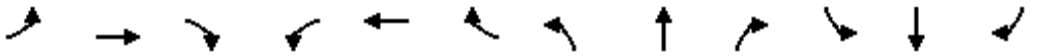
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	1220	25	37	832	67	15	15	64	53	6	10
Future Volume (vph)	27	1220	25	37	832	67	15	15	64	53	6	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		225	250		200	500		0	0		300
Storage Lanes	1		1	1		1	1		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1299	3085	1302	1467	3008	1003	0	1606	1455	0	1166	859
Flt Permitted	0.950			0.950				0.796			0.720	
Satd. Flow (perm)	1299	3085	1302	1467	3008	1003	0	1309	1455	0	877	859
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			171			171			171			171
Link Speed (mph)		55			55			30			30	
Link Distance (ft)		581			694			747			588	
Travel Time (s)		7.2			8.6			17.0			13.4	
Peak Hour Factor	0.90	0.90	0.90	0.93	0.93	0.93	0.80	0.80	0.80	0.66	0.66	0.66
Heavy Vehicles (%)	39%	17%	24%	23%	20%	61%	8%	23%	11%	60%	20%	88%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	1356	28	40	895	72	0	38	80	0	89	15
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	12.0	20.0	20.0	12.0	20.0	20.0	12.0	12.0	12.0	12.0	12.0	12.0
Total Split (s)	15.0	38.0	38.0	14.0	37.0	37.0	18.0	18.0	18.0	18.0	18.0	18.0
Total Split (%)	21.4%	54.3%	54.3%	20.0%	52.9%	52.9%	25.7%	25.7%	25.7%	25.7%	25.7%	25.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	Max	Max	Max
Act Effct Green (s)	6.9	32.8	32.8	6.5	35.2	35.2		14.8	14.8		14.8	14.8
Actuated g/C Ratio	0.10	0.47	0.47	0.09	0.50	0.50		0.21	0.21		0.21	0.21
v/c Ratio	0.24	0.94	0.04	0.29	0.59	0.12		0.14	0.18		0.48	0.05
Control Delay	33.3	33.3	0.1	35.2	15.2	0.4		26.7	0.9		39.0	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	33.3	33.3	0.1	35.2	15.2	0.4		26.7	0.9		39.0	0.3
LOS	C	C	A	D	B	A		C	A		D	A
Approach Delay		32.6			15.0			9.2			33.4	
Approach LOS		C			B			A			C	
Queue Length 50th (ft)	12	291	0	16	88	0		14	0		36	0
Queue Length 95th (ft)	36	#447	0	44	223	0		35	0		57	0
Internal Link Dist (ft)		501			614			667			508	
Turn Bay Length (ft)	150		225	250		200						300
Base Capacity (vph)	148	1443	700	146	1511	588		277	443		185	317

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0	0	0	0	0		0	0		0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0		0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0		0	0
Reduced v/c Ratio	0.20	0.94	0.04	0.27	0.59	0.12		0.14	0.18		0.48	0.05

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 24.9		Intersection LOS: C	
Intersection Capacity Utilization 59.6%		ICU Level of Service B	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 5: Manning Bridge/Centerpoint & Holland





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	1000	46	34	1619	33	25	2	40	76	14	40
Future Volume (vph)	25	1000	46	34	1619	33	25	2	40	76	14	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		225	250		200	500		0	0		300
Storage Lanes	1		1	1		1	1		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1399	3282	1568	1641	3312	1003	0	1609	1335	0	1401	1196
Flt Permitted	0.950			0.950				0.656			0.732	
Satd. Flow (perm)	1399	3282	1568	1641	3312	1003	0	1104	1335	0	1069	1196
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			133			133			133			133
Link Speed (mph)		55			55			30			30	
Link Distance (ft)		581			694			747			588	
Travel Time (s)		7.2			8.6			17.0			13.4	
Peak Hour Factor	0.88	0.88	0.88	0.94	0.94	0.94	0.71	0.71	0.71	0.72	0.72	0.72
Heavy Vehicles (%)	29%	10%	3%	10%	9%	61%	14%	0%	21%	31%	25%	35%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	1136	52	36	1722	35	0	38	56	0	125	56
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2		2	6		6
Total Split (s)	14.0	47.0	47.0	21.0	54.0	54.0	22.0	22.0	22.0	22.0	22.0	22.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0
Act Effct Green (s)	6.5	47.1	47.1	7.5	50.9	50.9		19.5	19.5		19.5	19.5
Actuated g/C Ratio	0.07	0.52	0.52	0.08	0.57	0.57		0.22	0.22		0.22	0.22
v/c Ratio	0.28	0.66	0.06	0.26	0.92	0.06		0.16	0.14		0.54	0.15
Control Delay	46.6	18.6	0.1	42.7	28.3	0.2		33.4	0.8		44.1	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	46.6	18.6	0.1	42.7	28.3	0.2		33.4	0.8		44.1	0.9
LOS	D	B	A	D	C	A		C	A		D	A
Approach Delay		18.5			28.1			14.0			30.7	
Approach LOS		B			C			B			C	
Queue Length 50th (ft)	15	261	0	20	351	0		18	0		64	0
Queue Length 95th (ft)	41	318	0	48	#675	0		37	0		100	0
Internal Link Dist (ft)		501			614			667			508	
Turn Bay Length (ft)	150		225	250		200						300
Base Capacity (vph)	108	1717	884	255	1871	624		239	394		232	364
Starvation Cap Reductn	0	0	0	0	0	0		0	0		0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0		0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0		0	0
Reduced v/c Ratio	0.26	0.66	0.06	0.14	0.92	0.06		0.16	0.14		0.54	0.15

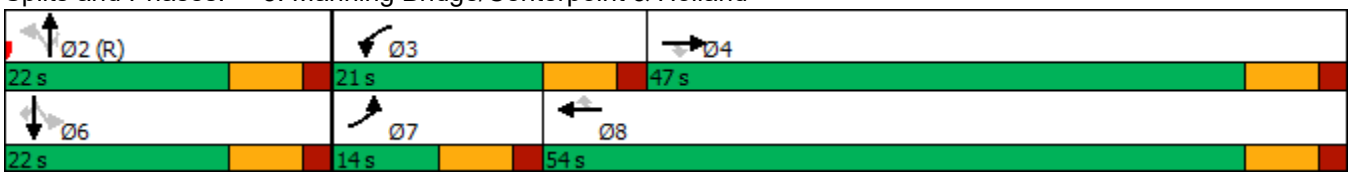
Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green	
Control Type: Actuated-Coordinated	

Maximum v/c Ratio: 0.92

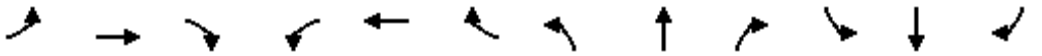
Intersection Signal Delay: 24.3	Intersection LOS: C
Intersection Capacity Utilization 70.6%	ICU Level of Service C
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: Manning Bridge/Centerpoint & Holland



Appendix E
Intersection Capacity Analysis
Build 2026

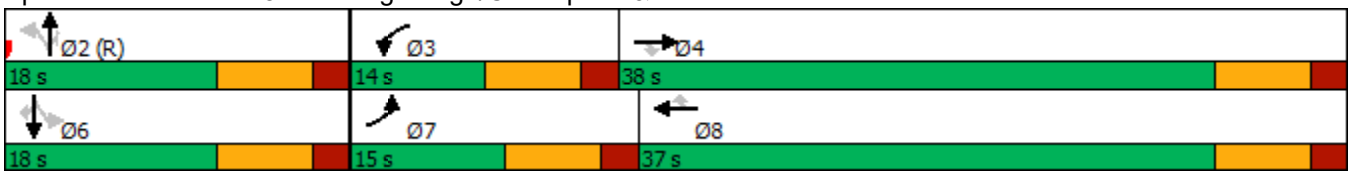


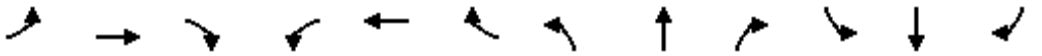
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	1220	44	70	832	67	74	24	164	53	9	10
Future Volume (vph)	27	1220	44	70	832	67	74	24	164	53	9	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		225	250		200	500		0	0		300
Storage Lanes	1		1	1		1	1		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1299	3085	1302	1467	3008	1003	0	1640	1455	0	1183	859
Flt Permitted	0.950			0.950				0.718			0.674	
Satd. Flow (perm)	1299	3085	1302	1467	3008	1003	0	1222	1455	0	831	859
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			171			171			205			171
Link Speed (mph)		55			55			30			30	
Link Distance (ft)		581			694			747			588	
Travel Time (s)		7.2			8.6			17.0			13.4	
Peak Hour Factor	0.90	0.90	0.90	0.93	0.93	0.93	0.80	0.80	0.80	0.66	0.66	0.66
Heavy Vehicles (%)	39%	17%	24%	23%	20%	61%	8%	23%	11%	60%	20%	88%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	1356	49	75	895	72	0	123	205	0	94	15
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	12.0	20.0	20.0	12.0	20.0	20.0	12.0	12.0	12.0	12.0	12.0	12.0
Total Split (s)	15.0	38.0	38.0	14.0	37.0	37.0	18.0	18.0	18.0	18.0	18.0	18.0
Total Split (%)	21.4%	54.3%	54.3%	20.0%	52.9%	52.9%	25.7%	25.7%	25.7%	25.7%	25.7%	25.7%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	Max	Max	Max
Act Effct Green (s)	6.9	31.8	31.8	6.7	37.0	37.0		13.0	13.0		13.0	13.0
Actuated g/C Ratio	0.10	0.45	0.45	0.10	0.53	0.53		0.19	0.19		0.19	0.19
v/c Ratio	0.24	0.97	0.07	0.54	0.56	0.12		0.54	0.47		0.61	0.05
Control Delay	33.3	38.4	0.2	45.2	14.0	0.4		38.8	8.5		49.0	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	33.3	38.4	0.2	45.2	14.0	0.4		38.8	8.5		49.0	0.3
LOS	C	D	A	D	B	A		D	A		D	A
Approach Delay		37.0			15.3			19.9			42.3	
Approach LOS		D			B			B			D	
Queue Length 50th (ft)	12	291	0	31	88	0		50	0		39	0
Queue Length 95th (ft)	36	#447	0	#79	223	0		#98	37		#66	0
Internal Link Dist (ft)		501			614			667			508	
Turn Bay Length (ft)	150		225	250		200						300
Base Capacity (vph)	148	1401	684	146	1590	610		227	437		154	299

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0	0	0	0	0		0	0		0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0		0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0		0	0
Reduced v/c Ratio	0.20	0.97	0.07	0.51	0.56	0.12		0.54	0.47		0.61	0.05

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green			
Natural Cycle: 70			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.97			
Intersection Signal Delay: 27.5		Intersection LOS: C	
Intersection Capacity Utilization 67.4%		ICU Level of Service C	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 5: Manning Bridge/Centerpoint & Holland





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	1000	111	145	1619	33	63	8	105	76	23	40
Future Volume (vph)	25	1000	111	145	1619	33	63	8	105	76	23	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		225	250		200	500		0	0		300
Storage Lanes	1		1	1		1	1		1	0		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1399	3282	1568	1641	3312	1003	0	1617	1335	0	1412	1196
Flt Permitted	0.950			0.950				0.655			0.711	
Satd. Flow (perm)	1399	3282	1568	1641	3312	1003	0	1107	1335	0	1042	1196
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			133			133			148			133
Link Speed (mph)		55			55			30			30	
Link Distance (ft)		581			694			747			588	
Travel Time (s)		7.2			8.6			17.0			13.4	
Peak Hour Factor	0.88	0.88	0.88	0.94	0.94	0.94	0.71	0.71	0.71	0.72	0.72	0.72
Heavy Vehicles (%)	29%	10%	3%	10%	9%	61%	14%	0%	21%	31%	25%	35%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	28	1136	126	154	1722	35	0	100	148	0	138	56
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2		2	6		6
Detector Phase	7	4	4	3	8	8	2	2	2	6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	12.0	20.0	20.0	12.0	20.0	20.0	12.0	12.0	12.0	12.0	12.0	12.0
Total Split (s)	14.0	47.0	47.0	21.0	54.0	54.0	22.0	22.0	22.0	22.0	22.0	22.0
Total Split (%)	15.6%	52.2%	52.2%	23.3%	60.0%	60.0%	24.4%	24.4%	24.4%	24.4%	24.4%	24.4%
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	Max	Max	Max
Act Effct Green (s)	6.5	37.3	37.3	12.3	50.9	50.9		19.5	19.5		19.5	19.5
Actuated g/C Ratio	0.07	0.41	0.41	0.14	0.57	0.57		0.22	0.22		0.22	0.22
v/c Ratio	0.28	0.84	0.17	0.69	0.92	0.06		0.42	0.37		0.61	0.15
Control Delay	46.6	29.9	3.2	53.0	28.1	0.2		39.0	8.9		48.2	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	46.6	29.9	3.2	53.0	28.1	0.2		39.0	8.9		48.2	0.9
LOS	D	C	A	D	C	A		D	A		D	A
Approach Delay		27.7			29.6			21.0			34.6	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	15	298	0	83	345	0		50	0		73	0
Queue Length 95th (ft)	41	350	26	147	#675	0		80	23		#120	0
Internal Link Dist (ft)		501			614			667			508	
Turn Bay Length (ft)	150		225	250		200						300
Base Capacity (vph)	108	1458	770	255	1874	625		239	404		225	363

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Starvation Cap Reductn	0	0	0	0	0	0		0	0		0	0
Spillback Cap Reductn	0	0	0	0	0	0		0	0		0	0
Storage Cap Reductn	0	0	0	0	0	0		0	0		0	0
Reduced v/c Ratio	0.26	0.78	0.16	0.60	0.92	0.06		0.42	0.37		0.61	0.15

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 28.6		Intersection LOS: C	
Intersection Capacity Utilization 78.5%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 5: Manning Bridge/Centerpoint & Holland