

McDonough & Rea Associates, Inc.

Traffic and Transportation Consulting

Kevin P. McDonough (1953-1994)
John H. Rea, P.E.
Jay S. Troutman, Jr., P.E.
Scott T. Kennel

June 16, 2022

Neptune Township Planning Board
25 Neptune Boulevard
Neptune, NJ 07753

Re: Preliminary & Final Major Site Plan for Holy Innocents
Lot 1 in Block 3101
Neptune Township, Monmouth County
MRA File No. 22-188

Dear Board Members:

McDonough & Rea Associates (MRA) has been asked to provide the Planning Board with a *Traffic Impact Analysis* for plans to construct 31 single family homes on the noted property. The property is located south of Country Club Drive and east of Jumping Brook Road, as shown on *Figure 1, a Site Location Map* in the *Appendix*. Plans prepared by French & Parrello Associates (FPA) show an extension of Tee Place, in a southerly direction, which will serve as access to the property.

SCOPE OF STUDY

In order to prepare a thorough *Traffic Impact Analysis* for the project, MRA conducted the following tasks:

1. Made field visits to the site to establish existing roadway and traffic conditions in the area.
2. Conducted peak hour traffic counts at the following locations:
 - Jumping Brook Road/Country Club Drive
 - Jumping Brook Road/West Jumping Brook Road
3. Prepared estimates of traffic to be generated by the 31 single family homes based on Institute of Transportation Engineers (ITE) data.
4. Distributed traffic to the adjacent roadway network consistent with existing residential patterns in the area.

Please reply to:

- 1431 Lakewood Road, Suite C, Manasquan, NJ 08736 • (732) 528-7076 • Fax (732) 528-6673
- 105 Elm Street, Lower Level, Westfield, NJ 07090 • (908) 789-7180 • Fax (908) 789-7181



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5. Prepared estimates of future traffic volume demand for the 2025 design year after reviewing the New Jersey Department of Transportation's (NJDOT) background traffic growth rate data for the area and other approved projects in the area.
6. Conducted level of service capacity analyses for the following intersections:
 - Jumping Brook Road/Country Club Drive
 - Jumping Brook Road/West Jumping Brook Road
7. Reviewed the *Site Plan* with respect to adherence to New Jersey Residential Site Improvement Standards (RSIS).

The following report sets forth the database accumulated and the conclusions reached with respect to the *Holy Innocents Site Plan* and subdivision.

EXISTING CONDITIONS

The subject property is currently undeveloped and is located south of Country Club Drive, a local residential street which intersects Jumping Brook Road as a "T" intersection from the east. All access to the property will be through an extension of Tee Place, currently a dead-end street running south from Country Club Drive. Traffic generated by the new community is anticipated to utilize Country Club Drive to access Jumping Brook Road.

Country Club Drive intersects Jumping Brook Road as the stem of a "T" intersection from the east. Jumping Brook Road is a north/south collector roadway connecting Route 66 to the north to Route 33 to the south.

The intersection of Jumping Brook Road/West Jumping Brook Road is an unsignalized "T" intersection with West Jumping Brook Road intersecting Jumping Brook Road as the stem of the "T" from the west.

EXISTING TRAFFIC VOLUMES

Traffic volume data was collected by conducting manual turning movement counts at the intersections of Jumping Brook Road at Country Club Drive and Jumping Brook Road/West Jumping Brook Road on weekdays in early June 2022 in order to inventory existing AM and PM peak street hour traffic flows traversing the adjacent roadway network. *Figure 2* in the *Appendix* illustrates existing peak hour traffic flows.



TRIP GENERATION & DISTRIBUTION

Estimates of traffic to be generated by the 31 single family homes were made after consulting the 11th Edition of the ITE Trip Generation Manual. Table I illustrates the anticipated AM and PM peak street hour traffic generation.

**TABLE I
TRIP GENERATION
31 SINGLE FAMILY HOMES**

AM PSH			PM PSH		
IN	OUT	TOTAL	IN	OUT	TOTAL
6	16	22	18	11	29

It should be noted that the foregoing trip generation estimates reflect only the amount of traffic generated during the AM peak street hour and PM peak street hour which is the one peak hour in the morning and in the afternoon when traffic flow on the adjacent roadway network is at its highest levels. They do not reflect all of the traffic that will be generated by the residential community over a 4-hour window in the morning and 4-hour window in the afternoon; however, it is the AM and PM peak street hours that are critical for a traffic analysis for a new residential community.

With respect to the distribution of site generated traffic, traffic patterns at the intersections of Jumping Brook Road and Country Club Drive and Jumping Brook Road/West Jumping Brook Road were reviewed and traffic from the new community was distributed consistent with existing residential patterns.

Site generated and distributed traffic volumes are shown on Figure 3 in the Appendix.

ANALYSIS OF FUTURE TRAFFIC

A design year of 2025 was assumed for analysis. The NJDOT’s background traffic growth rate data was consulted for the area and consideration was given to 2 new residential projects approved along Hovchild Boulevard in Neptune Township and the Borough of Tinton Falls. Although traffic from those 2 residential communities will have a minimal impact on Jumping Brook Road as Hovchild Boulevard provides direct connections to both Route 66 and Route 33, existing traffic volumes were expanded by 10 percent to ensure a conservative analysis and are shown on Figure 4 in the Appendix entitled Design Year 2025 No-Build Traffic Volumes. Site generated and distributed traffic was then surcharged onto no-build volumes and are shown on Figure 5 in the Appendix entitled.



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Traffic engineers calculate levels of service of unsignalized intersections which relate to the quality of traffic flow. Level of service is a measure of average control delay. Average control delay is the time lost due to deceleration and the amount of time from when a vehicle is stopped for a traffic control device (or at the end of the queue) to when the vehicle departs the intersection. Delay is a relative quantity of driver discomfort, frustration, fuel consumption, and loss in travel time.

Levels of service range from “A” to “F” with “A” being the highest or best attainable level of service. Level of service “E” with average control delays of not more than 50 seconds per vehicle at an unsignalized intersection indicates near to at capacity conditions and is generally considered the limit of acceptable level of service and delay.

Full definitions of levels of service for unsignalized intersections and level of service summaries are included in the *Appendix*. The intersections studied by this report were analyzed according to the procedures set forth in the *Highway Capacity Manual 2010*, using the *McTrans Highway Capacity Software (HCS)*, release 7.9.5.

JUMPING BROOK ROAD AT COUNTRY CLUB DRIVE

At the intersection of Jumping Brook Road/Country Club Drive, findings were that exiting movements from Country Club Drive to Jumping Brook Road are currently operating at level of service “B” during the AM peak street hour and will continue to operate at level of service “B” during the AM peak street hour for both the *no-build* and *build 2025* condition.

For the PM peak street hour, the intersection is currently operating at level of service “C” and will continue to operate at level of service “C” for the *no-build* and *build* condition for the 2025 design year. Therefore, this intersection is and will continue to operate within acceptable traffic engineering parameters.

JUMPING BROOK ROAD AT WEST JUMPING BROOK ROAD

At this unsignalized off-site intersection, findings were that traffic entering Jumping Brook Road from the stop sign at West Jumping Brook Road, is currently doing so at level of service “B” during the AM peak street hour and will continue to operate at level of service “B” for the *no-build* and *build* condition for the 2025 design year.

For the PM peak street hour, the intersection is currently operating at level of service “C” and will continue to operate at level of service “C” for the *no-build* and *build* condition for the 2025 design year. Therefore, this off-site intersection is and will continue to operate within acceptable traffic engineering parameters.



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SITE PLAN AND PARKING

The *Site Plan*, prepared by FPA was reviewed with respect to New Jersey RSIS. Up to 24 single family homes are permitted on a single point of access; however, an 18 foot wide emergency access driveway is provided at the end of the *cul-de-sac* at the east end of the property in order to meet the requirement for a second point of access. Interior roadways are dimensioned at 28 feet wide permitting parking on 1 side of the street and sidewalks are proposed on both sides of the street.

CONCLUSIONS

It is concluded, based on the analysis set forth in this report, that plans to construct 31 single family homes on the noted property can be approved and operate compatibly with future traffic conditions in the area. Levels of service at the intersections primarily impacted by the proposal, at Jumping Brook Road/Country Club Drive and Jumping Brook Road/West Jumping Brook Road, are currently operating at acceptable levels of service and will remain at those levels of service for the 2025 design year for both the *no-build* and *build* condition.

The *Site Plan* itself has been designed in accordance with New Jersey RSIS.

A representative from MRA will be in attendance at an upcoming Neptune Township Planning Board meeting to provide testimony and answer any questions Board members, Board experts or the public may have.

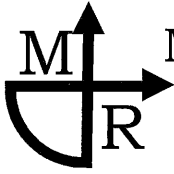
Very truly yours,

John H. Rea, PE
Principal

Scott T. Kennel
Sr. Associate

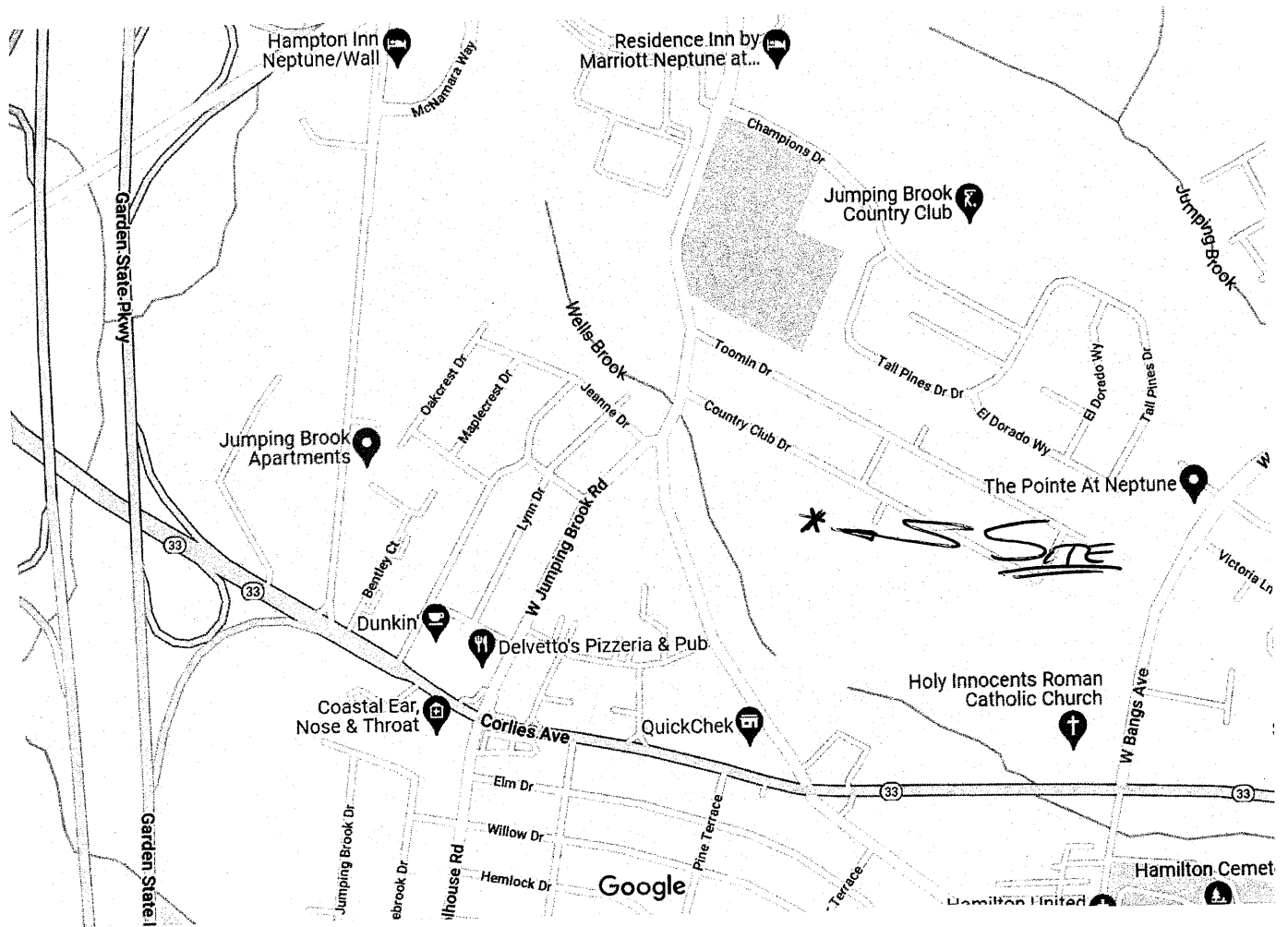
cc: Roger Mumford
Brian R. Decina, PE

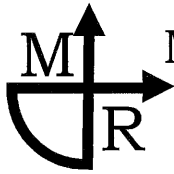
APPENDIX



SUBJECT:

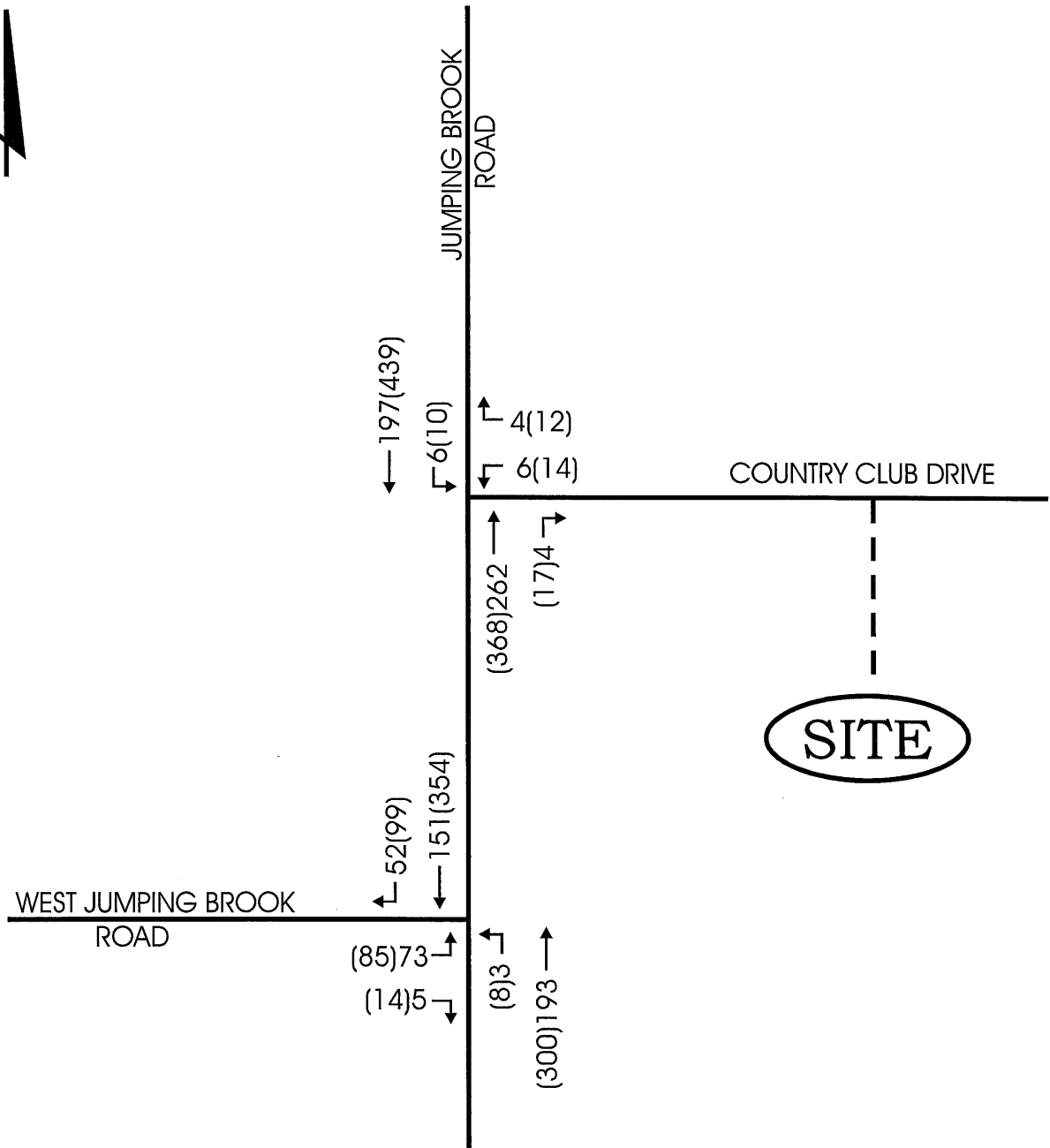
HOLY INNOCENTS S F SUBDIVISION - NEPTUNE
SITE LOCATION MAP



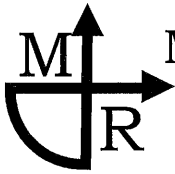


SUBJECT:

HOLY INNOCENTS S F SUBDIVISION - NEPTUNE
EXISTING AM PSH(PM PSH) TRAFFIC VOLUMES

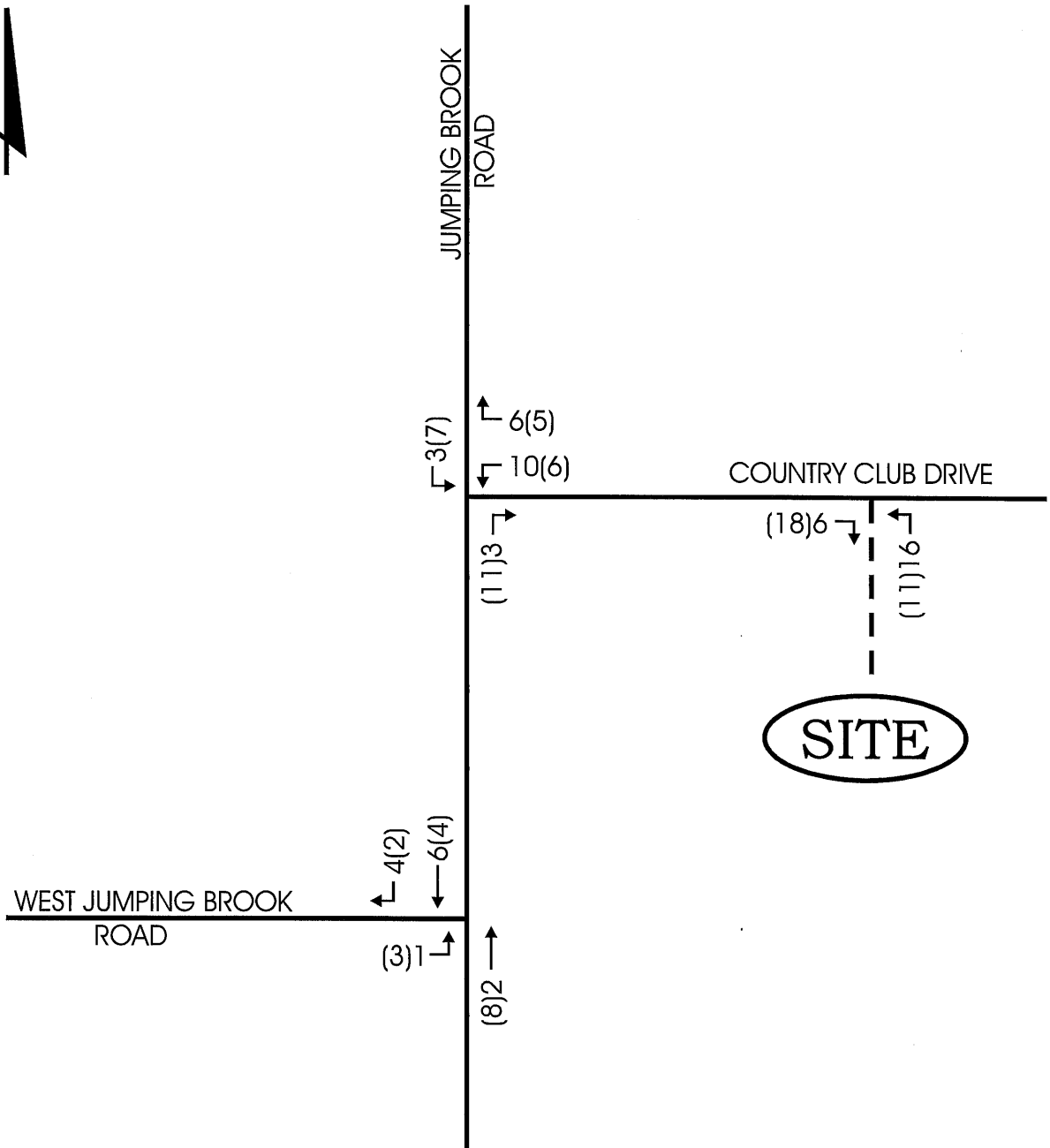


LEGEND: ← AM PSH(PM PSH)

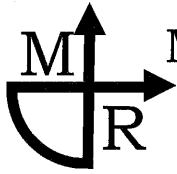


SUBJECT:

HOLY INNOCENTS S F SUBDIVISION - NEPTUNE
SITE GENERATED TRAFFIC VOLUMES

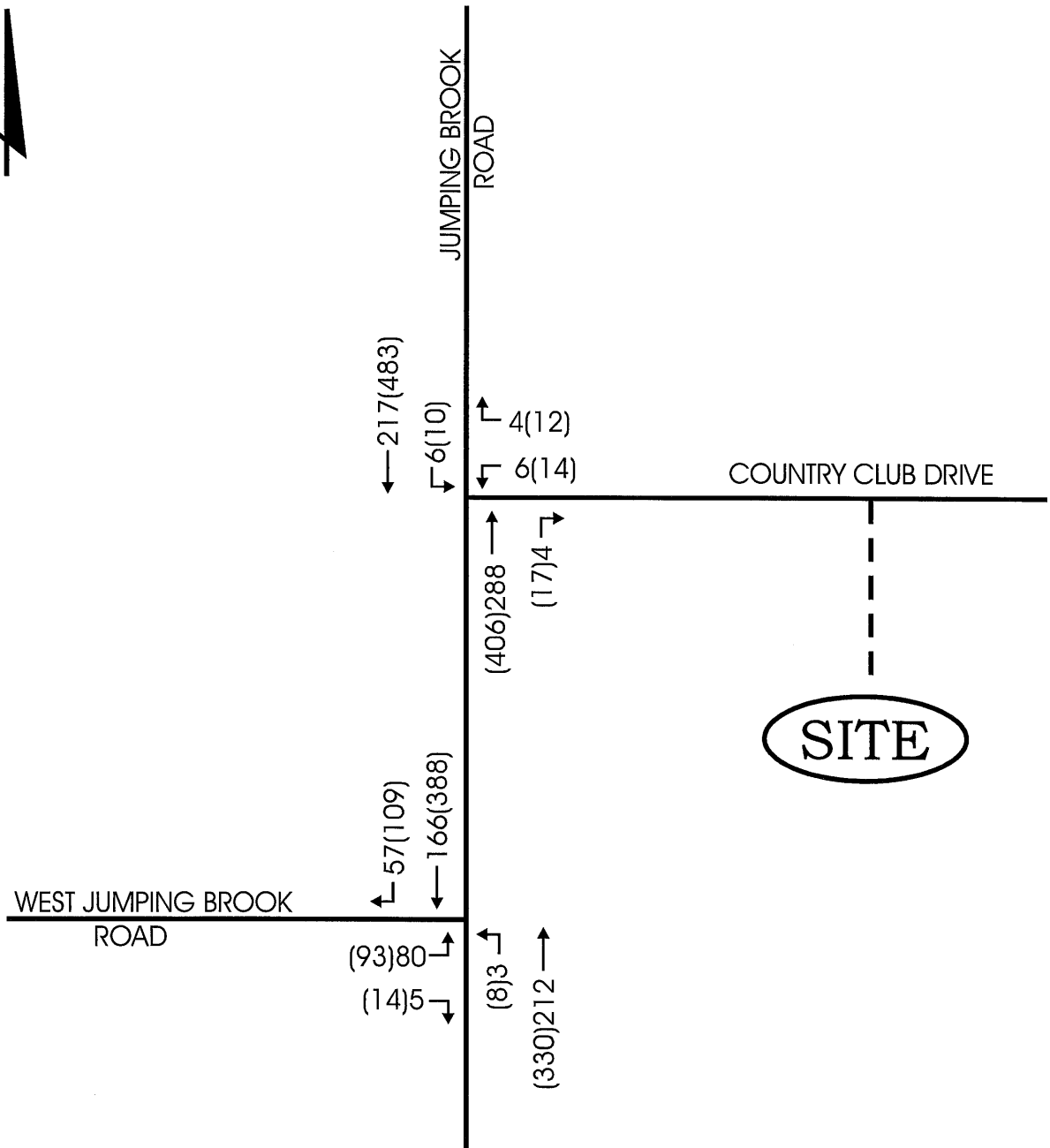


LEGEND: ← AM PSH (PM PSH)

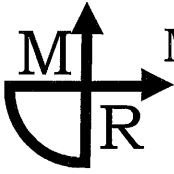


SUBJECT:

HOLY INNOCENTS S F SUBDIVISION - NEPTUNE
2025 DESIGN YEAR NO - BUILD TRAFFIC VOLUMES

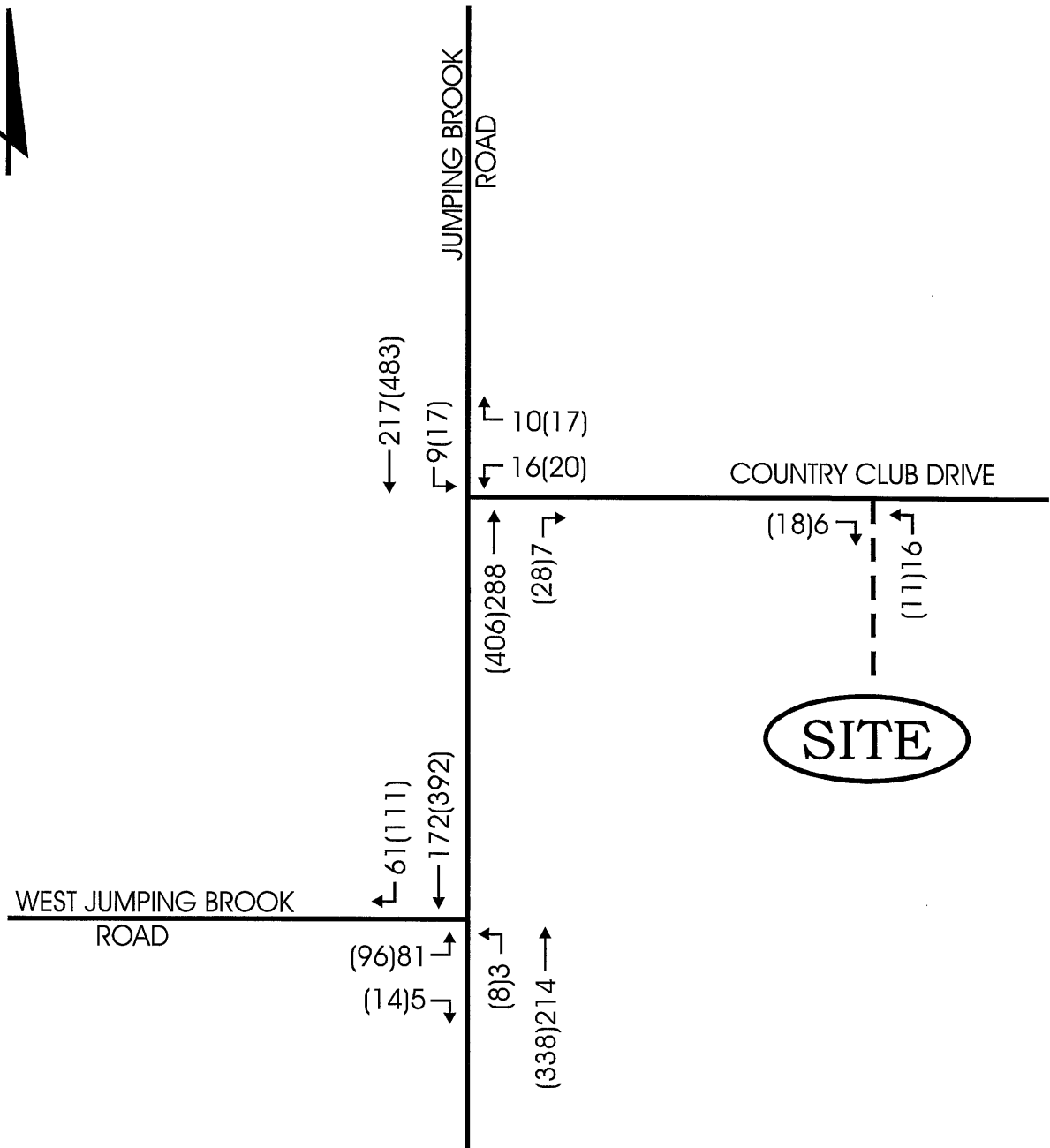


LEGEND: ← AM PSH (PM PSH)



SUBJECT:

HOLY INNOCENTS S F SUBDIVISION - NEPTUNE
2025 DESIGN YEAR BUILD TRAFFIC VOLUMES



LEGEND: ← AM PSH(PM PSH)

**LEVEL OF SERVICE CRITERIA
FOR
TWO-WAY STOP-CONTROLLED INTERSECTIONS¹**

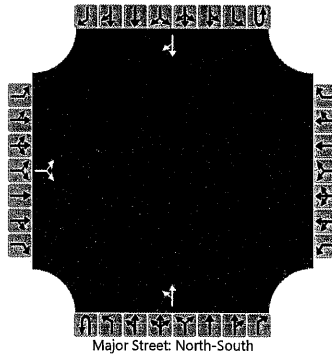
<u>Level of Service</u>	<u>Average Control Delay</u>
A	≤ 10.0 Seconds Per Vehicle
B	> 10.0 and ≤ 15.0 Seconds Per Vehicle
C	> 15.0 and ≤ 25.0 Seconds Per Vehicle
D	> 25.0 and ≤ 35.0 Seconds Per Vehicle
E	> 35.0 and ≤ 50.0 Seconds Per Vehicle
F	> 50.0 Seconds Per Vehicle

¹ Transportation Research Board, Highway Capacity Manual 2010, National Research Council, Washington, DC, 2010.

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	STK	Intersection	JUMPING BR & WEST JUMPING				
Agency/Co.	MRA	Jurisdiction					
Date Performed	6/15/2022	East/West Street	WEST JUMPING BROOK				
Analysis Year	2022	North/South Street	JUMPING BROOK				
Time Analyzed	AM	Peak Hour Factor	0.90				
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25				
Project Description	22-188AE-1 EXISTING						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound					
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R		
Movement																		
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6		
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0		
Configuration			LR							LT							TR	
Volume (veh/h)		73		5						3	193				151	52		
Percent Heavy Vehicles (%)		3		3						3								
Proportion Time Blocked																		
Percent Grade (%)		0																
Right Turn Channelized																		
Median Type Storage		Undivided																

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1							
Critical Headway (sec)		6.43		6.23						4.13							
Base Follow-Up Headway (sec)		3.5		3.3						2.2							
Follow-Up Headway (sec)		3.53		3.33						2.23							

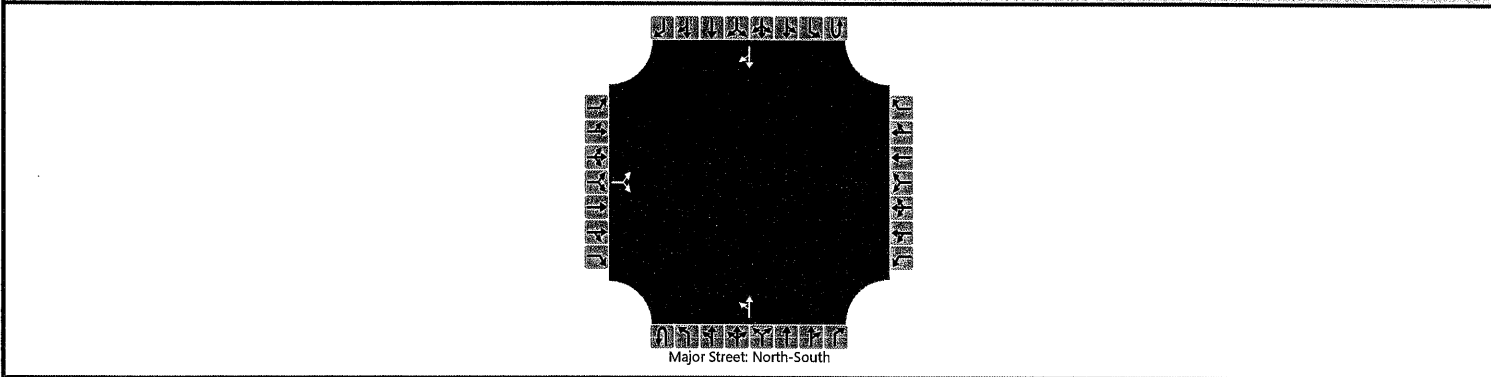
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			87							3								
Capacity, c (veh/h)			600							1337								
v/c Ratio			0.14							0.00								
95% Queue Length, Q ₉₅ (veh)			0.5							0.0								
Control Delay (s/veh)			12.0							7.7								
Level of Service (LOS)			B							A								
Approach Delay (s/veh)		12.0								0.1								
Approach LOS		B								A								

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	STK			Intersection	JUMPING BR & WEST JUMPING		
Agency/Co.	MRA			Jurisdiction			
Date Performed	6/15/2022			East/West Street	WEST JUMPING BROOK		
Analysis Year	2025			North/South Street	JUMPING BROOK		
Time Analyzed	AM			Peak Hour Factor	0.90		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	22-188ANB-1 NO-BUILD						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		80		5						3	212				166	57
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.43		6.23						4.13						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.53		3.33						2.23						

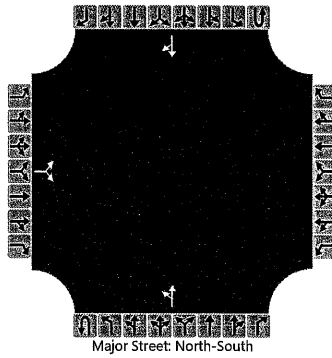
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			94							3						
Capacity, c (veh/h)			568							1312						
v/c Ratio			0.17							0.00						
95% Queue Length, Q ₉₅ (veh)			0.6							0.0						
Control Delay (s/veh)			12.6							7.8						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)	12.6								0.1							
Approach LOS	B															

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	STK	Intersection	JUMPING BR & WEST JUMPING				
Agency/Co.	MRA	Jurisdiction					
Date Performed	6/15/2022	East/West Street	WEST JUMPING BROOK				
Analysis Year	2025	North/South Street	JUMPING BROOK				
Time Analyzed	AM	Peak Hour Factor	0.90				
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25				
Project Description	22-188AFB-1 BUILD						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		81		5						3	214				172	61
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.43		6.23						4.13						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.53		3.33						2.23						

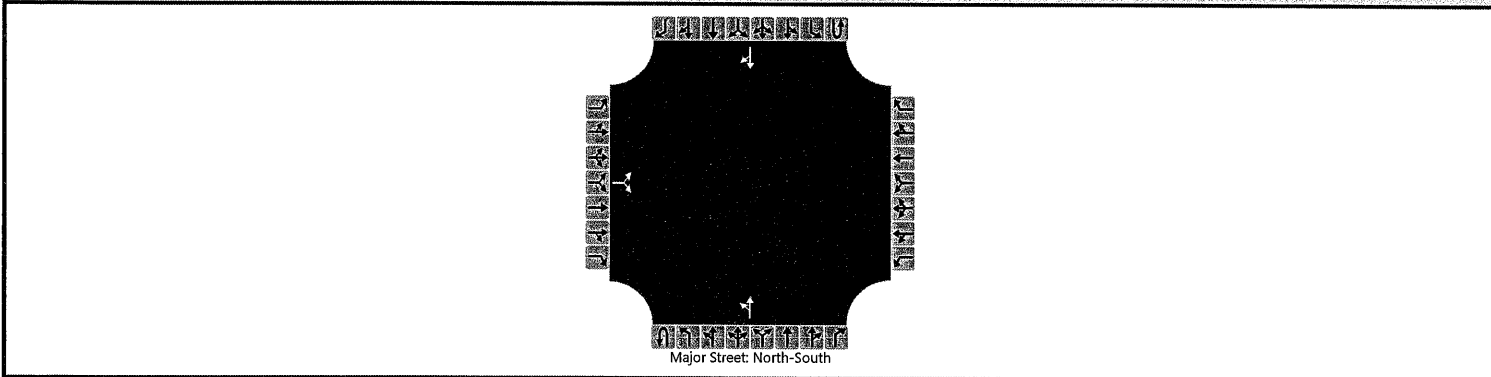
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			96							3						
Capacity, c (veh/h)			559							1300						
v/c Ratio			0.17							0.00						
95% Queue Length, Q ₉₅ (veh)			0.6							0.0						
Control Delay (s/veh)			12.8							7.8						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)	12.8								0.1							
Approach LOS	B															

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	STK	Intersection	JUMPING BR & WEST JUMPING				
Agency/Co.	MRA	Jurisdiction					
Date Performed	6/15/2022	East/West Street	WEST JUMPING BROOK				
Analysis Year	2022	North/South Street	JUMPING BROOK				
Time Analyzed	PM	Peak Hour Factor	0.90				
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25				
Project Description	22-188PE-1 EXISTING						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		85		14						8	300				354	99
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.43		6.23						4.13						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.53		3.33						2.23						

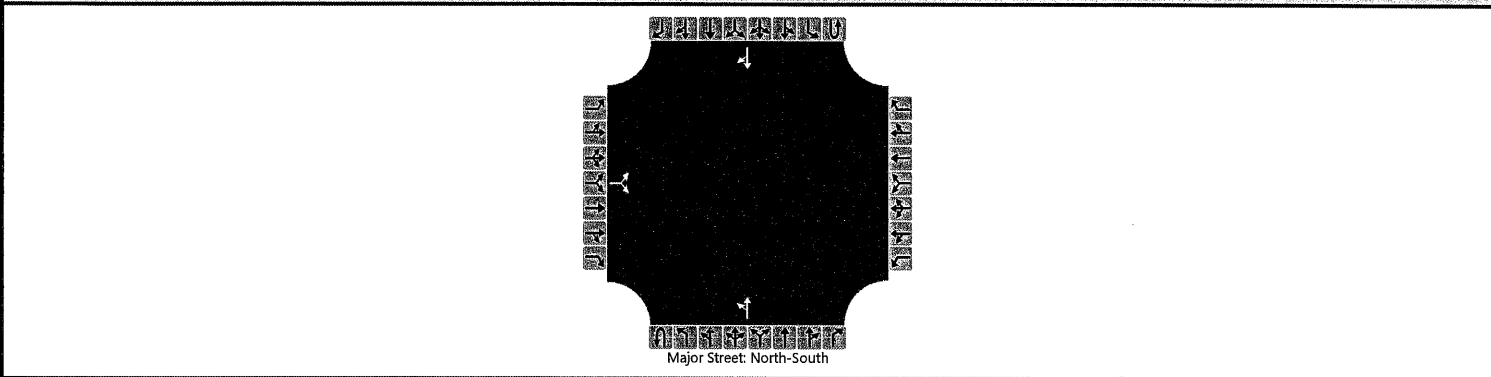
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			110							9						
Capacity, c (veh/h)			372							1056						
v/c Ratio			0.30							0.01						
95% Queue Length, Q ₉₅ (veh)			1.2							0.0						
Control Delay (s/veh)			18.7							8.4						
Level of Service (LOS)			C							A						
Approach Delay (s/veh)	18.7								0.3							
Approach LOS	C															

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	STK			Intersection	JUMPING BR & WEST JUMPING		
Agency/Co.	MRA			Jurisdiction			
Date Performed	6/15/2022			East/West Street	WEST JUMPING BROOK		
Analysis Year	2025			North/South Street	JUMPING BROOK		
Time Analyzed	PM			Peak Hour Factor	0.90		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	22-188PNB-1 NO-BUILD						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		93		14						8	330				388	109
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.43		6.23						4.13						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.53		3.33						2.23						

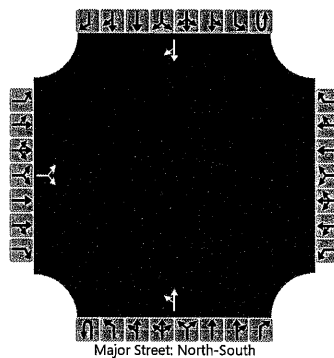
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			119							9						
Capacity, c (veh/h)			334							1013						
v/c Ratio			0.36							0.01						
95% Queue Length, Q ₉₅ (veh)			1.6							0.0						
Control Delay (s/veh)			21.6							8.6						
Level of Service (LOS)			C							A						
Approach Delay (s/veh)	21.6								0.3							
Approach LOS	C															

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General Information				Site Information			
Analyst	STK	Intersection	JUMPING BR & WEST JUMPING				
Agency/Co.	MRA	Jurisdiction					
Date Performed	6/15/2022	East/West Street	WEST JUMPING BROOK				
Analysis Year	2025	North/South Street	JUMPING BROOK				
Time Analyzed	PM	Peak Hour Factor	0.90				
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25				
Project Description	22-188PFB-1 BUILD						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		96		14						8	338				392	111
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.43		6.23						4.13						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.53		3.33						2.23						

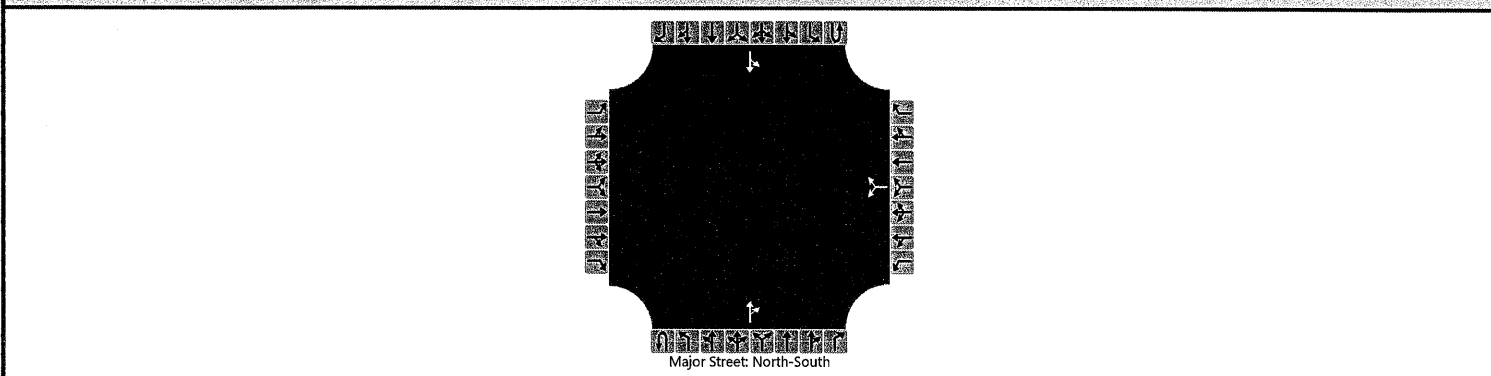
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			122						9							
Capacity, c (veh/h)			327						1007							
v/c Ratio			0.37						0.01							
95% Queue Length, Q ₉₅ (veh)			1.7						0.0							
Control Delay (s/veh)			22.4						8.6							
Level of Service (LOS)			C						A							
Approach Delay (s/veh)	22.4								0.3							
Approach LOS	C															

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	STK	Intersection	JUMPING BR & COUNTRY CLUB				
Agency/Co.	MRA	Jurisdiction					
Date Performed	6/15/2022	East/West Street	COUNTRY CLUB DR				
Analysis Year	2022	North/South Street	JUMPING BROOK				
Time Analyzed	AM	Peak Hour Factor	0.90				
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25				
Project Description	22-188AE-2 EXISTING						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement																	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0	
Configuration							LR					TR		LT			
Volume (veh/h)						6		4			262	4		6	197		
Percent Heavy Vehicles (%)						3		3						3			
Proportion Time Blocked																	
Percent Grade (%)						0											
Right Turn Channelized																	
Median Type Storage	Undivided																

Critical and Follow-up Headways

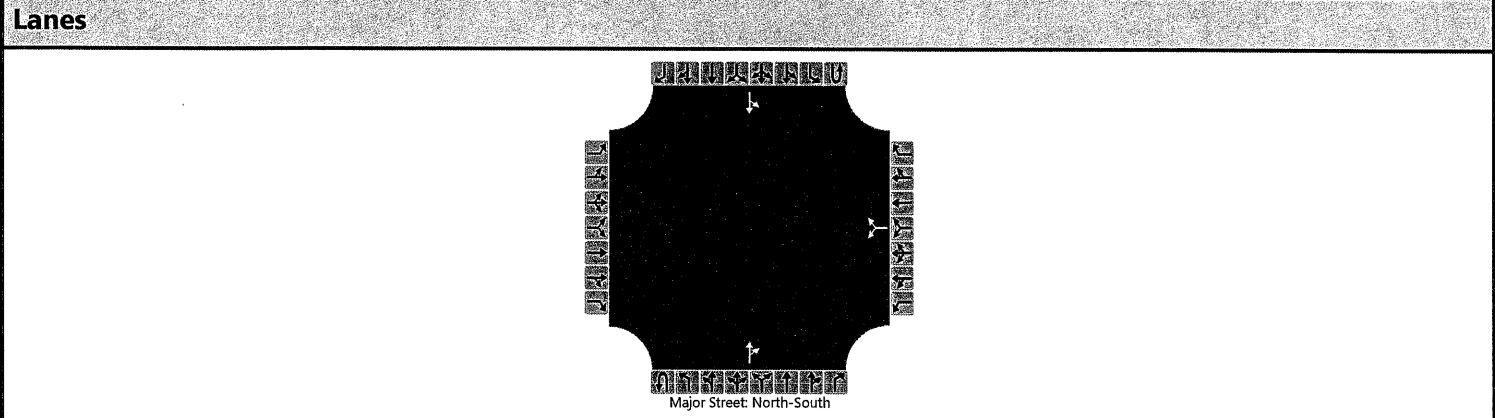
Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.43		6.23						4.13		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.53		3.33						2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						11								7		
Capacity, c (veh/h)						581								1260		
v/c Ratio						0.02								0.01		
95% Queue Length, Q ₉₅ (veh)						0.1								0.0		
Control Delay (s/veh)						11.3								7.9		
Level of Service (LOS)						B								A		
Approach Delay (s/veh)					11.3								0.3			
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	STK			Intersection	JUMPING BR & COUNTRY CLUB		
Agency/Co.	MRA			Jurisdiction			
Date Performed	6/15/2022			East/West Street	COUNTRY CLUB DR		
Analysis Year	2025			North/South Street	JUMPING BROOK		
Time Analyzed	AM			Peak Hour Factor	0.90		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	22-188ANB-2 NOBUILD						



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement									1U	1	2	3	4U	4	5	6
Priority		10	11	12		7	8	9								
Number of Lanes		0	0	0		0	1	0		0	1	0		0	1	0
Configuration							LR					TR			LT	
Volume (veh/h)						6		4			288	4		6	217	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2							4.1	
Critical Headway (sec)						6.43		6.23							4.13	
Base Follow-Up Headway (sec)						3.5		3.3							2.2	
Follow-Up Headway (sec)						3.53		3.33							2.23	

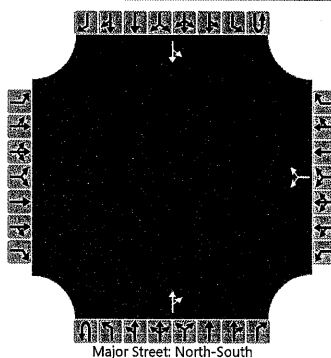
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						11									7	
Capacity, c (veh/h)						548									1230	
v/c Ratio						0.02									0.01	
95% Queue Length, Q ₉₅ (veh)						0.1									0.0	
Control Delay (s/veh)						11.7									7.9	
Level of Service (LOS)						B									A	
Approach Delay (s/veh)					11.7								0.3			
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	STK	Intersection	JUMPING BR & COUNTRY CLUB				
Agency/Co.	MRA	Jurisdiction					
Date Performed	6/15/2022	East/West Street	COUNTRY CLUB DR				
Analysis Year	2025	North/South Street	JUMPING BROOK				
Time Analyzed	AM	Peak Hour Factor	0.90				
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25				
Project Description	22-188AFB-2 BUILD						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement									1U	1	2	3	4U	4	5	6
Priority		10	11	12		7	8	9								
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						16		10			288	7		9	217	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.43		6.23						4.13		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.53		3.33						2.23		

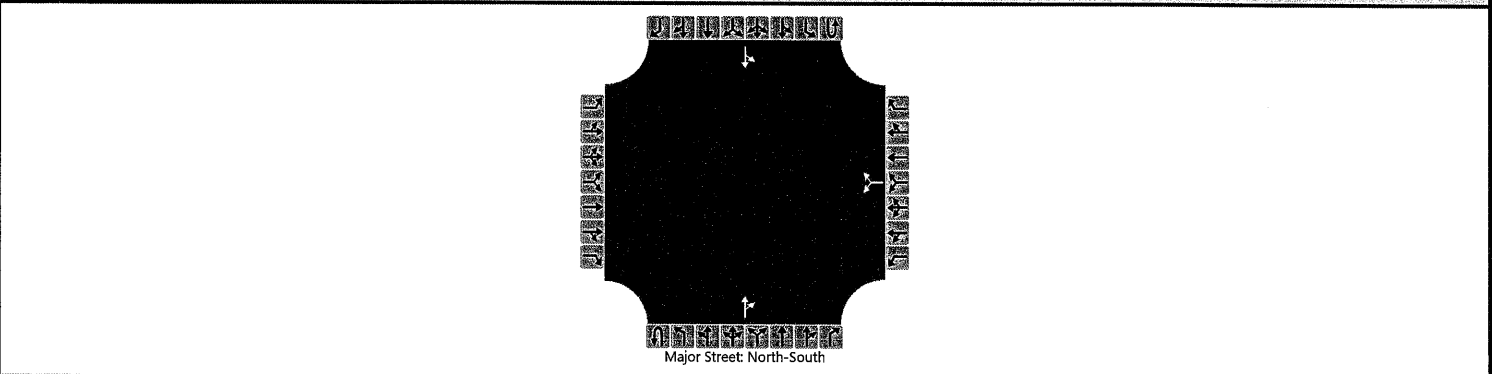
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						29								10		
Capacity, c (veh/h)						539								1226		
v/c Ratio						0.05								0.01		
95% Queue Length, Q ₉₅ (veh)						0.2								0.0		
Control Delay (s/veh)						12.1								8.0		
Level of Service (LOS)						B								A		
Approach Delay (s/veh)					12.1								0.4			
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	STK			Intersection	JUMPING BR & COUNTRY CLUB		
Agency/Co.	MRA			Jurisdiction			
Date Performed	6/15/2022			East/West Street	COUNTRY CLUB DR		
Analysis Year	2022			North/South Street	JUMPING BROOK		
Time Analyzed	PM			Peak Hour Factor	0.90		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	22-188PE-2 EXISTING						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						14		12			368	17		10	439	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

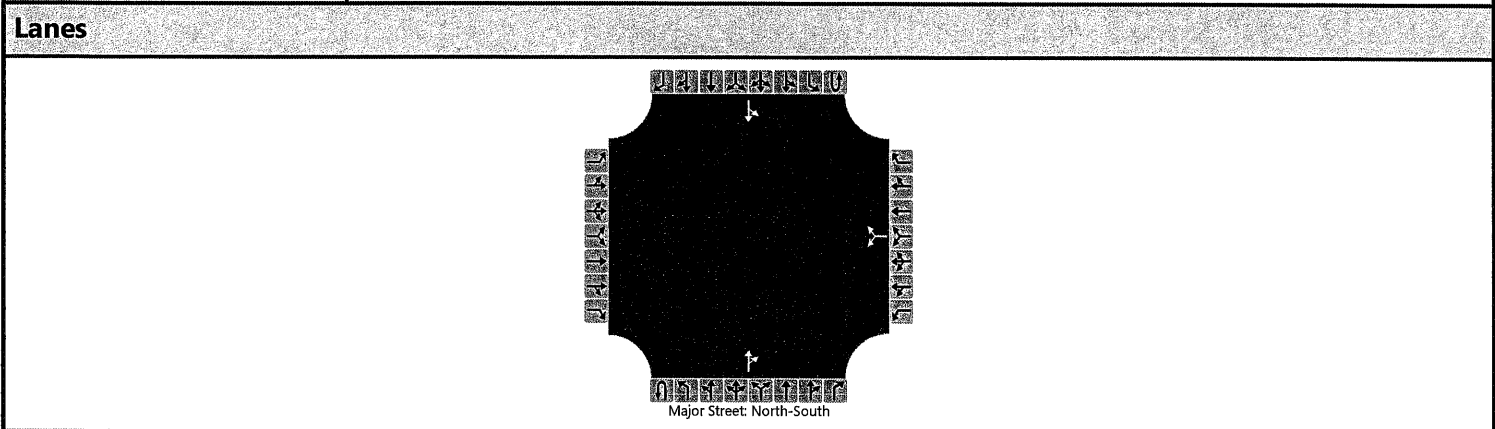
Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.43		6.23						4.13		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.53		3.33						2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						29								11		
Capacity, c (veh/h)						389								1126		
v/c Ratio						0.07								0.01		
95% Queue Length, Q ₉₅ (veh)						0.2								0.0		
Control Delay (s/veh)						15.0								8.2		
Level of Service (LOS)						C								A		
Approach Delay (s/veh)					15.0								0.3			
Approach LOS					C											

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	STK			Intersection	JUMPING BR & COUNTRY CLUB		
Agency/Co.	MRA			Jurisdiction			
Date Performed	6/15/2022			East/West Street	COUNTRY CLUB DR		
Analysis Year	2025			North/South Street	JUMPING BROOK		
Time Analyzed	PM			Peak Hour Factor	0.90		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	22-188PNB-2 NOBUILD						



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						14		12			406	17		10	483	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

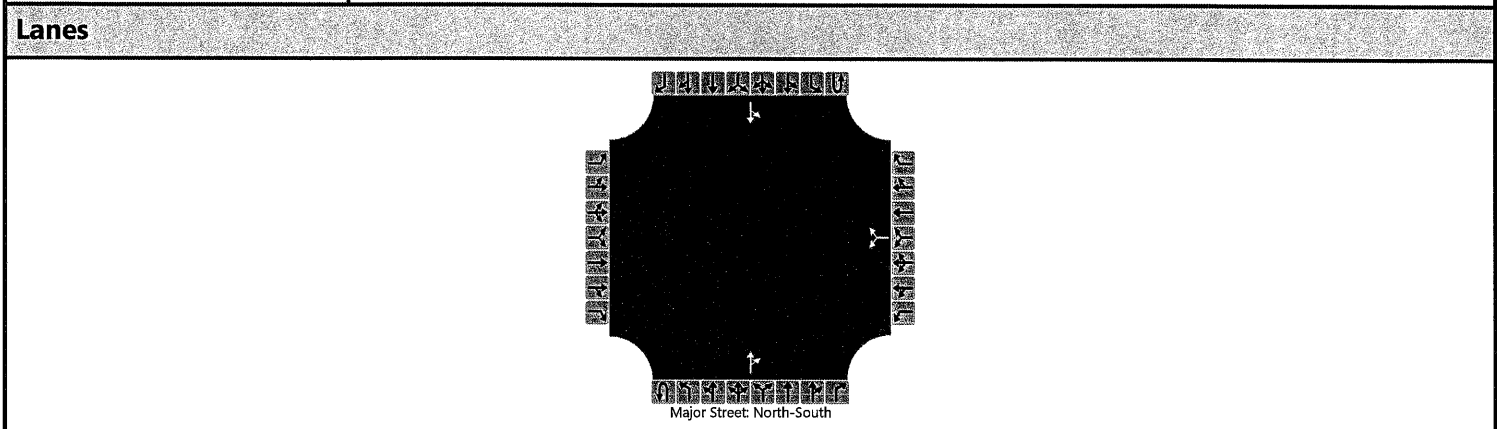
Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.43		6.23						4.13		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.53		3.33						2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						29								11		
Capacity, c (veh/h)						349								1086		
v/c Ratio						0.08								0.01		
95% Queue Length, Q ₉₅ (veh)						0.3								0.0		
Control Delay (s/veh)						16.2								8.3		
Level of Service (LOS)						C								A		
Approach Delay (s/veh)					16.2								0.3			
Approach LOS					C											

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	STK			Intersection	JUMPING BR & COUNTRY CLUB		
Agency/Co.	MRA			Jurisdiction			
Date Performed	6/15/2022			East/West Street	COUNTRY CLUB DR		
Analysis Year	2025			North/South Street	JUMPING BROOK		
Time Analyzed	PM			Peak Hour Factor	0.90		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	22-188PFB-2 BUILD						



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement									1U	1	2	3	4U	4	5	6
Priority		10	11	12		7	8	9								
Number of Lanes		0	0	0		0	1	0		0	1	0		0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						20		17			406	28		17	483	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2								4.1
Critical Headway (sec)						6.43		6.23								4.13
Base Follow-Up Headway (sec)						3.5		3.3								2.2
Follow-Up Headway (sec)						3.53		3.33								2.23

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						41										19
Capacity, c (veh/h)						338										1075
v/c Ratio						0.12										0.02
95% Queue Length, Q ₉₅ (veh)						0.4										0.1
Control Delay (s/veh)						17.1										8.4
Level of Service (LOS)						C										A
Approach Delay (s/veh)					17.1								0.5			
Approach LOS					C											

McDonough & Rea Associates
 1431 Lakewood Road Suite C
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MUMFORD - NEPTUNE
 W JUMPING BROOK RD & JUMPING BROOK RD
 NEPTUNE TOWNSHIP, MONMOUTH COUNTY
 MRA JOB 22-188 THURSDAY AM COUNT

File Name : 22188 w/ jumping & jumping am1
 Site Code : 00022188
 Start Date : 6/9/2022
 Page No : 1

Groups Printed- CARS - TRUCKS - SCHOOL BUS

Start Time	Jumping Brook Road Southbound			Jumping Brook Road Northbound			West Jumping Brook Road Eastbound			Int. Total
	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	
07:00 AM	27	5	32	0	16	16	18	3	21	69
07:15 AM	30	9	39	0	19	19	20	6	26	84
07:30 AM	32	11	43	0	42	42	17	4	21	106
07:45 AM	34	11	45	2	42	44	14	1	15	104
Total	123	36	159	2	119	121	69	14	83	363
08:00 AM	38	12	50	2	30	32	15	0	15	97
08:15 AM	23	13	36	3	34	37	19	0	19	92
08:30 AM	37	13	50	2	54	56	24	2	26	132
08:45 AM	36	14	50	1	55	56	17	0	17	123
Total	134	52	186	8	173	181	75	2	77	444
09:00 AM	44	14	58	0	46	46	16	2	18	122
09:15 AM	34	11	45	0	38	38	16	1	17	100
Grand Total	335	113	448	10	376	386	176	19	195	1029
Approch %	74.8	25.2		2.6	97.4		90.3	9.7		
Total %	32.6	11.0	43.5	1.0	36.5	37.5	17.1	1.8	19.0	

Start Time	Jumping Brook Road Southbound			Jumping Brook Road Northbound			West Jumping Brook Road Eastbound			Int. Total
	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	
Peak Hour From 07:00 AM to 09:15 AM - Peak 1 of 1										
Intersection	151	52	203	3	193	196	73	5	78	477
Volume	74.4	25.6		1.5	98.5		93.6	6.4		
Percent	37	13	50	2	54	56	24	2	26	132
08:30 Volume										
Peak Factor										0.903
High Int. Volume	44	14	58	2	54	56	24	2	26	
09:00 AM							08:30 AM			
Peak Factor			0.875			0.875			0.750	

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MUMFORD - NEPTUNE
 W JUMPING BROOK RD & JUMPING BROOK RD
 NEPTUNE TOWNSHIP, MONMOUTH COUNTY
 MRA JOB 22-188 THURSDAY PM COUNT

File Name : 22188 w jumping & jumping pm1
 Site Code : 00022188
 Start Date : 6/9/2022
 Page No : 1

Groups Printed- CARS - TRUCKS - SCHOOL BUS

Start Time	Jumping Brook Road Southbound			Jumping Brook Road Northbound			West Jumping Brook Road Eastbound			Int. Total
	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	
03:00 PM	70	15	85	5	60	65	13	1	14	164
03:15 PM	58	29	87	4	58	62	17	1	18	167
03:30 PM	63	23	86	4	62	66	15	0	15	167
03:45 PM	60	23	83	3	51	54	21	2	23	160
Total	251	90	341	16	231	247	66	4	70	658
04:00 PM	61	38	99	0	57	57	25	6	31	187
04:15 PM	76	23	99	1	56	57	11	1	12	168
04:30 PM	98	29	127	1	64	65	23	2	25	217
04:45 PM	83	30	113	1	73	74	24	4	28	215
Total	318	120	438	3	250	253	83	13	96	787
05:00 PM	83	21	104	1	63	64	22	0	22	190
05:15 PM	85	24	109	2	80	82	22	3	25	216
05:30 PM	82	24	106	4	84	88	17	7	24	218
05:45 PM	75	15	90	2	79	81	16	0	16	187
Total	325	84	409	9	306	315	77	10	87	811
Grand Total	894	294	1188	28	787	815	226	27	253	2256
Approch %	75.3	24.7		3.4	96.6		89.3	10.7		
Total %	39.6	13.0	52.7	1.2	34.9	36.1	10.0	1.2	11.2	

Start Time	Jumping Brook Road Southbound			Jumping Brook Road Northbound			West Jumping Brook Road Eastbound			Int. Total
	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	
Peak Hour From 03:00 PM to 05:45 PM - Peak 1 of 1										
Intersection 04:45 PM	333	99	432	8	300	308	85	14	99	839
Volume Percent	77.1	22.9		2.6	97.4		85.9	14.1		
05:30 Volume Peak Factor	82	24	106	4	84	88	17	7	24	218
High Int. 04:45 PM										0.962
Volume Peak Factor	83	30	113	4	84	88	24	4	28	
			0.956			0.875				0.884

MUMFORD - NEPTUNE
 COUNTRY CLUB DR & JUMPING BROOK RD
 NEPTUNE TOWNSHIP, MONMOUTH COUNTY
 MRA JOB 22-188 THURSDAY AM COUNT

McDonough & Rea Associates
 1431 Lakewood Road Suite C
 Manasquan NJ 08736
 (732) 528-7076

File Name : 22188 country & jumping am1
 Site Code : 00022188
 Start Date : 6/9/2022
 Page No : 1

Groups Printed- CARS - TRUCKS - SCHOOL BUS

Start Time	Jumping Brook Road Southbound			Country Club Drive Westbound			Jumping Brook Road Northbound		
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total
07:00 AM	0	29	29	3	1	4	33	0	33
07:15 AM	0	37	37	2	1	3	36	3	39
07:30 AM	0	40	40	3	3	6	58	1	59
07:45 AM	1	42	43	3	3	6	56	1	57
Total	1	148	149	11	8	19	183	5	188
08:00 AM	1	49	50	1	1	2	45	0	45
08:15 AM	3	34	37	2	0	2	51	2	53
08:30 AM	1	47	48	3	1	4	77	1	78
08:45 AM	1	48	49	2	1	3	70	2	72
Total	6	178	184	8	3	11	243	5	248
09:00 AM	2	58	60	0	0	0	61	1	62
09:15 AM	2	44	46	1	2	3	54	0	54
Grand Total	11	428	439	20	13	33	541	11	552
Approch %	2.5	97.5	42.9	60.6	39.4	3.2	98.0	2.0	53.9
Total %	1.1	41.8	42.9	2.0	1.3	3.2	52.8	1.1	53.9

Start Time	Jumping Brook Road Southbound			Country Club Drive Westbound			Jumping Brook Road Northbound		
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total
Peak Hour From 07:00 AM to 09:15 AM - Peak 1 of 1									
Intersection									
Volume	6	197	203	6	4	10	262	4	266
Percent	3.0	97.0	48	60.0	40.0	4	98.5	1.5	78
08:30 Volume	1	47	48	3	1	4	77	1	78
Peak Factor									
High Int. Volume	2	58	60	08:30 AM	3	4	08:30 AM	1	78
Peak Factor			0.846			0.625			0.853

479
 130
 0.921

**MUMFORD - NEPTUNE
COUNTRY CLUB DR & JUMPING BROOK RD
NEPTUNE TOWNSHIP, MONMOUTH COUNTY
MRA JOB 22-188 THURSDAY PM COUNT**

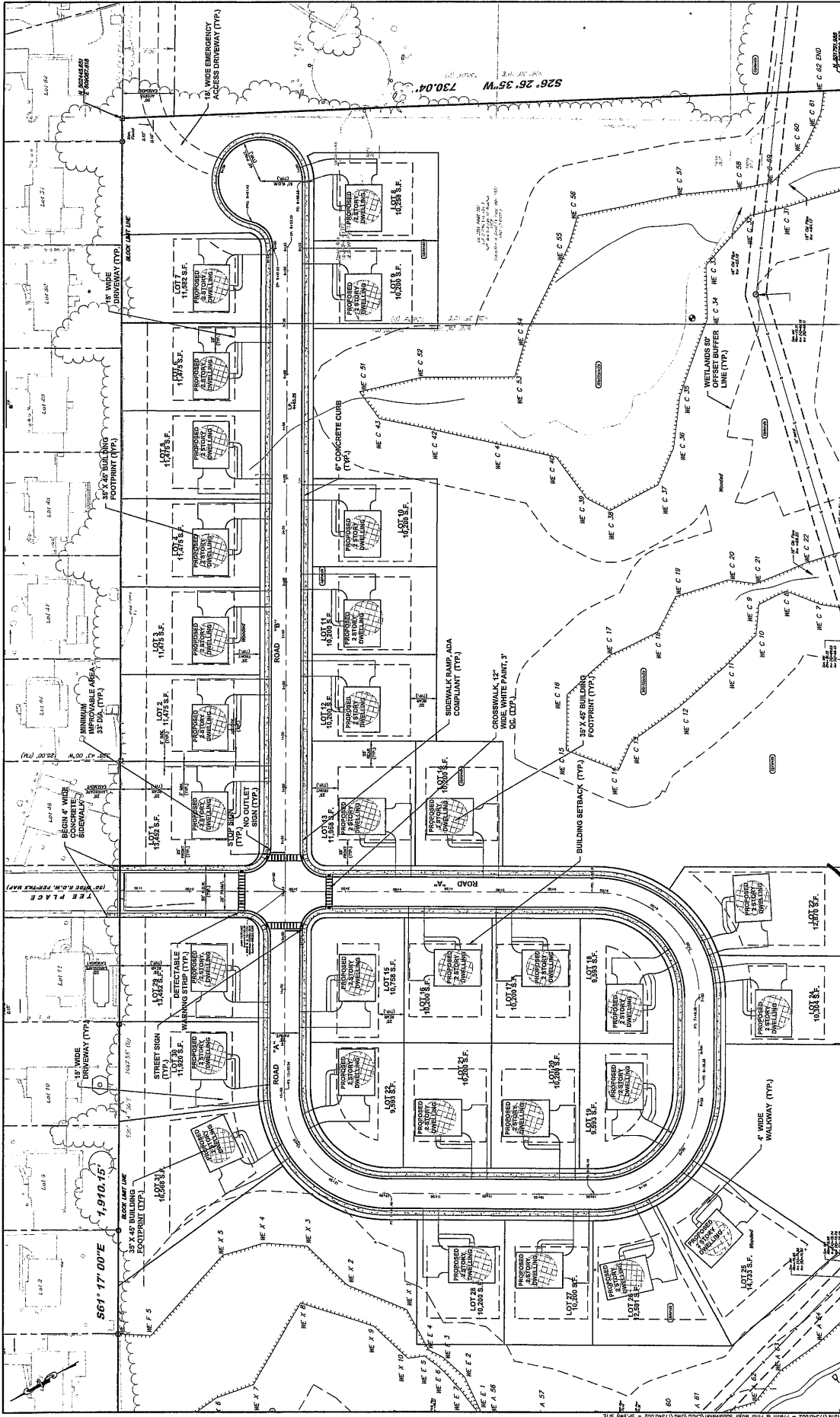
**McDonough & Rea Associates
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Manasquan NJ 08736
(732) 528-7076**

**File Name : 22188 country & jumping pm1
Site Code : 00022188
Start Date : 6/9/2022
Page No : 1**

Groups Printed- CARS - TRUCKS - SCHOOL BUS

Start Time	Jumping Brook Road Southbound			Country Club Drive Westbound			Jumping Brook Road Northbound			
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
03:00 PM	0	84	84	1	4	5	64	9	73	162
03:15 PM	2	84	86	3	1	4	71	4	75	165
03:30 PM	1	82	83	4	1	5	76	1	77	165
03:45 PM	4	80	84	3	2	5	70	2	72	161
Total	7	330	337	11	8	19	281	16	297	653
04:00 PM	1	97	98	2	2	4	77	5	82	184
04:15 PM	2	98	100	1	1	2	65	2	67	169
04:30 PM	1	124	125	3	2	5	82	5	87	217
04:45 PM	4	108	112	5	0	5	91	6	97	214
Total	8	427	435	11	5	16	315	18	333	784
05:00 PM	2	101	103	3	3	6	82	3	85	194
05:15 PM	3	106	109	3	7	10	99	3	102	221
05:30 PM	0	105	105	1	2	3	94	7	101	209
05:45 PM	2	90	92	0	1	1	89	6	95	188
Total	7	402	409	7	13	20	364	19	383	812
Grand Total	22	1159	1181	29	26	55	960	53	1013	2249
Approch %	1.9	98.1	52.7	47.3	1.2	2.4	94.8	5.2	45.0	
Total %	1.0	51.5	1.3	1.2			42.7	2.4		

Start Time	Jumping Brook Road Southbound			Country Club Drive Westbound			Jumping Brook Road Northbound			
	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour From 03:00 PM to 05:45 PM - Peak 1 of 1 Intersection 04:30 PM	10	439	449	14	12	26	354	17	371	846
Volume	2.2	97.8	109	53.8	46.2	10	95.4	4.6	102	221
Percent	3	106	109	3	7	10	99	3	102	0.957
05:15 Volume										
Peak Factor										
High Int. 04:30 PM	1	124	125	05:15 PM	05:15 PM	10	05:15 PM	05:15 PM	102	
Volume			0.898	3	7	10	99	3	0.909	
Peak Factor						0.650				



SITE AND LAYOUT PLAN
PRELIMINARY AND FINAL MAJOR SITE PLAN
HOLY INNOCENTS
 BLOCK 3911 LOT 1
 04/26/2023
 HUNTSVILLE, ALABAMA
 HUNTSVILLE COUNTY, ALABAMA

FRANCIS & PARRELLO ASSOCIATES
 1000 UNIVERSITY BLVD, SUITE 100
 HUNTSVILLE, ALABAMA 35890
 (256) 898-1100
 francisparrello.com
 Brian R. Decina, P.E.
 PROFESSIONAL ENGINEER, A.L.S. No. 65514

SCALE: 1/8" = 1'-0"

661' 17" 00"E
1,910.15'
526' 26" 35"W
730.04'
874.99'
661' 31" 12"W

LOT 13 1,588 S.F.
LOT 14 1,573 S.F.
LOT 15 1,473 S.F.
LOT 16 1,478 S.F.
LOT 17 1,573 S.F.
LOT 18 1,573 S.F.
LOT 19 1,573 S.F.
LOT 20 1,573 S.F.
LOT 21 1,573 S.F.
LOT 22 1,573 S.F.
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LOT 58 1,573 S.F.
LOT 59 1,573 S.F.
LOT 60 1,573 S.F.
LOT 61 1,573 S.F.

DATE: 04/26/2023
 DRAWN BY: B. DEK
 CHECKED BY: B. DEK
 SCALE: 1/8" = 1'-0"
 SHEET: 1 OF 1

COMPILED BY: B. DEK
 CHECKED BY: B. DEK
 DATE: 04/26/2023

DATE: 04/26/2023
 DRAWN BY: B. DEK
 CHECKED BY: B. DEK
 SCALE: 1/8" = 1'-0"
 SHEET: 1 OF 1

DATE: 04/26/2023
 DRAWN BY: B. DEK
 CHECKED BY: B. DEK
 SCALE: 1/8" = 1'-0"
 SHEET: 1 OF 1