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July 17, 2018

TO: Michael Horton, PE
Project Manager
Skillings Connolly, Inc.

FROM: Michelle Mach, PE, TSI
Andrew Bratlien, PE, TSI

SUBJECT: Sportsman Club Road NE & NE New Brooklyn Road
Intersection Control Analysis

This memo is intended to screen and evaluate improvement alternatives for the intersection of Sportsman Club Road NE and NE New Brooklyn Road in Bainbridge Island, per Washington State Department of Transportation (WSDOT) Intersection Control Analysis (ICA) requirements. The study intersection is shown in **Figure 1.**

Figure 1. Study Intersection

1. Existing Conditions

The intersection of Sportsman Club Road and New Brooklyn Road is a four-legged skewed intersection that is all-way stop controlled with a flashing beacon. All approaches are single-lane with the exception of an additional westbound to northbound right turn lane that is also stop controlled, as shown in **Figure 2**.

Figure 2. Study Intersection East Approach

Sportsman Club Road and New Brooklyn Road are two-lane secondary arterials in the study. Per the February 2017 Island-Wide Transportation Plan (IWTP), secondary arterials are intended to:

- Carry high level of traffic at a moderate speed;
- Serve some through trips;
- Often serve as access to high-intensity land uses such as major employers or larger commercial centers;
- Provide connections within the system.

Traffic counts were collected on Tuesday, June 12, 2018. Average daily traffic (ADT) along Sportsman Club Road is 6,400 vehicles per day. Current ADT for New Brooklyn Road is 3,200 vehicles per day.

Sportsman Club Road includes posted speeds of 35 mph in the northbound direction and 30 mph in the southbound direction. Sportsman Club Road is signed as a school zone near the study intersection, however school zone speeds are not posted.

New Brooklyn Road includes posted speed of 30 mph speeds in both directions. In the eastbound direction, the road transitions from 40 mph to 30 mph posted speed approximately 1,000 feet west of the intersection.

Woodward Middle School is located to the north of the study intersection. It includes two access onto Sportsman Club Road, located 400 feet and 970 feet to the north of the study intersection.

Multimodal Facilities

All four intersection approaches currently include paved shoulders. An existing 6-foot paved sidewalk runs along the south side of New Brooklyn Road to the east of the intersection and terminates at the intersection. Another paved sidewalk connects the northwest corner of the study intersection to Woodward Middle School to the northwest of the intersection. Marked crosswalks are present on the north, east, and west approach legs.

Sportsman Club Road and New Brooklyn Road are identified as School Corridors in the IWTP. Sportsman Club Road is also designated as a Freight Corridor.

Multimodal use is significant at the study intersection, particularly during school arrival and dismissal periods as school buses, pedestrians, and bicyclists use the intersection to access Woodward Middle School to the northwest. Nonmotorized traffic volumes are attached. In addition to school-related multimodal demand, Kitsap Transit Route 93 uses the study intersection ten times daily.

Sportsman Club Road to the south of the study intersection is identified for 2018 asphalt shoulder repairs as part of the CORE 40 shoulder improvement program. To the north of the intersection, Sportsman Club Road is identified as a CORE 40 Priority 2/3 shoulder improvement project.

The Bainbridge Island Multi-Modal Transportation Advisory Committee 2016 Recommended Capital Improvement Project map identifies multiple inter-island trails converging at the study intersection. The IWTP Non-Motorized System Plan Map identifies all four study intersection legs for future bike facilities on both sides.

Crash History

Crash history for the five-year period from 2013 through 2017 indicates seven recorded collisions at or related to the study intersection, as shown in **Table 1.** The five-year period included two recorded injuries: one resulting from a left-turn collision due to driver inattention, and the other injury resulting from a driver falling asleep and striking a mailbox and tree near the intersection.

One bicycle-related crash occurred at the study intersection between 2013 and 2017, when a left-turning passenger vehicle failed to grant right-of-way to a bicycle from the opposing direction.

Table 1. Crash Rate, 2013-2017

Location	Crashes by Type (Injuries)					Total	Average
	Rear-End	Left-Turn	Entering	Bike/ Ped	Other		
Sportsman Club Rd & New Brooklyn Rd	2 (0)	1 (1)	1 (0)	1 (0)	1 (1)	7 (2)	1.2 (0.4)

Crash rate at an intersection is typically expressed per Million Entering Vehicles (MEV). In general, a crash rate greater than 1.0 per MEV indicates a need for more detailed safety analysis. Crash rate for the study intersection is 0.55, as shown in **Table 2.**

0.47

Table 2. Crash Rate, 2013-2017

Location	Volume			Total Crashes	Crash Rate (/MEV)[4]
	PM Peak Hour[1]	K-Factor[2]	ADT[3]		
Sportsman Club Rd & New Brooklyn Rd	772	0.11	7,000	6	0.47

[1]Source: June 2018 turning movement count
[2]Source: June 2018 24-hour
[3]Average daily traffic
[4]Crash rate per Million Entering Vehicles (MEV)

Observations of traffic operations at and near the study intersection on Tuesday, June 12, 2018 indicated undesirable driver and pedestrian behavior at Woodward Middle School to the north of the intersection. During school arrival, several children were observed exiting vehicles parked on the east shoulder of Sportsman Club Road and crossing to the south school driveway, sometimes without looking for a safe crossing opportunity. Vehicle stacking, and several near-miss accidents were also observed during both school arrival and dismissal periods.

These safety concerns do not directly impact operations at the study intersection but are noted here as school-related safety concerns have been identified by City staff and stakeholders in relation to this analysis.

Signal Warrants

Based on the crash history described above and the travel demand forecasts described in the following section, the intersection will not satisfy signal warrants identified in the Manual for Uniform Traffic Control Devices (MUTCD).

2. Design Assumptions

Modeling Software

The stop-controlled No-Build alternative was analyzed in Vistro 5 software using the Highway Capacity Manual 6 methodology. The roundabout alternative was analyzed using Sidra 7 software consistent with Washington State Department of Transportation (WSDOT) Sidra policy guidance.

Travel Demand Forecasting

Travel demand forecasts for the PM peak hour of travel were generated by the Bainbridge Island citywide travel demand model and are consistent with land use goals and policies identified in the IWTP. Per the travel demand model, PM peak hour intersection volumes are anticipated to increase by a 2.66 simple annual growth rate from 2018 through 2035.

AM and midday travel demand forecasts were calculated by applying the same 2.66 simple annual growth rate to traffic counts collected on Tuesday, June 12, 2018.

Design Year

This analysis was based on a design year of 2035, consistent with the Bainbridge Island citywide travel demand model.

Design Volumes

Volumes were assumed to be the same for the Build and No-Build alternatives. The intersection improvement is not anticipated to result in a change of travel demand patterns, assuming no other change in land use growth and regional transportation network improvements.

Design volumes are summarized in **Table 3.**

Table 3. Design Hourly Volumes

Year	Period	Eastbound			Westbound			Northbound			Southbound			Overall	
		L	Th	R	L	Th	R	L	Th	R	L	Th	R	PHF	Vol.
2018	AM	107	115	3	13	38	89	1	232	23	85	150	36	0.84	892
	Mid	46	68	6	43	108	75	8	204	34	46	156	65	0.89	859
	PM	34	82	8	13	136	47	8	151	14	36	180	63	0.85	772
2035	AM	135	145	4	17	48	113	2	293	29	108	190	45	0.84	1,129
	Mid	58	86	8	54	137	95	10	258	43	58	198	82	0.89	1,087
	PM	39	117	13	33	146	52	64	187	32	37	191	66	0.85	977

Design Vehicle

Accommodating for a vehicle allows encroachment of other lanes, shoulders, or other elements to complete the required maneuver. Designing for a vehicle does not require encroachment onto those elements. The recommended design vehicle is a school/transit bus for all movements through the intersection. The intersection needs to accommodate a dump truck and pup for all turning movements. Accommodating the dump truck and pup will also accommodate tractor trailer combinations and solid waste vehicles.

Truck Percentage

Heavy vehicle percentages were observed during the AM peak hour (8:00 – 9:00 AM), midday/school dismissal peak hour (3:00 – 4:00 PM), and PM peak hour (4:15 – 5:15 PM) on Tuesday, June 12, 2018. Heavy vehicle percentages are summarized in **Table 4.**

Table 4. Heavy Vehicle Percentages

Period	Eastbound	Westbound	Northbound	Southbound	Overall
AM Peak	0.9%	2.1%	6.3%	5.2%	3.9%
Midday Peak	2.5%	3.5%	3.7%	4.5%	3.7%
PM Peak	2.4%	2.0%	4.6%	2.2%	2.7%

3. Intersection Control Alternatives

This ICA evaluated three control alternatives under future (2035) AM, midday, and PM peak hour conditions:

No Build. Right-in right-out access restriction.

Alternative 1. Roundabout

Alternative 2. Signal control

Intersection operations for each alternative are summarized in this section.

No Build Alternative

The No Build Alternative assumed no change to existing intersection control and channelization. Level of Service (LOS) and 95th percentile queuing for the No Build Alternative are summarized in **Table 5.**

Table 5. No Build LOS and 95th Percentile Queue

Year	Period	Eastbound		Westbound		Northbound		Southbound		Overall
		LOS (Delay)	95th Q	LOS (Delay)	95th Q	LOS (Delay)	95th Q	LOS (Delay)	95th Q	LOS (Delay)
2018	AM	C (15)	65	B (11)	15	B (15)	70	C (16)	80	B (14)
	Mid	B (11)	25	B (11)	35	B (13)	55	B (13)	60	B (12)
	PM	B (11)	25	B (11)	30	B (11)	35	B (13)	65	B (12)
2035	AM	D (28)	145	B (14)	30	D (31)	175	D (35)	200	D (29)
	Mid	B (14)	40	B (14)	55	C (19)	105	C (21)	125	C (18)
	PM	B (14)	45	B (14)	50	C (18)	95	C (18)	95	C (16)

The intersection will operate at LOS D during the 2035 AM peak hour and will no longer satisfy the minimum intersection LOS standard of LOS C identified in the IWTP.

Roundabout Alternative

The operational analysis for the Roundabout Alternative assumed a single-lane roundabout with 110-foot inscribed circle diameter and 20-foot circulating lanes. A conceptual drawing is attached. Results are summarized in **Table 6**.

Table 6. Roundabout LOS and 95th Percentile Queue

Year	Period	Eastbound		Westbound		Northbound		Southbound		Overall
		LOS (Delay)	95th Q	LOS (Delay)	95th Q	LOS (Delay)	95th Q	LOS (Delay)	95th Q	LOS (Delay)
2035	AM	A (8)	45	A (7)	30	A (7)	75	A (7)	60	A (7)
	Mid	A (7)	20	A (7)	45	A (6)	50	A (6)	55	A (6)
	PM	A (6)	25	A (6)	35	A (7)	50	A (6)	50	A (7)

Signal Alternative

Intersection volumes, delay, and crash history do not satisfy MUTCD signal warrants. Further, the long-term operational and maintenance costs associated with what would be the City's first traffic signal is undesirable.

Finally, per WSDOT Design Manual Chapter 1300, one of the objectives of this ICA is to establish that a roundabout is the preferred intersection control type. For these reasons, signal control was considered but a detailed LOS and queuing analysis was not developed for this study.

4. Summary and Recommendations

The No Build alternative will result in Level of Service deficiency by 2035 per City of Bainbridge Island LOS standards. The No Build alternative also fails to address multimodal safety concerns at the intersection.

Signal control is not recommended at this location. The intersection is does not meet MUTCD signal warrants and the long-term operational and maintenance costs associated with what would be the City's first traffic signal is undesirable.

A single-lane roundabout is the preferred intersection control type at this location. Roundabout control will allow the intersection to operate very well at LOS A through 2035. A roundabout can also accommodate nonmotorized safety improvements, consistent with the intersection's location on several nonmotorized routes identified by City planning and policy documents.

- The roundabout should be designed for school/transit bus movements and it should accommodate a dump truck and pup combination, tractor trailer combination, and solid waste vehicles.
- The roundabout should include raised splitter islands to enhance pedestrian safety.
- A raised /landscape central island is desirable to create target value for approaching vehicles.
- If a raised /landscape central island is not feasible due to environmental, cost, or ROW constraints then a mountable central island with extended raised splitter islands should be considered.
- Pedestrian level illumination should be considered at the crosswalks.

It is also recommended that the City work with Bainbridge Island School District and Woodward Middle School to identify potential safety and operations improvements at the Woodward Middle School accesses along Sportsman Club Road to the north of the intersection. Because of the school's proximity to the intersection, the safety and operation of the intersection and the school accesses are integrated and need to be addressed concurrently.

Attachment 1. Traffic Counts

Attachment 2. 2018 Intersection LOS Report

Attachment 3. 2035 Intersection LOS Report

Attachment 4. Roundabout Conceptual Layout

Prepared for: **Transportation Solutions, Inc.**

Traffic Count Consultants, Inc.

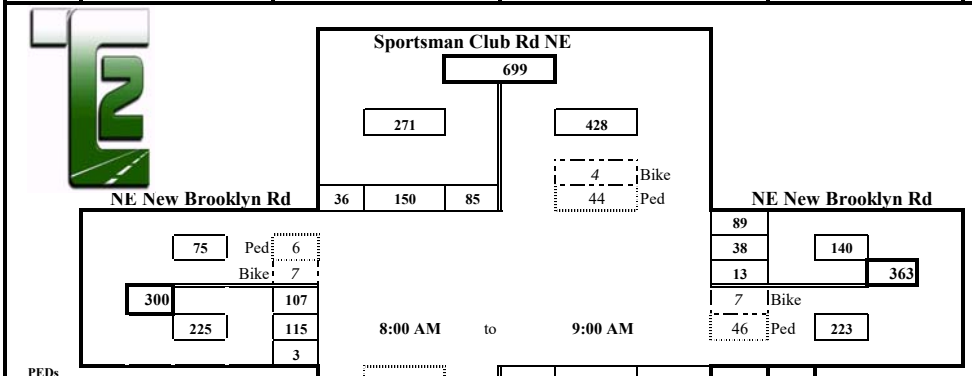
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Sportsman Club Rd NE & NE New Brooklyn Rd **Date of Count:** Tues 6/12/2018

Location: Bainbridge Island, Washington **Checked By:** Jess

Time Interval	From North on (SB) Sportsman Club Rd NE				From South on (NB) Sportsman Club Rd NE				From East on (WB) NE New Brooklyn Rd				From West on (EB) NE New Brooklyn Rd				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:45 A	2	16	18	2	0	0	31	7	1	3	5	9	2	6	49	0	146
8:00 A	0	7	23	8	4	0	42	9	0	3	17	14	0	20	25	0	168
8:15 A	1	19	37	13	2	0	46	2	1	4	10	24	0	22	30	1	208
8:30 A	3	13	36	8	5	0	64	8	0	5	6	13	1	28	40	0	221
8:45 A	8	30	37	6	8	1	71	9	1	2	12	33	0	34	31	1	267
9:00 A	2	23	40	9	1	0	51	4	1	2	10	19	1	23	14	1	196
9:15 A	0	2	35	5	0	0	31	2	0	1	15	1	0	5	17	2	116
9:30 A	4	13	34	10	2	2	30	2	0	5	14	5	0	13	20	1	149
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	20	123	260	61	22	3	366	43	4	25	89	118	4	151	226	6	1471
Peak Hour: 8:00 AM to 9:00 AM																	
Total	14	85	150	36	16	1	232	23	3	13	38	89	2	107	115	3	892
Approach	271				256				140				225				892
%HV	5.2%				6.3%				2.1%				0.9%				3.9%
PHF	0.93				0.79				0.74				0.83				0.84



PEDs Across:	N	S	E	W	
INT 01	1		1	3	5
INT 02	4		5		9
INT 03	6		8		14
INT 04	5		5	2	12
INT 05	26		26	4	56
INT 06	7		7		14
INT 07					0
INT 08		1			1
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	49	1	52	9	**111**

Bicycles From:	N	S	E	W	
INT 01	1	1	1	1	4
INT 02		1			1
INT 03	2		2		4
INT 04		2	1	4	7
INT 05	1	3	2	3	9
INT 06	1	1	2		4
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	5	8	8	8	29

1068 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.83	0.9%
Check	WB	0.74	2.1%
In: 892	NB	0.79	6.3%
Out: 892	SB	0.93	5.2%
	T Int.	0.84	3.9%

Conditions:

Special Notes

TSI18071TM_01a

Prepared for: **Transportation Solutions, Inc.**

Traffic Count Consultants, Inc.

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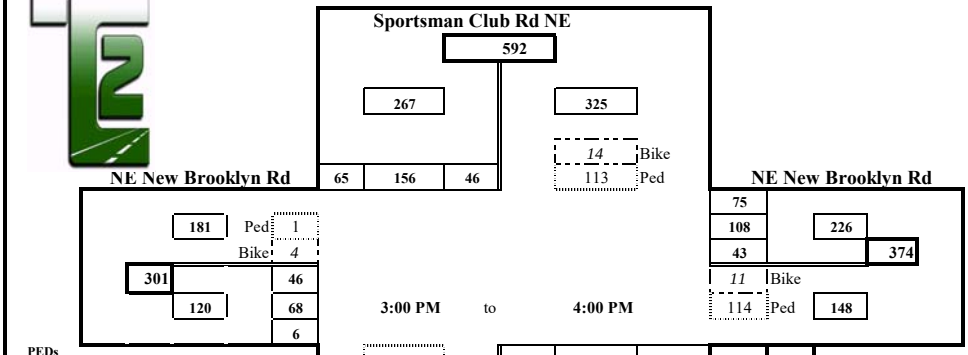
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
2:15 P	5	14	37	8	4	3	31	5	5	4	16	7	0	13	16	3	157
2:30 P	1	4	27	6	6	2	39	5	0	5	22	9	0	8	16	1	144
2:45 P	2	7	37	14	3	0	30	4	3	4	21	7	0	7	21	0	152
3:00 P	2	9	25	6	0	4	29	2	1	3	15	12	0	8	18	1	132
3:15 P	2	6	28	4	1	1	58	2	1	6	16	26	1	18	18	1	184
3:30 P	0	9	24	13	7	7	56	21	2	13	38	23	2	15	21	2	242
3:45 P	10	23	54	28	1	0	42	9	0	13	28	12	0	7	15	1	232
4:00 P	0	8	50	20	0	0	48	2	5	11	26	14	0	6	14	2	201
4:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	22	80	282	99	22	17	333	50	17	59	182	110	3	82	139	11	1444
Peak Hour: 3:00 PM to 4:00 PM																	
Total	12	46	156	65	9	8	204	34	8	43	108	75	3	46	68	6	859
Approach	267				246				226				120				859
%HV	4.5%				3.7%				3.5%				2.5%				3.7%
PHF	0.64				0.73				0.76				0.79				0.89



968 *1.0 PHF Peak Hour Volume*

PEDs Across:	N	S	E	W	
INT 01					0
INT 02	4		4		8
INT 03	1		1		2
INT 04	3		3		6
INT 05	2		2		4
INT 06	76		75	1	152
INT 07	33		35		68
INT 08	2		2		4
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	121	0	122	1	**244**

Bicycles From:	N	S	E	W	
INT 01	1			1	2
INT 02			1		1
INT 03			1	2	3
INT 04					0
INT 05	1		2		3
INT 06	10		4	1	15
INT 07	3		2	1	6
INT 08			3	2	5
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	15	0	13	7	35

		PHF	%HV
	EB	0.79	2.5%
Check	WB	0.76	3.5%
In: 859	NB	0.73	3.7%
Out: 859	SB	0.64	4.5%
	T Int.	0.89	3.7%

Conditions:

Special Notes

TSI18071TM_01m

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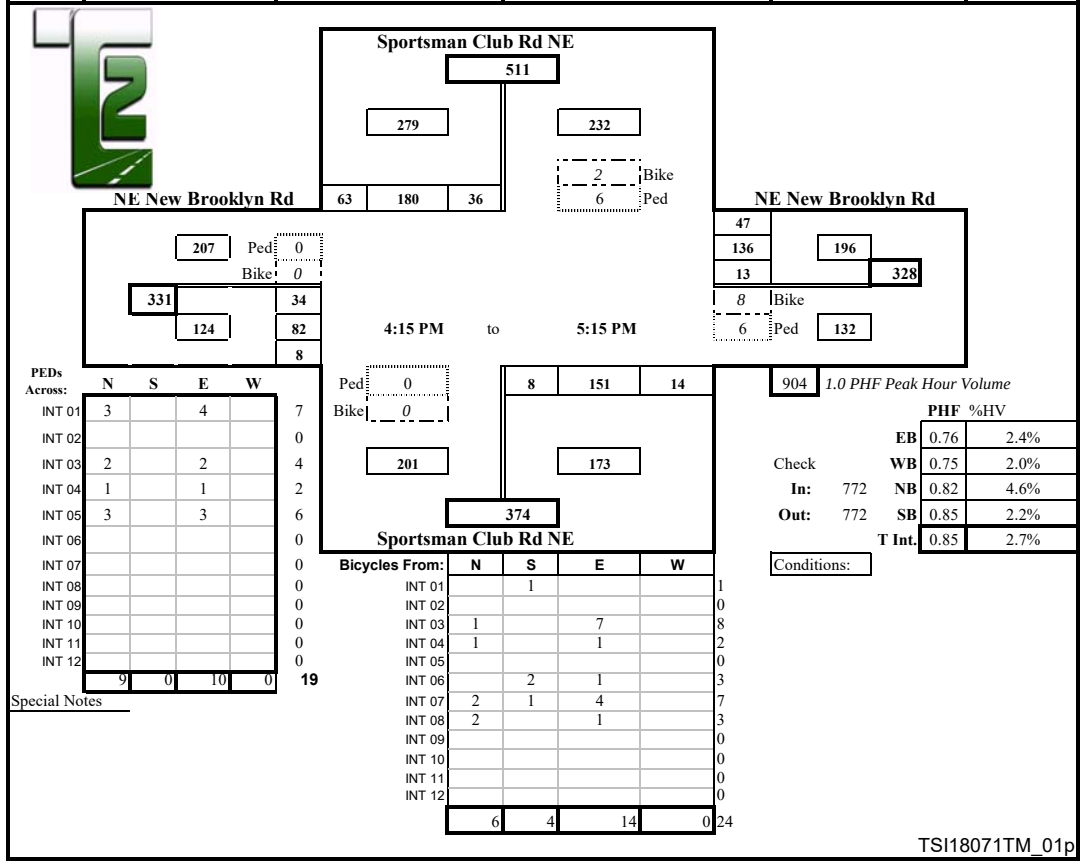
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	2	12	35	14	3	0	26	2	0	5	25	16	0	6	17	3	161
4:30 P	3	10	39	13	4	1	34	5	0	2	27	13	3	9	30	2	185
4:45 P	1	7	39	11	2	4	27	3	3	6	45	14	0	4	12	0	172
5:00 P	0	9	55	18	0	2	47	4	1	4	40	12	0	14	17	4	226
5:15 P	2	10	47	21	2	1	43	2	0	1	24	8	0	7	23	2	189
5:30 P	0	10	38	12	2	2	35	5	0	5	35	6	0	9	19	2	178
5:45 P	1	6	38	10	2	0	38	3	1	4	42	10	1	8	16	3	178
6:00 P	0	5	35	8	1	2	33	9	0	3	30	9	0	8	16	3	161
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	9	69	326	107	16	12	283	33	5	30	268	88	4	65	150	19	1450
Peak Hour: 4:15 PM to 5:15 PM																	
Total	6	36	180	63	8	8	151	14	4	13	136	47	3	34	82	8	772
Approach	279				173				196				124				772
%HV	2.2%				4.6%				2.0%				2.4%				2.7%
PHF	0.85				0.82				0.75				0.76				0.85



PEDs Across:

	N	S	E	W	
INT 01	3		4		7
INT 02					0
INT 03	2		2		4
INT 04	1		1		2
INT 05	3		3		6
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	9	0	10	0	19

Bicycles From:

	N	S	E	W	
INT 01		1			1
INT 02					0
INT 03	1		7		8
INT 04	1		1		2
INT 05					0
INT 06		2	1		3
INT 07	2	1	4		7
INT 08	2		1		3
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	6	4	14	0	24

904 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.76	2.4%
Check	WB	0.75	2.0%
In: 772	NB	0.82	4.6%
Out: 772	SB	0.85	2.2%
	T Int.	0.85	2.7%

Conditions:

Special Notes

TSI18071TM_01p

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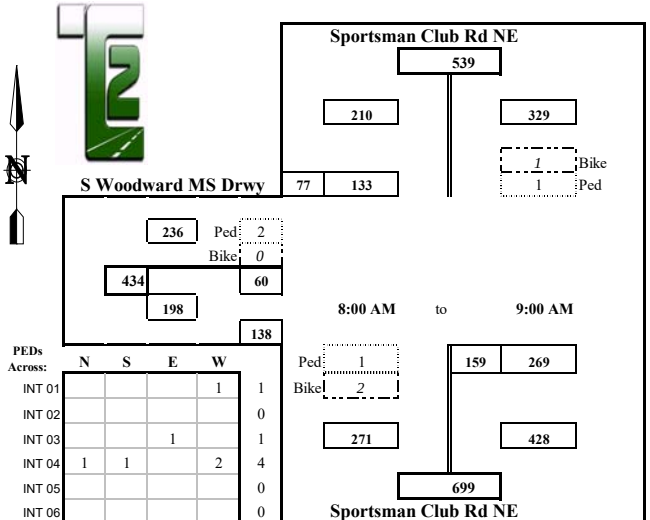
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:45 A	2	0	25	12	0	16	30	0	0	0	0	0	0	6	0	11	100
8:00 A	0	0	25	9	3	25	51	0	0	0	0	0	0	6	0	13	129
8:15 A	1	0	44	18	3	40	52	0	0	0	0	0	0	11	0	25	190
8:30 A	3	0	40	18	6	32	73	0	0	0	0	0	0	13	0	17	193
8:45 A	9	0	32	26	8	40	98	0	0	0	0	0	0	16	0	41	253
9:00 A	3	0	17	15	1	47	46	0	0	0	0	0	0	20	0	55	200
9:15 A	0	0	40	1	1	2	35	0	0	0	0	0	0	3	0	2	83
9:30 A	3	0	55	0	2	2	46	0	0	0	0	0	1	1	0	2	106
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	21	0	278	99	24	204	431	0	0	0	0	0	1	76	0	166	1254
Peak Hour: 8:00 AM to 9:00 AM																	
Total	16	0	133	77	18	159	269	0	0	0	0	0	0	60	0	138	836
Approach	210				428				0				198				836
%HV	7.6%				4.2%				n/a				n/a				4.1%
PHF	0.85				0.78				n/a				0.66				0.83



PEDs Across:	N	S	E	W	
INT 01				1	1
INT 02					0
INT 03			1		1
INT 04	1	1		2	4
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	1	1	1	3	6

Bicycles From:	N	S	E	W	
INT 01	1	1			2
INT 02		2			2
INT 03	1				1
INT 04					0
INT 05		1			1
INT 06		1			1
INT 07	1	1			2
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	3	6	0	0	9

1012 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.66	n/a
Check	WB	n/a	n/a
In: 836	NB	0.78	4.2%
Out: 836	SB	0.85	7.6%
	T Int.	0.83	4.1%

Conditions:

Special Notes

8:19 - Child dropped off on east side of roadway; child darted in front of on-coming traffic.

8:26 - Child dropped off on east side of roadway; child waited to cross.

8:35 & 8:37 - Drop offs on west side of roadway, just north of driveway.

8:40-9:00 - Back-up; chaotic; many "almost" accidents.

TSI18071TM_02a

Prepared for: **Transportation Solutions, Inc.**

Traffic Count Consultants, Inc.

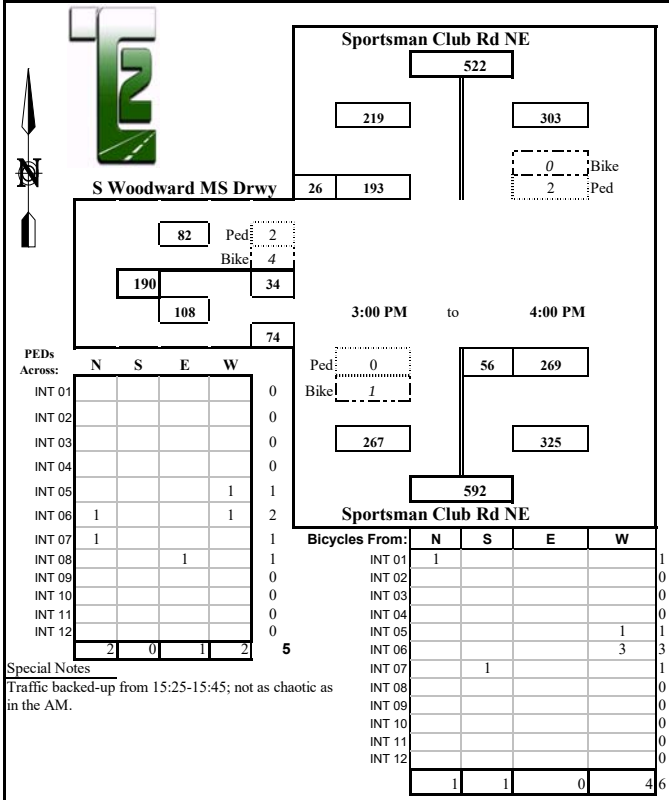
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Sportsman Club Rd NE & S Woodward MS Drwy **Date of Count:** Tues 6/12/2018

Location: Bainbridge Island, Washington **Checked By:** Jess

Time Interval	From North on (SB) Sportsman Club Rd NE				From South on (NB) Sportsman Club Rd NE				From East on (WB) 0				From West on (EB) S Woodward MS Drwy				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
2:15 P	3	0	41	0	5	2	49	0	0	0	0	0	0	9	0	19	120
2:30 P	1	0	33	2	6	4	52	0	0	0	0	0	0	6	0	4	101
2:45 P	2	0	51	2	4	6	38	0	0	0	0	0	0	1	0	7	105
3:00 P	2	0	37	1	0	6	43	0	0	0	0	0	0	1	0	3	91
3:15 P	1	0	30	17	4	27	75	0	0	0	0	0	1	5	0	8	162
3:30 P	0	0	21	6	14	18	76	0	0	0	0	0	0	17	0	25	163
3:45 P	9	0	70	3	0	9	52	0	0	0	0	0	0	10	0	35	179
4:00 P	0	0	72	0	1	2	66	0	0	0	0	0	0	2	0	6	148
4:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	18	0	355	31	34	74	451	0	0	0	0	0	1	51	0	107	1069
	Peak Hour: 3:00 PM to 4:00 PM																
Total	10	0	193	26	19	56	269	0	0	0	0	0	1	34	0	74	652
Approach	219				325				0				108				652
%HV	4.6%				5.8%				n/a				0.9%				4.6%
PHF	0.75				0.80				n/a				0.60				0.91



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05				1	1
INT 06	1			1	2
INT 07	1				1
INT 08			1		1
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	2	0	1	2	5

Bicycles From:	N	S	E	W	
INT 01	1				1
INT 02					0
INT 03					0
INT 04					0
INT 05				1	1
INT 06				3	3
INT 07		1			1
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	1	1	0	4	6

Special Notes

Traffic backed-up from 15:25-15:45; not as chaotic as in the AM.

716 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.60	0.9%
Check	WB	n/a	n/a
In: 652	NB	0.80	5.8%
Out: 652	SB	0.75	4.6%
	T Int.	0.91	4.6%

Conditions:

TSI18071TM_02m

Prepared for: **Transportation Solutions, Inc.**

Traffic Count Consultants, Inc.

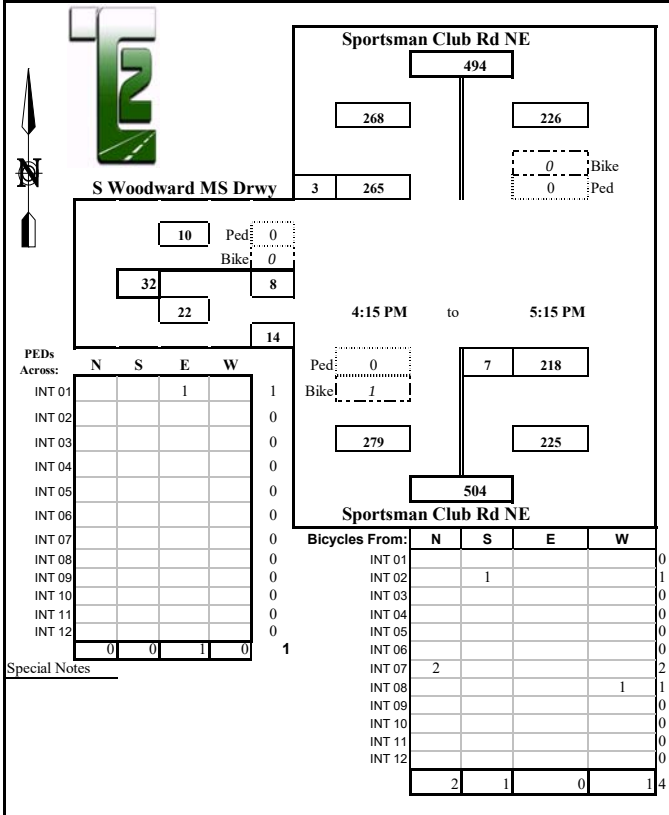
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Sportsman Club Rd NE & S Woodward MS Drwy **Date of Count:** Tues 6/12/2018

Location: Bainbridge Island, Washington **Checked By:** Jess

Time Interval	From North on (SB) Sportsman Club Rd NE				From South on (NB) Sportsman Club Rd NE				From East on (WB) 0				From West on (EB) S Woodward MS Drwy				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	2	0	57	1	2	3	45	0	0	0	0	0	0	1	0	4	111
4:30 P	3	0	57	0	1	3	51	0	0	0	0	0	0	1	0	5	117
4:45 P	1	0	49	3	1	4	37	0	0	0	0	0	0	6	0	8	107
5:00 P	0	0	82	0	3	0	73	0	0	0	0	0	0	0	0	0	155
5:15 P	2	0	77	0	2	0	57	0	0	0	0	0	0	1	0	1	136
5:30 P	0	0	59	0	2	0	49	0	0	0	0	0	0	1	0	1	110
5:45 P	1	0	52	0	2	0	54	0	0	0	0	0	0	1	0	2	109
6:00 P	0	0	47	0	1	0	49	0	0	0	0	0	0	0	0	1	97
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	9	0	480	4	14	10	415	0	0	0	0	0	0	11	0	22	942
	Peak Hour: 4:15 PM to 5:15 PM																
Total	6	0	265	3	7	7	218	0	0	0	0	0	0	8	0	14	515
Approach	268				225				0				22				515
%HV	2.2%				3.1%				n/a				n/a				2.5%
PHF	0.82				0.77				n/a				0.39				0.83



PEDs Across:	N	S	E	W	
INT 01			1		1
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	1	0	1

Bicycles From:	N	S	E	W	
INT 01					0
INT 02		1			1
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07	2				2
INT 08				1	1
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	2	1	0	1	4

Special Notes

620 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.39	n/a
Check	WB	n/a	n/a
In: 515	NB	0.77	3.1%
Out: 515	SB	0.82	2.2%
	T Int.	0.83	2.5%

Conditions:

Prepared for: **Transportation Solutions, Inc.**

Traffic Count Consultants, Inc.

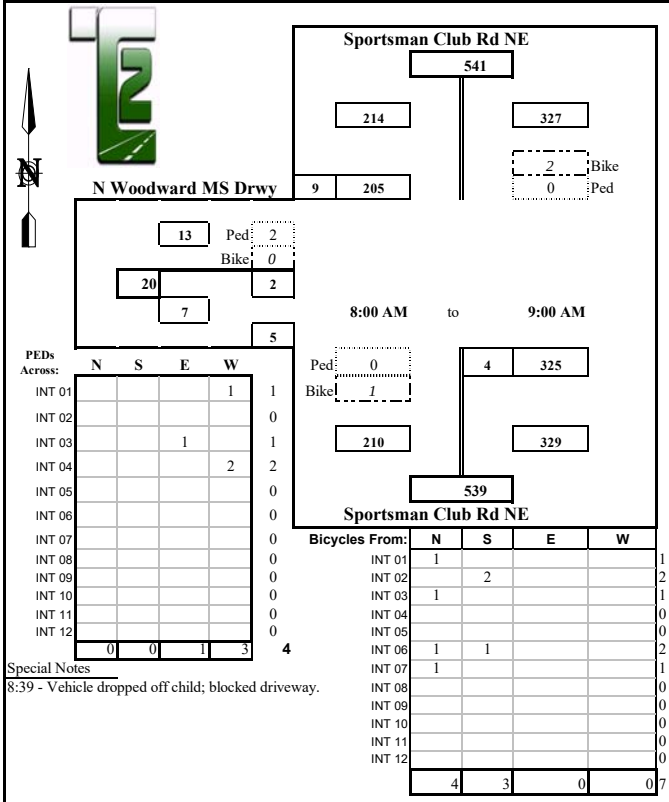
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Sportsmand Club Rd NE & N Woodward MS Drwy **Date of Count:** Tues 6/12/2018

Location: Bainbridge Island, Washington **Checked By:** Jess

Time Interval	From North on (SB) Sportsman Club Rd NE				From South on (NB) Sportsman Club Rd NE				From East on (WB) 0				From West on (EB) N Woodward MS Drwy				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:45 A	2	0	37	2	0	0	36	0	0	0	0	0	0	0	0	0	75
8:00 A	0	0	32	3	3	3	54	0	0	0	0	0	0	0	0	2	94
8:15 A	1	0	62	1	3	1	62	0	0	0	0	0	0	0	0	0	126
8:30 A	4	0	58	1	5	0	86	0	0	0	0	0	0	0	0	0	145
8:45 A	10	0	57	4	9	1	113	0	0	0	0	0	1	1	0	1	177
9:00 A	3	0	28	3	1	2	64	0	0	0	0	0	0	1	0	4	102
9:15 A	0	0	40	0	1	1	37	0	0	0	0	0	0	0	0	1	79
9:30 A	1	0	52	0	2	0	44	0	0	0	0	0	3	0	0	3	99
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	21	0	366	14	24	8	496	0	0	0	0	0	4	2	0	11	897
	Peak Hour: 8:00 AM to 9:00 AM																
Total	18	0	205	9	18	4	325	0	0	0	0	0	1	2	0	5	550
Approach	214				329				0				7				550
%HV	8.4%				5.5%				n/a				14.3%				6.7%
PHF	0.85				0.72				n/a				0.35				0.78



PEDs Across:	N	S	E	W	
INT 01				1	1
INT 02					0
INT 03			1		1
INT 04				2	2
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	1	3	4

Bicycles From:	N	S	E	W	
INT 01	1				1
INT 02		2			2
INT 03	1				1
INT 04					0
INT 05					0
INT 06	1	1			2
INT 07	1				1
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	4	3	0	0	7

Special Notes

8:39 - Vehicle dropped off child; blocked driveway.

708 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.35	14.3%
Check	WB	n/a	n/a
In: 550	NB	0.72	5.5%
Out: 550	SB	0.85	8.4%
	T Int.	0.78	6.7%

Conditions:

TSI18071TM_03a

Prepared for: **Transportation Solutions, Inc.**

Traffic Count Consultants, Inc.

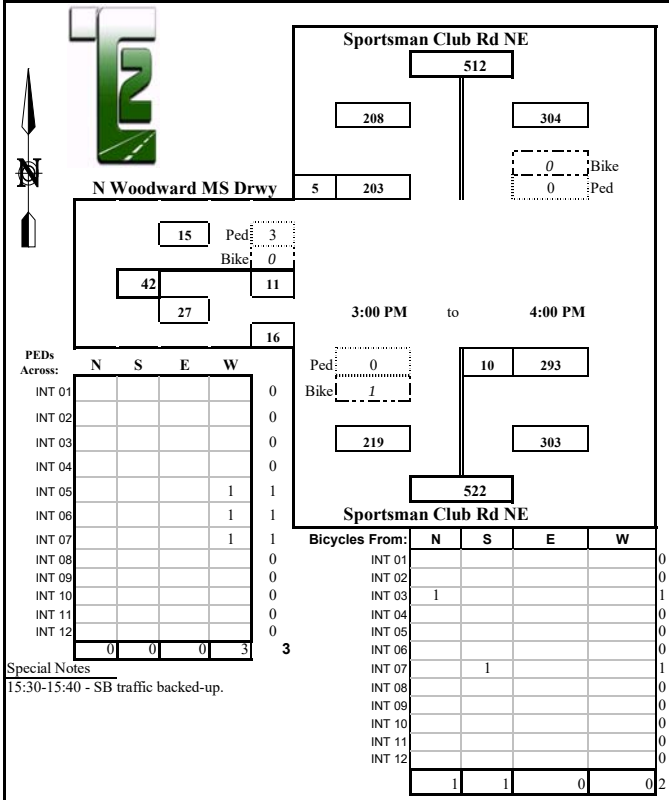
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Sportsmand Club Rd NE & N Woodward MS Drwy **Date of Count:** Tues 6/12/2018

Location: Bainbridge Island, Washington **Checked By:** Jess

Time Interval	From North on (SB) Sportsman Club Rd NE				From South on (NB) Sportsman Club Rd NE				From East on (WB) 0				From West on (EB) N Woodward MS Drwy				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
2:15 P	5	0	39	3	5	1	57	0	0	0	0	0	3	2	0	2	104
2:30 P	1	0	34	0	6	0	58	0	0	0	0	0	0	0	0	1	93
2:45 P	2	0	53	0	4	1	38	0	0	0	0	0	0	0	0	0	92
3:00 P	2	0	37	0	0	2	42	0	0	0	0	0	0	0	0	1	82
3:15 P	1	0	45	1	0	0	80	0	0	0	0	0	0	1	0	2	129
3:30 P	4	0	23	3	8	8	85	0	0	0	0	0	0	3	0	4	126
3:45 P	1	0	63	1	2	2	60	0	0	0	0	0	13	6	0	10	142
4:00 P	0	0	72	0	2	0	68	0	0	0	0	0	0	1	0	0	141
4:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	16	0	366	8	27	14	488	0	0	0	0	0	16	13	0	20	909
Peak Hour:	3:00 PM to 4:00 PM																
Total	6	0	203	5	12	10	293	0	0	0	0	0	13	11	0	16	538
Approach	208				303				0				27				538
%HV	2.9%				4.0%				n/a				48.1%				5.8%
PHF	0.72				0.81				n/a				0.42				0.95



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05				1	1
INT 06				1	1
INT 07				1	1
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	3	3

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03	1				1
INT 04					0
INT 05					0
INT 06					0
INT 07		1			1
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	1	1	0	0	2

Special Notes

15:30-15:40 - SB traffic backed-up.

568 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.42	48.1%
Check	WB	n/a	n/a
In: 538	NB	0.81	4.0%
Out: 538	SB	0.72	2.9%
	T Int.	0.95	5.8%

Conditions:

TSI18071TM_03m

Prepared for: **Transportation Solutions, Inc.**

Traffic Count Consultants, Inc.

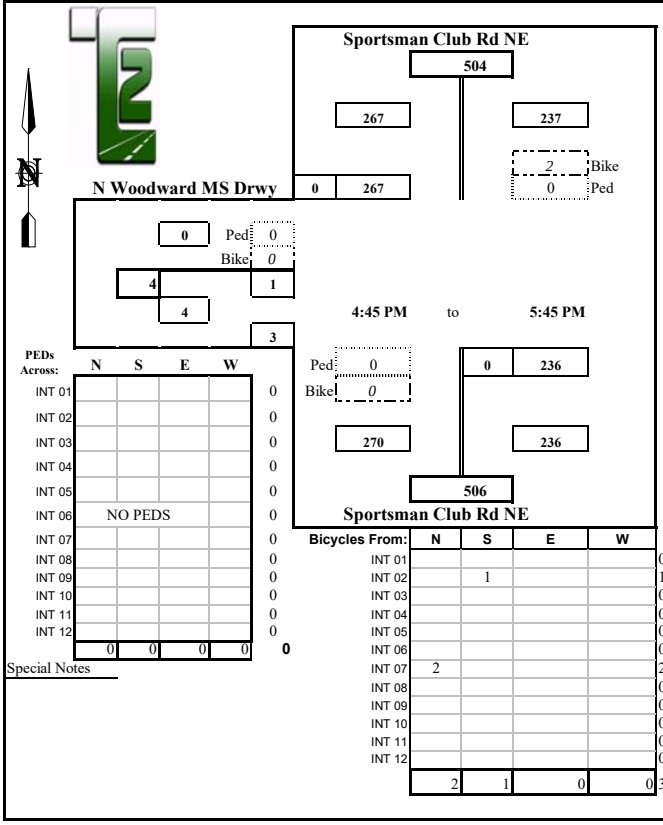
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Sportsmand Club Rd NE & N Woodward MS Drwy **Date of Count:** Tues 6/12/2018

Location: Bainbridge Island, Washington **Checked By:** Jess

Time Interval	From North on (SB) Sportsman Club Rd NE				From South on (NB) Sportsman Club Rd NE				From East on (WB) 0				From West on (EB) N Woodward MS Drwy				Interval Total
Ending at	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	1	0	56	0	2	1	45	0	0	0	0	0	0	0	0	2	104
4:30 P	2	0	55	2	1	0	52	0	0	0	0	0	0	0	0	2	111
4:45 P	2	0	52	0	1	0	43	0	0	0	0	0	0	0	0	0	95
5:00 P	0	0	80	0	1	0	73	0	0	0	0	0	0	0	0	2	155
5:15 P	2	0	77	0	1	0	58	0	0	0	0	0	0	1	0	0	136
5:30 P	0	0	58	0	1	0	50	0	0	0	0	0	0	0	0	1	109
5:45 P	1	0	52	0	3	0	55	0	0	0	0	0	0	0	0	0	107
6:00 P	0	0	47	0	1	0	49	0	0	0	0	0	0	0	0	0	96
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	8	0	477	2	11	1	425	0	0	0	0	0	0	1	0	7	913
	Peak Hour: 4:45 PM to 5:45 PM																
Total	3	0	267	0	6	0	236	0	0	0	0	0	0	1	0	3	507
Approach			267				236				0				4		507
%HV			1.1%				2.5%				n/a				n/a		1.8%
PHF			0.83				0.81				n/a				0.50		0.82



PEDs Across:

	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO PEDS				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	**0**

Bicycles From:

	N	S	E	W	
INT 01					0
INT 02		1			1
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07	2				2
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	2	1	0	0	3

Special Notes

620 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.50	n/a
Check	WB	n/a	n/a
In: 507	NB	0.81	2.5%
Out: 507	SB	0.83	1.1%
	T Int.	0.82	1.8%

Conditions:

TSI18071TM_03p

TRAFFIC COUNT CONSULTANTS, INC.

Team@tc2inc.com
(253) 770-1407

BAINBRIDGE ISLAND, WASHINGTON
SPORTSMAN CLUB RD NE N/O
NE NEW BROOKLYN RD
LOC# 01 V TSI18071TM

Site Code: 01

Date Start: 12-Jun-18
Date End: 12-Jun-18

Start	11-Jun-18		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	3	9	*	*	*	*	*	*	*	*	*	*	3	9
01:00	*	*	3	3	*	*	*	*	*	*	*	*	*	*	3	3
02:00	*	*	5	1	*	*	*	*	*	*	*	*	*	*	5	1
03:00	*	*	2	7	*	*	*	*	*	*	*	*	*	*	2	7
04:00	*	*	5	3	*	*	*	*	*	*	*	*	*	*	5	3
05:00	*	*	41	18	*	*	*	*	*	*	*	*	*	*	41	18
06:00	*	*	67	96	*	*	*	*	*	*	*	*	*	*	67	96
07:00	*	*	202	115	*	*	*	*	*	*	*	*	*	*	202	115
08:00	*	*	**466**	**418**	*	*	*	*	*	*	*	*	*	*	**466**	**418**
09:00	*	*	212	195	*	*	*	*	*	*	*	*	*	*	212	195
10:00	*	*	192	196	*	*	*	*	*	*	*	*	*	*	192	196
11:00	*	*	184	202	*	*	*	*	*	*	*	*	*	*	184	202
12:00 PM	*	*	210	163	*	*	*	*	*	*	*	*	*	*	210	163
01:00	*	*	170	165	*	*	*	*	*	*	*	*	*	*	170	165
02:00	*	*	206	199	*	*	*	*	*	*	*	*	*	*	206	199
03:00	*	*	**333**	**386**	*	*	*	*	*	*	*	*	*	*	**333**	**386**
04:00	*	*	228	262	*	*	*	*	*	*	*	*	*	*	228	262
05:00	*	*	218	248	*	*	*	*	*	*	*	*	*	*	218	248
06:00	*	*	182	189	*	*	*	*	*	*	*	*	*	*	182	189
07:00	*	*	103	110	*	*	*	*	*	*	*	*	*	*	103	110
08:00	*	*	82	76	*	*	*	*	*	*	*	*	*	*	82	76
09:00	*	*	49	64	*	*	*	*	*	*	*	*	*	*	49	64
10:00	*	*	24	27	*	*	*	*	*	*	*	*	*	*	24	27
11:00	*	*	7	19	*	*	*	*	*	*	*	*	*	*	7	19
Lane	0	0	3194	3171	0	0	0	0	0	0	0	0	0	0	3194	3171
Day	0		6365		0		0		0		0		0		6365	
AM Peak	-	-	08:00	08:00	-	-	-	-	-	-	-	-	-	-	08:00	08:00
Vol.	-	-	466	418	-	-	-	-	-	-	-	-	-	-	466	418
PM Peak	-	-	15:00	15:00	-	-	-	-	-	-	-	-	-	-	15:00	15:00
Vol.	-	-	333	386	-	-	-	-	-	-	-	-	-	-	333	386

Comb. Total	0	6365	0	0	0	0	0	6365

ADT ADT 6,365 AADT 6,365

Vistro File: C:\...\Sportsman Club-New Brooklyn.vistro Scenario 1 2018 AM
Report File: C:\...\2018 AM.pdf 6/20/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sportsman Club Rd & New Brooklyn Rd	All-way stop	HCM 6th Edition	SWB Thru	0.535	14.5	B
2	Sportsman Club Rd & S School Drwy	Two-way stop	HCM 6th Edition	EB Left	0.289	25.2	D
3	Sportsman Club Rd & N School Drwy	Two-way stop	HCM 6th Edition	EB Left	0.008	14.4	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sportsman Club Rd & New Brooklyn Rd

Control Type:	All-way stop	Delay (sec / veh):	14.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.535

Intersection Setup

Name	New Brooklyn Rd			New Brooklyn Rd			Sportsman Club Rd			Sportsman Club Rd		
Approach	Eastbound			Westbound			Northeastbound			Southwestbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	New Brooklyn Rd			New Brooklyn Rd			Sportsman Club Rd			Sportsman Club Rd		
Base Volume Input [veh/h]	107	115	3	13	38	89	1	232	23	85	150	36
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.90	0.90	0.90	2.10	2.10	2.10	6.30	6.30	6.30	5.20	5.20	5.20
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	107	115	3	13	38	89	1	232	23	85	150	36
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	32	34	1	4	11	26	0	69	7	25	45	11
Total Analysis Volume [veh/h]	127	137	4	15	45	106	1	276	27	101	179	43
Pedestrian Volume [ped/h]	6			46			0			44		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	564	503	572	601	604
Degree of Utilization, x	0.48	0.12	0.19	0.51	0.54

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	2.54	0.40	0.68	2.85	3.17
95th-Percentile Queue Length [ft]	63.56	10.07	16.89	71.27	79.26
Approach Delay [s/veh]	15.03	10.57		14.96	15.63
Approach LOS	C	B		B	C
Intersection Delay [s/veh]	14.49				
Intersection LOS	B				

Intersection Level Of Service Report
Intersection 2: Sportsman Club Rd & S School Drwy

Control Type:	Two-way stop	Delay (sec / veh):	25.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.289

Intersection Setup

Name	S MS Drwy		Sportsman Club Rd		Sportsman Club Rd	
Approach	Eastbound		Northeastbound		Southwestbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	S MS Drwy		Sportsman Club Rd		Sportsman Club Rd	
Base Volume Input [veh/h]	60	138	159	269	133	77
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	4.20	4.20	7.60	7.60
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	60	138	159	269	133	77
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	42	48	81	40	23
Total Analysis Volume [veh/h]	72	166	192	324	160	93
Pedestrian Volume [ped/h]	2		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.29	0.20	0.15	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	25.22	10.37	8.26	0.00	0.00	0.00
Movement LOS	D	B	A	A	A	A
95th-Percentile Queue Length [veh]	1.16	0.74	1.95	1.95	0.00	0.00
95th-Percentile Queue Length [ft]	28.97	18.43	48.70	48.70	0.00	0.00
d_A, Approach Delay [s/veh]	14.86		3.07		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	5.09					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 3: Sportsman Club Rd & N School Drwy

Control Type:	Two-way stop	Delay (sec / veh):	14.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.008

Intersection Setup

Name	N MS Drwy		Sportsman Club Rd		Sportsman Club Rd	
Approach	Southbound		Eastbound		Northeastbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Right	Left	Thru
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		No	

Volumes

Name	N MS Drwy		Sportsman Club Rd		Sportsman Club Rd	
Base Volume Input [veh/h]	205	9	2	5	4	325
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	8.40	8.40	14.30	14.30	5.50	5.50
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	205	9	2	5	4	325
Peak Hour Factor	0.7800	0.7800	0.7800	0.7800	0.7800	0.7800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	66	3	1	2	1	104
Total Analysis Volume [veh/h]	263	12	3	6	5	417
Pedestrian Volume [ped/h]	0		2		0	

Intersection Settings

Priority Scheme	Free	Stop	Free
Flared Lane		No	
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance		No	
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	14.43	9.98	7.86	0.00
Movement LOS	A	A	B	A	A	A
95th-Percentile Queue Length [veh]	0.00	0.00	0.05	0.05	1.48	1.48
95th-Percentile Queue Length [ft]	0.00	0.00	1.21	1.21	37.08	37.08
d_A, Approach Delay [s/veh]	0.00		11.47		0.09	
Approach LOS	A		B		A	
d_I, Intersection Delay [s/veh]	0.20					
Intersection LOS	B					

Signal Warrants Report For Intersection 1: Sportsman Club Rd & New Brooklyn Rd

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	NE, SW
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	NE	SW	E	W
1	5	5	3	5
2	5	5	3	5
3	8	8	4	7
4	8	8	4	7
5	11	10	6	9
6	27	26	14	23
7	30	28	15	25
8	54	51	28	45
9	95	90	49	79
10	98	92	50	81
11	98	92	50	81
12	106	100	55	88
13	117	110	60	97
14	122	115	63	101
15	122	115	63	101
16	130	123	67	108
17	163	154	84	135
18	171	161	88	142
19	184	174	95	153
20	206	195	106	171
21	217	205	112	180
22	255	241	132	212
23	260	246	134	216
24	271	256	140	225

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	10	3	8	No	No	No	No	No	No	No	No	No	No
2	2	10	3	8	No	No	No	No	No	No	No	No	No	No
3	2	16	3	11	No	No	No	No	No	No	No	No	No	No
4	2	16	3	11	No	No	No	No	No	No	No	No	No	No
5	2	21	3	15	No	No	No	No	No	No	No	No	No	No
6	2	53	3	37	No	No	No	No	No	No	No	No	No	No
7	2	58	3	40	No	No	No	No	No	No	No	No	No	No
8	2	105	3	73	No	No	No	No	No	No	No	No	No	No
9	2	185	3	128	No	No	No	No	No	No	No	No	No	No
10	2	190	3	131	No	No	No	No	No	No	No	No	No	No
11	2	190	3	131	No	No	No	No	No	No	No	No	No	No
12	2	206	3	143	No	No	No	No	No	No	No	No	No	No
13	2	227	3	157	No	No	No	No	No	No	No	No	No	No
14	2	237	3	164	No	No	No	No	No	No	No	No	No	No
15	2	237	3	164	No	No	No	No	No	No	No	No	No	No
16	2	253	3	175	No	No	No	No	No	No	No	No	No	No
17	2	317	3	219	No	No	No	No	No	No	No	No	No	No
18	2	332	3	230	No	No	No	No	No	No	No	No	No	No
19	2	358	3	248	No	No	No	Yes	No	No	No	No	No	No
20	2	401	3	277	No	No	No	Yes	No	No	No	No	No	No
21	2	422	3	292	No	No	Yes	Yes	No	No	No	No	No	No
22	2	496	3	344	No	Yes	Yes	Yes	No	No	No	No	No	No
23	2	506	3	350	No	Yes	Yes	Yes	No	No	No	Yes	No	No
24	2	527	3	365	No	Yes	Yes	Yes	No	No	No	Yes	No	No
Hours Met					0	3	4	6	0	0	0	2	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	10.6	15
Number of Lanes on Minor Street Approach	2	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:24	0:56
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	140	225
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	892	892
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

Signal Warrants Report For Intersection 2: Sportsman Club Rd & S School Drwy

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	NE, SW
Minor Approaches	W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	NE	SW	W
1	210	428	198
2	202	411	190
3	197	402	186
4	168	342	158
5	160	325	150
6	143	291	135
7	132	270	125
8	126	257	119
9	101	205	95
10	95	193	89
11	95	193	89
12	90	184	85
13	82	167	77
14	76	154	71
15	76	154	71
16	74	150	69
17	42	86	40
18	23	47	22
19	21	43	20
20	8	17	8
21	6	13	6
22	6	13	6
23	4	9	4
24	4	9	4

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	638	2	198	No	Yes	Yes	Yes	No	No	Yes	Yes	No	No
2	2	613	2	190	No	Yes	Yes	Yes	No	No	No	Yes	No	No
3	2	599	2	186	No	Yes	Yes	Yes	No	No	No	Yes	No	No
4	2	510	2	158	No	No	Yes	Yes	No	No	No	Yes	No	No
5	2	485	2	150	No	No	Yes	Yes	No	No	No	No	No	No
6	2	434	2	135	No	No	No	Yes	No	No	No	No	No	No
7	2	402	2	125	No	No	No	Yes	No	No	No	No	No	No
8	2	383	2	119	No	No	No	Yes	No	No	No	No	No	No
9	2	306	2	95	No	No	No	No	No	No	No	No	No	No
10	2	288	2	89	No	No	No	No	No	No	No	No	No	No
11	2	288	2	89	No	No	No	No	No	No	No	No	No	No
12	2	274	2	85	No	No	No	No	No	No	No	No	No	No
13	2	249	2	77	No	No	No	No	No	No	No	No	No	No
14	2	230	2	71	No	No	No	No	No	No	No	No	No	No
15	2	230	2	71	No	No	No	No	No	No	No	No	No	No
16	2	224	2	69	No	No	No	No	No	No	No	No	No	No
17	2	128	2	40	No	No	No	No	No	No	No	No	No	No
18	2	70	2	22	No	No	No	No	No	No	No	No	No	No
19	2	64	2	20	No	No	No	No	No	No	No	No	No	No
20	2	25	2	8	No	No	No	No	No	No	No	No	No	No
21	2	19	2	6	No	No	No	No	No	No	No	No	No	No
22	2	19	2	6	No	No	No	No	No	No	No	No	No	No
23	2	13	2	4	No	No	No	No	No	No	No	No	No	No
24	2	13	2	4	No	No	No	No	No	No	No	No	No	No
Hours Met					0	3	5	8	0	0	1	4	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	14.9
Number of Lanes on Minor Street Approach	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:49
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	198
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	836
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 3: Sportsman Club Rd & N School Drwy

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, SW
Minor Approaches	W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	SW	W
1	214	329	7
2	205	316	7
3	201	309	7
4	171	263	6
5	163	250	5
6	146	224	5
7	135	207	4
8	128	197	4
9	103	158	3
10	96	148	3
11	96	148	3
12	92	141	3
13	83	128	3
14	77	118	3
15	77	118	3
16	75	115	2
17	43	66	1
18	24	36	1
19	21	33	1
20	9	13	0
21	6	10	0
22	6	10	0
23	4	7	0
24	4	7	0

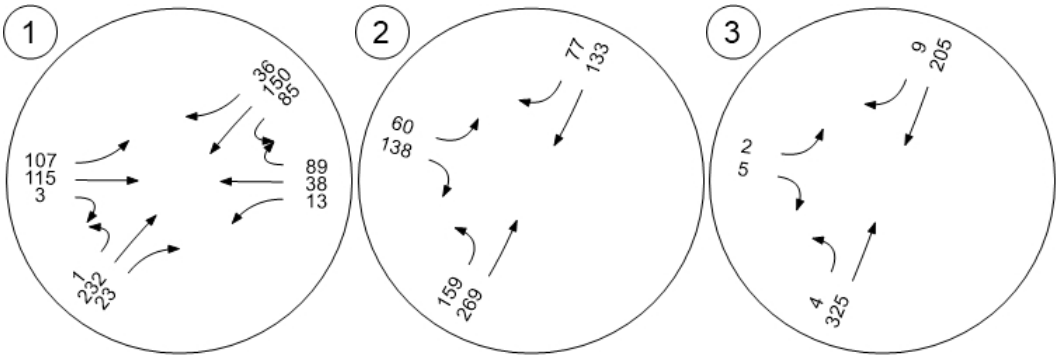
Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	543	1	7	No	No	No	No	No	No	No	No	No	No
2	2	521	1	7	No	No	No	No	No	No	No	No	No	No
3	2	510	1	7	No	No	No	No	No	No	No	No	No	No
4	2	434	1	6	No	No	No	No	No	No	No	No	No	No
5	2	413	1	5	No	No	No	No	No	No	No	No	No	No
6	2	370	1	5	No	No	No	No	No	No	No	No	No	No
7	2	342	1	4	No	No	No	No	No	No	No	No	No	No
8	2	325	1	4	No	No	No	No	No	No	No	No	No	No
9	2	261	1	3	No	No	No	No	No	No	No	No	No	No
10	2	244	1	3	No	No	No	No	No	No	No	No	No	No
11	2	244	1	3	No	No	No	No	No	No	No	No	No	No
12	2	233	1	3	No	No	No	No	No	No	No	No	No	No
13	2	211	1	3	No	No	No	No	No	No	No	No	No	No
14	2	195	1	3	No	No	No	No	No	No	No	No	No	No
15	2	195	1	3	No	No	No	No	No	No	No	No	No	No
16	2	190	1	2	No	No	No	No	No	No	No	No	No	No
17	2	109	1	1	No	No	No	No	No	No	No	No	No	No
18	2	60	1	1	No	No	No	No	No	No	No	No	No	No
19	2	54	1	1	No	No	No	No	No	No	No	No	No	No
20	2	22	1	0	No	No	No	No	No	No	No	No	No	No
21	2	16	1	0	No	No	No	No	No	No	No	No	No	No
22	2	16	1	0	No	No	No	No	No	No	No	No	No	No
23	2	11	1	0	No	No	No	No	No	No	No	No	No	No
24	2	11	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	11.5
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:01
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	7
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	550
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Traffic Volume - Base Volume



Vistro File: C:\...\Sportsman Club-New Brooklyn.vistro
Report File: C:\...\2018 Midday.pdf

Scenario 2 2018 Midday
6/20/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sportsman Club Rd & New Brooklyn Rd	All-way stop	HCM 6th Edition	SWB Thru	0.458	12.2	B
2	Sportsman Club Rd & S School Drwy	Two-way stop	HCM 6th Edition	EB Left	0.090	14.6	B
3	Sportsman Club Rd & N School Drwy	Two-way stop	HCM 6th Edition	EB Left	0.028	13.9	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sportsman Club Rd & New Brooklyn Rd

Control Type:	All-way stop	Delay (sec / veh):	12.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.458

Intersection Setup

Name	New Brooklyn Rd			New Brooklyn Rd			Sportsman Club Rd			Sportsman Club Rd		
Approach	Eastbound			Westbound			Northeastbound			Southwestbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	New Brooklyn Rd			New Brooklyn Rd			Sportsman Club Rd			Sportsman Club Rd		
Base Volume Input [veh/h]	46	68	6	43	108	75	8	204	34	46	156	65
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.50	2.50	2.50	3.50	3.50	3.50	3.70	3.70	3.70	4.50	4.50	4.50
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	46	68	6	43	108	75	8	204	34	46	156	65
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	19	2	12	30	21	2	57	10	13	44	18
Total Analysis Volume [veh/h]	52	76	7	48	121	84	9	229	38	52	175	73
Pedestrian Volume [ped/h]	1			114			0			113		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	578	548	631	648	655
Degree of Utilization, x	0.23	0.31	0.13	0.43	0.46

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.90	1.30	0.46	2.13	2.41
95th-Percentile Queue Length [ft]	22.50	32.53	11.45	53.31	60.22
Approach Delay [s/veh]	11.12	11.21		12.63	13.07
Approach LOS	B	B		B	B
Intersection Delay [s/veh]	12.18				
Intersection LOS	B				

Intersection Level Of Service Report
Intersection 2: Sportsman Club Rd & S School Drwy

Control Type:	Two-way stop	Delay (sec / veh):	14.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.090

Intersection Setup

Name	S MS Drwy		Sportsman Club Rd		Sportsman Club Rd	
Approach	Eastbound		Northeastbound		Southwestbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	S MS Drwy		Sportsman Club Rd		Sportsman Club Rd	
Base Volume Input [veh/h]	34	74	56	269	193	26
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.90	0.90	5.80	5.80	4.60	4.60
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	34	74	56	269	193	26
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	20	15	74	53	7
Total Analysis Volume [veh/h]	37	81	62	296	212	29
Pedestrian Volume [ped/h]	2		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.09	0.10	0.05	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	14.63	9.92	7.91	0.00	0.00	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.30	0.33	1.13	1.13	0.00	0.00
95th-Percentile Queue Length [ft]	7.38	8.28	28.26	28.26	0.00	0.00
d_A, Approach Delay [s/veh]	11.40		1.37		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	2.56					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 3: Sportsman Club Rd & N School Drwy

Control Type:	Two-way stop	Delay (sec / veh):	13.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.028

Intersection Setup

Name	N MS Drwy		Sportsman Club Rd		Sportsman Club Rd	
Approach	Southbound		Eastbound		Northeastbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Right	Left	Thru
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		No	

Volumes

Name	N MS Drwy		Sportsman Club Rd		Sportsman Club Rd	
Base Volume Input [veh/h]	203	5	11	16	10	293
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.90	2.90	48.10	48.10	4.00	4.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	203	5	11	16	10	293
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	53	1	3	4	3	77
Total Analysis Volume [veh/h]	214	5	12	17	11	308
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free		Stop		Free	
Flared Lane			No			
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance			No			
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.03	0.02	0.01	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	13.85	10.35	7.71	0.00
Movement LOS	A	A	B	B	A	A
95th-Percentile Queue Length [veh]	0.00	0.00	0.16	0.16	0.93	0.93
95th-Percentile Queue Length [ft]	0.00	0.00	4.10	4.10	23.29	23.29
d_A, Approach Delay [s/veh]	0.00		11.80		0.27	
Approach LOS	A		B		A	
d_I, Intersection Delay [s/veh]	0.75					
Intersection LOS	B					

Signal Warrants Report For Intersection 1: Sportsman Club Rd & New Brooklyn Rd

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	NE, SW
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	NE	SW	E	W
1	5	5	5	2
2	5	5	5	2
3	8	7	7	4
4	8	7	7	4
5	11	10	9	5
6	27	25	23	12
7	29	27	25	13
8	53	49	45	24
9	93	86	79	42
10	96	89	81	43
11	96	89	81	43
12	104	96	88	47
13	115	106	97	52
14	120	111	102	54
15	120	111	102	54
16	128	118	108	58
17	160	148	136	72
18	168	155	142	76
19	182	167	154	82
20	203	187	172	91
21	214	197	181	96
22	251	231	212	113
23	256	236	217	115
24	267	246	226	120

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	10	3	7	No	No	No	No	No	No	No	No	No	No
2	2	10	3	7	No	No	No	No	No	No	No	No	No	No
3	2	15	3	11	No	No	No	No	No	No	No	No	No	No
4	2	15	3	11	No	No	No	No	No	No	No	No	No	No
5	2	21	3	14	No	No	No	No	No	No	No	No	No	No
6	2	52	3	35	No	No	No	No	No	No	No	No	No	No
7	2	56	3	38	No	No	No	No	No	No	No	No	No	No
8	2	102	3	69	No	No	No	No	No	No	No	No	No	No
9	2	179	3	121	No	No	No	No	No	No	No	No	No	No
10	2	185	3	124	No	No	No	No	No	No	No	No	No	No
11	2	185	3	124	No	No	No	No	No	No	No	No	No	No
12	2	200	3	135	No	No	No	No	No	No	No	No	No	No
13	2	221	3	149	No	No	No	No	No	No	No	No	No	No
14	2	231	3	156	No	No	No	No	No	No	No	No	No	No
15	2	231	3	156	No	No	No	No	No	No	No	No	No	No
16	2	246	3	166	No	No	No	No	No	No	No	No	No	No
17	2	308	3	208	No	No	No	No	No	No	No	No	No	No
18	2	323	3	218	No	No	No	No	No	No	No	No	No	No
19	2	349	3	236	No	No	No	Yes	No	No	No	No	No	No
20	2	390	3	263	No	No	No	Yes	No	No	No	No	No	No
21	2	411	3	277	No	No	No	Yes	No	No	No	No	No	No
22	2	482	3	325	No	Yes	Yes	Yes	No	No	No	No	No	No
23	2	492	3	332	No	Yes	Yes	Yes	No	No	No	No	No	No
24	2	513	3	346	No	Yes	Yes	Yes	No	No	No	Yes	No	No
Hours Met					0	3	3	6	0	0	0	1	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	11.2	11.1
Number of Lanes on Minor Street Approach	2	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:42	0:22
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	226	120
High Minor Volume Condition Met	Yes	Yes
Total Entering Volume on All Approaches During Same Hour	859	859
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

Signal Warrants Report For Intersection 2: Sportsman Club Rd & S School Drwy

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	NE, SW
Minor Approaches	W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	NE	SW	W
1	219	325	108
2	210	312	104
3	206	306	102
4	175	260	86
5	166	247	82
6	149	221	73
7	138	205	68
8	131	195	65
9	105	156	52
10	99	146	49
11	99	146	49
12	94	140	46
13	85	127	42
14	79	117	39
15	79	117	39
16	77	114	38
17	44	65	22
18	24	36	12
19	22	33	11
20	9	13	4
21	7	10	3
22	7	10	3
23	4	7	2
24	4	7	2

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	544	2	108	No	No	No	No	No	No	No	Yes	No	No
2	2	522	2	104	No	No	No	No	No	No	No	Yes	No	No
3	2	512	2	102	No	No	No	No	No	No	No	Yes	No	No
4	2	435	2	86	No	No	No	No	No	No	No	No	No	No
5	2	413	2	82	No	No	No	No	No	No	No	No	No	No
6	2	370	2	73	No	No	No	No	No	No	No	No	No	No
7	2	343	2	68	No	No	No	No	No	No	No	No	No	No
8	2	326	2	65	No	No	No	No	No	No	No	No	No	No
9	2	261	2	52	No	No	No	No	No	No	No	No	No	No
10	2	245	2	49	No	No	No	No	No	No	No	No	No	No
11	2	245	2	49	No	No	No	No	No	No	No	No	No	No
12	2	234	2	46	No	No	No	No	No	No	No	No	No	No
13	2	212	2	42	No	No	No	No	No	No	No	No	No	No
14	2	196	2	39	No	No	No	No	No	No	No	No	No	No
15	2	196	2	39	No	No	No	No	No	No	No	No	No	No
16	2	191	2	38	No	No	No	No	No	No	No	No	No	No
17	2	109	2	22	No	No	No	No	No	No	No	No	No	No
18	2	60	2	12	No	No	No	No	No	No	No	No	No	No
19	2	55	2	11	No	No	No	No	No	No	No	No	No	No
20	2	22	2	4	No	No	No	No	No	No	No	No	No	No
21	2	17	2	3	No	No	No	No	No	No	No	No	No	No
22	2	17	2	3	No	No	No	No	No	No	No	No	No	No
23	2	11	2	2	No	No	No	No	No	No	No	No	No	No
24	2	11	2	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	3	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	11.4
Number of Lanes on Minor Street Approach	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:20
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	108
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	652
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 3: Sportsman Club Rd & N School Drwy

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, SW
Minor Approaches	W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	SW	W
1	208	303	27
2	200	291	26
3	196	285	25
4	166	242	22
5	158	230	21
6	141	206	18
7	131	191	17
8	125	182	16
9	100	145	13
10	94	136	12
11	94	136	12
12	89	130	12
13	81	118	11
14	75	109	10
15	75	109	10
16	73	106	9
17	42	61	5
18	23	33	3
19	21	30	3
20	8	12	1
21	6	9	1
22	6	9	1
23	4	6	1
24	4	6	1

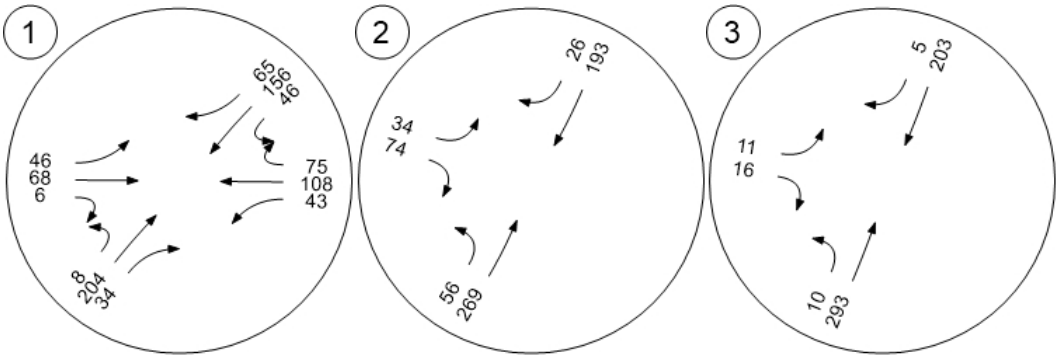
Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	511	1	27	No	No	No	No	No	No	No	No	No	No
2	2	491	1	26	No	No	No	No	No	No	No	No	No	No
3	2	481	1	25	No	No	No	No	No	No	No	No	No	No
4	2	408	1	22	No	No	No	No	No	No	No	No	No	No
5	2	388	1	21	No	No	No	No	No	No	No	No	No	No
6	2	347	1	18	No	No	No	No	No	No	No	No	No	No
7	2	322	1	17	No	No	No	No	No	No	No	No	No	No
8	2	307	1	16	No	No	No	No	No	No	No	No	No	No
9	2	245	1	13	No	No	No	No	No	No	No	No	No	No
10	2	230	1	12	No	No	No	No	No	No	No	No	No	No
11	2	230	1	12	No	No	No	No	No	No	No	No	No	No
12	2	219	1	12	No	No	No	No	No	No	No	No	No	No
13	2	199	1	11	No	No	No	No	No	No	No	No	No	No
14	2	184	1	10	No	No	No	No	No	No	No	No	No	No
15	2	184	1	10	No	No	No	No	No	No	No	No	No	No
16	2	179	1	9	No	No	No	No	No	No	No	No	No	No
17	2	103	1	5	No	No	No	No	No	No	No	No	No	No
18	2	56	1	3	No	No	No	No	No	No	No	No	No	No
19	2	51	1	3	No	No	No	No	No	No	No	No	No	No
20	2	20	1	1	No	No	No	No	No	No	No	No	No	No
21	2	15	1	1	No	No	No	No	No	No	No	No	No	No
22	2	15	1	1	No	No	No	No	No	No	No	No	No	No
23	2	10	1	1	No	No	No	No	No	No	No	No	No	No
24	2	10	1	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	11.8
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:05
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	27
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	538
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Traffic Volume - Base Volume



Vistro File: C:\...\Sportsman Club-New Brooklyn.vistro
Report File: C:\...\2018 PM.pdf

Scenario 3 2018 PM
6/20/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sportsman Club Rd & New Brooklyn Rd	All-way stop	HCM 6th Edition	SWB Thru	0.481	11.8	B
2	Sportsman Club Rd & S School Drwy	Two-way stop	HCM 6th Edition	EB Left	0.022	12.9	B
3	Sportsman Club Rd & N School Drwy	Two-way stop	HCM 6th Edition	EB Left	0.002	12.9	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sportsman Club Rd & New Brooklyn Rd

Control Type:	All-way stop	Delay (sec / veh):	11.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.481

Intersection Setup

Name	New Brooklyn Rd			New Brooklyn Rd			Sportsman Club Rd			Sportsman Club Rd		
Approach	Eastbound			Westbound			Northeastbound			Southwestbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	New Brooklyn Rd			New Brooklyn Rd			Sportsman Club Rd			Sportsman Club Rd		
Base Volume Input [veh/h]	34	82	8	13	136	47	8	151	14	36	180	63
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.40	2.40	2.40	2.00	2.00	2.00	4.60	4.60	4.60	2.20	2.20	2.20
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	34	82	8	13	136	47	8	151	14	36	180	63
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	24	2	4	40	14	2	44	4	11	53	19
Total Analysis Volume [veh/h]	40	96	9	15	160	55	9	178	16	42	212	74
Pedestrian Volume [ped/h]	0			6			0			6		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	601	572	650	645	682
Degree of Utilization, x	0.24	0.31	0.08	0.31	0.48

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.94	1.29	0.28	1.35	2.62
95th-Percentile Queue Length [ft]	23.42	32.20	6.90	33.66	65.56
Approach Delay [s/veh]	10.87	11.02		11.13	13.06
Approach LOS	B	B		B	B
Intersection Delay [s/veh]	11.76				
Intersection LOS	B				

Intersection Level Of Service Report
Intersection 2: Sportsman Club Rd & S School Drwy

Control Type:	Two-way stop	Delay (sec / veh):	12.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.022

Intersection Setup

Name	S MS Drwy		Sportsman Club Rd		Sportsman Club Rd	
Approach	Eastbound		Northeastbound		Southwestbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	S MS Drwy		Sportsman Club Rd		Sportsman Club Rd	
Base Volume Input [veh/h]	8	14	7	218	265	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	3.10	3.10	2.20	2.20
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	14	7	218	265	3
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	4	2	66	80	1
Total Analysis Volume [veh/h]	10	17	8	263	319	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.02	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.94	10.09	7.94	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh]	0.07	0.07	0.84	0.84	0.00	0.00
95th-Percentile Queue Length [ft]	1.65	1.80	21.03	21.03	0.00	0.00
d_A, Approach Delay [s/veh]	11.14		0.23		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.59					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 3: Sportsman Club Rd & N School Drwy

Control Type:	Two-way stop	Delay (sec / veh):	12.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

Name	N MS Drwy		Sportsman Club Rd		Sportsman Club Rd	
Approach	Southbound		Eastbound		Northeastbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Right	Left	Thru
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		No	

Volumes

Name	N MS Drwy		Sportsman Club Rd		Sportsman Club Rd	
Base Volume Input [veh/h]	267	0	1	3	0	236
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.10	1.10	0.00	0.00	2.50	2.50
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	267	0	1	3	0	236
Peak Hour Factor	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	81	0	0	1	0	72
Total Analysis Volume [veh/h]	326	0	1	4	0	288
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Stop	Free
Flared Lane		No	
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance		No	
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	12.89	10.04	7.92	0.00
Movement LOS	A	A	B	B	A	A
95th-Percentile Queue Length [veh]	0.00	0.00	0.02	0.02	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.58	0.58	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		10.61		0.00	
Approach LOS	A		B		A	
d_I, Intersection Delay [s/veh]	0.09					
Intersection LOS	B					

Signal Warrants Report For Intersection 1: Sportsman Club Rd & New Brooklyn Rd

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	NE, SW
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	NE	SW	E	W
1	6	3	4	2
2	6	3	4	2
3	8	5	6	4
4	8	5	6	4
5	11	7	8	5
6	28	17	20	12
7	31	19	22	14
8	56	35	39	25
9	98	61	69	43
10	100	62	71	45
11	100	62	71	45
12	109	67	76	48
13	120	74	84	53
14	126	78	88	56
15	126	78	88	56
16	134	83	94	60
17	167	104	118	74
18	176	109	123	78
19	190	118	133	84
20	212	131	149	94
21	223	138	157	99
22	262	163	184	117
23	268	166	188	119
24	279	173	196	124

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	9	3	6	No	No	No	No	No	No	No	No	No	No
2	2	9	3	6	No	No	No	No	No	No	No	No	No	No
3	2	13	3	10	No	No	No	No	No	No	No	No	No	No
4	2	13	3	10	No	No	No	No	No	No	No	No	No	No
5	2	18	3	13	No	No	No	No	No	No	No	No	No	No
6	2	45	3	32	No	No	No	No	No	No	No	No	No	No
7	2	50	3	36	No	No	No	No	No	No	No	No	No	No
8	2	91	3	64	No	No	No	No	No	No	No	No	No	No
9	2	159	3	112	No	No	No	No	No	No	No	No	No	No
10	2	162	3	116	No	No	No	No	No	No	No	No	No	No
11	2	162	3	116	No	No	No	No	No	No	No	No	No	No
12	2	176	3	124	No	No	No	No	No	No	No	No	No	No
13	2	194	3	137	No	No	No	No	No	No	No	No	No	No
14	2	204	3	144	No	No	No	No	No	No	No	No	No	No
15	2	204	3	144	No	No	No	No	No	No	No	No	No	No
16	2	217	3	154	No	No	No	No	No	No	No	No	No	No
17	2	271	3	192	No	No	No	No	No	No	No	No	No	No
18	2	285	3	201	No	No	No	No	No	No	No	No	No	No
19	2	308	3	217	No	No	No	No	No	No	No	No	No	No
20	2	343	3	243	No	No	No	Yes	No	No	No	No	No	No
21	2	361	3	256	No	No	No	Yes	No	No	No	No	No	No
22	2	425	3	301	No	No	Yes	Yes	No	No	No	No	No	No
23	2	434	3	307	No	No	Yes	Yes	No	No	No	No	No	No
24	2	452	3	320	No	No	Yes	Yes	No	No	No	No	No	No
Hours Met					0	0	3	5	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	11	10.9
Number of Lanes on Minor Street Approach	2	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:36	0:22
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	196	124
High Minor Volume Condition Met	Yes	Yes
Total Entering Volume on All Approaches During Same Hour	772	772
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

Signal Warrants Report For Intersection 2: Sportsman Club Rd & S School Drwy

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	NE, SW
Minor Approaches	W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	NE	SW	W
1	268	225	22
2	257	216	21
3	252	212	21
4	214	180	18
5	204	171	17
6	182	153	15
7	169	142	14
8	161	135	13
9	129	108	11
10	121	101	10
11	121	101	10
12	115	97	9
13	105	88	9
14	96	81	8
15	96	81	8
16	94	79	8
17	54	45	4
18	29	25	2
19	27	23	2
20	11	9	1
21	8	7	1
22	8	7	1
23	5	5	0
24	5	5	0

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	493	2	22	No	No	No	No	No	No	No	No	No	No
2	2	473	2	21	No	No	No	No	No	No	No	No	No	No
3	2	464	2	21	No	No	No	No	No	No	No	No	No	No
4	2	394	2	18	No	No	No	No	No	No	No	No	No	No
5	2	375	2	17	No	No	No	No	No	No	No	No	No	No
6	2	335	2	15	No	No	No	No	No	No	No	No	No	No
7	2	311	2	14	No	No	No	No	No	No	No	No	No	No
8	2	296	2	13	No	No	No	No	No	No	No	No	No	No
9	2	237	2	11	No	No	No	No	No	No	No	No	No	No
10	2	222	2	10	No	No	No	No	No	No	No	No	No	No
11	2	222	2	10	No	No	No	No	No	No	No	No	No	No
12	2	212	2	9	No	No	No	No	No	No	No	No	No	No
13	2	193	2	9	No	No	No	No	No	No	No	No	No	No
14	2	177	2	8	No	No	No	No	No	No	No	No	No	No
15	2	177	2	8	No	No	No	No	No	No	No	No	No	No
16	2	173	2	8	No	No	No	No	No	No	No	No	No	No
17	2	99	2	4	No	No	No	No	No	No	No	No	No	No
18	2	54	2	2	No	No	No	No	No	No	No	No	No	No
19	2	50	2	2	No	No	No	No	No	No	No	No	No	No
20	2	20	2	1	No	No	No	No	No	No	No	No	No	No
21	2	15	2	1	No	No	No	No	No	No	No	No	No	No
22	2	15	2	1	No	No	No	No	No	No	No	No	No	No
23	2	10	2	0	No	No	No	No	No	No	No	No	No	No
24	2	10	2	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	11.1
Number of Lanes on Minor Street Approach	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:04
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	22
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	515
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 3: Sportsman Club Rd & N School Drwy

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, SW
Minor Approaches	W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	SW	W
1	267	236	4
2	256	227	4
3	251	222	4
4	214	189	3
5	203	179	3
6	182	160	3
7	168	149	3
8	160	142	2
9	128	113	2
10	120	106	2
11	120	106	2
12	115	101	2
13	104	92	2
14	96	85	1
15	96	85	1
16	93	83	1
17	53	47	1
18	29	26	0
19	27	24	0
20	11	9	0
21	8	7	0
22	8	7	0
23	5	5	0
24	5	5	0

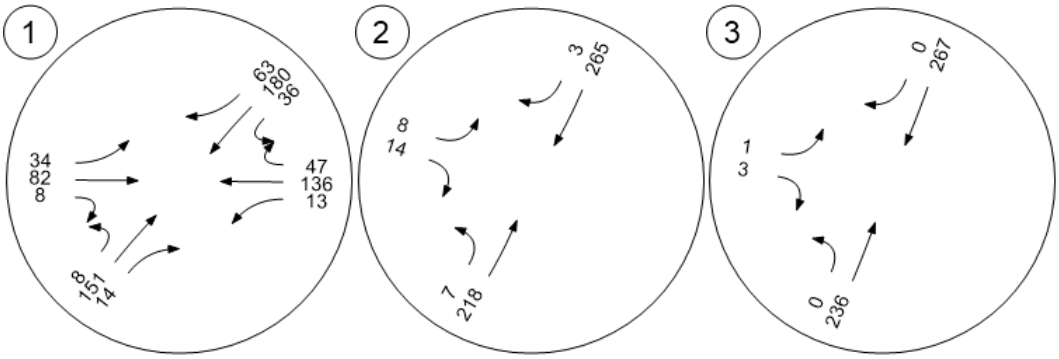
Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	503	1	4	No	No	No	No	No	No	No	No	No	No
2	2	483	1	4	No	No	No	No	No	No	No	No	No	No
3	2	473	1	4	No	No	No	No	No	No	No	No	No	No
4	2	403	1	3	No	No	No	No	No	No	No	No	No	No
5	2	382	1	3	No	No	No	No	No	No	No	No	No	No
6	2	342	1	3	No	No	No	No	No	No	No	No	No	No
7	2	317	1	3	No	No	No	No	No	No	No	No	No	No
8	2	302	1	2	No	No	No	No	No	No	No	No	No	No
9	2	241	1	2	No	No	No	No	No	No	No	No	No	No
10	2	226	1	2	No	No	No	No	No	No	No	No	No	No
11	2	226	1	2	No	No	No	No	No	No	No	No	No	No
12	2	216	1	2	No	No	No	No	No	No	No	No	No	No
13	2	196	1	2	No	No	No	No	No	No	No	No	No	No
14	2	181	1	1	No	No	No	No	No	No	No	No	No	No
15	2	181	1	1	No	No	No	No	No	No	No	No	No	No
16	2	176	1	1	No	No	No	No	No	No	No	No	No	No
17	2	100	1	1	No	No	No	No	No	No	No	No	No	No
18	2	55	1	0	No	No	No	No	No	No	No	No	No	No
19	2	51	1	0	No	No	No	No	No	No	No	No	No	No
20	2	20	1	0	No	No	No	No	No	No	No	No	No	No
21	2	15	1	0	No	No	No	No	No	No	No	No	No	No
22	2	15	1	0	No	No	No	No	No	No	No	No	No	No
23	2	10	1	0	No	No	No	No	No	No	No	No	No	No
24	2	10	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	10.6
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	4
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	507
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Traffic Volume - Base Volume



Vistro File: C:\...\Sportsman Club-New Brooklyn.vistro
Report File: C:\...\2035 PM Baseline.pdf

Scenario 4 2035 PM Baseline
6/20/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Sportsman Club Rd & New Brooklyn Rd	All-way stop	HCM 6th Edition	SWB Thru	0.593	16.2	C
2	Sportsman Club Rd & S School Drwy	Two-way stop	HCM 6th Edition	EB Left	0.024	13.8	B
3	Sportsman Club Rd & N School Drwy	Two-way stop	HCM 6th Edition	EB Left	0.002	13.7	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Sportsman Club Rd & New Brooklyn Rd

Control Type:	All-way stop	Delay (sec / veh):	16.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.593

Intersection Setup

Name	New Brooklyn Rd			New Brooklyn Rd			Sportsman Club Rd			Sportsman Club Rd		
Approach	Eastbound			Westbound			Northeastbound			Southwestbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	New Brooklyn Rd			New Brooklyn Rd			Sportsman Club Rd			Sportsman Club Rd		
Base Volume Input [veh/h]	34	82	8	13	136	47	8	151	14	36	180	63
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.40	2.40	2.40	2.00	2.00	2.00	4.60	4.60	4.60	2.20	2.20	2.20
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	5	35	5	20	10	5	56	36	18	1	11	3
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	39	117	13	33	146	52	64	187	32	37	191	66
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	34	4	10	43	15	19	55	9	11	56	19
Total Analysis Volume [veh/h]	46	138	15	39	172	61	75	220	38	44	225	78
Pedestrian Volume [ped/h]	0			6			0			6		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	522	498	561	572	585
Degree of Utilization, x	0.38	0.42	0.11	0.58	0.59

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.77	2.08	0.36	3.72	3.86
95th-Percentile Queue Length [ft]	44.33	52.11	9.10	92.89	96.59
Approach Delay [s/veh]	14.10	13.96		17.68	17.69
Approach LOS	B	B		C	C
Intersection Delay [s/veh]	16.19				
Intersection LOS	C				

Intersection Level Of Service Report
Intersection 2: Sportsman Club Rd & S School Drwy

Control Type:	Two-way stop	Delay (sec / veh):	13.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.024

Intersection Setup

Name	S MS Drwy		Sportsman Club Rd		Sportsman Club Rd	
Approach	Eastbound		Northeastbound		Southwestbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	S MS Drwy		Sportsman Club Rd		Sportsman Club Rd	
Base Volume Input [veh/h]	8	14	7	218	265	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	3.10	3.10	2.20	2.20
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	45	15	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	14	7	263	280	3
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	4	2	79	84	1
Total Analysis Volume [veh/h]	10	17	8	317	337	4
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.02	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	13.76	10.21	7.99	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh]	0.07	0.07	1.09	1.09	0.00	0.00
95th-Percentile Queue Length [ft]	1.82	1.84	27.21	27.21	0.00	0.00
d_A, Approach Delay [s/veh]	11.53		0.20		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.54					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 3: Sportsman Club Rd & N School Drwy

Control Type:	Two-way stop	Delay (sec / veh):	13.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

Name	N MS Drwy		Sportsman Club Rd		Sportsman Club Rd	
Approach	Southbound		Eastbound		Northeastbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Right	Left	Thru
Lane Width [ft]	11.00	11.00	11.00	11.00	11.00	11.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		No	

Volumes

Name	N MS Drwy		Sportsman Club Rd		Sportsman Club Rd	
Base Volume Input [veh/h]	267	0	1	3	0	236
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	1.10	1.10	0.00	0.00	2.50	2.50
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	15	0	0	0	0	45
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	282	0	1	3	0	281
Peak Hour Factor	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	86	0	0	1	0	86
Total Analysis Volume [veh/h]	344	0	1	4	0	343
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free		Stop		Free	
Flared Lane			No			
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance			No			
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	13.71	10.17	7.97	0.00
Movement LOS	A	A	B	B	A	A
95th-Percentile Queue Length [veh]	0.00	0.00	0.02	0.02	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.61	0.61	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		10.87		0.00	
Approach LOS	A		B		A	
d_I, Intersection Delay [s/veh]	0.08					
Intersection LOS	B					

Signal Warrants Report For Intersection 1: Sportsman Club Rd & New Brooklyn Rd

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	NE, SW
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	NE	SW	E	W
1	6	6	5	3
2	6	6	5	3
3	9	8	7	5
4	9	8	7	5
5	12	11	9	7
6	29	28	23	17
7	32	31	25	19
8	59	57	46	34
9	103	99	81	59
10	106	102	83	61
11	106	102	83	61
12	115	110	90	66
13	126	122	99	73
14	132	127	104	76
15	132	127	104	76
16	141	136	111	81
17	176	170	139	101
18	185	178	146	106
19	200	192	157	115
20	223	215	176	128
21	235	226	185	135
22	276	266	217	159
23	282	272	222	162
24	294	283	231	169

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	12	3	8	No	No	No	No	No	No	No	No	No	No
2	2	12	3	8	No	No	No	No	No	No	No	No	No	No
3	2	17	3	12	No	No	No	No	No	No	No	No	No	No
4	2	17	3	12	No	No	No	No	No	No	No	No	No	No
5	2	23	3	16	No	No	No	No	No	No	No	No	No	No
6	2	57	3	40	No	No	No	No	No	No	No	No	No	No
7	2	63	3	44	No	No	No	No	No	No	No	No	No	No
8	2	116	3	80	No	No	No	No	No	No	No	No	No	No
9	2	202	3	140	No	No	No	No	No	No	No	No	No	No
10	2	208	3	144	No	No	No	No	No	No	No	No	No	No
11	2	208	3	144	No	No	No	No	No	No	No	No	No	No
12	2	225	3	156	No	No	No	No	No	No	No	No	No	No
13	2	248	3	172	No	No	No	No	No	No	No	No	No	No
14	2	259	3	180	No	No	No	No	No	No	No	No	No	No
15	2	259	3	180	No	No	No	No	No	No	No	No	No	No
16	2	277	3	192	No	No	No	No	No	No	No	No	No	No
17	2	346	3	240	No	No	No	Yes	No	No	No	No	No	No
18	2	363	3	252	No	No	No	Yes	No	No	No	No	No	No
19	2	392	3	272	No	No	No	Yes	No	No	No	No	No	No
20	2	438	3	304	No	No	Yes	Yes	No	No	No	No	No	No
21	2	461	3	320	No	No	Yes	Yes	No	No	No	No	No	No
22	2	542	3	376	No	Yes	Yes	Yes	No	No	No	Yes	No	No
23	2	554	3	384	No	Yes	Yes	Yes	No	No	No	Yes	No	No
24	2	577	3	400	No	Yes	Yes	Yes	No	No	No	Yes	No	No
Hours Met					0	3	5	8	0	0	0	3	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	14	14.1
Number of Lanes on Minor Street Approach	2	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:53	0:39
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	231	169
High Minor Volume Condition Met	Yes	Yes
Total Entering Volume on All Approaches During Same Hour	977	977
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

Signal Warrants Report For Intersection 2: Sportsman Club Rd & S School Drwy

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	NE, SW
Minor Approaches	W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	NE	SW	W
1	283	270	22
2	272	259	21
3	266	254	21
4	226	216	18
5	215	205	17
6	192	184	15
7	178	170	14
8	170	162	13
9	136	130	11
10	127	122	10
11	127	122	10
12	122	116	9
13	110	105	9
14	102	97	8
15	102	97	8
16	99	95	8
17	57	54	4
18	31	30	2
19	28	27	2
20	11	11	1
21	8	8	1
22	8	8	1
23	6	5	0
24	6	5	0

Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	553	2	22	No	No	No	No	No	No	No	No	No	No
2	2	531	2	21	No	No	No	No	No	No	No	No	No	No
3	2	520	2	21	No	No	No	No	No	No	No	No	No	No
4	2	442	2	18	No	No	No	No	No	No	No	No	No	No
5	2	420	2	17	No	No	No	No	No	No	No	No	No	No
6	2	376	2	15	No	No	No	No	No	No	No	No	No	No
7	2	348	2	14	No	No	No	No	No	No	No	No	No	No
8	2	332	2	13	No	No	No	No	No	No	No	No	No	No
9	2	266	2	11	No	No	No	No	No	No	No	No	No	No
10	2	249	2	10	No	No	No	No	No	No	No	No	No	No
11	2	249	2	10	No	No	No	No	No	No	No	No	No	No
12	2	238	2	9	No	No	No	No	No	No	No	No	No	No
13	2	215	2	9	No	No	No	No	No	No	No	No	No	No
14	2	199	2	8	No	No	No	No	No	No	No	No	No	No
15	2	199	2	8	No	No	No	No	No	No	No	No	No	No
16	2	194	2	8	No	No	No	No	No	No	No	No	No	No
17	2	111	2	4	No	No	No	No	No	No	No	No	No	No
18	2	61	2	2	No	No	No	No	No	No	No	No	No	No
19	2	55	2	2	No	No	No	No	No	No	No	No	No	No
20	2	22	2	1	No	No	No	No	No	No	No	No	No	No
21	2	16	2	1	No	No	No	No	No	No	No	No	No	No
22	2	16	2	1	No	No	No	No	No	No	No	No	No	No
23	2	11	2	0	No	No	No	No	No	No	No	No	No	No
24	2	11	2	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	11.5
Number of Lanes on Minor Street Approach	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:04
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	22
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	575
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 3: Sportsman Club Rd & N School Drwy

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, SW
Minor Approaches	W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	SW	W
1	282	281	4
2	271	270	4
3	265	264	4
4	226	225	3
5	214	214	3
6	192	191	3
7	178	177	3
8	169	169	2
9	135	135	2
10	127	126	2
11	127	126	2
12	121	121	2
13	110	110	2
14	102	101	1
15	102	101	1
16	99	98	1
17	56	56	1
18	31	31	0
19	28	28	0
20	11	11	0
21	8	8	0
22	8	8	0
23	6	6	0
24	6	6	0

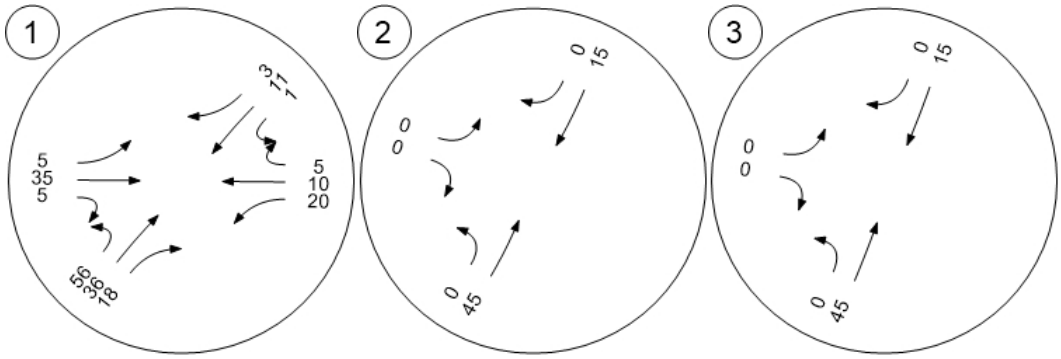
Warrant Analysis by Hour

Hour	Major Lanes		Minor Lanes		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	563	1	4	No	No	No	No	No	No	No	No	No	No
2	2	541	1	4	No	No	No	No	No	No	No	No	No	No
3	2	529	1	4	No	No	No	No	No	No	No	No	No	No
4	2	451	1	3	No	No	No	No	No	No	No	No	No	No
5	2	428	1	3	No	No	No	No	No	No	No	No	No	No
6	2	383	1	3	No	No	No	No	No	No	No	No	No	No
7	2	355	1	3	No	No	No	No	No	No	No	No	No	No
8	2	338	1	2	No	No	No	No	No	No	No	No	No	No
9	2	270	1	2	No	No	No	No	No	No	No	No	No	No
10	2	253	1	2	No	No	No	No	No	No	No	No	No	No
11	2	253	1	2	No	No	No	No	No	No	No	No	No	No
12	2	242	1	2	No	No	No	No	No	No	No	No	No	No
13	2	220	1	2	No	No	No	No	No	No	No	No	No	No
14	2	203	1	1	No	No	No	No	No	No	No	No	No	No
15	2	203	1	1	No	No	No	No	No	No	No	No	No	No
16	2	197	1	1	No	No	No	No	No	No	No	No	No	No
17	2	112	1	1	No	No	No	No	No	No	No	No	No	No
18	2	62	1	0	No	No	No	No	No	No	No	No	No	No
19	2	56	1	0	No	No	No	No	No	No	No	No	No	No
20	2	22	1	0	No	No	No	No	No	No	No	No	No	No
21	2	16	1	0	No	No	No	No	No	No	No	No	No	No
22	2	16	1	0	No	No	No	No	No	No	No	No	No	No
23	2	12	1	0	No	No	No	No	No	No	No	No	No	No
24	2	12	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

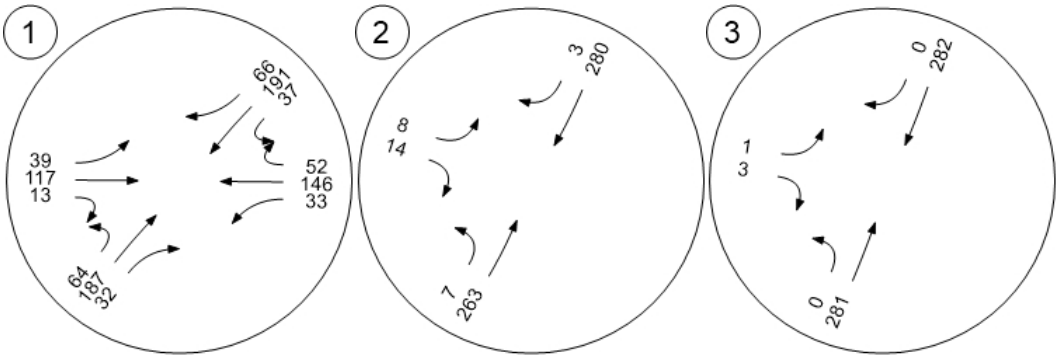
Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	10.9
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	4
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	567
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Traffic Volume - In-Process Volume



Traffic Volume - Future Total Volume



MOVEMENT SUMMARY

Site: [2035 AM (Growth Rate)]

Sportsman Club Rd & New Brooklyn Rd
Roundabout
Design Life Analysis (Practical Capacity): Results for 17 years

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: NE New Brooklyn Rd (WB)											
1a	L1	20	2.1	0.224	10.7	LOS B	1.3	32.1	0.62	0.69	35.1
6	T1	57	2.1	0.224	6.5	LOS A	1.3	32.1	0.62	0.69	34.2
16b	R3	134	2.1	0.224	6.5	LOS A	1.3	32.1	0.62	0.69	34.1
Approach		211	2.1	0.224	6.9	LOS A	1.3	32.1	0.62	0.69	34.2
NorthEast: Sportsman Club Rd NE (SB)											
1bx	L3	128	5.2	0.322	11.2	LOS B	2.3	58.6	0.30	0.51	36.0
6x	T1	226	5.2	0.322	4.5	LOS A	2.3	58.6	0.30	0.51	35.5
16ax	R1	54	5.2	0.322	4.1	LOS A	2.3	58.6	0.30	0.51	35.4
Approach		408	5.2	0.322	6.6	LOS A	2.3	58.6	0.30	0.51	35.6
West: NE New Brooklyn Rd (EB)											
5a	L1	161	0.9	0.309	10.2	LOS B	1.8	43.9	0.54	0.65	34.6
2	T1	173	0.9	0.309	5.8	LOS A	1.8	43.9	0.54	0.65	34.6
12b	R3	5	0.9	0.309	5.9	LOS A	1.8	43.9	0.54	0.65	33.7
Approach		339	0.9	0.309	7.9	LOS A	1.8	43.9	0.54	0.65	34.6
SouthWest: Sportsman Club Rd NE (NB)											
5bx	L3	2	6.3	0.422	14.0	LOS B	2.9	74.7	0.71	0.71	35.5
2x	T1	349	6.3	0.422	7.2	LOS A	2.9	74.7	0.71	0.71	35.0
12ax	R1	35	6.3	0.422	6.8	LOS A	2.9	74.7	0.71	0.71	34.8
Approach		386	6.3	0.422	7.2	LOS A	2.9	74.7	0.71	0.71	35.0
All Vehicles		1344	3.9	0.422	7.1	LOS A	2.9	74.7	0.53	0.63	35.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: [2035 Midday (Growth Rate)]

Sportsman Club Rd & New Brooklyn Rd
Roundabout
Design Life Analysis (Practical Capacity): Results for 17 years

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: NE New Brooklyn Rd (WB)											
1a	L1	61	3.5	0.311	10.1	LOS B	1.8	43.9	0.55	0.63	35.0
6	T1	154	3.5	0.311	5.8	LOS A	1.8	43.9	0.55	0.63	34.7
16b	R3	107	3.5	0.311	5.9	LOS A	1.8	43.9	0.55	0.63	34.0
Approach		321	3.5	0.311	6.7	LOS A	1.8	43.9	0.55	0.63	34.5
NorthEast: Sportsman Club Rd NE (SB)											
1bx	L3	65	4.5	0.346	12.0	LOS B	2.3	56.8	0.51	0.57	35.6
6x	T1	222	4.5	0.346	5.3	LOS A	2.3	56.8	0.51	0.57	34.7
16ax	R1	92	4.5	0.346	4.9	LOS A	2.3	56.8	0.51	0.57	35.0
Approach		380	4.5	0.346	6.4	LOS A	2.3	56.8	0.51	0.57	34.9
West: NE New Brooklyn Rd (EB)											
5a	L1	65	2.5	0.157	9.8	LOS A	0.8	20.4	0.48	0.60	34.9
2	T1	97	2.5	0.157	5.4	LOS A	0.8	20.4	0.48	0.60	34.9
12b	R3	9	2.5	0.157	5.5	LOS A	0.8	20.4	0.48	0.60	33.9
Approach		171	2.5	0.157	7.1	LOS A	0.8	20.4	0.48	0.60	34.8
SouthWest: Sportsman Club Rd NE (NB)											
5bx	L3	11	3.7	0.306	12.2	LOS B	1.9	49.6	0.48	0.54	36.5
2x	T1	290	3.7	0.306	5.4	LOS A	1.9	49.6	0.48	0.54	36.1
12ax	R1	48	3.7	0.306	5.0	LOS A	1.9	49.6	0.48	0.54	35.8
Approach		350	3.7	0.306	5.6	LOS A	1.9	49.6	0.48	0.54	36.0
All Vehicles		1221	3.7	0.346	6.3	LOS A	2.3	56.8	0.50	0.58	35.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: [2035 PM (Comp Plan Model)]

Sportsman Club Rd & New Brooklyn Rd
Roundabout

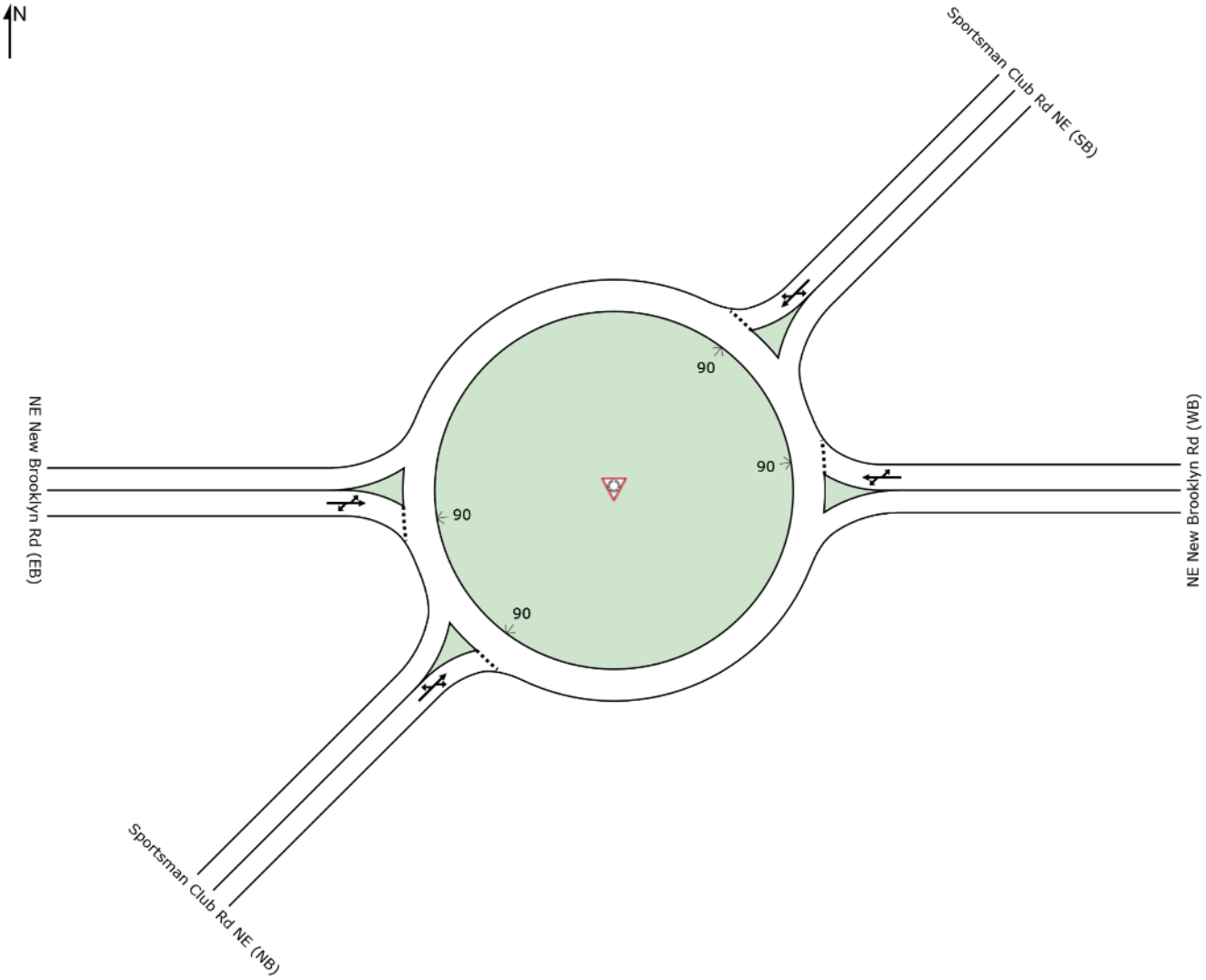
Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: NE New Brooklyn Rd (WB)											
1a	L1	39	2.0	0.249	9.9	LOS A	1.4	34.5	0.51	0.59	35.3
6	T1	172	2.0	0.249	5.5	LOS A	1.4	34.5	0.51	0.59	35.3
16b	R3	61	2.0	0.249	5.7	LOS A	1.4	34.5	0.51	0.59	34.3
Approach		272	2.0	0.249	6.2	LOS A	1.4	34.5	0.51	0.59	35.0
NorthEast: Sportsman Club Rd NE (SB)											
1bx	L3	44	2.2	0.312	12.4	LOS B	2.0	50.3	0.53	0.59	36.1
6x	T1	225	2.2	0.312	5.7	LOS A	2.0	50.3	0.53	0.59	35.6
16ax	R1	78	2.2	0.312	5.3	LOS A	2.0	50.3	0.53	0.59	35.3
Approach		346	2.2	0.312	6.4	LOS A	2.0	50.3	0.53	0.59	35.6
West: NE New Brooklyn Rd (EB)											
5a	L1	46	2.4	0.178	9.7	LOS A	0.9	24.0	0.46	0.57	35.4
2	T1	138	2.4	0.178	5.3	LOS A	0.9	24.0	0.46	0.57	35.8
12b	R3	15	2.4	0.178	5.5	LOS A	0.9	24.0	0.46	0.57	34.4
Approach		199	2.4	0.178	6.3	LOS A	0.9	24.0	0.46	0.57	35.6
SouthWest: Sportsman Club Rd NE (NB)											
5bx	L3	75	4.6	0.295	12.2	LOS B	1.8	47.9	0.48	0.58	35.9
2x	T1	220	4.6	0.295	5.4	LOS A	1.8	47.9	0.48	0.58	35.5
12ax	R1	38	4.6	0.295	5.0	LOS A	1.8	47.9	0.48	0.58	35.2
Approach		333	4.6	0.295	6.9	LOS A	1.8	47.9	0.48	0.58	35.5
All Vehicles		1149	2.9	0.312	6.5	LOS A	2.0	50.3	0.50	0.58	35.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: [2018 AM]

Sportsman Club Rd & New Brooklyn Rd
Roundabout



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