

December 13th, 2022

The Links at Brunello

1300-200 Barrington Street
Halifax, NS B3J 3K1
Attention: Mr. Andrew Giles

RE: Mayflower Curling Club – Traffic Impact Statement

DesignPoint Engineering & Surveying Ltd. is pleased to submit this traffic impact statement for the Mayflower Curling Club. The Mayflower Curling Club is currently located at 3000 Monaghan Drive, Halifax. The eight-sheet facility is being redeveloped, and the club is relocating to Brunello, where a new eight-sheet facility will be built. The new facility is expected to open during the Fall of 2024.

The curling club is included in the Brunello Phase 7 development and will replace 17 single-family homes. This traffic impact statement is an addendum to the completed Phase 7 traffic impact study.

Site Location

The curling facility will be located on Marketway Lane, west of the existing Sobeys, within the Phase 7 area of Brunello.

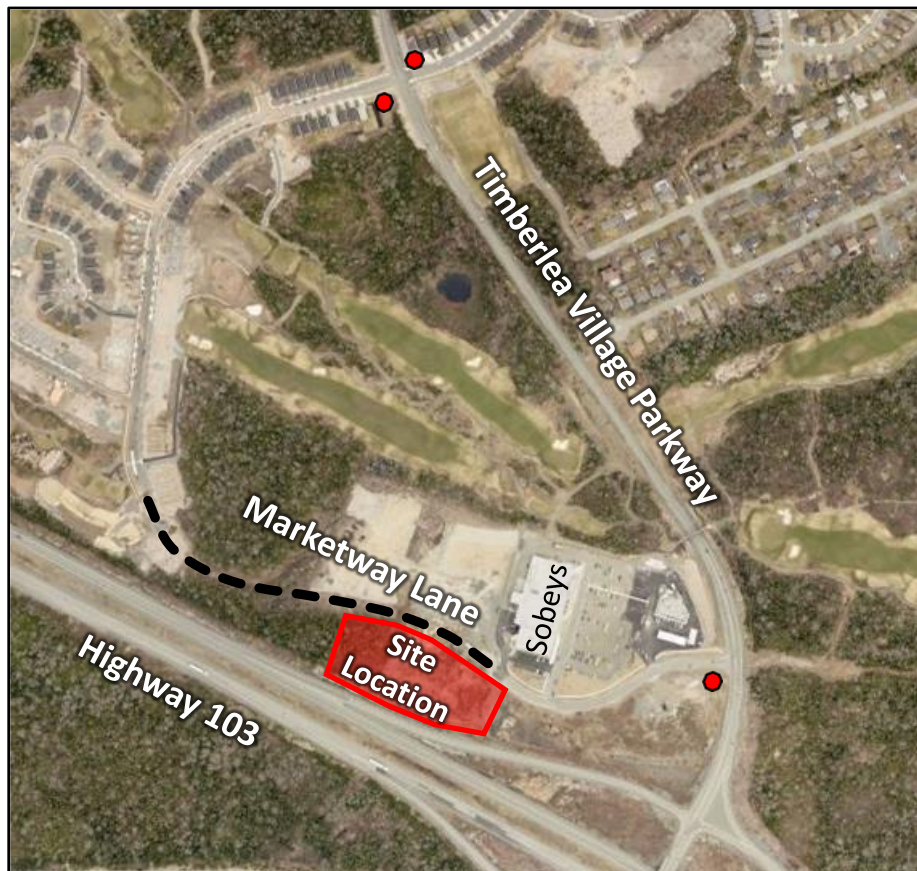


Figure 1: Site location

Marketway Lane

Marketway Lane is a two-lane minor collector street with a posted speed of 50 km/h. The crescent shaped street intersects with Timberlea Village Parkway at two locations. Most of the street is residential, but there is a commercial centre near the south intersection of Timberlea Village Parkway, including a Sobeys, Dollarama, NSLC, and a gas station.

Marketway Lane / Amalfi Way at Timberlea Village Parkway

The northern intersection is a four-legged, two-way stop-controlled intersection. Marketway Lane and Amalfi Way have 50 km/h posted speeds, and Timberlea Village Parkway, classified as an arterial street, has a 70 km/h posted speed.



Figure 2: Intersection of Marketway Lane / Amalfi Way and Timberlea Village Parkway

Marketway Lane at Timberlea Village Parkway

The intersection of Marketway Lane (south) and Timberlea Village Parkway is a three-legged, two-way stop-controlled intersection and is used for the existing commercial development. All curling club traffic is also expected to use this intersection. There are plans to add traffic signals to this intersection as traffic volumes increase with development.



Figure 3: Intersection of Marketway Lane (south) and Timberlea Village Parkway

Site Description

The site is located on the south side of Marketway Lane, just west of Sobeys. The site will have two parking lots, each with a single two-way access, and 89 total parking spaces.

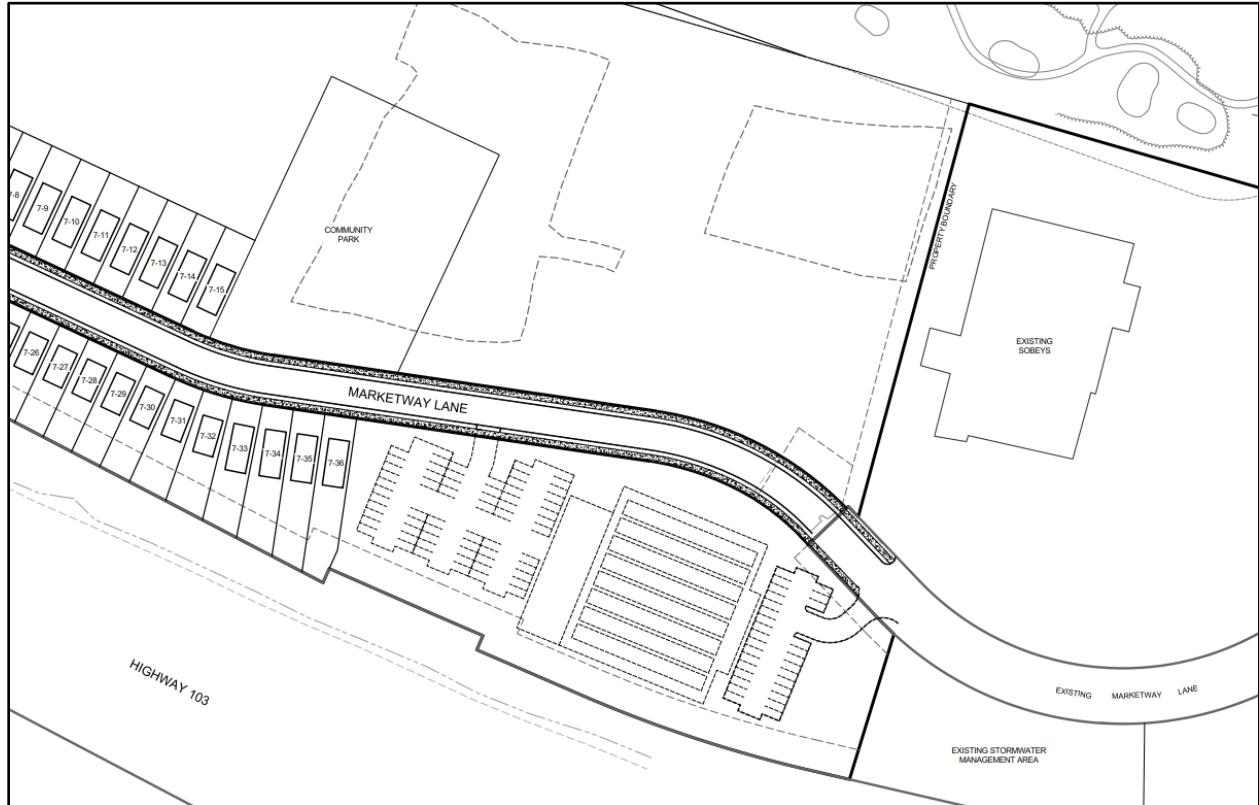


Figure 4: Concept site plan

Access Review

The minimum requirement for sight distances at driveways is stopping sight distance (SSD). The minimum stopping sight distance for a 50 km/h design speed is 65 m. The minimum stopping sight distances are met for each driveway in both directions within the right-of-way. The trees located west of the 2nd driveway (eastern driveway) within the boulevard may need to be relocated and should be confirmed during detailed design. Figures 4 and 5 show the 65 m minimum sight distances at each driveway in red.

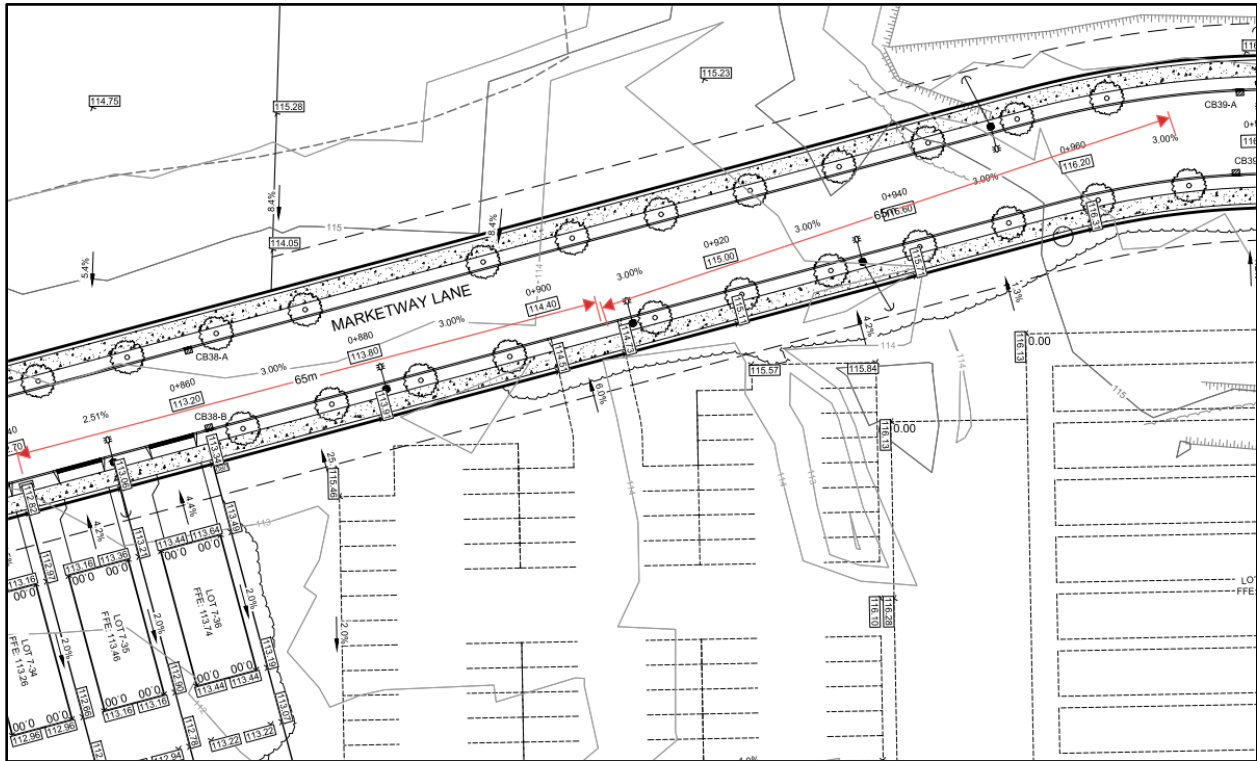


Figure 5: Sight distances for the primary driveway (western side)

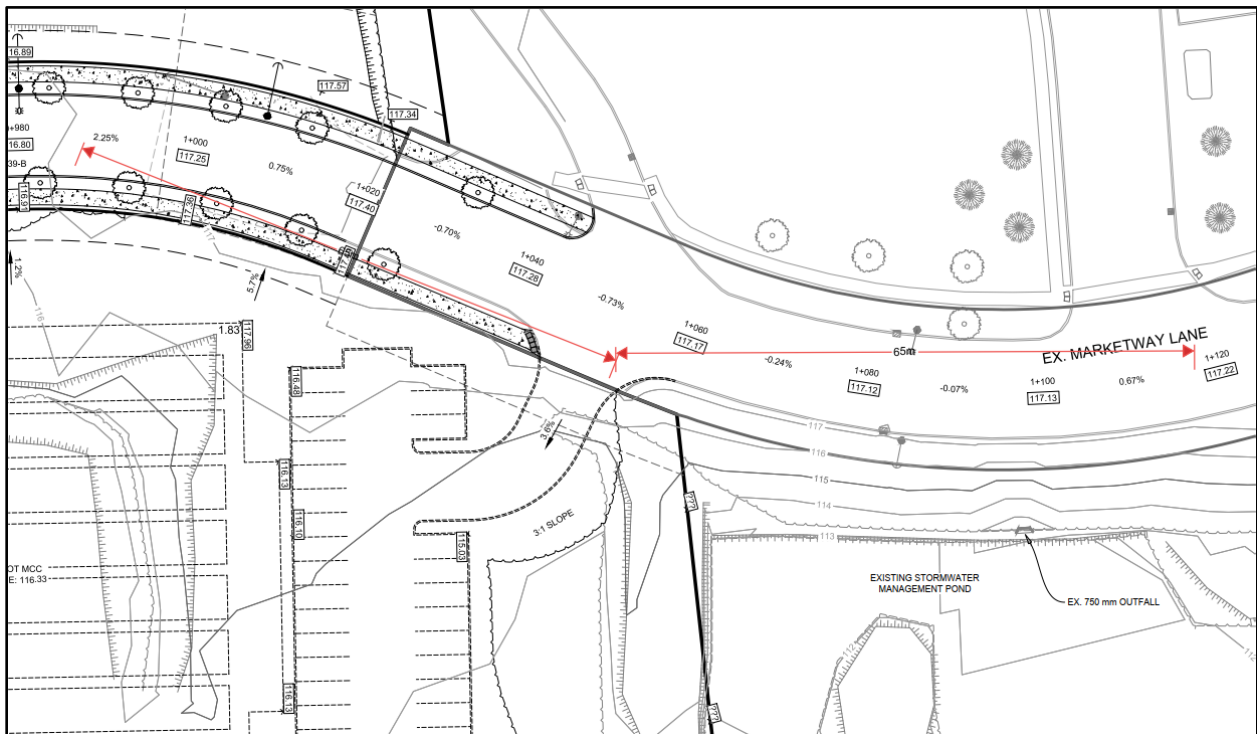


Figure 6: Sight distances for the secondary driveway (eastern side)

Trip Generation

The *ITE Trip Generation Manual* does not have a land use code for a curling facility. There is no similar land use for trip generation calculations, so trip generation estimates have been developed based on the Mayflower Curling Club's schedule, our familiarity with the club, and some assumptions.

Club Schedule

The club ice schedule for the week of November 20th – 26th is shown below. The club does host other non-curling activities, but not on a regular schedule. The full width blocks indicate that each sheet (six in total) is fully booked.

Curling on weekdays typically begins at 9:30 am, and participants would not be arriving at the club until after 9:00 am, outside of the morning peak traffic hours (7:00 – 9:00 am). During the evening, curling usually begins at 5:45 – 6:00 pm, so curlers would arrive during the afternoon peak traffic hours (4:00 – 6:00 pm).

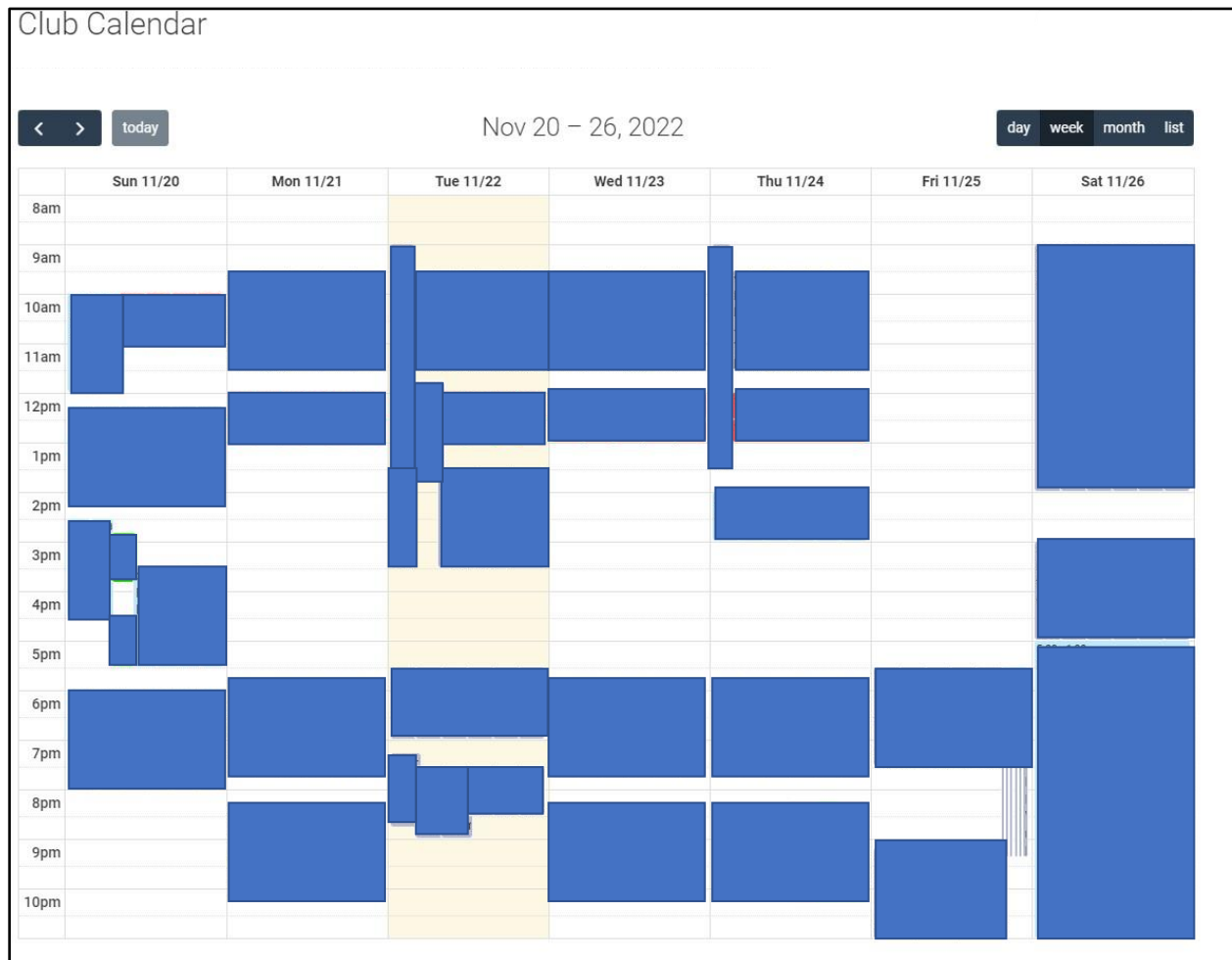


Figure 7: Mayflower Curling Club ice schedule for the week of November 20th, 2022

Trip Estimates

During evening peak hours, each of the six sheets is booked. The new facility will have eight sheets compared to six. It has been assumed that each of the eight sheets will be fully booked during the evening peak. The morning peak has not been included because there are typically no bookings.

Each sheet is used by eight curlers at once (two teams of four curlers). Four staff members have also been included in the estimates. During the PM peak hour, it has been assumed that up to 68 people could arrive and ten would be leaving.

The Mayflower Curling Club is currently located in the North End of Halifax. With the club relocating outside the Halifax Peninsula, we expect more members to carpool, especially those living in Dartmouth and the Halifax Peninsula. It has been estimated that 10% of members will carpool during peak hours.

Data collected by DesignPoint at the Marketway Lane / Timberlea Village Parkway intersection resulted in the PM peak hour occurring from 4:15 – 5:15 pm. It is assumed that most curlers arrive between 15-20 mins (or less) before ice time. The evening ice time begins at 5:45 pm, so it has been assumed that only 50% of club users would arrive during the PM peak hour of traffic.

The curling club will replace 17 single-family homes included in the Brunello Phase 7 development. Based on ITE trip generation rates, the 17 single-family homes would generate ten vehicles entering the site and six exiting during the PM peak hour. This results in a trip “credit” for the peak hour trip estimates.

To summarize, the following assumptions have been included in the peak hour trip calculations:

1. There is limited use of the club during the AM peak traffic hour (7:00 – 9:00 am), so AM trip generation has not been included.
2. During peak ice times, all eight sheets will be booked with eight curlers on each sheet and four additional staff members at the club (68 people total).
3. Approximately 10% of attendees will carpool.
4. It is estimated that only 50% of attendees will arrive at the club during the PM peak hour of traffic.
5. The estimated trips from the 17 single-family homes that the curling facility will replace have been removed from the trip calculations.

Table 1 provides peak hour vehicle trip calculations based on the assumptions above. The Mayflower Curling Club is expected to generate an additional 20 trips entering the site and 0 trips exiting the site compared

Table 1: Trip generation calculations

Land Use	Trips Generated	
	PM Peak	
	In	Out
Curling Club	68	10
Mode Share Reduction ¹	7	1
Total Trips	61	9
Additional Reductions:		
PM Peak Traffic Trips ²	31	5
Single-family Detached Homes ³	10	6
Estimated Site Generated Trips (PM Peak Traffic Hour)⁴	20	0
Notes: 1. Estimated 10% reduction for carpooling. 2. Estimated 50% reduction for trips outside of the peak hour of traffic. 3. Trip generation rates from ITE Trip Generation Manual (11th Edition) for 17 single-family homes. 4. Trips are additional to Brunello Phase 7 Traffic Impact Study calculations during the PM peak hour of traffic.		

The traffic data collected at the intersection of Marketway Lane and Timberlea Village Parkway on July 27th, 2021, resulted in 917 total vehicles using the intersection during the PM peak hour. The additional 20 vehicles added by the Mayflower Curling Club, compared to the original Brunello Phase 7 site generated traffic volumes, is negligible and will not result in any noticeable change in traffic operations of safety.

Conclusion

The Mayflower Curling Club plans to build a new eight-sheet curling facility on Marketway Lane within the Brunello Phase 7 development. The curling facility will replace 17 single-family homes planned as part of the Phase 7 development.

The site will have two parking lots, each with a single two-way driveway. There will be 89 parking spaces in total. Each access meets minimum sight distance requirements.

The curling facility is not regularly used during the AM peak hours, so AM peak traffic has not been evaluated. Trip volumes generated by the curling club have been estimated based on several assumptions and calculations provided in this traffic statement. It is estimated that the curling club will generate 20 additional vehicle trips during the PM peak hour compared to the 17 single-family homes it replaces. The additional trips do not impact traffic operations in the area and require no upgrades to the street network.

Thank you,
DesignPoint Engineering & Surveying Ltd.

Harrison McGrath, P.Eng.
Transportation Engineer

Attached: Marketway Lane at Timberlea Village Parkway Traffic Data

Brunello - TVP @ Marketway - TMC

Tue Jul 27, 2021

Full Length (7 AM-9 AM, 11 AM-1 PM, 4 PM-6 PM)

All Classes (Vehicles, Pedestrians, Bicycles on Road)

All Movements

ID: 858937, Location: 44.636424, -63.714182

Provided by: DesignPoint Engineering & Surveying Ltd.
222 Waterfront Drive Suite 104, Bedford, NS, B4A 0H3, CA

Leg Direction	Timberlea Village Parkway Southbound					Timberlea Village Parkway Northbound					Marketway Lane Eastbound					
Time	R	T	U	App	Ped*	T	L	U	App	Ped*	R	L	U	App	Ped*	Int
2021-07-27 7:00AM	4	77	0	81	0	21	1	0	22	0	0	2	0	2	0	105
7:15AM	2	88	0	90	0	42	6	0	48	0	2	2	0	4	0	142
7:30AM	2	106	0	108	0	37	3	0	40	0	3	5	0	8	0	156
7:45AM	5	88	0	93	0	61	4	0	65	0	1	4	0	5	0	163
Hourly Total	13	359	0	372	0	161	14	0	175	0	6	13	0	19	0	566
8:00AM	2	81	0	83	0	36	1	0	37	0	3	3	0	6	0	126
8:15AM	8	83	0	91	0	62	5	0	67	0	0	1	0	1	0	159
8:30AM	4	82	0	86	0	41	5	0	46	0	6	4	0	10	0	142
8:45AM	5	69	0	74	0	49	3	0	52	0	4	5	0	9	0	135
Hourly Total	19	315	0	334	0	188	14	0	202	0	13	13	0	26	0	562
9:00AM	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1
Hourly Total	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1
11:00AM	9	47	0	56	0	38	14	0	52	0	10	10	0	20	0	128
11:15AM	7	53	0	60	0	37	13	0	50	0	9	11	0	20	0	130
11:30AM	9	46	0	55	0	36	13	0	49	0	11	13	0	24	0	128
11:45AM	13	49	0	62	0	52	11	0	63	0	7	11	0	18	0	143
Hourly Total	38	195	0	233	0	163	51	0	214	0	37	45	0	82	0	529
12:00PM	12	61	0	73	0	57	11	0	68	0	5	13	0	18	0	159
12:15PM	18	59	0	77	0	58	14	0	72	0	11	14	0	25	0	174
12:30PM	12	59	0	71	0	47	12	0	59	0	14	12	0	26	0	156
12:45PM	11	61	0	72	0	50	6	1	57	0	9	14	0	23	0	152
Hourly Total	53	240	0	293	0	212	43	1	256	0	39	53	0	92	0	641
1:00PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00PM	19	58	0	77	0	60	22	0	82	0	11	20	0	31	0	190
4:15PM	20	60	0	80	0	117	15	0	132	0	10	19	0	29	0	241
4:30PM	9	75	0	84	0	80	15	0	95	0	19	21	0	40	0	219
4:45PM	16	60	0	76	0	88	20	0	108	0	13	18	0	31	0	215
Hourly Total	64	253	0	317	0	345	72	0	417	0	53	78	0	131	0	865
5:00PM	16	77	0	93	0	88	24	0	112	0	18	19	0	37	0	242
5:15PM	21	69	0	90	0	89	8	0	97	0	16	22	0	38	0	225
5:30PM	13	67	0	80	0	87	16	0	103	0	8	21	0	29	0	212
5:45PM	14	63	0	77	0	79	14	0	93	0	11	17	0	28	0	198
Hourly Total	64	276	0	340	0	343	62	0	405	0	53	79	0	132	0	877
6:00PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	251	1638	0	1889	0	1413	256	1	1670	0	201	281	0	482	0	4041
% Approach	13.3%	86.7%	0%	-	-	84.6%	15.3%	0.1%	-	-	41.7%	58.3%	0%	-	-	-
% Total	6.2%	40.5%	0%	46.7%	-	35.0%	6.3%	0%	41.3%	-	5.0%	7.0%	0%	11.9%	-	-
Vehicles	251	1638	0	1889	-	1413	256	1	1670	-	201	281	0	482	-	4041
% Vehicles	100%	100%	0%	100%	-	100%	100%	100%	100%	-	100%	100%	0%	100%	-	100%
Bicycles on Road	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0
% Bicycles on Road	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Brunello - TVP @ Marketway - TMC

Tue Jul 27, 2021

Full Length (7 AM-9 AM, 11 AM-1 PM, 4 PM-6 PM)

All Classes (Vehicles, Pedestrians, Bicycles on Road)

All Movements

ID: 858937, Location: 44.636424, -63.714182

Provided by: DesignPoint Engineering & Surveying Ltd.
222 Waterfront Drive Suite 104, Bedford, NS, B4A 0H3, CA

[N] Timberlea Village Parkway

Total: 3583

In: 1889

Out: 1694



[W] Marketway Lane

Total: 989

In: 482 Out: 507

Out: 1840 In: 1670
Total: 3510
[S] Timberlea Village Parkway

Brunello - TVP @ Marketway - TMC

Tue Jul 27, 2021

AM Peak (7:30 AM - 8:30 AM)

All Classes (Vehicles, Pedestrians, Bicycles on Road)

All Movements

ID: 858937, Location: 44.636424, -63.714182

Provided by: DesignPoint Engineering & Surveying Ltd.
222 Waterfront Drive Suite 104, Bedford, NS, B4A 0H3, CA

Leg Direction	Timberlea Village Parkway Southbound					Timberlea Village Parkway Northbound					Marketway Lane Eastbound					
Time	R	T	U	App	Ped*	T	L	U	App	Ped*	R	L	U	App	Ped*	Int
2021-07-27 7:30AM	2	106	0	108	0	37	3	0	40	0	3	5	0	8	0	156
7:45AM	5	88	0	93	0	61	4	0	65	0	1	4	0	5	0	163
8:00AM	2	81	0	83	0	36	1	0	37	0	3	3	0	6	0	126
8:15AM	8	83	0	91	0	62	5	0	67	0	0	1	0	1	0	159
Total	17	358	0	375	0	196	13	0	209	0	7	13	0	20	0	604
% Approach	4.5%	95.5%	0%	-	-	93.8%	6.2%	0%	-	-	35.0%	65.0%	0%	-	-	-
% Total	2.8%	59.3%	0%	62.1%	-	32.5%	2.2%	0%	34.6%	-	1.2%	2.2%	0%	3.3%	-	-
PHF	0.531	0.844	-	0.868	-	0.790	0.650	-	0.780	-	0.583	0.650	-	0.625	-	0.926
Vehicles	17	358	0	375	-	196	13	0	209	-	7	13	0	20	-	604
% Vehicles	100%	100%	0%	100%	-	100%	100%	0%	100%	-	100%	100%	0%	100%	-	100%
Bicycles on Road	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0
% Bicycles on Road	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Brunello - TVP @ Marketway - TMC

Tue Jul 27, 2021

AM Peak (7:30 AM - 8:30 AM)

All Classes (Vehicles, Pedestrians, Bicycles on Road)

All Movements

ID: 858937, Location: 44.636424, -63.714182

Provided by: DesignPoint Engineering & Surveying Ltd.
222 Waterfront Drive Suite 104, Bedford, NS, B4A 0H3, CA

[N] Timberlea Village Parkway

Total: 584

In: 375

Out: 209

17

358

[W] Marketway Lane

Total: 50

In: 20 Out: 30

13
7

13

196

Out: 365

In: 209

Total: 574

[S] Timberlea Village Parkway

Brunello - TVP @ Marketway - TMC

Tue Jul 27, 2021

Midday Peak (12 PM - 1 PM)

All Classes (Vehicles, Pedestrians, Bicycles on Road)

All Movements

ID: 858937, Location: 44.636424, -63.714182

Provided by: DesignPoint Engineering & Surveying Ltd.
222 Waterfront Drive Suite 104, Bedford, NS, B4A 0H3, CA

Leg Direction	Timberlea Village Parkway Southbound					Timberlea Village Parkway Northbound					Marketway Lane Eastbound					
Time	R	T	U	App	Ped*	T	L	U	App	Ped*	R	L	U	App	Ped*	Int
2021-07-27 12:00PM	12	61	0	73	0	57	11	0	68	0	5	13	0	18	0	159
12:15PM	18	59	0	77	0	58	14	0	72	0	11	14	0	25	0	174
12:30PM	12	59	0	71	0	47	12	0	59	0	14	12	0	26	0	156
12:45PM	11	61	0	72	0	50	6	1	57	0	9	14	0	23	0	152
Total	53	240	0	293	0	212	43	1	256	0	39	53	0	92	0	641
% Approach	18.1%	81.9%	0%	-	-	82.8%	16.8%	0.4%	-	-	42.4%	57.6%	0%	-	-	-
% Total	8.3%	37.4%	0%	45.7%	-	33.1%	6.7%	0.2%	39.9%	-	6.1%	8.3%	0%	14.4%	-	-
PHF	0.736	0.984	-	0.951	-	0.914	0.768	0.250	0.889	-	0.696	0.946	-	0.885	-	0.921
Vehicles	53	240	0	293	-	212	43	1	256	-	39	53	0	92	-	641
% Vehicles	100%	100%	0%	100%	-	100%	100%	100%	100%	-	100%	100%	0%	100%	-	100%
Bicycles on Road	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0
% Bicycles on Road	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Brunello - TVP @ Marketway - TMC

Tue Jul 27, 2021

Midday Peak (12 PM - 1 PM)

All Classes (Vehicles, Pedestrians, Bicycles on Road)

All Movements

ID: 858937, Location: 44.636424, -63.714182

Provided by: DesignPoint Engineering & Surveying Ltd.
222 Waterfront Drive Suite 104, Bedford, NS, B4A 0H3, CA

[N] Timberlea Village Parkway

Total: 558

In: 293

Out: 265

53

240

[W] Marketway Lane

Total: 188

In: 92 Out: 96

53

39

1

43

212

Out: 280

In: 256

Total: 536

[S] Timberlea Village Parkway

Brunello - TVP @ Marketway - TMC

Tue Jul 27, 2021

PM Peak (4:15 PM - 5:15 PM) - Overall Peak Hour

All Classes (Vehicles, Pedestrians, Bicycles on Road)

All Movements

ID: 858937, Location: 44.636424, -63.714182

Provided by: DesignPoint Engineering & Surveying Ltd.
222 Waterfront Drive Suite 104, Bedford, NS, B4A 0H3, CA

Leg Direction	Timberlea Village Parkway Southbound					Timberlea Village Parkway Northbound					Marketway Lane Eastbound					
Time	R	T	U	App	Ped*	T	L	U	App	Ped*	R	L	U	App	Ped*	Int
2021-07-27 4:15PM	20	60	0	80	0	117	15	0	132	0	10	19	0	29	0	241
4:30PM	9	75	0	84	0	80	15	0	95	0	19	21	0	40	0	219
4:45PM	16	60	0	76	0	88	20	0	108	0	13	18	0	31	0	215
5:00PM	16	77	0	93	0	88	24	0	112	0	18	19	0	37	0	242
Total	61	272	0	333	0	373	74	0	447	0	60	77	0	137	0	917
% Approach	18.3%	81.7%	0%	-	-	83.4%	16.6%	0%	-	-	43.8%	56.2%	0%	-	-	-
% Total	6.7%	29.7%	0%	36.3%	-	40.7%	8.1%	0%	48.7%	-	6.5%	8.4%	0%	14.9%	-	-
PHF	0.763	0.883	-	0.895	-	0.797	0.771	-	0.847	-	0.789	0.917	-	0.856	-	0.947
Vehicles	61	272	0	333	-	373	74	0	447	-	60	77	0	137	-	917
% Vehicles	100%	100%	0%	100%	-	100%	100%	0%	100%	-	100%	100%	0%	100%	-	100%
Bicycles on Road	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0
% Bicycles on Road	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Brunello - TVP @ Marketway - TMC

Tue Jul 27, 2021

PM Peak (4:15 PM - 5:15 PM) - Overall Peak Hour

All Classes (Vehicles, Pedestrians, Bicycles on Road)

All Movements

ID: 858937, Location: 44.636424, -63.714182

Provided by: DesignPoint Engineering & Surveying Ltd.
222 Waterfront Drive Suite 104, Bedford, NS, B4A 0H3, CA

[N] Timberlea Village Parkway

Total: 783

In: 333

Out: 450

61

272

[W] Marketway Lane

Total: 272

In: 137 Out: 135

77

60

74

373

Out: 332

In: 447

Total: 779

[S] Timberlea Village Parkway