TRAFFIC IMPACT STUDY – FINAL Rev.1

Sanctuary Pemberton Townhome Development

Pemberton

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1 INTRODUCTION

1.1 Background

R.F. Binnie & Associates Ltd. (Binnie) was retained by Bruce van Mook (the Client) to prepare a traffic impact study for the proposed Sanctuary Pemberton residential development in the Village of Pemberton (the Village). The proposed development is located on the north side of the Village with accesses off Pemberton Meadows Road and Prospect Street. It is located approximately 1.4 km from the Sea-to-Sky Highway (Highway 99). The project location is shown in **Figure 1-1**.

1.2 Study Objectives

The purpose of this study is to review the background traffic conditions within the study area and to estimate the traffic impacts generated by the proposed residential development. If any traffic related issues are identified, this report will recommend necessary improvements to mitigate them.

In general, the objectives of this traffic impact study are to:

- Review the proposed site layout and access point configuration
- Review the existing traffic operations on the study road network
- Estimate the site generated traffic and its distribution
- Estimate the effects of site generated traffic on the adjacent road network
- Recommend necessary transportation improvements based on the traffic analysis findings

Figure 1-1: Project Location

2 EXISTING CONDITIONS

2.1 Adjacent Road Network

2.1.1 Pemberton Meadows Road

Pemberton Meadows Road is classified as an arterial road according to the Village's Official Community Plan (OCP), dated December 2014. It originates on the north side of Camus Road and travels in the north-south direction along McKenzie Creek, while south of Camus Road the roadway becomes Prospect Street. Within the study area, Pemberton Meadows Road is a two-lane roadway with no sidewalks provided on either side. In the northbound direction, the existing shoulder is generally narrow with a gravel surface, while the southbound shoulder is generally paved and wide enough to accommodate cyclists. The posted speed limit of the roadway is 50 km/h.

2.1.2 Prospect Street

Prospect Street is a two-lane roadway that runs in the north-south direction through the entirety of the Village's downtown area; however, the roadway splits at Camus Road. South of Camus Road, Prospect Street is a continuation of Pemberton Meadows Road and provides access to several commercial businesses. Within this area, the roadway is wide enough to accommodate on-street parking and cyclists on both sides, although no formal cyclist facilities have been delineated. Pedestrian sidewalks are generally only provided on the east side of Prospect Street.

North of Camus Road, Prospect Street is slightly offset from the Pemberton Meadows Road intersection and provides access to a primarily residential area. The existing shoulders are generally wide enough to accommodate on-street parking with a gravel surface. There is a sidewalk provided along the east side of Prospect Street on the frontage of a recent apartment development. The remainder of the roadway does not provide any pedestrian or cyclist facilities. The posted speed limit for both sections of Prospect Street is 50 km/h.

2.1.3 Camus Road

Camus Road is a local two-way roadway that runs in the east-west direction. There is a sidewalk along the north side of the roadway between Prospect Street and Menzel Lane; however, no cyclist facilities are provided. The existing shoulders are generally wide with a gravel surface, and on-street parking is permitted on both sides of the road. The posted speed limit of Camus Road is 50 km/hr.

2.1.4 Birch Road/Portage Road

Between Prospect Street and Frontier Street, the roadway is designated as Birch Road, whereas the segment to the east of Frontier Street up to the roundabout at Pemberton Portage Road is designated as Portage Road. For the purpose of this study, the entire roadway will be referred to as Birch Road/Portage Road to reduce ambiguity.

Birch Road/Portage Road is classified as an arterial roadway as per the Village's 2014 OCP. It is a two-way roadway that runs in the east-west direction and the existing shoulders are generally wide and paved.

To the east of Frontier Street, on-street parking is permitted and pedestrian sidewalks are provided on both sides of the roadway. To the west of Frontier Street, pedestrians and cyclists are accommodated in the wide, paved shoulders of the roadway, while on-street parking is not permitted. The roadway crosses the BC Rail railway tracks approximately 45 m west of the Pemberton Portage Road roundabout. The posted speed limit on Birch Road/Portage Road is 50 km/hr.

2.1.5 Aspen Boulevard

Aspen Boulevard is a two-way collector roadway that runs in the north-south direction. There is a pedestrian sidewalk on the east side of the street; however, no cyclist facilities are provided. On-street parking is restricted on the east side of the roadway from 6:00 AM to 5:00 PM. The posted speed limit on Aspen Boulevard is 30 km/hr.

2.1.6 Pemberton Portage Road

Pemberton Portage Road is designated as an arterial roadway as per the Village's 2014 OCP. It is a two-way roadway and left-turn bays are generally provided for access to side streets and adjacent properties. Pemberton Portage Road connects to Highway 99 at a signalized intersection approximately 1.0 km from the Village's downtown area.

The roadway's existing shoulders are paved and wide enough to accommodate cyclists, although a designated bike lane is only provided on the north side of the street. There is a pedestrian sidewalk provided on the south side of the street and on-street parking is generally only permitted between Flint Street and Arbutus Street on the north side. The posted speed limit on Pemberton Portage Road is 50 km/hr.

2.1.7 Beechwood Street

Beechwood Street is a local two-lane roadway that runs parallel to Pemberton Meadows Road and provides access to 6 single family dwellings. The roadway is narrow and does not have a painted centerline. The existing shoulders are generally gravel and narrow, and there are no sidewalks or cyclist facilities provided. Although there isn't a posted speed along Beechwood Street, it is assumed to be 50 km/h.

2.2 Study Intersections

2.2.1 Pemberton Meadows Road/Prospect Street and Camus Road

Pemberton Meadows Road/Prospect Street and Camus Road is a three-legged stop-controlled intersection, with Camus Road as the stop-controlled movement. All three approaches have one shared movement approach lane and no pedestrian crosswalk facilities are provided.

2.2.2 Prospect Street and Birch Road/Portage Road

Prospect Street and Birch Road/Portage Road is a three-legged all-way stop-controlled intersection. All three approaches have one shared movement approach lane and pedestrian crosswalks.

2.2.3 Pemberton Portage Road, Aspen Boulevard, and Birch Road / Portage Road

The intersection of Pemberton Portage Road, Aspen Boulevard, and Birch Road/Portage Road is accommodated at a three-legged, single-lane roundabout. Each approach has a single shared movement approach lane and pedestrian crosswalks.

2.2.4 Pemberton Meadows Road and Beechwood Street

Pemberton Meadows Road and Beechwood Street is currently a three-legged stop-controlled intersection, with Beechwood Street as the stop-controlled movement. All three approaches have one shared movement approach lane and no pedestrian crosswalk facilities are provided.

The existing laning configuration and traffic control at the study intersections are shown in **Figure 2-1**.

2.3 Public Transit

The existing transit services in the Village are part of the Pemberton Valley Transit System, which is provided by BC Transit. Based on the information gathered from BC Transit's website, there are two existing bus routes operating in the Pemberton Valley Transit System, both of which operate in the vicinity of the proposed development. These routes are described below:

- Route #99 Pemberton Commuter: This bus route connects the Pemberton Hotel to the Gondola Transit Exchange in Whistler, mainly via Hwy 99.
- Route #100 Pemberton Local: This bus route connects Pemberton Hotel to the Community Store in the Xit'Olacw Subdivision, mainly via Pemberton Portage Road, Hwy 99, and Xit'Olacw Road.

The Pemberton Hotel is located at the corner of Frontier Street and Aster Street, south of Birch Road/Portage Road.

The transit routes for Route #99 and Route #100 are shown in **Figure 2-2**.

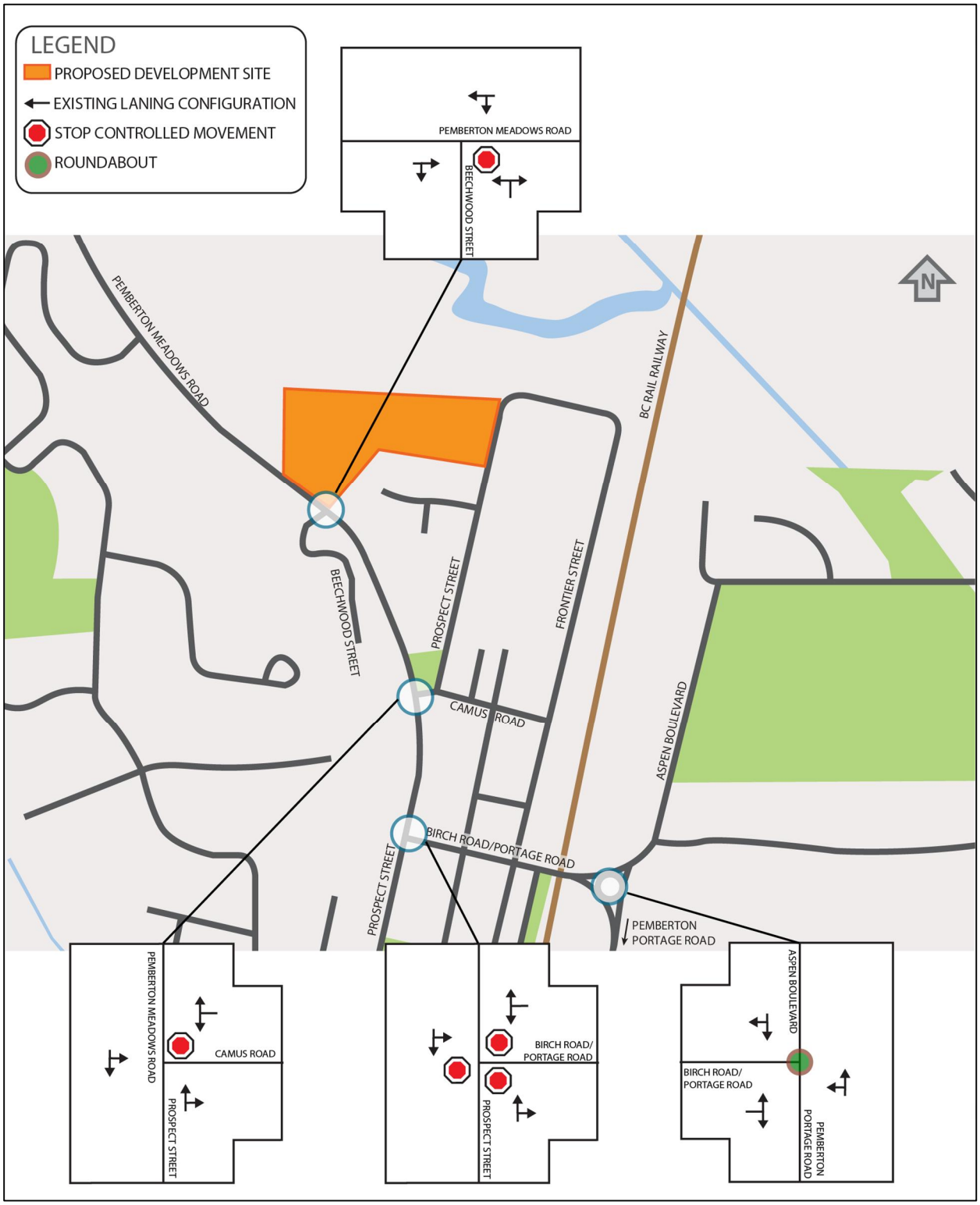

Figure 2-1: Existing Intersection Laning Configuration and Traffic Control

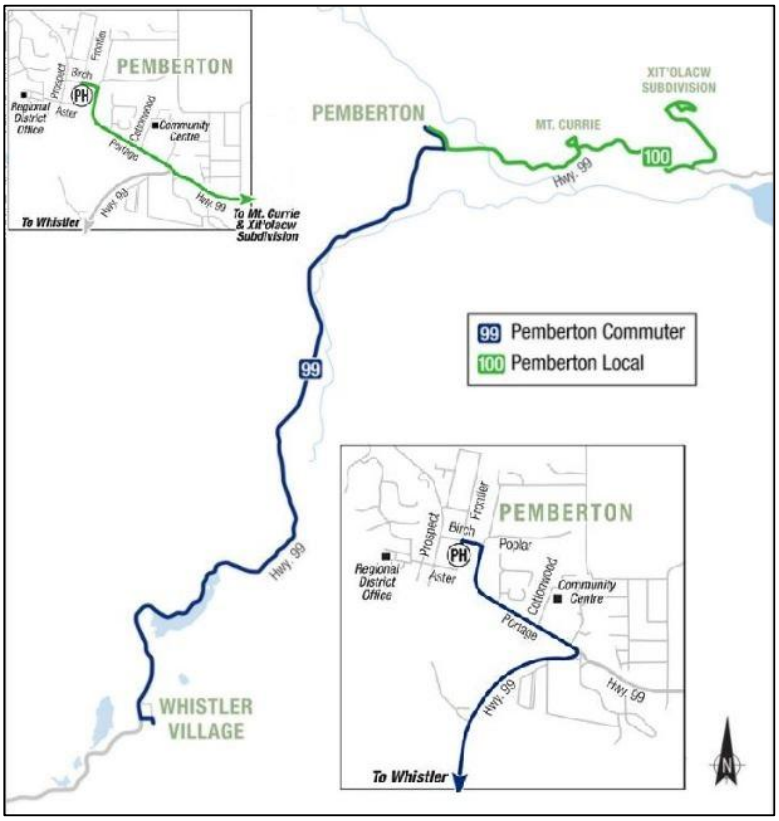

Figure 2-2: Transit Routes through Study Area (source: BC Transit)

2.4 Traffic Volumes

Existing traffic volumes at the study intersections were collected by TransTech Data Services (TransTech) on Thursday, August 10, 2017. The AM peak period turning movement data were collected between 07:00 and 09:00 and the PM peak period data were collected between 15:00 and 18:00.

Based on the traffic volume data gathered at the Pemberton Meadows Road/Prospect Street and Camus Road intersection, the peak hours were identified to be from 08:00 to 09:00 during the AM peak period and from 16:00 to 17:00 during the PM peak period. During the AM and PM peak hours, 219 and 303 vehicles entered the intersection, respectively.

At the Prospect Street and Birch Road/Portage Road intersection, the peak hours were identified to be from 08:00 to 09:00 during the AM peak period with 325 vehicles entering the intersection and from 16:15 to 17:15 during the PM peak period with 487 vehicles entering the intersection.

At the Pemberton Portage Road, Aspen Boulevard and Birch Road/Portage Road roundabout, the AM peak hour was identified to be from 08:00 to 09:00 with 478 vehicles entering the intersection. The PM peak hour was found to be from 16:45 to 17:45 with 753 vehicles entering the intersection.

The unadjusted turning movement count data are attached to this report in **Appendix B**. The existing AM peak hour and PM peak hour traffic volumes are shown in **Figure 2-3**.

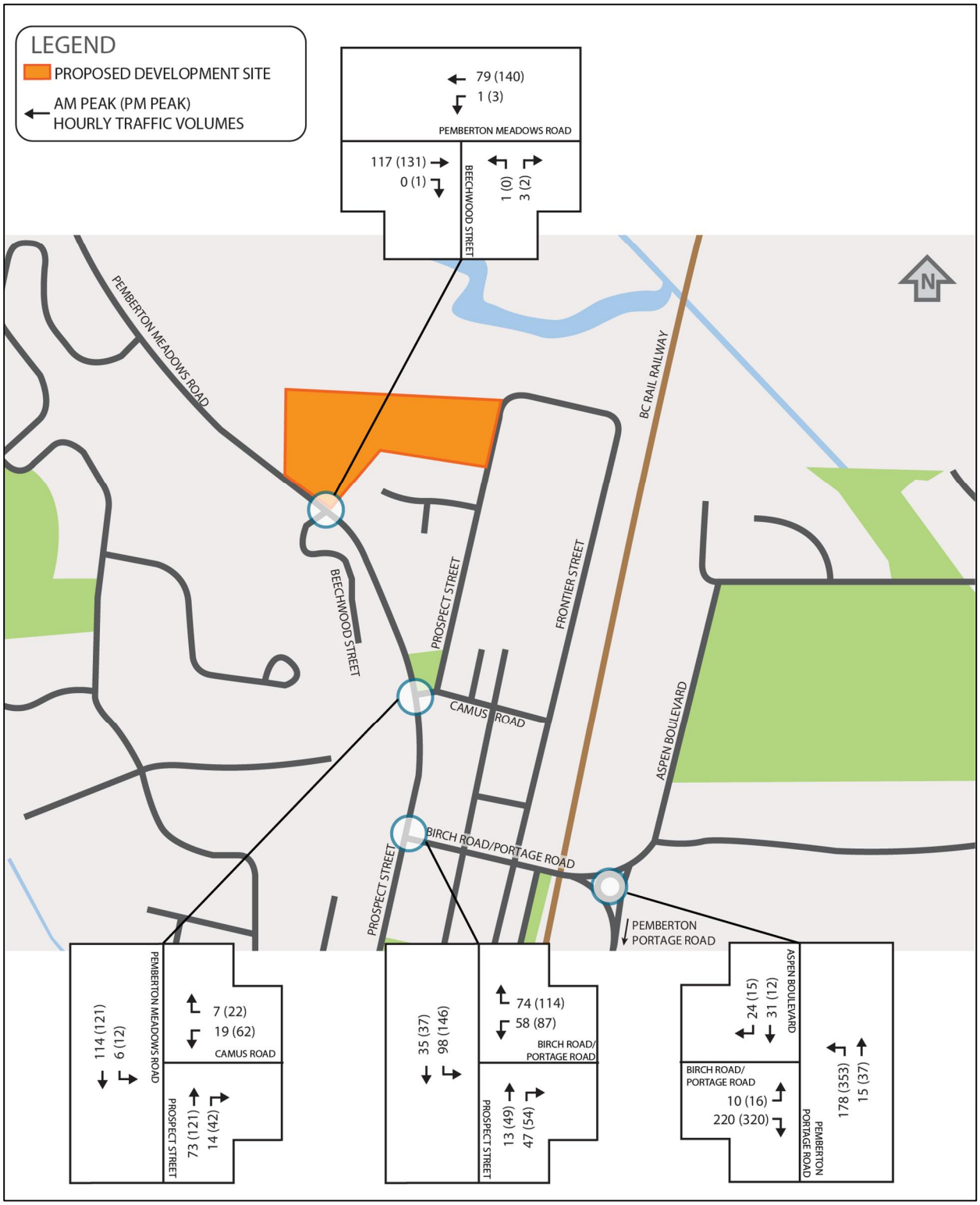

Figure 2-3: 2017 Existing Traffic Volumes

3 PROPOSED DEVELOPMENT CONCEPT

3.1 Development Concept

The proposed Sanctuary Pemberton townhome residential development is located on the north side of the Village behind the existing Meadows Lane Townhouse development. Based on information provided by the Client, the site is currently zoned as Residential (RS-1) which permits single family and duplex dwellings. Based on the latest site plan provided by the Client on March 21, 2022, the proposed development is expected to be comprised of eight buildings, 59 townhouse units in total. The proposed residential development preliminary site plan can be seen in **Figure 3-1**.

3.1.1 Development Access

The proposed entrance of the development is expected to be off Prospect Street, north of Meadows Lane. A two-lane roadway will be provided within the development. A two-lane roundabout will be located at the west to the center of the development so traffic can access the west end of the development and circulate back to the proposed entrance at Prospect Street.

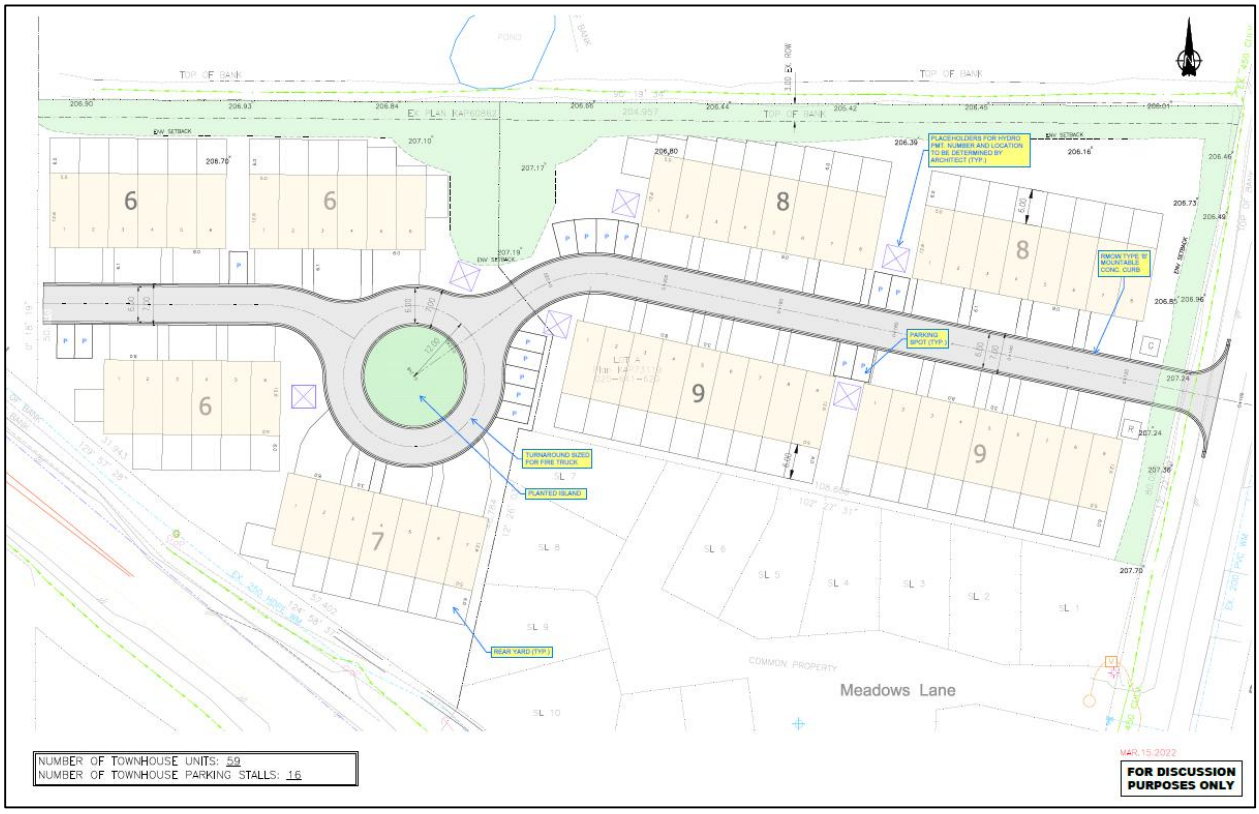

Figure 3-1: Proposed Site Plan

3.1.2 Parking and Loading Bylaw Requirements

Based on the Village's current Zoning Bylaw No. 832, 2018, the study development requires the following number of parking stalls for townhouse and apartment dwelling developments:

- Three-bedroom townhouse unit – 2 spaces per dwelling unit
- Two-bedroom townhouse units – 2 spaces per dwelling unit
- Townhouse visitors parking – 0.25 spaces per dwelling unit

As mentioned in **Section 3.1**, the proposed development is comprised of 59 townhome units. Based on the above parking requirements, the development will require 118 resident parking stalls and 15 visitor parking stalls for a total of 133 parking stalls.

Based on information by the Client, each townhouse unit will include a tandem garage with two parking stalls and one driveway parking stall. It is noted that one of the garage stalls will be designated as "small car." An additional 16 parking stalls are also provided in the development. In total, the development is expected to provide 134 parking stalls which is expected to meet the Village's current Zoning Bylaw.

Based on the Village's current Zoning Bylaw No. 832, 2018, there are no off-street loading bay requirements for residential properties.

3.2 Phasing and Timing

The proposed study development is expected to be constructed in a single phase. For the purpose of this study, the Opening Day of the development is assumed to be in the 2023 horizon year. The site plan for the proposed residential development is attached to this report in **Appendix A**.

3.3 Trip Generation

The forecast trip generation for the study development was derived from the *Trip Generation 11th Edition*, published by the Institute of Transportation Engineers (ITE). The trip generation rate published under the Multifamily Housing (Low-Rise) (ITE Ref. 220) land uses was assumed to be representative of the proposed townhomes.

It is estimated that the proposed development will generate 24 new vehicle trips in the AM peak hour with six vehicles entering and 18 vehicles exiting. During the PM peak hour, it is estimated that 31 new vehicle trips will be generated with 20 vehicles entering and 11 vehicles exiting.

The forecast site generated traffic for the proposed residential development is shown in **Table 3-1**.

Table 3-1: Trip Generation for the Proposed Residential Development

Description	Size	Unit	ITE Ref.	Avg. Trip Ends per Unit	Generated Trip Ends	% Entering	% Exiting	Vehicle Entering	Vehicle Exiting
AM Peak Hour									
Multifamily Housing (Low-Rise) - Townhome	59	Dwelling Units	220	0.40	24	24	76	6	18
							Total:	**6**	**18**
PM Peak Hour									
Multifamily Housing (Low-Rise) - Townhome	59	Dwelling Units	220	0.51	31	63	37	20	11
							Total:	**20**	**11**

The entrance for the development is expected to be off Prospect Street, north of Camus Road. The existing traffic volume along Prospect Street at the proposed entrance is expected to be low as there are only four homes north of the location and Frontier Street provides an alternative route to Camus Road. As a conservative approach, the same number of vehicle trips as experienced along Beechwood Street were assumed to travel along Prospect Street at the proposed access location in the AM peak hour and PM peak hour.

3.4 Trip Distribution and Assignment

Trip distribution and assignment were estimated based on the existing traffic patterns as identified in the turning movement count data.

The study development's estimated site generated trips and distribution are summarized in **Figure 3-2**.

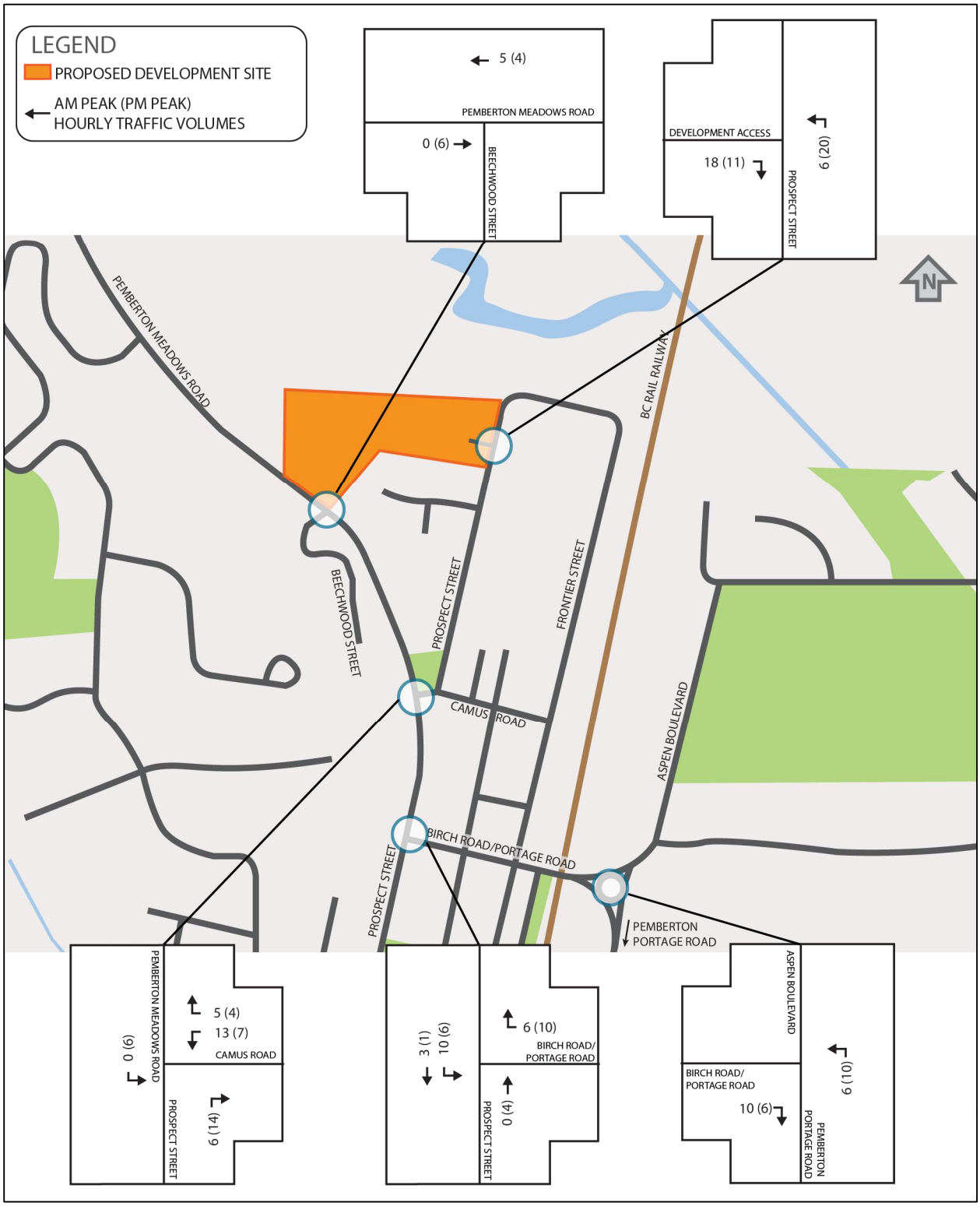

Figure 3-2: Estimated Site Generated Traffic Volumes

4 TRAFFIC ANALYSIS

4.1 Methodologies

The traffic operation analysis in this report was performed using the Synchro software suite, which is generally based on the Highway Capacity Manual (HCM) methodologies. The traffic operations for each scenario were evaluated to estimate the volume-to-capacity (v/c) ratio, delay, level-of-service (LOS), and 95th percentile queue length at the study intersections.

When reviewing the traffic analysis results, a v/c ratio at or above 1.0 indicates that traffic volumes exceed the intersection capacity. Delay, in terms of seconds, represents the wait time experienced by a driver on the approach to the intersection. LOS is a grading system on intersection operation based on the calculated delay as per the criteria shown in **Table 4-1** for an unsignalized intersection. LOS A means that the intersection experiences little to no delay whereas a LOS F indicates significant delay is present.

The traffic operations for the roundabout at the intersection of Pemberton Portage Road, Aspen Boulevard, and Birch Road/Portage Road was analyzed using Synchro 10 software suite, which uses HCM 6 methodologies to calculate the approach v/c ratios, delays, and LOS. The LOS grading system for a roundabout is also based on the calculated delay for an unsignalized intersection shown in **Table 4-1**.

Table 4-1: HCM LOS Criteria for Unsignalized Intersection

Level of Service	Average Control Delay (s/veh)
A	0 - 10
B	> 10 - 15
C	> 15 - 25
D	> 25 - 35
E	> 35 - 50
F	> 50

The target intersection operation thresholds for this study were assumed to be as follows:

- LOS D or better for the overall intersection and individual turning movements
- V/C ratio of 0.85 or lower for the overall intersection and individual turning movements
- Delay less than 35 seconds for the unsignalized intersections
- 95th percentile queue lengths impacting adjacent intersections and accesses

The detailed traffic analysis results from Synchro are provided in **Appendix C**.

4.2 Background Traffic Operations

4.2.1 2017 Existing Traffic Operations

The 2017 background traffic operation analysis was performed using the existing traffic volumes summarized in **Figure 2-3**.

AM Peak Hour

During the AM peak hour, all study intersections were found to operate within the study thresholds. The study road network's maximum v/c ratio of 0.22 is at the Prospect Street and Birch Road/Portage Road intersection in the southbound movement.

PM Peak Hour

During the PM peak hour, all study intersections were found to operate within the study thresholds. The study road network's maximum v/c ratio of 0.32 is at the Pemberton Portage Road, Aspen Road, and Birch Road/Portage Road roundabout in the northbound movement.

The traffic analysis results for the existing traffic operations are summarized in **Table 4-2**.

Table 4-2: 2017 Background Traffic Operations

Intersection	Turning Movement	AM Peak Hour				PM Peak Hour			
		LOS	Delay (s)	V/C Ratio	95% Q (m)	LOS	Delay (s)	V/C Ratio	95% Q (m)
Pemberton Meadows Road and Beechwood Street *(Unsignalized)*	EBL/R	A	9.1	0.00	0.1	A	9.0	0.00	0.1
	NBL/T	A	0.1	0.00	-	A	0.2	0.00	-
	SBT/R	A	-	0.07	-	A	-	0.08	-
	Int. LOS	A				A			
Pemberton Meadows Road / Prospect Street and Camus Road *(Unsignalized)*	WBL/R	A	9.8	0.04	0.9	B	11.1	0.15	4.0
	NBT/R	A	-	0.06	-	A	-	0.11	-
	SBL/T	A	0.4	0.01	0.1	A	0.8	0.01	0.3
	Int. LOS	A				A			
Prospect Street and Birch Road / Portage Road *(Unsignaized)*	WBL/R	A	8.2	0.17	-	A	9.1	0.27	-
	NBT/R	A	7.5	0.11	-	A	8.1	0.15	-
	SBL/T	A	8.8	0.22	-	A	9.5	0.27	-
	Int. LOS	A				A			
Intersection	**Turning Movement**	**AM Peak Hour**				**PM Peak Hour**			
		LOS	**Delay (s)**	**V/C Ratio**	**95% Q (m)**	**LOS**	**Delay (s)**	**V/C Ratio**	**95% Q (m)**
Birch Rd / Portage Rd, Aspen Blvd, and Pemberton Portage Rd *(Roundabout)*	EBL/R	A	4.4	0.19	7.6	A	5.1	0.27	7.6
	NBL/T	A	4.0	0.16	7.6	A	5.6	0.32	7.6
	SBT/R	A	3.8	0.06	0.0	A	4.2	0.03	0.0
	Int. LOS	A				A			

4.2.2 2023 Horizon Year Background Traffic Operations

The 2023 horizon year background traffic volumes were estimated by applying a 2% annual growth rate to the existing traffic volumes. The forecast 2023 background traffic volumes are shown in **Figure 4-1**.

AM Peak Hour

During the AM peak hour, all study intersections are expected to operate within the study thresholds. The study road network's maximum v/c ratio is expected to be 0.20 at the Pemberton Portage Road, Aspen Road, and Birch Road/Portage Road roundabout in the eastbound movement. The southbound movement of intersection of Prospect Street and Birch and Birch Road/Portage Road is also expected to have a v/c ratio of 0.20.

PM Peak Hour

During the PM peak hour, all study intersections are expected to operate within the study thresholds. The study road network's maximum v/c ratio is expected to be 0.36 at the Pemberton Portage Road, Aspen Road, and Birch Road/Portage Road roundabout in the northbound movement.

The traffic analysis results for the 2023 background traffic operations are summarized in **Table 4-3**.

Figure 4-1: 2023 Background Traffic Volumes

Table 4-3: 2023 Background Traffic Operations

Intersection	Turning Movement	AM Peak Hour				PM Peak Hour			
		LOS	Delay (s)	V/C Ratio	95% Q (m)	LOS	Delay (s)	V/C Ratio	95% Q (m)
Pemberton Meadows Road and Beechwood Street *(Unsignalized)*	EBL/R	A	9.2	0.00	0.1	A	9.1	0.00	0.1
	NBL/T	A	0.1	0.00	-	A	0.1	0.00	-
	SBT/R	A	-	0.08	-	A	-	0.10	-
	Int. LOS	A				A			
Pemberton Meadows Road / Prospect Street and Camus Road *(Unsignalized)*	WBL/R	A	9.8	0.04	1.0	B	11.2	0.15	4.0
	NBT/R	A	-	0.06	-	A	-	0.12	-
	SBL/T	A	0.4	0.01	0.1	A	0.8	0.01	0.3
	Int. LOS	A				A			
Prospect Street and Birch Road / Portage Road *(Unsignaized)*	WBL/R	A	8.2	0.19	-	A	9.5	0.31	-
	NBT/R	A	7.4	0.08	-	A	8.4	0.16	-
	SBL/T	A	8.7	0.20	-	A	9.9	0.30	-
	Int. LOS	A				A			
Intersection	**Turning Movement**	**AM Peak Hour**				**PM Peak Hour**			
		LOS	Delay (s)	V/C Ratio	95% Q (m)	LOS	Delay (s)	V/C Ratio	95% Q (m)
Birch Rd / Portage Rd, Aspen Blvd, and Pemberton Portage Rd *(Roundabout)*	EBL/R	A	4.6	0.20	7.6	A	5.4	0.31	7.6
	NBL/T	A	4.1	0.18	7.6	A	6.1	0.36	15.2
	SBT/R	A	3.9	0.06	0.0	A	4.4	0.04	0.0
	Int. LOS	A				A			

4.2.3 2028 Horizon Year Background Traffic Operations

The 2028 horizon year background traffic volumes were estimated by applying a 2% annual growth rate to the existing traffic volumes. The forecast 2028 background traffic volumes are shown in **Figure 4-2**.

AM Peak Hour

During the AM peak hour, all study intersections are expected to operate within the study thresholds. The study road network's maximum v/c ratio of 0.24 is at the Pemberton Portage Road, Aspen Road, and Birch Road/Portage Road roundabout in the eastbound movement.

PM Peak Hour

During the PM peak hour, all study intersections are expected to operate within the study thresholds. The study road network's maximum v/c ratio of 0.45 is at the Pemberton Portage Road, Aspen Road, and Birch Road/Portage Road roundabout in the northbound movement.

The traffic analysis results for the 2028 background traffic operations are summarized in **Table 4-4**.

Figure 4-2: 2028 Background Traffic Volumes

Table 4-4: 2028 Background Traffic Operations

Intersection	Turning Movement	AM Peak Hour				PM Peak Hour			
		LOS	Delay (s)	V/C Ratio	95% Q (m)	LOS	Delay (s)	V/C Ratio	95% Q (m)
Pemberton Meadows Road and Beechwood Street *(Unsignalized)*	EBL/R	A	9.3	0.00	0.1	A	9.2	0.00	0.1
	NBL/T	A	0.1	0.00	-	A	0.1	0.00	-
	SBT/R	A	-	0.09	-	A	-	0.10	-
	Int. LOS	A				A			
Pemberton Meadows Road / Prospect Street and Camus Road *(Unsignalized)*	WBL/R	A	10.0	0.05	1.1	B	12.3	0.21	5.9
	NBT/R	A	-	0.07	-	A	-	0.15	-
	SBL/T	A	0.4	0.01	0.1	A	0.8	0.01	0.3
	Int. LOS	A				A			
Prospect Street and Birch Road / Portage Road *(Unsignaized)*	WBL/R	A	8.4	0.21	-	B	11.0	0.41	-
	NBT/R	A	7.5	0.09	-	A	9.1	0.21	-
	SBL/T	A	8.9	0.23	-	B	11.4	0.39	-
	Int. LOS	A				A			
Intersection	**Turning Movement**	**AM Peak Hour**				**PM Peak Hour**			
		LOS	**Delay (s)**	**V/C Ratio**	**95% Q (m)**	**LOS**	**Delay (s)**	**V/C Ratio**	**95% Q (m)**
Birch Rd / Portage Rd, Aspen Blvd, and Pemberton Portage Rd *(Roundabout)*	EBL/R	A	4.9	0.24	7.6	A	6.3	0.39	15.2
	NBL/T	A	4.3	0.20	7.6	A	7.2	0.45	15.2
	SBT/R	A	4.1	0.07	0.0	A	5.1	0.05	0.0
	Int. LOS	A				A			

4.2.4 2033 Horizon Year Background Traffic Operations

The 2033 horizon year background traffic volumes were estimated by applying a 2% annual growth rate to the existing traffic volumes. The forecast 2033 background traffic volumes are shown in **Figure 4-3**.

AM Peak Hour

During the AM peak hour, all study intersections are expected to operate within the study thresholds. The study road network's maximum v/c ratio of 0.27 is at the Pemberton Portage Road, Aspen Road, and Birch Road/Portage Road roundabout in the eastbound movement.

PM Peak Hour

During the PM peak hour, all study intersections are expected to operate within the study thresholds. The study road network's maximum v/c ratio of 0.44 is at the Pemberton Portage Road, Aspen Road, and Birch Road/Portage Road roundabout in the northbound movement.

The traffic analysis results for the 2033 background traffic operations are summarized in **Table 4-5**.

Figure 4-3: 2033 Background Traffic Volumes

Table 4-5: 2033 Background Traffic Operations

Intersection	Turning Movement	AM Peak Hour				PM Peak Hour			
		LOS	Delay (s)	V/C Ratio	95% Q (m)	LOS	Delay (s)	V/C Ratio	95% Q (m)
Pemberton Meadows Road and Beechwood Street *(Unsignalized)*	EBL/R	A	9.4	0.00	0.1	A	9.3	0.00	0.1
	NBL/T	A	0.1	0.00	-	A	0.1	0.00	-
	SBT/R	A	-	0.10	-	A	-	0.12	-
	Int. LOS	A				A			
Pemberton Meadows Road / Prospect Street and Camus Road *(Unsignalized)*	WBL/R	B	10.2	0.05	1.3	B	12.1	0.20	5.6
	NBT/R	A	0.0	0.08	0.0	A	-	0.14	-
	SBL/T	A	0.4	0.01	0.1	A	0.8	0.01	0.3
	Int. LOS	A				A			
Prospect Street and Birch Road / Portage Road *(Unsignaized)*	WBL/R	A	8.7	0.24	-	B	10.8	0.39	-
	NBT/R	A	7.7	0.11	-	A	9.0	0.20	-
	SBL/T	A	9.2	0.26	-	B	11.2	0.38	-
	Int. LOS	A				B			
Intersection	**Turning Movement**	**AM Peak Hour**				**PM Peak Hour**			
		LOS	Delay (s)	V/C Ratio	95% Q (m)	LOS	Delay (s)	V/C Ratio	95% Q (m)
Birch Rd / Portage Rd, Aspen Blvd, and Pemberton Portage Rd *(Roundabout)*	EBL/R	A	5.1	0.27	7.6	A	6.2	0.38	15.2
	NBL/T	A	4.5	0.22	7.6	A	7.1	0.44	15.2
	SBT/R	A	4.2	0.08	0.0	A	5.0	0.05	0.0
	Int. LOS	A				A			

4.3 Combined Traffic Operations

4.3.1 2023 Opening Day Traffic Operations

The 2023 Opening Day horizon year traffic volumes are shown in **Figure 4-4**. They are derived by combining the 2023 background traffic volumes shown in **Figure 4-1** with the site generated traffic volumes shown in **Figure 3-2**.

AM Peak Hour

During the AM peak hour, all study intersections are expected to operate within the study thresholds. The study road network's maximum v/c ratio of 0.23 is at the Pemberton Portage Road, Aspen Road, and Birch Road/Portage Road roundabout in the eastbound movement.

PM Peak Hour

During the PM peak hour, all study intersections are expected to operate within the study thresholds. The study road network's maximum v/c ratio of 0.37 is at the Pemberton Portage Road, Aspen Road, and Birch Road/Portage Road roundabout in the northbound movement.

The traffic analysis results for the 2023 Opening Day horizon year combined traffic operations are summarized in **Table 4-6**.

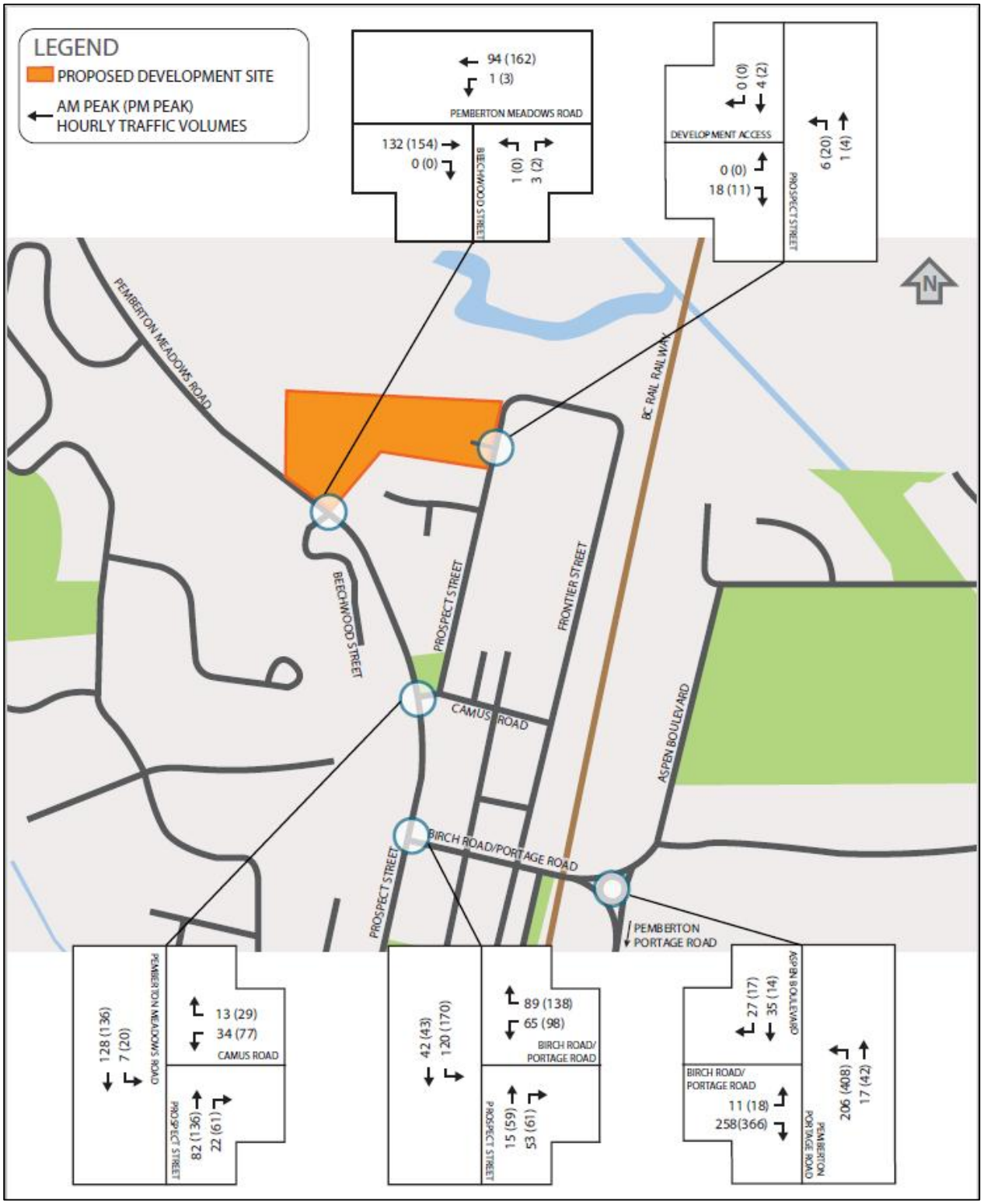

Figure 4-4: 2023 Opening Day Combined Traffic Volumes

Table 4-6: 2023 Opening Day Combined Traffic Operations

Intersection	Turning Movement	AM Peak Hour				PM Peak Hour			
		LOS	Delay (s)	V/C Ratio	95% Q (m)	LOS	Delay (s)	V/C Ratio	95% Q (m)
Pemberton Meadows Road and Beechwood Street *(Unsignalized)*	EBL/R	A	9.2	0.00	0.1	A	9.1	0.00	0.1
	NBL/T	A	0.1	0.00	-	A	0.1	0.00	-
	SBT/R	A	0.1	0.08	-	A	0.0	0.00	-
	Int. LOS	A				A			
Prospect Street / Development Access *(Unsignalized)*	EBL/R	A	8.4	0.02	0.4	A	8.4	0.01	0.3
	NBT/R	A	6.3	0.00	0.1	A	6.2	0.01	0.3
	SBL/T	A	-	0.00	-	A	-	0.00	-
	Int. LOS	A				A			
Pemberton Meadows Road / Prospect Street and Camus Road *(Unsignalized)*	WBL/R	A	9.9	0.07	1.6	B	11.5	0.17	4.7
	NBT/R	A	-	0.07	-	A	-	0.13	-
	SBL/T	A	0.4	0.01	0.1	A	1.1	0.02	0.4
	Int. LOS	A				A			
Prospect Street and Birch Road / Portage Road *(Unsignaized)*	WBL/R	A	8.3	0.20	-	A	9.7	0.32	-
	NBT/R	A	7.4	0.08	-	A	8.5	0.16	-
	SBL/T	A	8.8	0.22	-	B	10.1	0.31	-
	Int. LOS	A				A			
Intersection	**Turning Movement**	**AM Peak Hour**				**PM Peak Hour**			
		LOS	Delay (s)	V/C Ratio	95% Q (m)	LOS	Delay (s)	V/C Ratio	95% Q (m)
Birch Rd / Portage Rd, Aspen Blvd, and Pemberton Portage Rd *(Roundabout)*	EBL/R	A	4.7	0.23	7.6	A	5.5	0.31	7.6
	NBL/T	A	4.2	0.18	7.6	A	6.1	0.37	15.2
	SBT/R	A	3.9	0.06	0.0	A	4.5	0.04	0.0
	Int. LOS	A				A			

4.3.2 2028 Opening Day + 5 Years Traffic Operations

The 2028 Opening Day + 5 Years horizon year traffic volumes are shown in **Figure 4-5**. They are derived by combining the 2028 background traffic volumes shown in **Figure 4-2** with the site generated traffic volumes shown in **Figure 3-2**.

AM Peak Hour

During the AM peak hour, all study intersections are expected to operate within the study thresholds. The study road network's maximum v/c ratio of 0.25 is at the Prospect Street and Birch Road/Portage Road intersection in the southbound movement, and at the Pemberton Portage Road, Aspen Road, and Birch Road/Portage Road roundabout in the eastbound movement.

PM Peak Hour

During the PM peak hour, all study intersections are expected to operate within the study thresholds. The study road network's maximum v/c ratio of 0.46 is at the Pemberton Portage Road, Aspen Road, and Birch Road/Portage Road roundabout in the northbound movement.

The traffic analysis results for the 2028 Opening Day + 5 Years horizon year combined traffic operations are summarized in **Table 4-7**.

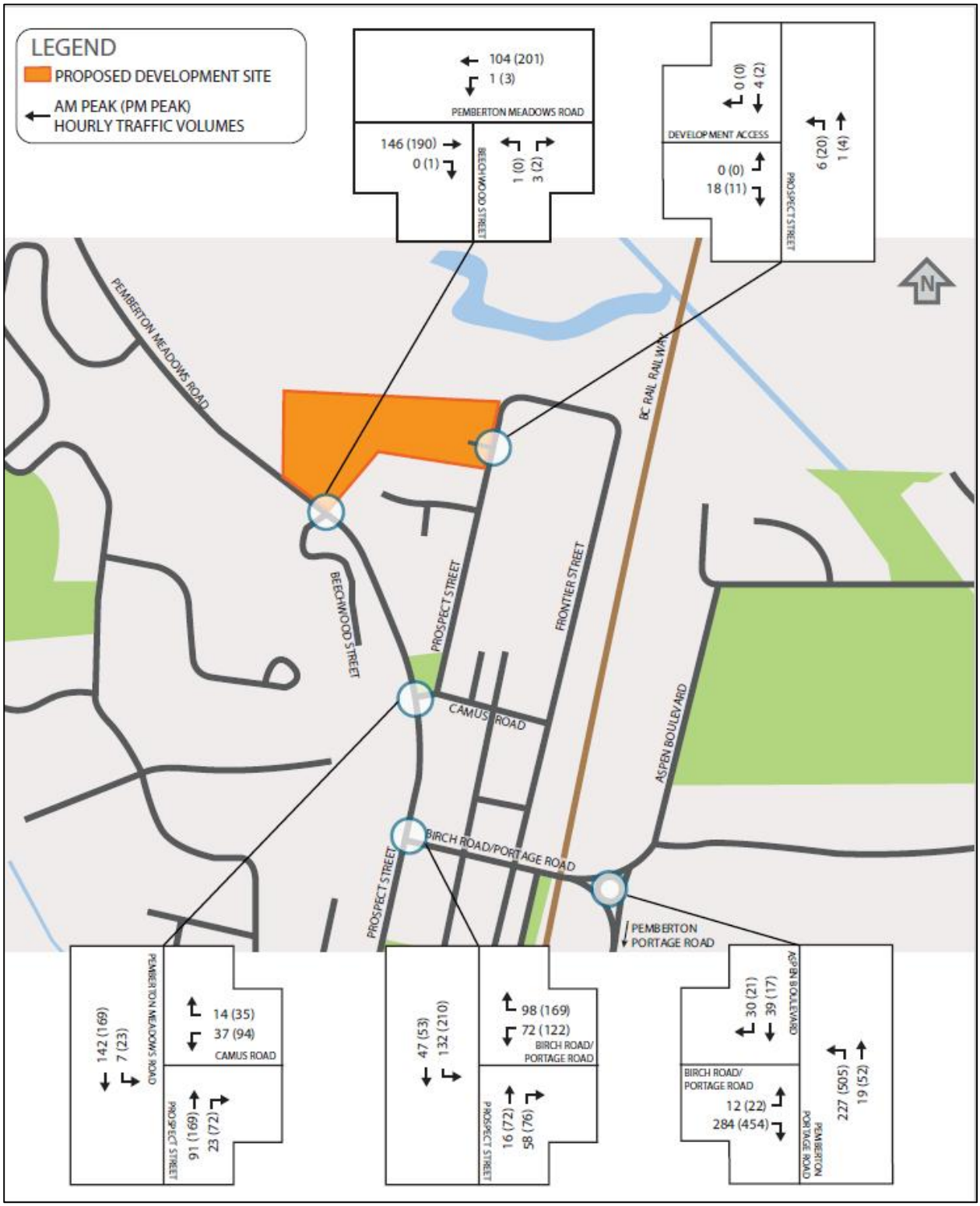

Figure 4-5: 2028 Opening Day + 5 Years Combined Traffic Volumes

Table 4-7: 2028 Opening Day + 5 Years Combined Traffic Operations

Intersection	Turning Movement	AM Peak Hour				PM Peak Hour			
		LOS	Delay (s)	V/C Ratio	95% Q (m)	LOS	Delay (s)	V/C Ratio	95% Q (m)
Pemberton Meadows Road and Beechwood Street *(Unsignalized)*	EBL/R	A	9.3	0.00	0.1	A	9.3	0.00	0.1
	NBL/T	A	0.1	0.00	-	A	0.1	0.00	-
	SBT/R	A	0.2	0.09	-	A	0.2	0.12	0.1
	Int. LOS	A				A			
Prospect Street / Development Access *(Unsignalized)*	EBL/R	A	8.4	0.02	0.4	A	8.4	0.01	0.1
	NBT/R	A	6.3	0.00	0.1	A	5.5	0.01	0.1
	SBL/T	A	-	0.00	-	A	-	0.00	-
	Int. LOS	A				A			
Pemberton Meadows Road / Prospect Street and Camus Road *(Unsignalized)*	WBL/R	B	10.1	0.07	1.8	B	12.7	0.23	6.8
	NBT/R	A	-	0.07	-	A	-	0.15	-
	SBL/T	A	0.4	0.01	0.1	A	1.1	0.02	0.4
	Int. LOS	A				A			
Prospect Street and Birch Road / Portage Road *(Unsignaized)*	WBL/R	A	8.5	0.22	-	B	11.3	0.42	-
	NBT/R	A	7.5	0.09	-	A	9.2	0.22	-
	SBL/T	A	9.1	0.25	-	B	11.6	0.41	-
	Int. LOS	A				B			
Intersection	**Turning Movement**	**AM Peak Hour**				**PM Peak Hour**			
		LOS	Delay (s)	V/C Ratio	95% Q (m)	LOS	Delay (s)	V/C Ratio	95% Q (m)
Birch Rd / Portage Rd, Aspen Blvd, and Pemberton Portage Rd *(Roundabout)*	EBL/R	A	4.9	0.25	7.6	A	6.4	0.39	15.2
	NBL/T	A	4.4	0.20	7.6	A	7.3	0.46	15.2
	SBT/R	A	4.1	0.07	0.0	A	5.1	0.05	0.0
	Int. LOS	A				A			

4.3.3 2033 Opening Day + 10 Years Traffic Operations

The 2033 Opening Day + 10 Years horizon year traffic volumes are shown in **Figure 4-6**. They are derived by combining the 2033 background traffic volumes shown in **Figure 4-3** with the site generated traffic volumes shown in **Figure 3-2**.

AM Peak Hour

During the AM peak hour, all study intersections are expected to operate within the study thresholds. The study road network's maximum v/c ratio of 0.28 is at the Prospect Street and Birch Road/Portage Road intersection in the southbound movement, and at the Pemberton Portage Road, Aspen Road, and Birch Road/Portage Road roundabout in the eastbound movement.

PM Peak Hour

During the PM peak hour, all study intersections are expected to operate within the study thresholds. The study road network's maximum v/c ratio of 0.45 is at the Pemberton Portage Road, Aspen Road, and Birch Road/Portage Road roundabout in the northbound movement.

The traffic analysis results for the 2033 Opening Day + 10 Years horizon year combined traffic operations are summarized in **Table 4-8**.

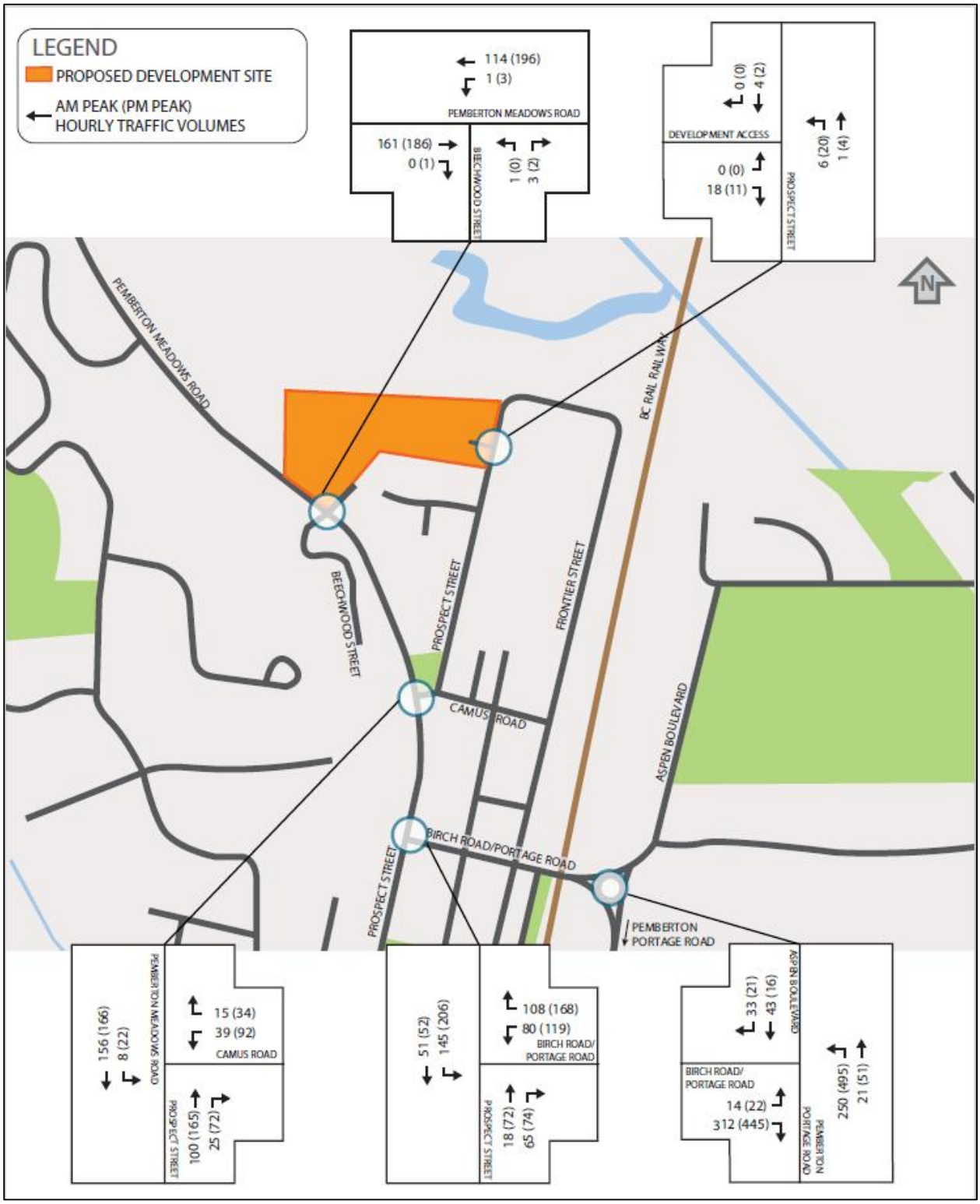

Figure 4-6: 2033 Opening Day + 10 Years Combined Traffic Volumes

Table 4-8: 2033 Opening Day + 10 Years Combined Traffic Operations

Intersection	Turning Movement	AM Peak Hour				PM Peak Hour			
		LOS	Delay (s)	V/C Ratio	95% Q (m)	LOS	Delay (s)	V/C Ratio	95% Q (m)
Pemberton Meadows Road and Beechwood Street *(Unsignalized)*	**EBL/R**	A	9.4	0.00	0.1	A	9.3	0.00	0.1
	NBL/T	A	0.1	0.00	-	A	0.1	0.00	0.1
	SBT/R	A	0.0	0.10	-	A	0.0	0.12	0.0
	Int. LOS	**A**				**A**			
Prospect Street / Development Access *(Unsignalized)*	**EBL/R**	A	8.4	0.02	0.4	A	8.4	0.01	0.3
	NBT/R	A	6.3	0.00	0.1	A	6.2	0.01	0.3
	SBL/T	A	-	0.00	-	A	-	0.00	-
	Int. LOS	**A**				**A**			
Pemberton Meadows Road / Prospect Street and Camus Road *(Unsignalized)*	**WBL/R**	B	10.4	0.08	1.9	B	12.6	0.22	6.5
	NBT/R	A	-	0.08	-	A	-	0.15	-
	SBL/T	A	0.4	0.01	0.1	A	1.1	0.02	0.4
	Int. LOS	**A**				**A**			
Prospect Street and Birch Road / Portage Road *(Unsignaized)*	**WBL/R**	A	8.8	0.25	-	B	11.1	0.41	-
	NBT/R	A	7.7	0.11	-	A	9.1	0.21	-
	SBL/T	A	9.4	0.28	-	B	11.4	0.40	-
	Int. LOS	**A**				**B**			
Intersection	**Turning Movement**	**AM Peak Hour**				**PM Peak Hour**			
		LOS	**Delay (s)**	**V/C Ratio**	**95% Q (m)**	**LOS**	**Delay (s)**	**V/C Ratio**	**95% Q (m)**
Birch Rd / Portage Rd, Aspen Blvd, and Pemberton Portage Rd *(Roundabout)*	**EBL/R**	A	5.2	0.28	7.6	A	6.3	0.38	15.2
	NBL/T	A	4.6	0.22	7.6	A	7.2	0.45	15.2
	SBT/R	A	4.3	0.08	0.0	A	5.1	0.05	0.0
	Int. LOS	**A**				**A**			

5 CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

The purpose of this study is to review the traffic impacts on the surrounding road network created by the proposed Sanctuary Pemberton townhouse development located on the north side of the Village, behind the existing Meadows Lane Townhouse development. The development is expected to be comprised of 59 townhouse units. The entrance of the development will locate at Prospect Street, north of Meadows Lane.

A summary of the study findings are as follows:

- Based on the ITE vehicle trip generation rates for the Townhouse land use, the study development expected to generate a total of 24 vehicle trips and 31 vehicle trips during the AM peak hour and PM peak hour, respectively.
- For all background scenarios, the study intersections are expected to operate at LOS B or better based on the forecast horizon year traffic volumes. A 2% annual growth rate was assumed and applied to the background traffic for all forecast horizon years.
- With the site generated traffic added to the study road network, all study intersections are expected to operate at LOS B or better during the 2023 Opening Day, the 2028 Opening Day + 5 Years, and the 2033 Opening Day + 10 Years horizon years. Comparing the background traffic operations with the combined (background plus site generated traffic volumes) traffic operations, the impacts from the proposed development are anticipated to be negligible.
- The study development is expected to provide a total of 134 parking which is expected to meet the Village's current Zoning Bylaw. The Village does not have any loading bay requirements for residential properties.
- Based on the expected traffic operations of the study intersections in the evaluated horizon years, it is anticipated that intersection improvements will not be required to support the proposed residential development.

APPENDIX A

PROPOSED PRELIMINARY SITE PLAN


POND
TOP OF BANK
EX. PLAN KAP60862
90° 19' 34"
204.957
3.00 EX. ROW
ENV SETBACK
PLACEHOLDERS FOR HYDRO PMT. NUMBER AND LOCATION TO BE DETERMINED BY ARCHITECT (TYP.)
RMOW TYPE 'B' MOUNTABLE CONC. CURB
PARKING SPOT (TYP.)
TURNAROUND SIZED FOR FIRE TRUCK
PLANTED ISLAND
REAR YARD (TYP.)
LOT A
Plan KAP73119
025-641-620
108.608
102° 27' 31"
31.943
129° 57' 28"
57.402
124° 58' 37"
EX. 250 HDPE WM
EX. 200 PVC WM
EX. 450 CULV
SL 1
SL 2
SL 3
SL 4
SL 5
SL 6
SL 7
SL 8
SL 9
SL 10
COMMON PROPERTY
Meadows Lane

NUMBER OF TOWNHOUSE UNITS: 59
NUMBER OF TOWNHOUSE PARKING STALLS: 16

MAR.15.2022

FOR DISCUSSION PURPOSES ONLY

no.	date	revision	chk'd	no.	date	revision	chk'd

client: BRUCE VAN MOOK

project: PROPOSED DEVELOPMENT - SANCTUARY PEMBERTON, BRITISH COLUMBIA

WEBSTER ENGINEERING LTD — STEEP ROCKY TERRAIN SPECIALISTS
PROFESSIONAL ENGINEERS — LAND DEVELOPMENT CONSULTANTS
212 - 828 HARBOURSIDE DRIVE, NORTH VANCOUVER, BC V7P 3R9 604-983-0458
EGBC PERMIT No. 1001444

approved

designed by: M.J.F.
drawn by: M.J.F
checked by: H.K.G.
date: MAR.15.22

title: PRELIMINARY SITE PLAN

scales: hor: 1:250 vert: -
file no.: 3962
drawing no.: SP-1
rev.: -

APPENDIX B

EXISTING TURNING MOVEMENT COUNT DATA (FROM TRANSTECH)

TRANSTECH Data Services

Vehicle Turning Movement Survey
With Classification

Major Route: Portage Road
Minor Route: Aspen Boulevard
Municipality: Pemberton
Filename: 1-Portage Rd @ Aspen Blvd-Aug 10, 2017.xlsx
Location #: 1

Date: August 10, 2017
Day-of-week: Thursday

East/West Route: Portage Road
Intersection Type: 3-leg west approach
Signalized?: No
Weather: Clear and dry

Vehicle Classifications: Regular Vehicles
Heavy Trucks
Cyclists

This data is for All Vehicles Combined

Shift	Start	End	Duration
AM	7:00	9:00	2.00
MD			
PM	15:00	18:00	3.00
Total	**7:00**	**18:00**	**5.00**

Notes: 24-hour clock used for reporting (15-minute increments)
North Approach - southbound vehicles approaching intersection from the north
15x4 - 15 min volume (from maximum 15 minute period of movement/approach in peak hour period [*]) x 4
Pedestrians - N indicates pedestrians crossing north approach (east/west)

Comments:

Survey Data
All Vehicles Combined

Portage Road @ Aspen Boulevard
Thursday, August 10, 2017

Time Period	Aspen Blvd NORTH Approach				Portage Road SOUTH Approach				Portage Rd WEST Approach				EAST Approach				Total Volume		Peak	Crosswalks			
Begins	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	15-min	Hour		N	S	W	E
7:00		10	1	**11**	16	0		**16**	1		22	**23**					**50**			0	0	0	
7:15		9	2	**11**	16	0		**16**	1		43	**44**					**71**			0	1	0	
7:30		7	1	**8**	24	1		**25**	2		38	**40**					**73**			0	0	0	
7:45		14	5	**19**	41	2		**43**	0		34	**34**					**96**	290		0	0	0	
8:00		8	4	**12**	42	4		**46**	1		48	**49**					**107**	347	*	0	0	0	
8:15		13	4	**17**	43	2		**45**	1		53	**54**					**116**	392	*	1	0	0	
8:30		6	7	**13**	44	6		**50**	3		56	**59**					**122**	441	*	0	1	2	
8:45		4	9	**13**	49	3		**52**	5		63	**68**					**133**	478	+	1	1	1	
n/a																							
n/a																							
n/a																							
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n/a																							
n/a																							
n/a																							
n/a																							
n/a																							
n/a																							
n/a																							
Total		71	33	**104**	275	18		**293**	14		357	**371**					**768**			2	3	3	

n/a																							
n/a																							
n/a																							
n/a																							
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n/a																							
n/a																							
n/a																							
n/a																							
Total																							

15:00		5	5	**10**	58	3		**61**	3		67	**70**					**141**			6	0	1	
15:15		4	2	**6**	58	4		**62**	0		61	**61**					**129**			4	0	1	
15:30		5	3	**8**	72	8		**80**	3		75	**78**					**166**			2	2	0	
15:45		6	2	**8**	75	7		**82**	5		77	**82**					**172**	608		1	0	1	
16:00		4	6	**10**	69	13		**82**	1		77	**78**					**170**	637		0	4	3	
16:15		1	1	**2**	72	3		**75**	4		65	**69**					**146**	654		0	2	0	
16:30		2	3	**5**	80	8		**88**	5		89	**94**					**187**	675		2	4	0	
16:45		5	3	**8**	84	11		**95**	4		76	**80**					**183**	686	*	2	0	2	
17:00		1	3	**4**	97	6		**103**	6		86	**92**					**199**	715	+	0	1	0	
17:15		2	6	**8**	66	9		**75**	4		89	**93**					**176**	745	*	5	1	2	
17:30		4	3	**7**	106	11		**117**	2		69	**71**					**195**	753	*	2	0	1	
17:45		5	7	**12**	70	8		**78**	4		78	**82**					**172**	742		1	0	0	
n/a																							
n/a																							
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n/a																							
n/a																							
n/a																							
n/a																							
n/a																							
Total		44	44	**88**	907	91		**998**	41		909	**950**					**2036**			25	14	11	

Time Period Begins	Aspen Blvd NORTH Approach Left	Thru	Right	Total	Portage Road SOUTH Approach Left	Thru	Right	Total	Portage Rd WEST Approach Left	Thru	Right	Total	EAST Approach Left	Thru	Right	Total	Total Volume 15-min	Hour	Peak	Crosswalks N	S	W	E	Conflict 15 min	Hr
7:00		10	1	11	16	0		16	1		22	23					50			0	0	0		49	
7:15		9	2	11	16	0		16	1		43	44					71			0	1	0		70	
7:30		7	1	8	24	1		25	2		38	40					73			0	0	0		70	
7:45		14	5	19	41	2		43	0		34	34					96	290		0	0	0		94	283
8:00		8	4	12	42	4		46	1		48	49					107	347	*	0	0	0		102	336
8:15		13	4	17	43	2		45	1		53	54					116	392	*	1	0	0		113	379
8:30		6	7	13	44	6		50	3		56	59					122	441	*	0	1	2		113	422
8:45		4	9	13	49	3		52	5		63	68					133	478	+	1	1	1		125	453
n/a																									
n/a																									
n/a																									
n/a																									
n/a																									
n/a																									
n/a																									
n/a																									
n/a																									
n/a																									
n/a																									
n/a																									

	N Left	N Thru	N Right	N Total	S Left	S Thru	S Right	S Total	W Left	W Thru	W Right	W Total	E Left	E Thru	E Right	E Total	Total Volume			CW N	CW S	CW W	CW E		Conflict Hr
Total		71	33	**104**	275	18		**293**	14		357	**371**					768			2	3	3			736
Avg Hr		36	17	**52**	138	9		**147**	7		179	**186**					384			1	2	2			

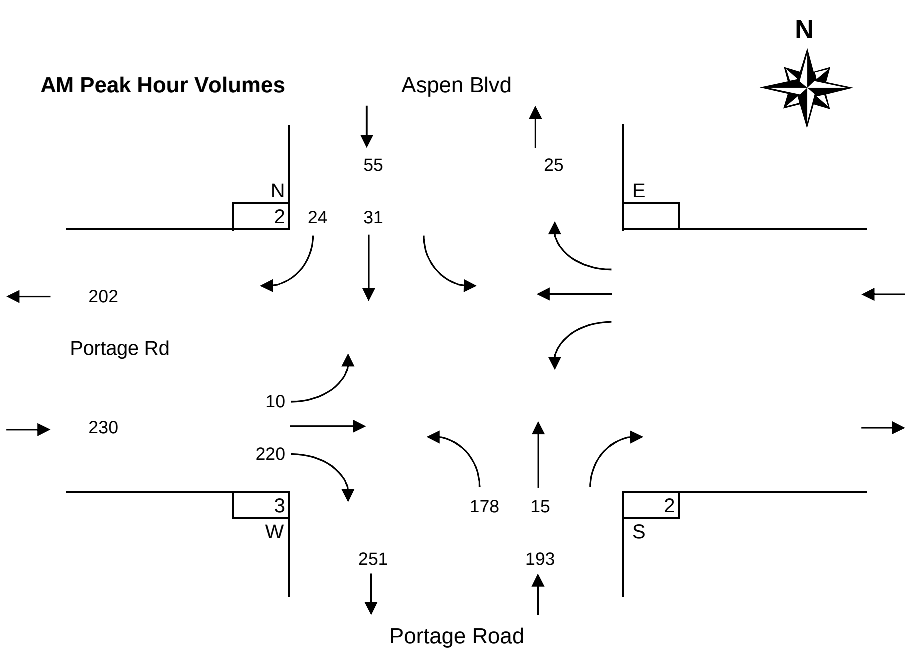
Peak hour of the intersection

	N Left	N Thru	N Right	N Total	S Left	S Thru	S Right	S Total	W Left	W Thru	W Right	W Total	E Left	E Thru	E Right	E Total	Total Volume		CW N	CW S	CW W	CW E	Conflict
Pk Hr		31	24	55	178	15		193	10		220	230					478	*	2	2	3		453
15x4		52	36	68	196	24		208	20		252	272					532	+	4	4	8		536
PHF		0.60	0.67	**0.81**	0.91	0.63		**0.93**	0.50		0.87	**0.85**					0.90		0.50	0.50	0.38		0.85

Peak hour of conflicting volumes for the intersection

	N Left	N Thru	N Right	N Total	S Left	S Thru	S Right	S Total	W Left	W Thru	W Right	W Total	E Left	E Thru	E Right	E Total	Total Volume		CW N	CW S	CW W	CW E	Conflict
Pk Hr		31	24	55	178	15		193	10		220	230					478	*	2	2	3		453
15x4		52	36	68	196	24		208	20		252	272					532	+	4	4	8		536
PHF		0.60	0.67	**0.81**	0.91	0.63		**0.93**	0.50		0.87	**0.85**					0.90		0.50	0.50	0.38		0.85

** Calculated peak hour occurs during the first or last hour of shift and therefore may be invalid. **



Time	Aspen Blvd				Portage Road				Portage Rd																
Period	NORTH Approach				SOUTH Approach				WEST Approach				EAST Approach				Total Volume			Crosswalks				Conflict	
Begins	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	15-min	Hour	Peak	N	S	W	E	15 min	Hr
n/a																									
n/a																									
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n/a																									
n/a																									

Total																						
Avg Hr																						

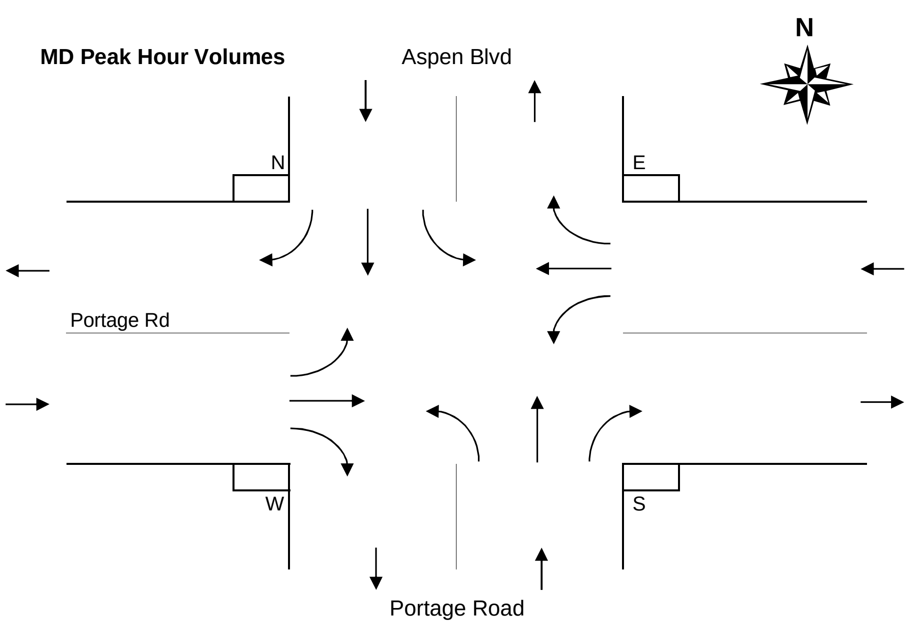
Peak hour of the intersection

Pk Hr																		*					
15x4																		+					
PHF																							

Peak hour of conflicting volumes for the intersection

Pk Hr																		*					
15x4																		+					
PHF																							

MD Peak Hour Volumes



PM Peak Period
All Vehicles Combined

Portage Road @ Aspen Boulevard
Thursday, August 10, 2017

Time Period	Aspen Blvd NORTH Approach				Portage Road SOUTH Approach				Portage Rd WEST Approach				EAST Approach				Total Volume		Peak	Crosswalks				Conflict	
Begins	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	15-min	Hour		N	S	W	E	15 min	Hr
15:00		5	5	10	58	3		61	3		67	70					141			6	0	1		135	
15:15		4	2	6	58	4		62	0		61	61					129			4	0	1		125	
15:30		5	3	8	72	8		80	3		75	78					166			2	2	0		155	
15:45		6	2	8	75	7		82	5		77	82					172	608		1	0	1		160	575
16:00		4	6	10	69	13		82	1		77	78					170	637		0	4	3		156	596
16:15		1	1	2	72	3		75	4		65	69					146	654		0	2	0		139	610
16:30		2	3	5	80	8		88	5		89	94					187	675		2	4	0		174	629
16:45		5	3	8	84	11		95	4		76	80					183	686	*	2	0	2		168	637
17:00		1	3	4	97	6		103	6		86	92					199	715	+	0	1	0		187	668
17:15		2	6	8	66	9		75	4		89	93					176	745	*	5	1	2		163	692
17:30		4	3	7	106	11		117	2		69	71					195	753	*	2	0	1		182	700
17:45		5	7	12	70	8		78	4		78	82					172	742		1	0	0		160	692
n/a																									
n/a																									
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n/a																									
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n/a																									

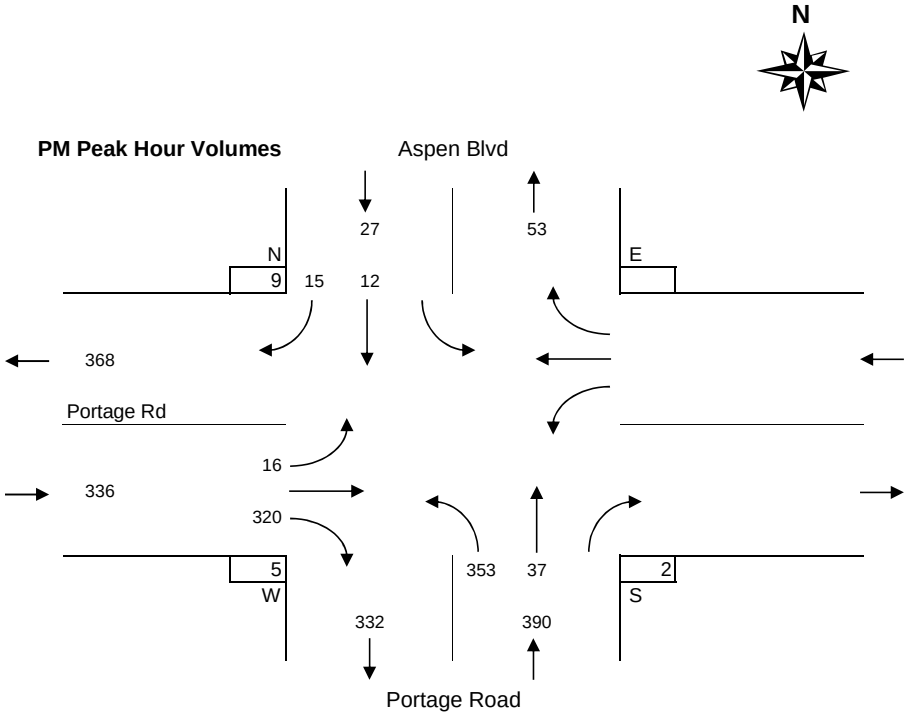
Total		44	44	**88**	907	91		**998**	41		909	**950**					2036			25	14	11			1904
Avg Hr		15	15	**29**	302	30		**333**	14		303	**317**					679			8	5	4			

Peak hour of the intersection

Pk Hr		12	15	27	353	37		390	16		320	336					753	*		9	2	5			700
15x4		20	24	32	424	44		468	24		356	372					796	+		20	4	8			824
PHF		0.60	0.63	**0.84**	0.83	0.84		**0.83**	0.67		0.90	**0.90**					0.95			0.45	0.50	0.63			0.85

Peak hour of conflicting volumes for the intersection

Pk Hr		12	15	27	353	37		390	16		320	336					753	*		9	2	5			700
15x4		20	24	32	424	44		468	24		356	372					796	+		20	4	8			824
PHF		0.60	0.63	**0.84**	0.83	0.84		**0.83**	0.67		0.90	**0.90**					0.95			0.45	0.50	0.63			0.85



Period Hourly Averages
All Vehicles Combined

Portage Road @ Aspen Boulevard
Thursday, August 10, 2017

Entire Survey Period
5 Hours

	Aspen Blvd NORTH Approach				Portage Road SOUTH Approach				Portage Rd WEST Approach								Total	Crosswalks			
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Volume	N	S	W	E
Total		115	77	**192**	1182	109		**1291**	55		1266	**1321**					2804	27	17	14	
Avg Hr		23	15	**38**	236	22		**258**	11		253	**264**					561	5	3	3	

AM Peak Period
2 Hours

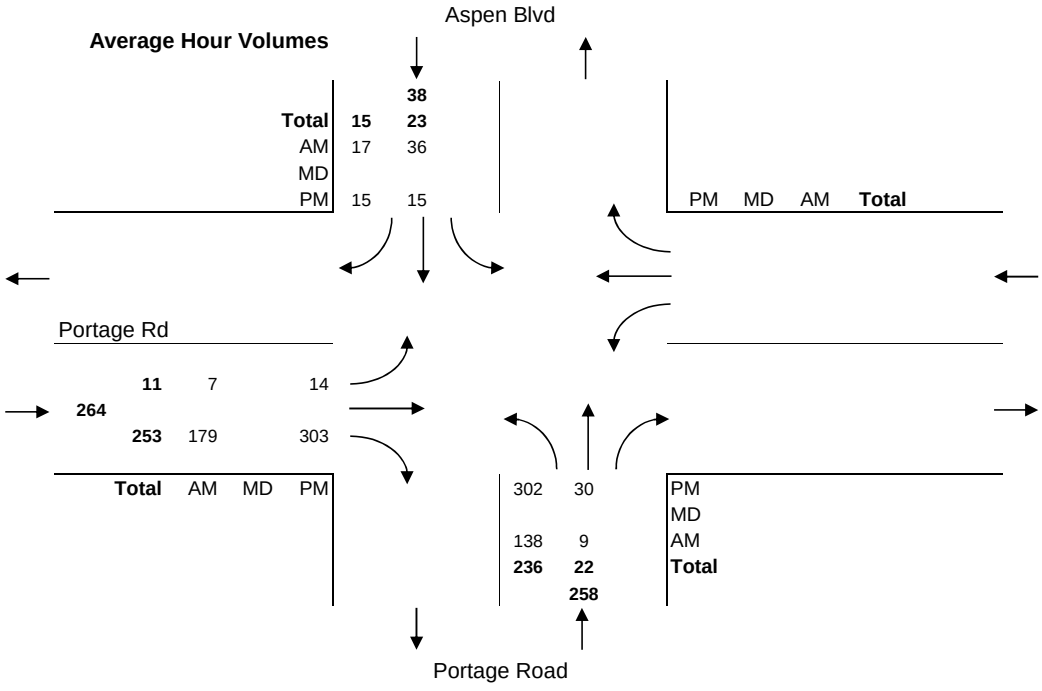
Totals	Aspen Blvd NORTH Approach				Portage Road SOUTH Approach				Portage Rd WEST Approach								Total	Crosswalks			
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Volume	N	S	W	E
Period		71	33	**104**	275	18		**293**	14		357	**371**					768	2	3	3	
Avg Hr		36	17	**52**	138	9		**147**	7		179	**186**					384	1	2	2	

MD Peak Period
Hours

Totals	Aspen Blvd NORTH Approach				Portage Road SOUTH Approach				Portage Rd WEST Approach								Total	Crosswalks			
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Volume	N	S	W	E
Total																					
Avg Hr																					

PM Peak Period
3 Hours

Totals	Aspen Blvd NORTH Approach				Portage Road SOUTH Approach				Portage Rd WEST Approach								Total	Crosswalks			
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Volume	N	S	W	E
Total		44	44	**88**	907	91		**998**	41		909	**950**					2036	25	14	11	
Avg Hr		15	15	**29**	302	30		**333**	14		303	**317**					679	8	5	4	



TRANSTECH Data Services

Vehicle Turning Movement Survey
With Classification

Major Route: Prospect Street
Minor Route: Birch Road
Municipality: Pemberton
Filename: 2-Prospect St @ Birch Rd-Aug 10, 2017.xlsx
Location #: 2

Date: August 10, 2017
Day-of-week: Thursday

East/West Route: Birch Road
Intersection Type: 3-leg east approach
Signalized?: No
Weather: Clear and dry

Vehicle Classifications: Regular Vehicles
Heavy Trucks
Cyclists

This data is for All Vehicles Combined

Shift	Start	End	Duration
AM	7:00	9:00	2.00
MD			
PM	15:00	18:00	3.00
Total	**7:00**	**18:00**	**5.00**

Notes: 24-hour clock used for reporting (15-minute increments)
North Approach - southbound vehicles approaching intersection from the north
15x4 - 15 min volume (from maximum 15 minute period of movement/approach in peak hour period [*]) x 4
Pedestrians - N indicates pedestrians crossing north approach (east/west)

Comments:

Survey Data
All Vehicles Combined

Prospect Street @ Birch Road
Thursday, August 10, 2017

Time	Prospect St				Prospect St								Birch Rd							Crosswalks			
Period	NORTH Approach				SOUTH Approach				WEST Approach				EAST Approach				Total Volume		Peak				
Begins	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	15-min	Hour		N	S	W	E
7:00	12	6		**18**		1	3	**4**					4		12	**16**	**38**			0	0		1
7:15	21	1		**22**		3	3	**6**					4		6	**10**	**38**			0	1		1
7:30	22	3		**25**		2	9	**11**					5		7	**12**	**48**			0	1		1
7:45	11	6		**17**		3	2	**5**					8		16	**24**	**46**	170		1	0		0
8:00	22	7		**29**		1	7	**8**					15		17	**32**	**69**	201	*	2	0		0
8:15	24	12		**36**		4	7	**11**					9		20	**29**	**76**	239	*	4	2		3
8:30	19	4		**23**		6	20	**26**					20		16	**36**	**85**	276	*	1	4		4
8:45	33	12		**45**		2	13	**15**					14		21	**35**	**95**	325	+	2	5		4
n/a																							
n/a																							
n/a																							
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n/a																							
n/a																							
n/a																							
n/a																							
n/a																							
n/a																							
n/a																							
Total	164	51		**215**		22	64	**86**					79		115	**194**	**495**			10	13		14

n/a																							
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n/a																							
n/a																							
n/a																							
Total																							

15:00	30	16		**46**		11	10	**21**					12		27	**39**	**106**			20	12		5
15:15	25	14		**39**		6	10	**16**					13		26	**39**	**94**			13	7		13
15:30	35	9		**44**		10	14	**24**					20		29	**49**	**117**			18	3		8
15:45	35	17		**52**		9	13	**22**					17		34	**51**	**125**	442		11	2		3
16:00	41	13		**54**		14	9	**23**					24		22	**46**	**123**	459		13	2		2
16:15	41	10		**51**		11	8	**19**					20		28	**48**	**118**	483	*	17	2		7
16:30	25	13		**38**		15	15	**30**					18		28	**46**	**114**	480	*	17	4		7
16:45	41	8		**49**		15	11	**26**					25		26	**51**	**126**	481	*	23	2		6
17:00	39	6		**45**		8	20	**28**					24		32	**56**	**129**	487	+	15	1		9
17:15	44	9		**53**		7	6	**13**					10		35	**45**	**111**	480		4	1		3
17:30	28	8		**36**		1	8	**9**					17		44	**61**	**106**	472		9	2		12
17:45	26	7		**33**		5	11	**16**					13		30	**43**	**92**	438		8	2		12
n/a																							
n/a																							
n/a																							
n/a																							
n/a																							
n/a																							
n/a																							
n/a																							
Total	410	130		**540**		112	135	**247**					213		361	**574**	**1361**			168	40		87

Time	Prospect St				Prospect St								Birch Rd												
Period	NORTH Approach				SOUTH Approach				WEST Approach				EAST Approach				Total Volume		Peak	Crosswalks				Conflict	
Begins	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	15-min	Hour		N	S	W	E	15 min	Hr
7:00	12	6		18		1	3	4					4		12	16	38			0	0		1	28	
7:15	21	1		22		3	3	6					4		6	10	38			0	1		1	33	
7:30	22	3		25		2	9	11					5		7	12	48			0	1		1	40	
7:45	11	6		17		3	2	5					8		16	24	46	170		1	0		0	32	133
8:00	22	7		29		1	7	8					15		17	32	69	201	*	2	0		0	47	152
8:15	24	12		36		4	7	11					9		20	29	76	239	*	4	2		3	55	174
8:30	19	4		23		6	20	26					20		16	36	85	276	*	1	4		4	65	199
8:45	33	12		45		2	13	15					14		21	35	95	325	+	2	5		4	69	236
n/a																									
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n/a																									
Total	164	51		**215**		22	64	**86**					79		115	**194**	495			10	13		14		365
Avg Hr	82	26		**108**		11	32	**43**					40		58	**97**	248			5	7		7		

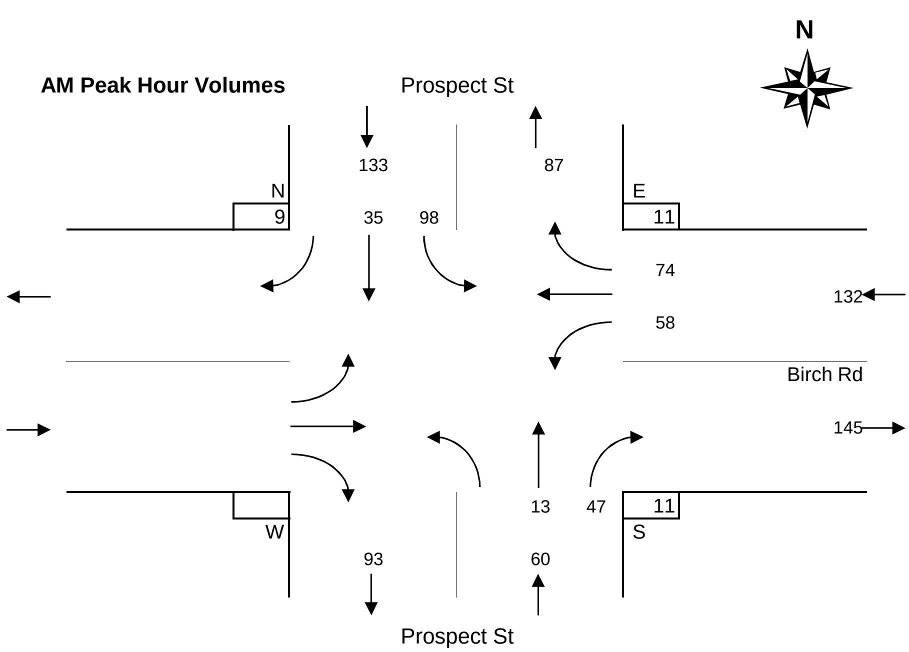
Peak hour of the intersection

	N Left	N Thru	N Right	N Total	S Left	S Thru	S Right	S Total	W Left	W Thru	W Right	W Total	E Left	E Thru	E Right	E Total	Total Volume		CW N	CW S	CW W	CW E	Conflict Hr
Pk Hr	98	35		133		13	47	60					58		74	132	325	*	9	11		11	232
15x4	132	48		180		24	80	104					80		84	144	380	+	16	20		16	320
PHF	0.74	0.73		**0.74**		0.54	0.59	**0.58**					0.73		0.88	**0.92**	0.86		0.56	0.55		0.69	0.73

Peak hour of conflicting volumes for the intersection

	N Left	N Thru	N Right	N Total	S Left	S Thru	S Right	S Total	W Left	W Thru	W Right	W Total	E Left	E Thru	E Right	E Total	Total Volume		CW N	CW S	CW W	CW E	Conflict Hr
Pk Hr	98	35		133		13	47	60					58		74	132	325	*	9	11		11	232
15x4	132	48		180		24	80	104					80		84	144	380	+	16	20		16	320
PHF	0.74	0.73		**0.74**		0.54	0.59	**0.58**					0.73		0.88	**0.92**	0.86		0.56	0.55		0.69	0.73

** Calculated peak hour occurs during the first or last hour of shift and therefore may be invalid. **



Time	Prospect St				Prospect St								Birch Rd												
Period	NORTH Approach				SOUTH Approach				WEST Approach				EAST Approach				Total Volume		Peak	Crosswalks				Conflict	
Begins	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	15-min	Hour		N	S	W	E	15 min	Hr
n/a																									
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n/a																									
n/a																									
Total																									
Avg Hr																									

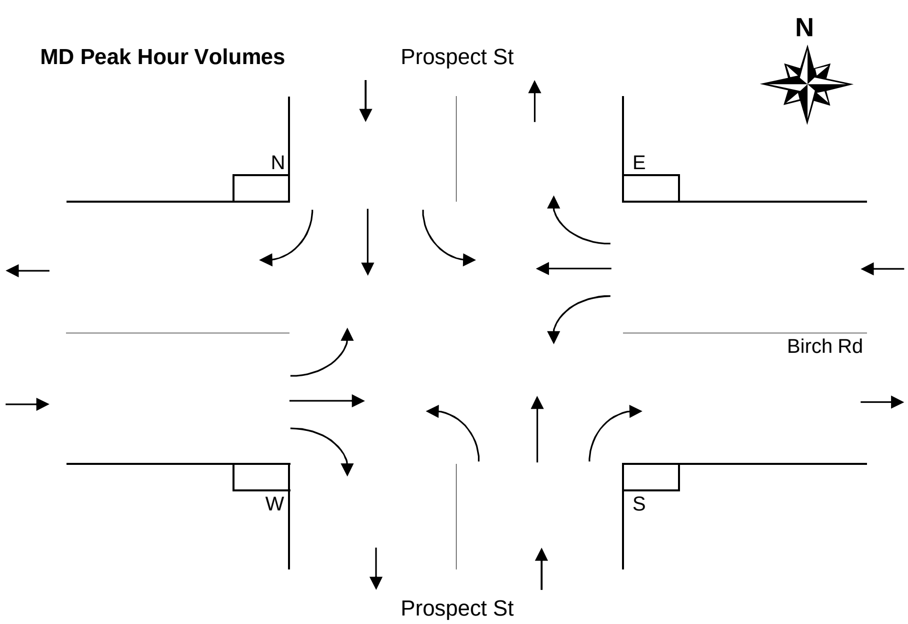
Peak hour of the intersection

Pk Hr																	*						
15x4																	+						
PHF																							

Peak hour of conflicting volumes for the intersection

Pk Hr																	*						
15x4																	+						
PHF																							

MD Peak Hour Volumes



PM Peak Period
All Vehicles Combined

Prospect Street @ Birch Road
Thursday, August 10, 2017

Time	Prospect St				Prospect St								Birch Rd							Crosswalks				Conflict	
Period	NORTH Approach				SOUTH Approach				WEST Approach				EAST Approach				Total Volume		Peak						
Begins	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	15-min	Hour		N	S	W	E	15 min	Hr
15:00	30	16		46		11	10	21					12		27	39	106			20	12		5	78	
15:15	25	14		39		6	10	16					13		26	39	94			13	7		13	67	
15:30	35	9		44		10	14	24					20		29	49	117			18	3		8	88	
15:45	35	17		52		9	13	22					17		34	51	125	442		11	2		3	91	324
16:00	41	13		54		14	9	23					24		22	46	123	459		13	2		2	88	334
16:15	41	10		51		11	8	19					20		28	48	118	483	*	17	2		7	88	355
16:30	25	13		38		15	15	30					18		28	46	114	480	*	17	4		7	83	350
16:45	41	8		49		15	11	26					25		26	51	126	481	*	23	2		6	93	352
17:00	39	6		45		8	20	28					24		32	56	129	487	+	15	1		9	99	363
17:15	44	9		53		7	6	13					10		35	45	111	480		4	1		3	92	367
17:30	28	8		36		1	8	9					17		44	61	106	472		9	2		12	81	365
17:45	26	7		33		5	11	16					13		30	43	92	438		8	2		12	72	344
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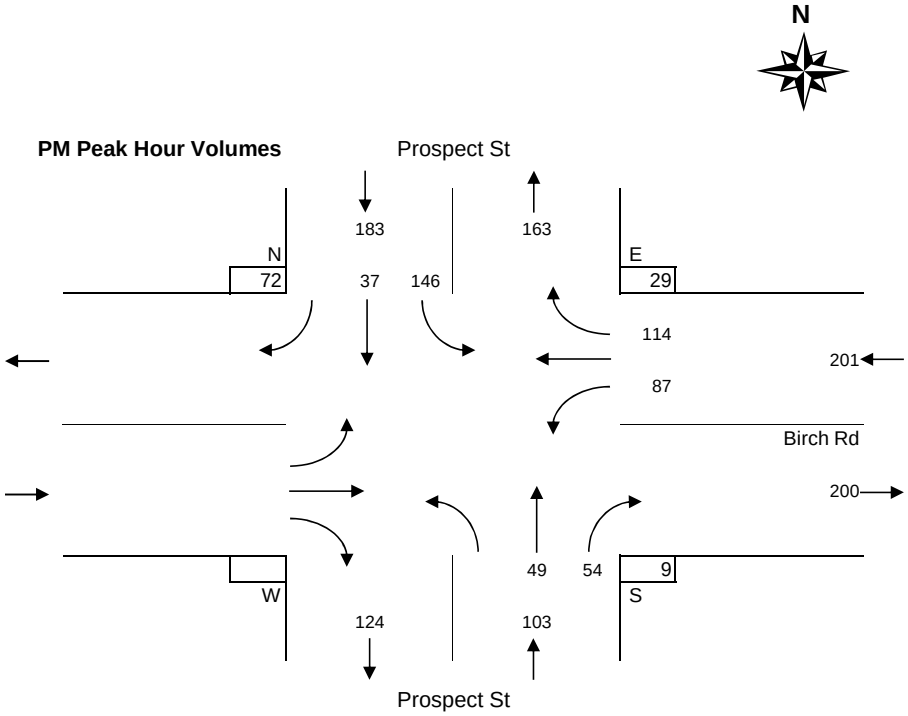
Total	410	130		**540**		112	135	**247**					213		361	**574**	1361			168	40		87		1018
Avg Hr	137	43		**180**		37	45	**82**					71		120	**191**	454			56	13		29		

Peak hour of the intersection

Pk Hr	146	37		183		49	54	103					87		114	201	487	*		72	9		29		363
15x4	164	52		204		60	80	120					100		128	224	516	+		92	16		36		432
PHF	0.89	0.71		**0.90**		0.82	0.68	**0.86**					0.87		0.89	**0.90**	0.94			0.78	0.56		0.81		0.84

Peak hour of conflicting volumes for the intersection

Pk Hr	149	36		185		45	52	97					77		121	198	480	*		59	8		25		367
15x4	176	52		212		60	80	120					100		140	224	516	+		92	16		36		456
PHF	0.85	0.69		**0.87**		0.75	0.65	**0.81**					0.77		0.86	**0.88**	0.93			0.64	0.50		0.69		0.80



Period Hourly Averages
All Vehicles Combined

Prospect Street @ Birch Road
Thursday, August 10, 2017

Entire Survey Period

5 Hours

	Prospect St NORTH Approach				Prospect St SOUTH Approach				WEST Approach				Birch Rd EAST Approach				Total Volume	Crosswalks			
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total		N	S	W	E
Total	574	181		**755**		134	199	**333**					292		476	**768**	1856	178	53		101
Avg Hr	115	36		**151**		27	40	**67**					58		95	**154**	371	36	11		20

AM Peak Period

2 Hours

Totals	Prospect St NORTH Approach				Prospect St SOUTH Approach				WEST Approach				Birch Rd EAST Approach				Total Volume	Crosswalks			
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total		N	S	W	E
Period	164	51		**215**		22	64	**86**					79		115	**194**	495	10	13		14
Avg Hr	82	26		**108**		11	32	**43**					40		58	**97**	248	5	7		7

MD Peak Period

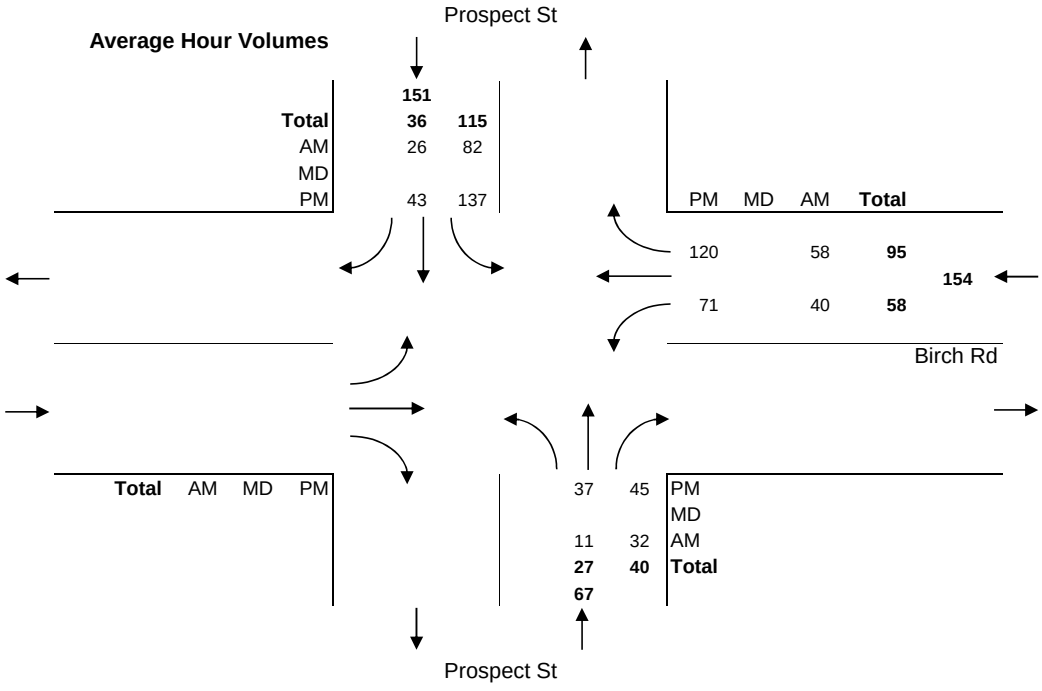
Hours

Totals	Prospect St NORTH Approach				Prospect St SOUTH Approach				WEST Approach				Birch Rd EAST Approach				Total Volume	Crosswalks			
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total		N	S	W	E
Total																					
Avg Hr																					

PM Peak Period

3 Hours

Totals	Prospect St NORTH Approach				Prospect St SOUTH Approach				WEST Approach				Birch Rd EAST Approach				Total Volume	Crosswalks			
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total		N	S	W	E
Total	410	130		**540**		112	135	**247**					213		361	**574**	1361	168	40		87
Avg Hr	137	43		**180**		37	45	**82**					71		120	**191**	454	56	13		29



TRANSTECH Data Services

Vehicle Turning Movement Survey
With Classification

Major Route: Pemberton Meadows Road
Minor Route: Camus Road
Municipality: Pemberton
Filename: 3-Pemberton Meadows Rd @ Camus Rd-Aug 10, 2017.xlsx
Location #: 3

Date: August 10, 2017
Day-of-week: Thursday

East/West Route: Camus Road
Intersection Type: 3-leg east approach
Signalized?: No
Weather: Clear and dry

Vehicle Classifications: Regular Vehicles
Heavy Trucks
Cyclists

This data is for All Vehicles Combined

Shift	Start	End	Duration
AM	7:00	9:00	2.00
MD			
PM	15:00	18:00	3.00
Total	**7:00**	**18:00**	**5.00**

Notes: 24-hour clock used for reporting (15-minute increments)
North Approach - southbound vehicles approaching intersection from the north
15x4 - 15 min volume (from maximum 15 minute period of movement/approach in peak hour period [*]) x 4
Pedestrians - N indicates pedestrians crossing north approach (east/west)

Comments:

Time	Pemberton Meadows Rd				Prospect Rd								Camus Rd				Total Volume		Peak	Crosswalks			
Period	NORTH Approach				SOUTH Approach				WEST Approach				EAST Approach										
Begins	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	15-min	Hour		N	S	W	E
7:00	0	18		**18**		11	0	**11**					1		0	**1**	**30**			0	0		0
7:15	1	16		**17**		7	2	**9**					3		0	**3**	**29**			0	0		0
7:30	0	18		**18**		5	2	**7**					4		0	**4**	**29**			0	0		0
7:45	1	16		**17**		14	1	**15**					4		3	**7**	**39**	127		0	0		0
8:00	0	24		**24**		15	3	**18**					4		2	**6**	**48**	145	*	0	0		0
8:15	1	29		**30**		17	4	**21**					5		2	**7**	**58**	174	*	0	0		1
8:30	2	16		**18**		17	2	**19**					5		2	**7**	**44**	189	*	0	0		0
8:45	3	39		**42**		18	4	**22**					4		1	**5**	**69**	219	+	0	0		0
n/a																							
n/a																							
n/a																							
n/a																							
n/a																							
n/a																							
n/a																							
n/a																							
n/a																							
n/a																							
n/a																							
Total	8	176		**184**		104	18	**122**					30		10	**40**	**346**			0	0		1

n/a																							
n/a																							
n/a																							
n/a																							
n/a																							
n/a																							
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n/a																							
n/a																							
n/a																							
n/a																							
n/a																							
n/a																							
n/a																							
n/a																							
Total																							

15:00	1	25		**26**		23	7	**30**					10		0	**10**	**66**			0	0		1
15:15	2	20		**22**		17	5	**22**					6		3	**9**	**53**			0	0		1
15:30	4	31		**35**		17	7	**24**					8		2	**10**	**69**			0	1		0
15:45	1	20		**21**		18	11	**29**					8		2	**10**	**60**	248		0	1		2
16:00	3	33		**36**		28	7	**35**					13		4	**17**	**88**	270	+	0	0		0
16:15	2	27		**29**		23	8	**31**					13		9	**22**	**82**	299	*	1	2		4
16:30	4	16		**20**		23	4	**27**					6		7	**13**	**60**	290	*	0	0		2
16:45	3	20		**23**		18	13	**31**					17		2	**19**	**73**	303	*	0	0		1
17:00	1	19		**20**		18	12	**30**					11		4	**15**	**65**	280		0	0		0
17:15	4	17		**21**		27	8	**35**					15		8	**23**	**79**	277		0	0		1
17:30	2	17		**19**		29	5	**34**					4		4	**8**	**61**	278		0	0		1
17:45	2	16		**18**		24	2	**26**					9		6	**15**	**59**	264		0	0		0
n/a																							
n/a																							
n/a																							
n/a																							
n/a																							
n/a																							
n/a																							
n/a																							
Total	29	261		**290**		265	89	**354**					120		51	**171**	**815**			1	4		13

Time	Pemberton Meadows R				Prospect Rd								Camus Rd												
Period	NORTH Approach				SOUTH Approach				WEST Approach				EAST Approach				Total Volume		Peak	Crosswalks				Conflict	
Begins	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	15-min	Hour		N	S	W	E	15 min	Hr
7:00	0	18		18		11	0	11					1		0	1	30			0	0		0	19	
7:15	1	16		17		7	2	9					3		0	3	29			0	0		0	19	
7:30	0	18		18		5	2	7					4		0	4	29			0	0		0	22	
7:45	1	16		17		14	1	15					4		3	7	39	127		0	0		0	20	80
8:00	0	24		24		15	3	18					4		2	6	48	145	*	0	0		0	28	89
8:15	1	29		30		17	4	21					5		2	7	58	174	*	0	0		1	34	104
8:30	2	16		18		17	2	19					5		2	7	44	189	*	0	0		0	26	108
8:45	3	39		42		18	4	22					4		1	5	69	219	+	0	0		0	43	131
n/a																									
n/a																									
n/a																									
n/a																									
n/a																									
n/a																									
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n/a																									
n/a																									
n/a																									
n/a																									
Total	8	176		**184**		104	18	**122**					30		10	**40**	346			0	0		1		206
Avg Hr	4	88		**92**		52	9	**61**					15		5	**20**	173			0	0		1		

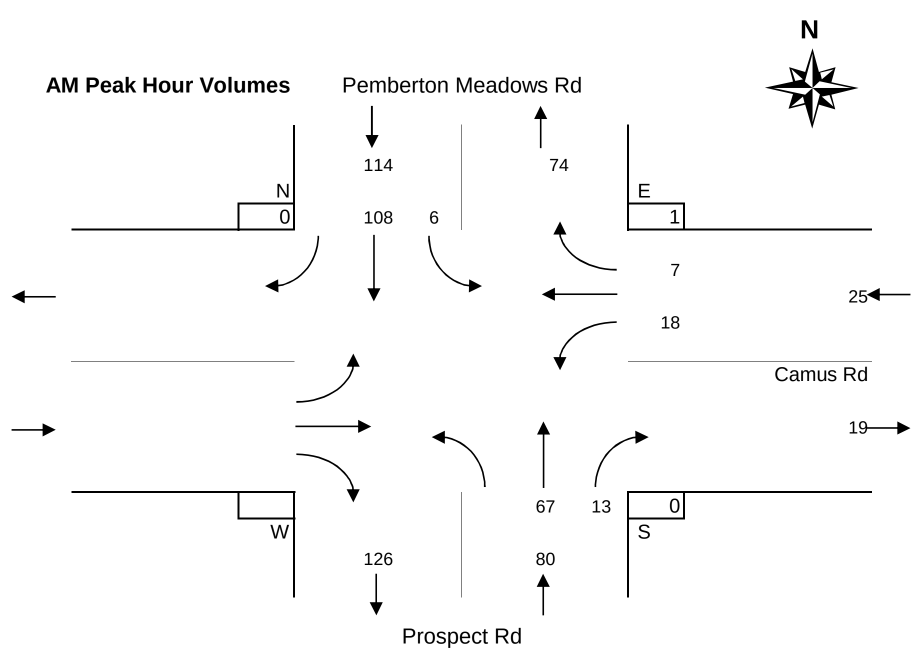
Peak hour of the intersection

Pk Hr	6	108		114		67	13	80					18		7	25	219	*		0	0		1		126
15x4	12	156		168		72	16	88					20		8	28	276	+		0	0		4		176
PHF	0.50	0.69		**0.68**		0.93	0.81	**0.91**					0.90		0.88	**0.89**	0.79			n/a	n/a		0.25		0.72

Peak hour of conflicting volumes for the intersection

Pk Hr	6	108		114		67	13	80					18		7	25	219	*		0	0		1		126
15x4	12	156		168		72	16	88					20		8	28	276	+		0	0		4		176
PHF	0.50	0.69		**0.68**		0.93	0.81	**0.91**					0.90		0.88	**0.89**	0.79			n/a	n/a		0.25		0.72

** Calculated peak hour occurs during the first or last hour of shift and therefore may be invalid. **



Time	Pemberton Meadows R				Prospect Rd								Camus Rd												
Period	NORTH Approach				SOUTH Approach				WEST Approach				EAST Approach				Total Volume		Peak	Crosswalks				Conflict	
Begins	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	15-min	Hour		N	S	W	E	15 min	Hr
n/a																									
n/a																									
n/a																									
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n/a																									
n/a																									
n/a																									
Total																									
Avg Hr																									

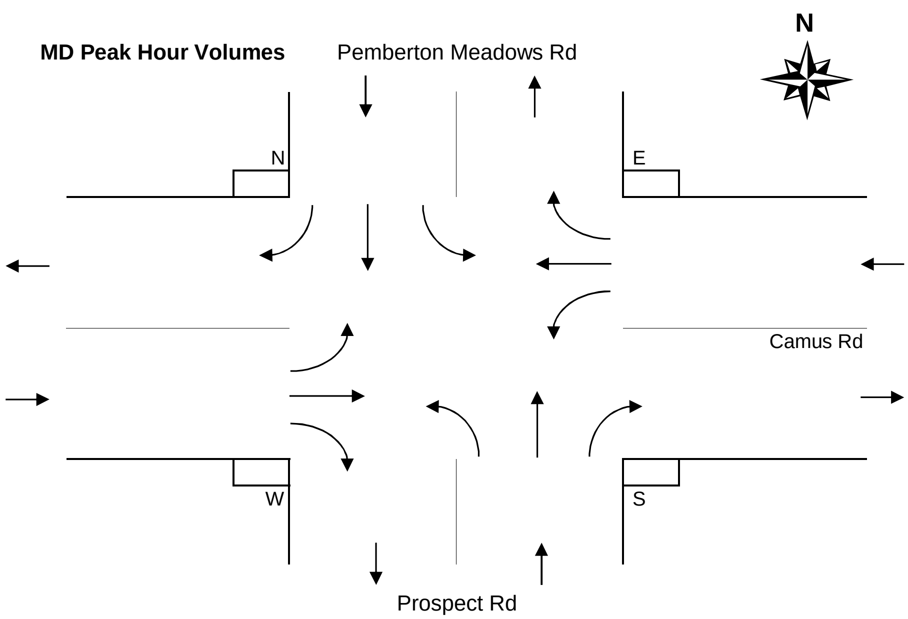
Peak hour of the intersection

Pk Hr																	*						
15x4																	+						
PHF																							

Peak hour of conflicting volumes for the intersection

Pk Hr																	*						
15x4																	+						
PHF																							

MD Peak Hour Volumes



PM Peak Period
All Vehicles Combined

Pemberton Meadows Road @ Camus Road
Thursday, August 10, 2017

Time	Pemberton Meadows Rd				Prospect Rd								Camus Rd				Total Volume		Peak	Crosswalks				Conflict	
Period	NORTH Approach				SOUTH Approach				WEST Approach				EAST Approach												
Begins	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	15-min	Hour		N	S	W	E	15 min	Hr
15:00	1	25		26		23	7	30					10		0	10	66			0	0		1	41	
15:15	2	20		22		17	5	22					6		3	9	53			0	0		1	30	
15:30	4	31		35		17	7	24					8		2	10	69			0	1		0	39	
15:45	1	20		21		18	11	29					8		2	10	60	248		0	1		2	38	148
16:00	3	33		36		28	7	35					13		4	17	88	270	+	0	0		0	51	158
16:15	2	27		29		23	8	31					13		9	22	82	299	*	1	2		4	46	174
16:30	4	16		20		23	4	27					6		7	13	60	290	*	0	0		2	38	173
16:45	3	20		23		18	13	31					17		2	19	73	303	*	0	0		1	51	186
17:00	1	19		20		18	12	30					11		4	15	65	280		0	0		0	42	177
17:15	4	17		21		27	8	35					15		8	23	79	277		0	0		1	54	185
17:30	2	17		19		29	5	34					4		4	8	61	278		0	0		1	40	187
17:45	2	16		18		24	2	26					9		6	15	59	264		0	0		0	37	173
n/a																									
n/a																									
n/a																									
n/a																									
n/a																									
n/a																									
n/a																									
n/a																									

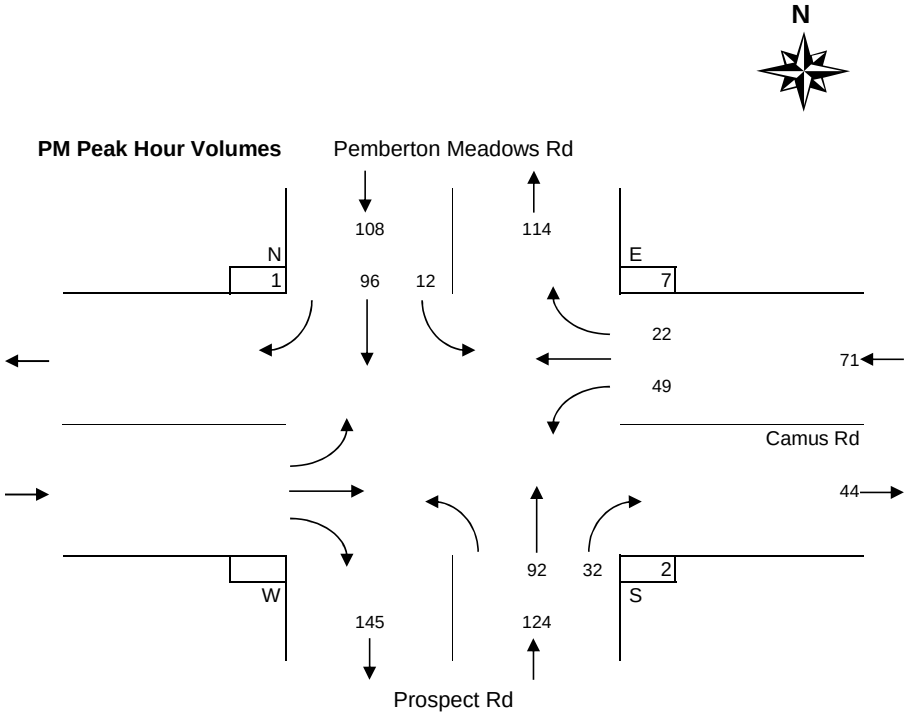
Total	29	261		**290**		265	89	**354**					120		51	**171**	815			1	4		13		503
Avg Hr	10	87		**97**		88	30	**118**					40		17	**57**	272			0	1		4		

Peak hour of the intersection

Pk Hr	12	96		108		92	32	124					49		22	71	303	*		1	2		7		185
15x4	16	132		144		112	52	140					68		36	88	352	+		4	8		16		248
PHF	0.75	0.73		**0.75**		0.82	0.62	**0.89**					0.72		0.61	**0.81**	0.86			0.25	0.25		0.44		0.75

Peak hour of conflicting volumes for the intersection

Pk Hr	10	73		83		92	38	130					47		18	65	278	*		0	0		3		187
15x4	16	80		92		116	52	140					68		32	92	316	+		0	0		4		252
PHF	0.63	0.91		**0.90**		0.79	0.73	**0.93**					0.69		0.56	**0.71**	0.88			n/a	n/a		0.75		0.74



Entire Survey Period

5 Hours

	Pemberton Meadows Rd				Prospect Rd								Camus Rd					Crosswalks			
	NORTH Approach				SOUTH Approach				WEST Approach				EAST Approach				Total				
	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Volume	N	S	W	E
Total	37	437		**474**		369	107	**476**					150		61	**211**	1161	1	4		14
Avg Hr	7	87		**95**		74	21	**95**					30		12	**42**	232	0	1		3

AM Peak Period

2 Hours

	Pemberton Meadows Rd				Prospect Rd								Camus Rd					Crosswalks			
	NORTH Approach				SOUTH Approach				WEST Approach				EAST Approach				Total				
Totals	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Volume	N	S	W	E
Period	8	176		**184**		104	18	**122**					30		10	**40**	346	0	0		1
Avg Hr	4	88		**92**		52	9	**61**					15		5	**20**	173	0	0		1

MD Peak Period

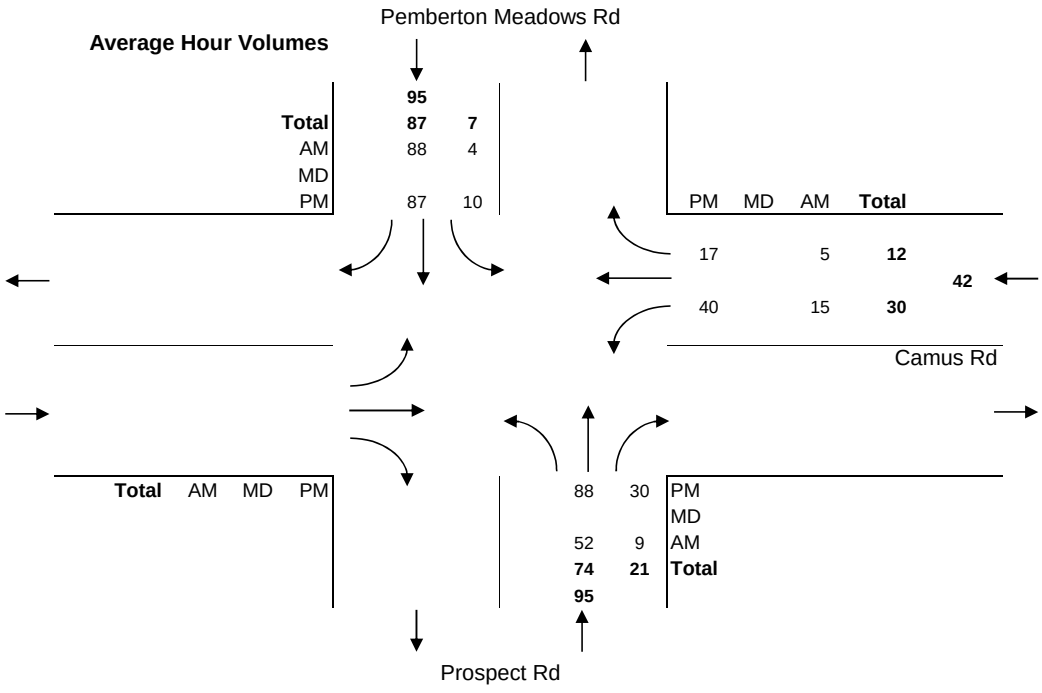
Hours

	Pemberton Meadows Rd				Prospect Rd								Camus Rd					Crosswalks			
	NORTH Approach				SOUTH Approach				WEST Approach				EAST Approach				Total				
Totals	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Volume	N	S	W	E
Total																					
Avg Hr																					

PM Peak Period

3 Hours

	Pemberton Meadows Rd				Prospect Rd								Camus Rd					Crosswalks			
	NORTH Approach				SOUTH Approach				WEST Approach				EAST Approach				Total				
Totals	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Left	Thru	Right	Total	Volume	N	S	W	E
Total	29	261		**290**		265	89	**354**					120		51	**171**	815	1	4		13
Avg Hr	10	87		**97**		88	30	**118**					40		17	**57**	272	0	1		4



APPENDIX C

SYNCHRO ANALYSIS RESULTS

Intersection	
Intersection Delay, s/veh	4.1
Intersection LOS	A

Approach	EB	NB	SW
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	250	209	60
Demand Flow Rate, veh/h	255	213	62
Vehicles Circulating, veh/h	35	11	197
Vehicles Exiting, veh/h	224	279	27
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	4.4	4.0	3.8
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	LR	LR	LR
Assumed Moves	LR	LR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	255	213	62
Cap Entry Lane, veh/h	1331	1364	1129
Entry HV Adj Factor	0.980	0.981	0.968
Flow Entry, veh/h	250	209	60
Cap Entry, veh/h	1305	1339	1092
V/C Ratio	0.192	0.156	0.055
Control Delay, s/veh	4.4	4.0	3.8
LOS	A	A	A
95th %tile Queue, veh	1	1	0

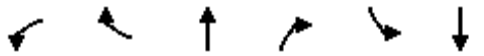
1: Prospect Street/Pemberton Meadows Road & Camus Road

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	19	7	73	14	6	114
Future Volume (Veh/h)	19	7	73	14	6	114
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.89	0.89	0.91	0.91	0.68	0.68
Hourly flow rate (vph)	21	8	80	15	9	168
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	274	88			95	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	274	88			95	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	99			99	
cM capacity (veh/h)	716	976			1512	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	29	95	177
Volume Left	21	0	9
Volume Right	8	15	0
cSH	773	1700	1512
Volume to Capacity	0.04	0.06	0.01
Queue Length 95th (m)	0.9	0.0	0.1
Control Delay (s)	9.8	0.0	0.4
Lane LOS	A		A
Approach Delay (s)	9.8	0.0	0.4
Approach LOS	A		

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	20.9%	ICU Level of Service	A
Analysis Period (min)	15		

2: Prospect St & Birch Rd

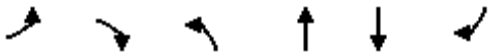


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	58	74	13	47	98	35
Future Volume (vph)	58	74	13	47	98	35
Peak Hour Factor	0.92	0.92	0.58	0.58	0.74	0.74
Hourly flow rate (vph)	63	80	22	81	132	47

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	143	103	179
Volume Left (vph)	63	0	132
Volume Right (vph)	80	81	0
Hadj (s)	-0.25	-0.47	0.15
Departure Headway (s)	4.3	4.0	4.5
Degree Utilization, x	0.17	0.11	0.22
Capacity (veh/h)	785	864	769
Control Delay (s)	8.2	7.5	8.8
Approach Delay (s)	8.2	7.5	8.8
Approach LOS	A	A	A

Intersection Summary			
Delay	8.2		
Level of Service	A		
Intersection Capacity Utilization	28.4%	ICU Level of Service	A
Analysis Period (min)	15		

3: Pemberton Meadows Road & Beechwood Street



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	3	1	79	117	0
Future Volume (Veh/h)	1	3	1	79	117	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	3	1	86	127	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	215	127	127			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	215	127	127			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	777	929	1472			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	4	87	127
Volume Left	1	1	0
Volume Right	3	0	0
cSH	885	1472	1700
Volume to Capacity	0.00	0.00	0.07
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	9.1	0.1	0.0
Lane LOS	A	A	
Approach Delay (s)	9.1	0.1	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	16.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	5.3
Intersection LOS	A

Approach	EB	NB	SW
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	365	424	29
Demand Flow Rate, veh/h	372	433	29
Vehicles Circulating, veh/h	13	17	392
Vehicles Exiting, veh/h	408	368	58
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	5.1	5.6	4.2
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	LR	LR	LR
Assumed Moves	LR	LR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	372	433	29
Cap Entry Lane, veh/h	1362	1356	925
Entry HV Adj Factor	0.981	0.979	1.000
Flow Entry, veh/h	365	424	29
Cap Entry, veh/h	1336	1328	925
V/C Ratio	0.273	0.319	0.031
Control Delay, s/veh	5.1	5.6	4.2
LOS	A	A	A
95th %tile Queue, veh	1	1	0

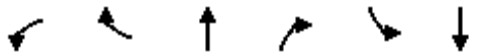
1: Prospect Street/Pemberton Meadows Road & Camus Road

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	62	22	121	42	12	121
Future Volume (Veh/h)	62	22	121	42	12	121
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.81	0.81	0.89	0.89	0.75	0.75
Hourly flow rate (vph)	77	27	136	47	16	161
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	352	160			183	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	352	160			183	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	97			99	
cM capacity (veh/h)	642	891			1404	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	104	183	177
Volume Left	77	0	16
Volume Right	27	47	0
cSH	692	1700	1404
Volume to Capacity	0.15	0.11	0.01
Queue Length 95th (m)	4.0	0.0	0.3
Control Delay (s)	11.1	0.0	0.8
Lane LOS	B		A
Approach Delay (s)	11.1	0.0	0.8
Approach LOS	B		

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	27.8%	ICU Level of Service	A
Analysis Period (min)	15		

2: Prospect St & Birch Rd

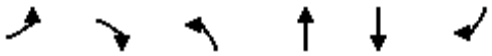


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	87	114	49	54	146	37
Future Volume (vph)	87	114	49	54	146	37
Peak Hour Factor	0.90	0.90	0.86	0.86	0.90	0.90
Hourly flow rate (vph)	97	127	57	63	162	41

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	224	120	203
Volume Left (vph)	97	0	162
Volume Right (vph)	127	63	0
Hadj (s)	-0.25	-0.32	0.17
Departure Headway (s)	4.4	4.4	4.7
Degree Utilization, x	0.27	0.15	0.27
Capacity (veh/h)	764	773	719
Control Delay (s)	9.1	8.1	9.5
Approach Delay (s)	9.1	8.1	9.5
Approach LOS	A	A	A

Intersection Summary			
Delay	9.0		
Level of Service	A		
Intersection Capacity Utilization	35.2%	ICU Level of Service	A
Analysis Period (min)	15		

3: Pemberton Meadows Road & Beechwood Street



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	2	3	140	131	1
Future Volume (Veh/h)	0	2	3	140	131	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2	3	152	142	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	300	142	143			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	300	142	143			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	694	910	1452			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	2	155	143
Volume Left	0	3	0
Volume Right	2	0	1
cSH	910	1452	1700
Volume to Capacity	0.00	0.00	0.08
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	9.0	0.2	0.0
Lane LOS	A	A	
Approach Delay (s)	9.0	0.2	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	19.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	4.3
Intersection LOS	A

Approach	EB	NB	SW
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	282	235	67
Demand Flow Rate, veh/h	287	239	69
Vehicles Circulating, veh/h	39	12	221
Vehicles Exiting, veh/h	251	314	30
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	4.6	4.1	3.9
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	LR	LR	LR
Assumed Moves	LR	LR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	287	239	69
Cap Entry Lane, veh/h	1326	1363	1101
Entry HV Adj Factor	0.983	0.983	0.971
Flow Entry, veh/h	282	235	67
Cap Entry, veh/h	1303	1340	1069
V/C Ratio	0.216	0.175	0.063
Control Delay, s/veh	4.6	4.1	3.9
LOS	A	A	A
95th %tile Queue, veh	1	1	0

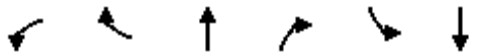
1: Prospect St/Pemberton Meadows Rd & Camus Road

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	21	8	82	16	7	128
Future Volume (Veh/h)	21	8	82	16	7	128
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	23	9	89	17	8	139
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	252	98			106	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	252	98			106	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	99			99	
cM capacity (veh/h)	732	959			1485	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	32	106	147
Volume Left	23	0	8
Volume Right	9	17	0
cSH	784	1700	1485
Volume to Capacity	0.04	0.06	0.01
Queue Length 95th (m)	1.0	0.0	0.1
Control Delay (s)	9.8	0.0	0.4
Lane LOS	A		A
Approach Delay (s)	9.8	0.0	0.4
Approach LOS	A		

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	22.5%	ICU Level of Service	A
Analysis Period (min)	15		

2: Prospect St & Birch Rd

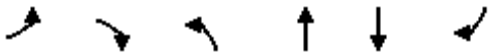


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	65	83	15	53	110	39
Future Volume (vph)	65	83	15	53	110	39
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	71	90	16	58	120	42

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	161	74	162
Volume Left (vph)	71	0	120
Volume Right (vph)	90	58	0
Hadj (s)	-0.21	-0.44	0.18
Departure Headway (s)	4.2	4.0	4.5
Degree Utilization, x	0.19	0.08	0.20
Capacity (veh/h)	801	847	759
Control Delay (s)	8.2	7.4	8.7
Approach Delay (s)	8.2	7.4	8.7
Approach LOS	A	A	A

Intersection Summary			
Delay	8.2		
Level of Service	A		
Intersection Capacity Utilization	30.2%	ICU Level of Service	A
Analysis Period (min)	15		

3: Pemberton Meadows Rd & Beechwood Street



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	3	1	89	132	0
Future Volume (Veh/h)	1	3	1	89	132	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	3	1	97	143	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	242	143	143			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	242	143	143			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	746	905	1440			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	4	98	143
Volume Left	1	1	0
Volume Right	3	0	0
cSH	859	1440	1700
Volume to Capacity	0.00	0.00	0.08
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	9.2	0.1	0.0
Lane LOS	A	A	
Approach Delay (s)	9.2	0.1	0.0
Approach LOS	A		

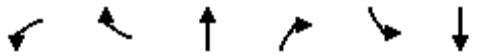
Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	16.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	5.7
Intersection LOS	A

Approach	EB	NB	SW
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	411	479	33
Demand Flow Rate, veh/h	419	489	33
Vehicles Circulating, veh/h	15	20	442
Vehicles Exiting, veh/h	460	414	67
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	5.4	6.1	4.4
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	LR	LR	LR
Assumed Moves	LR	LR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	419	489	33
Cap Entry Lane, veh/h	1359	1352	879
Entry HV Adj Factor	0.981	0.980	1.000
Flow Entry, veh/h	411	479	33
Cap Entry, veh/h	1333	1324	879
V/C Ratio	0.308	0.362	0.038
Control Delay, s/veh	5.4	6.1	4.4
LOS	A	A	A
95th %tile Queue, veh	1	2	0

1: Prospect St/Pemberton Meadows Rd & Camus Road

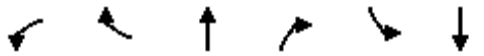


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	70	25	136	47	14	136
Future Volume (Veh/h)	70	25	136	47	14	136
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	76	27	148	51	15	148
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	352	174			199	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	352	174			199	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	97			99	
cM capacity (veh/h)	639	870			1373	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	103	199	163
Volume Left	76	0	15
Volume Right	27	51	0
cSH	687	1700	1373
Volume to Capacity	0.15	0.12	0.01
Queue Length 95th (m)	4.0	0.0	0.3
Control Delay (s)	11.2	0.0	0.8
Lane LOS	B		A
Approach Delay (s)	11.2	0.0	0.8
Approach LOS	B		

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	30.9%	ICU Level of Service	A
Analysis Period (min)	15		

2: Prospect St & Birch Rd

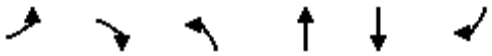


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	98	128	55	61	164	42
Future Volume (vph)	98	128	55	61	164	42
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	107	139	60	66	178	46

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	246	126	224
Volume Left (vph)	107	0	178
Volume Right (vph)	139	66	0
Hadj (s)	-0.22	-0.28	0.19
Departure Headway (s)	4.5	4.5	4.8
Degree Utilization, x	0.31	0.16	0.30
Capacity (veh/h)	745	747	703
Control Delay (s)	9.5	8.4	9.9
Approach Delay (s)	9.5	8.4	9.9
Approach LOS	A	A	A

Intersection Summary			
Delay	9.4		
Level of Service	A		
Intersection Capacity Utilization	37.9%	ICU Level of Service	A
Analysis Period (min)	15		

3: Pemberton Meadows Rd & Beechwood Street



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	2	3	158	148	1
Future Volume (Veh/h)	0	2	3	158	148	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2	3	172	161	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	340	162	162			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	340	162	162			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	655	883	1417			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	2	175	162
Volume Left	0	3	0
Volume Right	2	0	1
cSH	883	1417	1700
Volume to Capacity	0.00	0.00	0.10
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	9.1	0.1	0.0
Lane LOS	A	A	
Approach Delay (s)	9.1	0.1	0.0
Approach LOS	A		

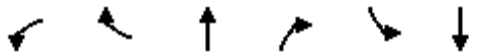
Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	20.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	4.4
Intersection LOS	A

Approach	EB	NB	SW
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	292	242	67
Demand Flow Rate, veh/h	298	246	69
Vehicles Circulating, veh/h	39	12	228
Vehicles Exiting, veh/h	258	325	30
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	4.7	4.2	3.9
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	LR	LR	LR
Assumed Moves	LR	LR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	298	246	69
Cap Entry Lane, veh/h	1326	1363	1094
Entry HV Adj Factor	0.980	0.984	0.971
Flow Entry, veh/h	292	242	67
Cap Entry, veh/h	1299	1341	1062
V/C Ratio	0.225	0.180	0.063
Control Delay, s/veh	4.7	4.2	3.9
LOS	A	A	A
95th %tile Queue, veh	1	1	0

1: Prospect St/Pemberton Meadows Rd & Camus Road

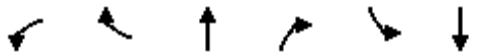


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	34	13	82	22	7	128
Future Volume (Veh/h)	34	13	82	22	7	128
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	37	14	89	24	8	139
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	256	101			113	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	256	101			113	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	99			99	
cM capacity (veh/h)	729	954			1476	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	51	113	147
Volume Left	37	0	8
Volume Right	14	24	0
cSH	779	1700	1476
Volume to Capacity	0.07	0.07	0.01
Queue Length 95th (m)	1.6	0.0	0.1
Control Delay (s)	9.9	0.0	0.4
Lane LOS	A		A
Approach Delay (s)	9.9	0.0	0.4
Approach LOS	A		

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	22.5%	ICU Level of Service	A
Analysis Period (min)	15		

2: Prospect St & Birch Rd

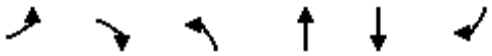


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	65	89	15	53	120	42
Future Volume (vph)	65	89	15	53	120	42
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	71	97	16	58	130	46

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	168	74	176
Volume Left (vph)	71	0	130
Volume Right (vph)	97	58	0
Hadj (s)	-0.23	-0.44	0.18
Departure Headway (s)	4.2	4.1	4.5
Degree Utilization, x	0.20	0.08	0.22
Capacity (veh/h)	796	838	756
Control Delay (s)	8.3	7.4	8.8
Approach Delay (s)	8.3	7.4	8.8
Approach LOS	A	A	A

Intersection Summary			
Delay	8.4		
Level of Service	A		
Intersection Capacity Utilization	31.3%	ICU Level of Service	A
Analysis Period (min)	15		

3: Pemberton Meadows Rd & Beechwood Street

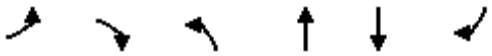


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	3	1	94	132	0
Future Volume (Veh/h)	1	3	1	94	132	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	3	1	102	143	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	247	143	143			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	247	143	143			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	741	905	1440			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	4	103	143
Volume Left	1	1	0
Volume Right	3	0	0
cSH	857	1440	1700
Volume to Capacity	0.00	0.00	0.08
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	9.2	0.1	0.0
Lane LOS	A	A	
Approach Delay (s)	9.2	0.1	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	16.9%	ICU Level of Service	A
Analysis Period (min)	15		

4: Prospect St & Development Access



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	18	6	1	4	0
Future Volume (Veh/h)	0	18	6	1	4	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	20	7	1	4	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	19	4	4			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	19	4	4			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	100			
cM capacity (veh/h)	994	1080	1618			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	20	8	4
Volume Left	0	7	0
Volume Right	20	0	0
cSH	1080	1618	1700
Volume to Capacity	0.02	0.00	0.00
Queue Length 95th (m)	0.4	0.1	0.0
Control Delay (s)	8.4	6.3	0.0
Lane LOS	A	A	
Approach Delay (s)	8.4	6.3	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	6.8		
Intersection Capacity Utilization	15.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	5.8
Intersection LOS	A

Approach	EB	NB	SW
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	418	489	33
Demand Flow Rate, veh/h	426	499	33
Vehicles Circulating, veh/h	15	20	452
Vehicles Exiting, veh/h	470	421	67
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	5.5	6.1	4.5
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	LR	LR	LR
Assumed Moves	LR	LR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	426	499	33
Cap Entry Lane, veh/h	1359	1352	870
Entry HV Adj Factor	0.981	0.980	1.000
Flow Entry, veh/h	418	489	33
Cap Entry, veh/h	1333	1325	870
V/C Ratio	0.313	0.369	0.038
Control Delay, s/veh	5.5	6.1	4.5
LOS	A	A	A
95th %tile Queue, veh	1	2	0

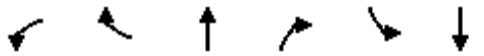
1: Prospect St/Pemberton Meadows Rd & Camus Road

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	77	29	136	61	20	136
Future Volume (Veh/h)	77	29	136	61	20	136
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	84	32	148	66	22	148
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	373	181			214	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	373	181			214	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	86	96			98	
cM capacity (veh/h)	618	862			1356	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	116	214	170
Volume Left	84	0	22
Volume Right	32	66	0
cSH	670	1700	1356
Volume to Capacity	0.17	0.13	0.02
Queue Length 95th (m)	4.7	0.0	0.4
Control Delay (s)	11.5	0.0	1.1
Lane LOS	B		A
Approach Delay (s)	11.5	0.0	1.1
Approach LOS	B		

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	35.2%	ICU Level of Service	A
Analysis Period (min)	15		

2: Prospect St & Birch Rd

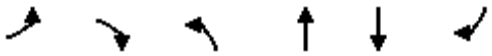


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	98	138	59	61	170	43
Future Volume (vph)	98	138	59	61	170	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	107	150	64	66	185	47

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	257	130	232
Volume Left (vph)	107	0	185
Volume Right (vph)	150	66	0
Hadj (s)	-0.23	-0.27	0.19
Departure Headway (s)	4.5	4.6	4.9
Degree Utilization, x	0.32	0.16	0.31
Capacity (veh/h)	741	737	698
Control Delay (s)	9.7	8.5	10.1
Approach Delay (s)	9.7	8.5	10.1
Approach LOS	A	A	B

Intersection Summary			
Delay	9.6		
Level of Service	A		
Intersection Capacity Utilization	38.9%	ICU Level of Service	A
Analysis Period (min)	15		

3: Pemberton Meadows Rd & Beechwood Street

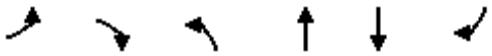


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	2	3	162	154	0
Future Volume (Veh/h)	0	2	3	162	154	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2	3	176	167	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	349	167	167			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	349	167	167			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	647	877	1411			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	2	179	167
Volume Left	0	3	0
Volume Right	2	0	0
cSH	877	1411	1700
Volume to Capacity	0.00	0.00	0.10
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	9.1	0.1	0.0
Lane LOS	A	A	
Approach Delay (s)	9.1	0.1	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	20.9%	ICU Level of Service	A
Analysis Period (min)	15		

4: Prospect St & Development Access



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	11	20	4	2	0
Future Volume (Veh/h)	0	11	20	4	2	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	12	22	4	2	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	50	2	2			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	50	2	2			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	99			
cM capacity (veh/h)	946	1082	1620			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	12	26	2
Volume Left	0	22	0
Volume Right	12	0	0
cSH	1082	1620	1700
Volume to Capacity	0.01	0.01	0.00
Queue Length 95th (m)	0.3	0.3	0.0
Control Delay (s)	8.4	6.2	0.0
Lane LOS	A	A	
Approach Delay (s)	8.4	6.2	0.0
Approach LOS	A		

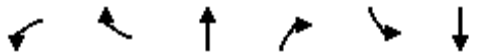
Intersection Summary			
Average Delay	6.5		
Intersection Capacity Utilization	18.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	4.5
Intersection LOS	A

Approach	EB	NB	SW
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	311	261	75
Demand Flow Rate, veh/h	317	266	77
Vehicles Circulating, veh/h	43	13	245
Vehicles Exiting, veh/h	279	347	34
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	4.9	4.3	4.1
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	LR	LR	LR
Assumed Moves	LR	LR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	317	266	77
Cap Entry Lane, veh/h	1321	1362	1075
Entry HV Adj Factor	0.981	0.981	0.974
Flow Entry, veh/h	311	261	75
Cap Entry, veh/h	1296	1336	1047
V/C Ratio	0.240	0.195	0.072
Control Delay, s/veh	4.9	4.3	4.1
LOS	A	A	A
95th %tile Queue, veh	1	1	0

1: Prospect St/Pemberton Meadows Rd & Camus Road

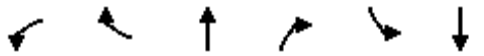


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	24	9	91	17	7	142
Future Volume (Veh/h)	24	9	91	17	7	142
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	26	10	99	18	8	154
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	278	108			117	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	278	108			117	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	99			99	
cM capacity (veh/h)	708	946			1471	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	36	117	162
Volume Left	26	0	8
Volume Right	10	18	0
cSH	761	1700	1471
Volume to Capacity	0.05	0.07	0.01
Queue Length 95th (m)	1.1	0.0	0.1
Control Delay (s)	10.0	0.0	0.4
Lane LOS	A		A
Approach Delay (s)	10.0	0.0	0.4
Approach LOS	A		

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	23.2%	ICU Level of Service	A
Analysis Period (min)	15		

2: Prospect St & Birch Rd

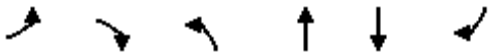


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	72	92	16	58	122	44
Future Volume (vph)	72	92	16	58	122	44
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	78	100	17	63	133	48

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	178	80	181
Volume Left (vph)	78	0	133
Volume Right (vph)	100	63	0
Hadj (s)	-0.22	-0.44	0.18
Departure Headway (s)	4.3	4.1	4.6
Degree Utilization, x	0.21	0.09	0.23
Capacity (veh/h)	789	830	750
Control Delay (s)	8.4	7.5	8.9
Approach Delay (s)	8.4	7.5	8.9
Approach LOS	A	A	A

Intersection Summary			
Delay	8.5		
Level of Service	A		
Intersection Capacity Utilization	32.0%	ICU Level of Service	A
Analysis Period (min)	15		

3: Pemberton Meadows Rd & Beechwood Street



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	3	1	99	146	0
Future Volume (Veh/h)	1	3	1	99	146	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	3	1	108	159	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	269	159	159			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	269	159	159			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	720	886	1420			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	4	109	159
Volume Left	1	1	0
Volume Right	3	0	0
cSH	838	1420	1700
Volume to Capacity	0.00	0.00	0.09
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	9.3	0.1	0.0
Lane LOS	A	A	
Approach Delay (s)	9.3	0.1	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	17.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	6.7
Intersection LOS	A

Approach	EB	NB	SW
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	511	595	41
Demand Flow Rate, veh/h	521	607	41
Vehicles Circulating, veh/h	18	24	549
Vehicles Exiting, veh/h	572	515	82
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	6.3	7.2	5.1
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	LR	LR	LR
Assumed Moves	LR	LR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	521	607	41
Cap Entry Lane, veh/h	1355	1346	788
Entry HV Adj Factor	0.981	0.980	1.000
Flow Entry, veh/h	511	595	41
Cap Entry, veh/h	1329	1320	788
V/C Ratio	0.385	0.451	0.052
Control Delay, s/veh	6.3	7.2	5.1
LOS	A	A	A
95th %tile Queue, veh	2	2	0

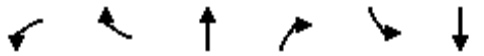
1: Prospect St/Pemberton Meadows Rd & Camus Road

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	87	31	169	58	17	169
Future Volume (Veh/h)	87	31	169	58	17	169
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	95	34	184	63	18	184
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	436	216			247	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	436	216			247	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	83	96			99	
cM capacity (veh/h)	570	824			1319	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	129	247	202
Volume Left	95	0	18
Volume Right	34	63	0
cSH	620	1700	1319
Volume to Capacity	0.21	0.15	0.01
Queue Length 95th (m)	5.9	0.0	0.3
Control Delay (s)	12.3	0.0	0.8
Lane LOS	B		A
Approach Delay (s)	12.3	0.0	0.8
Approach LOS	B		

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	36.4%	ICU Level of Service	A
Analysis Period (min)	15		

2: Prospect St & Birch Rd

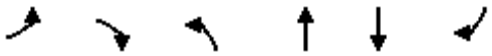


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	122	159	68	76	204	52
Future Volume (vph)	122	159	68	76	204	52
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	133	173	74	83	222	57

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	306	157	279
Volume Left (vph)	133	0	222
Volume Right (vph)	173	83	0
Hadj (s)	-0.22	-0.28	0.19
Departure Headway (s)	4.8	4.8	5.1
Degree Utilization, x	0.41	0.21	0.39
Capacity (veh/h)	707	698	670
Control Delay (s)	11.0	9.1	11.4
Approach Delay (s)	11.0	9.1	11.4
Approach LOS	B	A	B

Intersection Summary			
Delay	10.7		
Level of Service	B		
Intersection Capacity Utilization	48.8%	ICU Level of Service	A
Analysis Period (min)	15		

3: Pemberton Meadows Rd & Beechwood Street



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	2	3	197	184	1
Future Volume (Veh/h)	0	2	3	197	184	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2	3	214	200	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	420	200	201			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	420	200	201			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	588	840	1371			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	2	217	201
Volume Left	0	3	0
Volume Right	2	0	1
cSH	840	1371	1700
Volume to Capacity	0.00	0.00	0.12
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	9.3	0.1	0.0
Lane LOS	A	A	
Approach Delay (s)	9.3	0.1	0.0
Approach LOS	A		

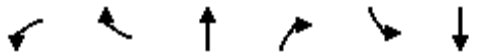
Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	22.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	4.6
Intersection LOS	A

Approach	EB	NB	SW
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	322	268	75
Demand Flow Rate, veh/h	328	273	77
Vehicles Circulating, veh/h	43	13	252
Vehicles Exiting, veh/h	286	358	34
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	4.9	4.4	4.1
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	LR	LR	LR
Assumed Moves	LR	LR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	328	273	77
Cap Entry Lane, veh/h	1321	1362	1067
Entry HV Adj Factor	0.982	0.982	0.974
Flow Entry, veh/h	322	268	75
Cap Entry, veh/h	1296	1337	1039
V/C Ratio	0.248	0.200	0.072
Control Delay, s/veh	4.9	4.4	4.1
LOS	A	A	A
95th %tile Queue, veh	1	1	0

1: Prospect St/Pemberton Meadows Rd & Camus Road

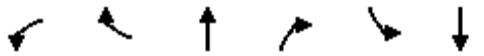


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	37	14	91	23	7	142
Future Volume (Veh/h)	37	14	91	23	7	142
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	40	15	99	25	8	154
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	282	112			124	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	282	112			124	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	98			99	
cM capacity (veh/h)	705	942			1463	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	55	124	162
Volume Left	40	0	8
Volume Right	15	25	0
cSH	757	1700	1463
Volume to Capacity	0.07	0.07	0.01
Queue Length 95th (m)	1.8	0.0	0.1
Control Delay (s)	10.1	0.0	0.4
Lane LOS	B		A
Approach Delay (s)	10.1	0.0	0.4
Approach LOS	B		

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	23.2%	ICU Level of Service	A
Analysis Period (min)	15		

2: Prospect St & Birch Rd

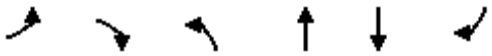


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	72	98	16	58	132	47
Future Volume (vph)	72	98	16	58	132	47
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	78	107	17	63	143	51

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	185	80	194
Volume Left (vph)	78	0	143
Volume Right (vph)	107	63	0
Hadj (s)	-0.23	-0.44	0.18
Departure Headway (s)	4.3	4.1	4.6
Degree Utilization, x	0.22	0.09	0.25
Capacity (veh/h)	784	822	747
Control Delay (s)	8.5	7.5	9.1
Approach Delay (s)	8.5	7.5	9.1
Approach LOS	A	A	A

Intersection Summary			
Delay	8.6		
Level of Service	A		
Intersection Capacity Utilization	33.1%	ICU Level of Service	A
Analysis Period (min)	15		

3: Pemberton Meadows Rd & Beechwood Street

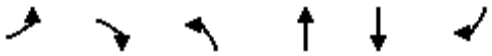


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	3	1	104	146	0
Future Volume (Veh/h)	1	3	1	104	146	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	3	1	113	159	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	274	159	159			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	274	159	159			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	715	886	1420			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	4	114	159
Volume Left	1	1	0
Volume Right	3	0	0
cSH	836	1420	1700
Volume to Capacity	0.00	0.00	0.09
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	9.3	0.1	0.0
Lane LOS	A	A	
Approach Delay (s)	9.3	0.1	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	17.7%	ICU Level of Service	A
Analysis Period (min)	15		

4: Prospect St & Development Access



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	18	6	1	4	0
Future Volume (Veh/h)	0	18	6	1	4	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	20	7	1	4	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	19	4	4			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	19	4	4			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	100			
cM capacity (veh/h)	994	1080	1618			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	20	8	4
Volume Left	0	7	0
Volume Right	20	0	0
cSH	1080	1618	1700
Volume to Capacity	0.02	0.00	0.00
Queue Length 95th (m)	0.4	0.1	0.0
Control Delay (s)	8.4	6.3	0.0
Lane LOS	A	A	
Approach Delay (s)	8.4	6.3	0.0
Approach LOS	A		

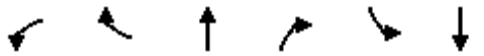
Intersection Summary			
Average Delay	6.8		
Intersection Capacity Utilization	15.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	6.8
Intersection LOS	A

Approach	EB	NB	SW
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	517	606	41
Demand Flow Rate, veh/h	527	618	41
Vehicles Circulating, veh/h	18	24	560
Vehicles Exiting, veh/h	583	521	82
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	6.4	7.3	5.1
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	LR	LR	LR
Assumed Moves	LR	LR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	527	618	41
Cap Entry Lane, veh/h	1355	1346	779
Entry HV Adj Factor	0.981	0.981	1.000
Flow Entry, veh/h	517	606	41
Cap Entry, veh/h	1329	1320	779
V/C Ratio	0.389	0.459	0.053
Control Delay, s/veh	6.4	7.3	5.1
LOS	A	A	A
95th %tile Queue, veh	2	2	0

1: Prospect St/Pemberton Meadows Rd & Camus Road

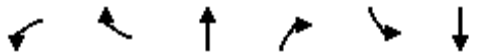


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	94	35	169	72	23	169
Future Volume (Veh/h)	94	35	169	72	23	169
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	102	38	184	78	25	184
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	457	223			262	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	457	223			262	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	81	95			98	
cM capacity (veh/h)	551	817			1302	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	140	262	209
Volume Left	102	0	25
Volume Right	38	78	0
cSH	604	1700	1302
Volume to Capacity	0.23	0.15	0.02
Queue Length 95th (m)	6.8	0.0	0.4
Control Delay (s)	12.7	0.0	1.1
Lane LOS	B		A
Approach Delay (s)	12.7	0.0	1.1
Approach LOS	B		

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	40.8%	ICU Level of Service	A
Analysis Period (min)	15		

2: Prospect St & Birch Rd

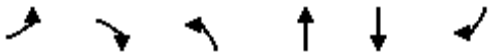


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	122	169	72	76	210	53
Future Volume (vph)	122	169	72	76	210	53
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	133	184	78	83	228	58

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	317	161	286
Volume Left (vph)	133	0	228
Volume Right (vph)	184	83	0
Hadj (s)	-0.23	-0.28	0.19
Departure Headway (s)	4.8	4.8	5.1
Degree Utilization, x	0.42	0.22	0.41
Capacity (veh/h)	704	689	664
Control Delay (s)	11.3	9.2	11.6
Approach Delay (s)	11.3	9.2	11.6
Approach LOS	B	A	B

Intersection Summary			
Delay	11.0		
Level of Service	B		
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

3: Pemberton Meadows Rd & Beechwood Street

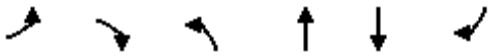


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	2	3	201	190	1
Future Volume (Veh/h)	0	2	3	201	190	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2	3	218	207	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	432	208	208			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	432	208	208			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	580	833	1363			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	2	221	208
Volume Left	0	3	0
Volume Right	2	0	1
cSH	833	1363	1700
Volume to Capacity	0.00	0.00	0.12
Queue Length 95th (m)	0.1	0.1	0.0
Control Delay (s)	9.3	0.1	0.0
Lane LOS	A	A	
Approach Delay (s)	9.3	0.1	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	23.0%	ICU Level of Service	A
Analysis Period (min)	15		

4: Prospect St & Development Access



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	7	12	4	2	0
Future Volume (Veh/h)	0	7	12	4	2	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	8	13	4	2	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	32	2	2			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	32	2	2			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	99			
cM capacity (veh/h)	974	1082	1620			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	8	17	2
Volume Left	0	13	0
Volume Right	8	0	0
cSH	1082	1620	1700
Volume to Capacity	0.01	0.01	0.00
Queue Length 95th (m)	0.2	0.2	0.0
Control Delay (s)	8.4	5.5	0.0
Lane LOS	A	A	
Approach Delay (s)	8.4	5.5	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	6.0		
Intersection Capacity Utilization	17.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	4.8
Intersection LOS	A

Approach	EB	NB	SW
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	343	288	83
Demand Flow Rate, veh/h	350	293	85
Vehicles Circulating, veh/h	48	15	270
Vehicles Exiting, veh/h	307	383	38
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	5.1	4.5	4.2
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	LR	LR	LR
Assumed Moves	LR	LR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	350	293	85
Cap Entry Lane, veh/h	1314	1359	1048
Entry HV Adj Factor	0.980	0.983	0.976
Flow Entry, veh/h	343	288	83
Cap Entry, veh/h	1288	1336	1023
V/C Ratio	0.266	0.216	0.081
Control Delay, s/veh	5.1	4.5	4.2
LOS	A	A	A
95th %tile Queue, veh	1	1	0

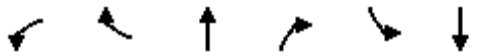
1: Prospect St/Pemberton Meadows Rd & Camus Road

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	26	10	100	19	8	156
Future Volume (Veh/h)	26	10	100	19	8	156
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	28	11	109	21	9	170
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	308	120			130	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	308	120			130	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	99			99	
cM capacity (veh/h)	680	932			1455	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	39	130	179
Volume Left	28	0	9
Volume Right	11	21	0
cSH	737	1700	1455
Volume to Capacity	0.05	0.08	0.01
Queue Length 95th (m)	1.3	0.0	0.1
Control Delay (s)	10.2	0.0	0.4
Lane LOS	B		A
Approach Delay (s)	10.2	0.0	0.4
Approach LOS	B		

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	24.7%	ICU Level of Service	A
Analysis Period (min)	15		

2: Prospect St & Birch Rd

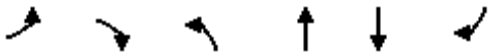


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	80	102	18	65	135	48
Future Volume (vph)	80	102	18	65	135	48
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	87	111	20	71	147	52

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	198	91	199
Volume Left (vph)	87	0	147
Volume Right (vph)	111	71	0
Hadj (s)	-0.21	-0.43	0.18
Departure Headway (s)	4.4	4.2	4.6
Degree Utilization, x	0.24	0.11	0.26
Capacity (veh/h)	774	810	736
Control Delay (s)	8.7	7.7	9.2
Approach Delay (s)	8.7	7.7	9.2
Approach LOS	A	A	A

Intersection Summary			
Delay	8.7		
Level of Service	A		
Intersection Capacity Utilization	34.0%	ICU Level of Service	A
Analysis Period (min)	15		

3: Pemberton Meadows Rd & Beechwood Street



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	3	1	109	161	0
Future Volume (Veh/h)	1	3	1	109	161	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	3	1	118	175	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	295	175	175			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	295	175	175			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	696	868	1401			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	4	119	175
Volume Left	1	1	0
Volume Right	3	0	0
cSH	818	1401	1700
Volume to Capacity	0.00	0.00	0.10
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	9.4	0.1	0.0
Lane LOS	A	A	
Approach Delay (s)	9.4	0.1	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	18.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	6.6
Intersection LOS	A

Approach	EB	NB	SW
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	501	582	40
Demand Flow Rate, veh/h	511	594	40
Vehicles Circulating, veh/h	17	24	538
Vehicles Exiting, veh/h	561	504	80
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	6.2	7.1	5.0
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	LR	LR	LR
Assumed Moves	LR	LR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	511	594	40
Cap Entry Lane, veh/h	1356	1346	797
Entry HV Adj Factor	0.980	0.980	1.000
Flow Entry, veh/h	501	582	40
Cap Entry, veh/h	1330	1319	797
V/C Ratio	0.377	0.441	0.050
Control Delay, s/veh	6.2	7.1	5.0
LOS	A	A	A
95th %tile Queue, veh	2	2	0

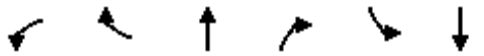
1: Prospect St/Pemberton Meadows Rd & Camus Road

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	85	30	165	58	16	166
Future Volume (Veh/h)	85	30	165	58	16	166
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	92	33	179	63	17	180
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	424	210			242	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	424	210			242	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	84	96			99	
cM capacity (veh/h)	579	830			1324	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	125	242	197
Volume Left	92	0	17
Volume Right	33	63	0
cSH	629	1700	1324
Volume to Capacity	0.20	0.14	0.01
Queue Length 95th (m)	5.6	0.0	0.3
Control Delay (s)	12.1	0.0	0.8
Lane LOS	B		A
Approach Delay (s)	12.1	0.0	0.8
Approach LOS	B		

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	35.2%	ICU Level of Service	A
Analysis Period (min)	15		

2: Prospect St & Birch Rd

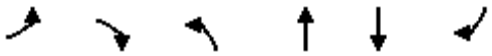


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	119	156	67	74	200	51
Future Volume (vph)	119	156	67	74	200	51
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	129	170	73	80	217	55

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	299	153	272
Volume Left (vph)	129	0	217
Volume Right (vph)	170	80	0
Hadj (s)	-0.22	-0.28	0.19
Departure Headway (s)	4.7	4.8	5.1
Degree Utilization, x	0.39	0.20	0.38
Capacity (veh/h)	712	703	673
Control Delay (s)	10.8	9.0	11.2
Approach Delay (s)	10.8	9.0	11.2
Approach LOS	B	A	B

Intersection Summary			
Delay	10.5		
Level of Service	B		
Intersection Capacity Utilization	48.0%	ICU Level of Service	A
Analysis Period (min)	15		

3: Pemberton Meadows Rd & Beechwood Street



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	2	3	192	180	1
Future Volume (Veh/h)	0	2	3	192	180	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2	3	209	196	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	412	196	197			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	412	196	197			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	595	845	1376			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	2	212	197
Volume Left	0	3	0
Volume Right	2	0	1
cSH	845	1376	1700
Volume to Capacity	0.00	0.00	0.12
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	9.3	0.1	0.0
Lane LOS	A	A	
Approach Delay (s)	9.3	0.1	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	22.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	4.8
Intersection LOS	A

Approach	EB	NB	SW
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	354	295	83
Demand Flow Rate, veh/h	361	300	85
Vehicles Circulating, veh/h	48	15	277
Vehicles Exiting, veh/h	314	394	38
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	5.2	4.6	4.3
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	LR	LR	LR
Assumed Moves	LR	LR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	361	300	85
Cap Entry Lane, veh/h	1314	1359	1040
Entry HV Adj Factor	0.981	0.983	0.976
Flow Entry, veh/h	354	295	83
Cap Entry, veh/h	1288	1336	1016
V/C Ratio	0.275	0.221	0.082
Control Delay, s/veh	5.2	4.6	4.3
LOS	A	A	A
95th %tile Queue, veh	1	1	0

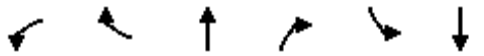
1: Prospect St/Pemberton Meadows Rd & Camus Road

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	39	13	100	25	8	156
Future Volume (Veh/h)	39	13	100	25	8	156
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	42	14	109	27	9	170
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	310	122			136	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	310	122			136	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	98			99	
cM capacity (veh/h)	678	929			1448	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	56	136	179
Volume Left	42	0	9
Volume Right	14	27	0
cSH	727	1700	1448
Volume to Capacity	0.08	0.08	0.01
Queue Length 95th (m)	1.9	0.0	0.1
Control Delay (s)	10.4	0.0	0.4
Lane LOS	B		A
Approach Delay (s)	10.4	0.0	0.4
Approach LOS	B		

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	24.7%	ICU Level of Service	A
Analysis Period (min)	15		

2: Prospect St & Birch Rd

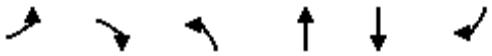


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	80	108	18	65	145	51
Future Volume (vph)	80	108	18	65	145	51
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	87	117	20	71	158	55

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	204	91	213
Volume Left (vph)	87	0	158
Volume Right (vph)	117	71	0
Hadj (s)	-0.22	-0.43	0.18
Departure Headway (s)	4.4	4.2	4.7
Degree Utilization, x	0.25	0.11	0.28
Capacity (veh/h)	768	802	734
Control Delay (s)	8.8	7.7	9.4
Approach Delay (s)	8.8	7.7	9.4
Approach LOS	A	A	A

Intersection Summary			
Delay	8.9		
Level of Service	A		
Intersection Capacity Utilization	35.1%	ICU Level of Service	A
Analysis Period (min)	15		

3: Pemberton Meadows Rd & Beechwood Street

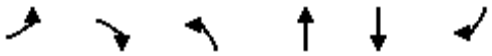


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	3	1	114	161	0
Future Volume (Veh/h)	1	3	1	114	161	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	3	1	124	175	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	301	175	175			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	301	175	175			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	690	868	1401			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	4	125	175
Volume Left	1	1	0
Volume Right	3	0	0
cSH	816	1401	1700
Volume to Capacity	0.00	0.00	0.10
Queue Length 95th (m)	0.1	0.0	0.0
Control Delay (s)	9.4	0.1	0.0
Lane LOS	A	A	
Approach Delay (s)	9.4	0.1	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	18.5%	ICU Level of Service	A
Analysis Period (min)	15		

4: Prospect St & Development Access



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	18	6	1	4	0
Future Volume (Veh/h)	0	18	6	1	4	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	20	7	1	4	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	19	4	4			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	19	4	4			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	98	100			
cM capacity (veh/h)	994	1080	1618			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	20	8	4
Volume Left	0	7	0
Volume Right	20	0	0
cSH	1080	1618	1700
Volume to Capacity	0.02	0.00	0.00
Queue Length 95th (m)	0.4	0.1	0.0
Control Delay (s)	8.4	6.3	0.0
Lane LOS	A	A	
Approach Delay (s)	8.4	6.3	0.0
Approach LOS	A		

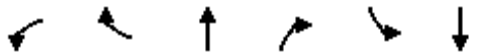
Intersection Summary			
Average Delay	6.8		
Intersection Capacity Utilization	15.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	6.7
Intersection LOS	A

Approach	EB	NB	SW
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	508	593	40
Demand Flow Rate, veh/h	518	605	40
Vehicles Circulating, veh/h	17	24	549
Vehicles Exiting, veh/h	572	511	80
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	6.3	7.2	5.1
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	LR	LR	LR
Assumed Moves	LR	LR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	518	605	40
Cap Entry Lane, veh/h	1356	1346	788
Entry HV Adj Factor	0.981	0.980	1.000
Flow Entry, veh/h	508	593	40
Cap Entry, veh/h	1330	1320	788
V/C Ratio	0.382	0.449	0.051
Control Delay, s/veh	6.3	7.2	5.1
LOS	A	A	A
95th %tile Queue, veh	2	2	0

1: Prospect St/Pemberton Meadows Rd & Camus Road



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	92	34	165	72	22	166
Future Volume (Veh/h)	92	34	165	72	22	166
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	100	37	179	78	24	180
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	446	218			257	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	446	218			257	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	82	95			98	
cM capacity (veh/h)	559	822			1308	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	137	257	204
Volume Left	100	0	24
Volume Right	37	78	0
cSH	612	1700	1308
Volume to Capacity	0.22	0.15	0.02
Queue Length 95th (m)	6.5	0.0	0.4
Control Delay (s)	12.6	0.0	1.1
Lane LOS	B		A
Approach Delay (s)	12.6	0.0	1.1
Approach LOS	B		

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	40.2%	ICU Level of Service	A
Analysis Period (min)	15		

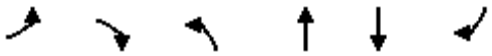
2: Prospect St & Birch Rd

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Stop			Stop
Traffic Volume (vph)	119	168	72	74	206	52
Future Volume (vph)	119	168	72	74	206	52
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	129	183	78	80	224	57

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total (vph)	312	158	281
Volume Left (vph)	129	0	224
Volume Right (vph)	183	80	0
Hadj (s)	-0.24	-0.27	0.19
Departure Headway (s)	4.8	4.8	5.1
Degree Utilization, x	0.41	0.21	0.40
Capacity (veh/h)	708	693	667
Control Delay (s)	11.1	9.1	11.4
Approach Delay (s)	11.1	9.1	11.4
Approach LOS	B	A	B

Intersection Summary			
Delay	10.8		
Level of Service	B		
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		

3: Pemberton Meadows Rd & Beechwood Street

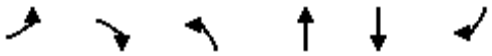


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	2	3	196	186	1
Future Volume (Veh/h)	0	2	3	196	186	1
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	2	3	213	202	1
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	422	202	203			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	422	202	203			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	587	838	1369			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	2	216	203
Volume Left	0	3	0
Volume Right	2	0	1
cSH	838	1369	1700
Volume to Capacity	0.00	0.00	0.12
Queue Length 95th (m)	0.1	0.1	0.0
Control Delay (s)	9.3	0.1	0.0
Lane LOS	A	A	
Approach Delay (s)	9.3	0.1	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	22.7%	ICU Level of Service	A
Analysis Period (min)	15		

4: Prospect St & Development Access



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	11	20	4	2	0
Future Volume (Veh/h)	0	11	20	4	2	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	12	22	4	2	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	50	2	2			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	50	2	2			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	99	99			
cM capacity (veh/h)	946	1082	1620			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	12	26	2
Volume Left	0	22	0
Volume Right	12	0	0
cSH	1082	1620	1700
Volume to Capacity	0.01	0.01	0.00
Queue Length 95th (m)	0.3	0.3	0.0
Control Delay (s)	8.4	6.2	0.0
Lane LOS	A	A	
Approach Delay (s)	8.4	6.2	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	6.5		
Intersection Capacity Utilization	18.0%	ICU Level of Service	A
Analysis Period (min)	15		