



Staff Report

Operations

Report To: Committee of the Whole
Meeting Date: June 15, 2021
Report Number: CSOPS.21.044
Title: Beaver Street Stop Up and Close and Addition of Beaver and Louisa to Thornbury West Phase 1
Prepared by: Michael Campbell, Construction Coordinator

A. Recommendations

THAT Council receive Staff Report CSOPS.21.044, entitled “Beaver Street Stop Up and Close and Addition of Beaver and Louisa to Thornbury West Phase 1”;

AND THAT Council receive the Victoria and Louisa Streets Area Reconstruction Traffic Study, Attachment 1;

AND THAT Council direct Staff to initiate a public process for the stop-up and closure of Beaver Street between Victoria Street and Louisa Street as shown on Attachment #2;

AND THAT Council direct Staff to add the reconstruction of Beaver Street between Victoria Street and Alice Street and Louisa Street between Victoria Street and Beaver Street to the Thornbury West Phase 1 Reconstruction Project;

AND THAT Council increase the Thornbury West Road Reconstruction project budget by \$1,130,000 to fund the additional works.

B. Overview

The Town has a unique opportunity to enhance or eliminate 3 existing that have been recently identified by staff through the work being completed Thornbury West works as outlined in this report.

C. Background

The preliminary engineering for the Victoria and Louisa Streets Area Reconstruction included a traffic study that can be found as Attachment #1 as noted above. The study was undertaken because 2 of the intersections would be reconstructed by the Victoria & Louisa project and the requirements of the intersections needed to be understood. Therefore, the study was mostly for work outside the intended construction limits of the major project now known as Thornbury West Phase 1. The Study recommends:

- Stop Up and Close Beaver from Victoria Street to Louisa Street;
- Reconstruct the entrance to Foodland/LCBO to Victoria Street; and,
- Terminate Beaver Street north of Alice Street.

The result of these recommendations will be to correct hazardous intersections at Beaver/Victoria; Beaver/Louisa; Beaver/Alice/Lansdowne.

Construction of the Towns of Thornbury project is underway and the service extension from the Victoria/Louisa intersect to Beaver Street 100m south of Louisa Street will be completed in 2021. This will mean that development off Louisa Street between Victoria and Beaver Street and Beaver Street between Louisa Street and Alice Street will be completed.

Beaver Street from Victoria Street to Alice Street and Louisa Street from Victoria Street to Beaver Street are included in the DCBS with a budget identified as \$1,280,000. The DCBS recognizes these street sections to be reconstructed with:

- Storm sewers.
- 8.5m width asphalt surface.
- 1 sidewalk.
- Streetlights.
- Street trees.

Louisa Street between Beaver Street and Lansdowne Street is currently identified as a Heritage Local Road in the Official Plan. The use of this road has in question for some time including some consideration to close the road. Based on recent development interest in the area and discussions with the Finance Department, this road section may be added to the DCBS as it may support future development traffic needs and serve as a redundant route to back-up the Highway 26 connecting link should a road closure occur. The best use of the road section should be determined through the Town's Transportation Master Plan.

D. Analysis

The original study area or boundaries for the area of Thornbury being considered for reconstruction under Thornbury Road Infrastructure Project (TRIP) were somewhat arbitrary. The sections of Beaver Street and Louisa Street being discussed in this report are just outside the boundary. The traffic study was undertaken because the work on Victoria Street will impact the intersections. As an example, the intersection of Beaver Street and Victoria Street will be torn apart with the removal of temporary storm works installed when the Foodland site was constructed. If the sections of Beaver Street and Louisa Streets discussed here are not added to the larger project more temporary work will be required that will have to be reworked in the future.

The traffic study identified unsafe intersections at Beaver/Victoria; Beaver/Louisa as well as Beaver/Alice/Lansdowne. The study recommends the closure of Beaver Street between Victoria and Louisa at the termination of Beaver Street north of Alice Street.

The closure of Beaver Street will require the entrance to Foodland relocated to come out to Victoria Street where Beaver now meets Victoria. With the scope construction in the area this is the best time to improve this entrance. As noted above see attachment #2

Currently a sidewalk is present on Beaver Street between Napier Street and Alice Street. This sidewalk was constructed by the developer of the Far Hills development, but it does not connect to the Town's active transportation network. By advancing the reconstruction of Beaver Street this gap in the active transportation network would be addressed.

The closure of Beaver Street at Alice Street will correct an unsafe 5-legged intersection. Alice Street will remain as it is. Lansdowne Street and Beaver Street will be realigned slightly to produce acceptable geometry for the intersection. Beaver Street will be terminated in a cul-de-sac at a location north of Alice Street to retain access to 51 and 52 Beaver Street. The road would not have to extend to Alice Street which would provide an opportunity to plant trees in the right of way that could be used as a parkette and improve the urban tree canopy. The active transportation connection through this section of Beaver could be augmented with park benches or other amenities (e.g. chess tables) to create a gathering place for local residents. With the surrounding developments being medium to high density; a parkette of this nature could be well used. The concept is shown in Attachment #3. The parkette concept is supported by Community Services.

The servicing of the Towns of Thornbury will be completed in 2021 which will complete foreseeable development servicing on these sections of Beaver Street and Louisa Street.

West of the Towns of Thornbury development there are 2 properties that front on Beaver Street. These 2 properties are connected to the Town water system by "unique" or unknown servicing arrangements. One of the houses is also connected to the Town sanitary sewage system by an unknown servicing arrangement. Similar to how the Town will be correcting unconventional servicing arrangements in the rest of the Thornbury West project, servicing to these 2 properties will be corrected. The Town will extend the water main and sanitary sewer from the Towns of Thornbury work south on Beaver Street and laterals will be extended to the 2 properties. The property owners will be required to connect their houses to the new laterals.

Tatham Engineering has provided a proposal for the final engineering and project management to add the work described above to the Thornbury West Phase 1 Reconstruction Project. They report that the final engineering can be completed, and the work included in the tender for Thornbury West Phase Reconstruction anticipated to be released in the fall of 2021. By adding this work to the project that is underway the Town will realize savings in staff time, engineering fees and construction costs that would be expected if the project was done individually.

While the project had not been considered in the 5-year capital plan there are several factors that suggest this is an opportune time to advance the work:

- The completion of servicing the Towns of Thornbury;

- A minor extension of the Towns of Thornbury services will allow the unique servicing to 51 & 52 Beaver Street to be corrected. These corrections are similar to the corrections of servicing in the larger project;
- A substandard road identified in the DCBS to support development can be upgraded in a timely manner;
- A significant gap in the Town's active transportation network can be addressed;
- A significant gap in the Town's street illumination can be addressed;
- An expansion to the Town's urban tree canopy can be realized;
- An opportunity to convert a section of road into an urban parkette in a high-density area of Town can be realized; and,
- The temporary storm works at Victoria/Beaver must be removed and new temporary works will have to be constructed at Victoria/Louisa. By advancing this project more of the Town's deficient storm drainage system can be upgraded without having to do work twice.

Tatham Engineering have provided a proposal the engineering work and a preliminary cost estimate for the construction. The preliminary estimate includes a 20% contingency allowance for the construction. By combining Beaver and Louisa with the larger Thornbury West Reconstruction Project, the engineering fees will be significantly reduced compared to this work being undertaken as a standalone project. Many tasks can be completed within the budget for the larger project, or the task budgets increased slightly. The engineering proposal and the preliminary construction estimate total \$1,130,000. This is approximately \$150,000 under the DCBS budget which is in 2019 dollars and does not reflect the recent construction cost increases.

There are some issues that have not been completely answered at this time because some direction from Council is needed regarding the concept:

- Sale of closed section of Beaver Street (Victoria to Louisa). The abutting landowners have been contacted to see if they are interested in disposition or purchase of the lands. The Town has not received a response.
- Acquisition of land for a cul-de-sac for the south termination of Beaver Street. Land would be required to construct a conventional cul-de-sac. Due to the short section of road that will result, a winter control solution may be possible pending discussions with the Roads & Drainage Division.
- Revised entrance to Foodland/LCBO. The owner of the property has been contacted to let them know broad strokes of this Staff Report. The Town has not received a response.

The road section of Louisa Street between Beaver Street and Lansdowne Street is currently a Heritage Local Road that is not included in the DCBS. This road section could be critical to the Town and future development. In the next update of the DCBS this road section should be added so that it can be reconstructed to support future development. Louisa Street will be a critical redundant route should a catastrophe befall the connecting link. The broad scope of the Transportation Master Plan that will be completed in a few years would speak to the best use of this road section.

The first step in this process will be to initiate the public process to stop up and close Beaver Street between Victoria Street and Louisa Street. The initiative to stop up and close this section of Beaver Street stems from the recommendations in the Victoria Street and Louisa Street Traffic Study. Direction from Council is needed to start the process.

Tatham Engineering reports that they have the capacity to add these road section to the larger Thornbury West Phase 1 project and have the work included in the tender anticipated for September 30, 2021.

E. Strategic Priorities

1. Communication and Engagement

We will enhance communications and engagement between Town Staff, Town residents and stakeholders

2. Organizational Excellence

We will continually seek out ways to improve the internal organization of Town Staff and the management of Town assets.

3. Community

We will protect and enhance the community feel and the character of the Town, while ensuring the responsible use of resources and restoration of nature.

4. Quality of Life

We will foster a high quality of life for full-time and part-time residents of all ages and stages, while welcoming visitors.

F. Environmental Impacts

The construction activities will release greenhouse gasses.

The conversion of a road section to a parkette will enhance the urban canopy and closing a gap in the Town's active transportation network will encourage pedestrians and cyclists use the route and avoid vehicle use.

G. Financial Impacts

The Thornbury West Road Reconstruction project was created in 2020 by combining the Elma and Alice Street and Victoria and Louisa Street Reconstruction projects for a total budget of \$12,189,400. Staff are recommending that this budget be increased by \$1.13M to cover the engineering and construction costs to upgrade and stop-by and close Beaver Street.

The funding for this portion of the project will come from Roads and Related Development Charges, Parks and Recreation Development Charges, and the Infrastructure and Public Works Reserve Fund. An exact funding break-down can't be provided at this time until more of the engineering work is completed.

H. In Consultation With

Shawn Carey, Director of Operations

Sam Dinsmore, Deputy Treasurer, Manager of Accounting and Budgets

Allison Kershaw, Manager of Water and Wastewater

Jim McCannell, Manager of Roads and Drainage

I. Public Engagement

The topic of this Staff Report has been the subject of a Public Information Centre which took place on March 11, 2021. The traffic study was part of the material presented at the Victoria and Louisa Street Preliminary Engineering PIC. The Traffic Study included the recommendations to close Beaver Street between Victoria And Louisa as well as stop Beaver Street north of Alice Street.

To proceed with stopping up and closing Beaver Street a public meeting will have to be scheduled and conducted if Council directs staff to proceed.

If these road sections are included in Thornbury West Phase 1 Reconstruction, the work will be included in the upcoming 90% Design PIC.

In the past few years Operations have received calls from residents to complain about the condition of Beaver Street and the lack of a sidewalk. On June 3rd staff spoke with a resident of a resident of the Far Hills Club, he was asking for traffic calming measures when Beaver reopens following the current servicing work, he also asked for extra stop sign on Beaver at Alice. This resident sent a message to The Council & Clerk on May 6, 2021 noting the closure due to servicing installation of lower Beaver Street which reduced traffic and asked the closure be extended. The resident has been made aware of this report coming to COW on June 15th and he is anxious to attend the meeting.

Any comments regarding this report should be submitted to Michael Campbell, Construction Coordinator cc@thebluemountains.ca.

J. Attached

1. Attachment 1 Traffic Study
2. Attachment 2 Beaver Street Closure
3. Attachment 3 Beaver Street Turn Around

Respectfully submitted,

Michael Campbell
Construction Coordinator

Shawn Carey
Director of Operations

For more information, please contact:
Michael Campbell, Construction Coordinator
cc@thebluemountains.ca
519-599-3131 extension 275

Report Approval Details

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This report and all of its attachments were approved and signed as outlined below:

Shawn Carey - Jun 4, 2021 - 9:43 AM

Shawn Everitt - Jun 7, 2021 - 8:55 AM



Enhancing our communities



Victoria & Louisa Streets Area Reconstruction

TRAFFIC STUDY

Town of The Blue Mountains

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Prepared by:

Tatham Engineering Limited
115 Sandford Fleming Drive, Suite 200
Collingwood, Ontario L9Y 5A6
T 705-444-2565
tathameng.com

Prepared for:

Town of The Blue Mountains
32 Mill Street
Thornbury, Ontario N0H 2P0

Authored by:	Reviewed by:
	
David Perks M.Sc., PTP Transportation Planner, Project Manager	Michael Cullip B.Eng. & Mgmt., M.Eng., P.Eng. Vice President Head Office Operations

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1	February 11, 2021	Final Report

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1 Introduction

Tatham Engineering Limited has been retained by the Town of The Blue Mountains to provide civil engineering services in support of the preliminary design for the reconstruction of Victoria Street and Louisa Street in the Village of Thornbury. In conjunction with this work, a traffic study is required to review the intersections of Beaver Street with Louisa Street and Victoria Street, and Louisa Street with Victoria Street.

The purpose of this traffic study is to identify and review potential improvement opportunities for the Beaver/Victoria/Louisa intersections, assess the impacts associated with the various scenarios considered and recommend a preferred solution. The development and assessment of the improvement scenarios will consider traffic operations, development access, road safety and intersection design standards.



2 Existing Conditions

This chapter will describe the road network, traffic volumes and operations for the existing conditions.

2.1 ROAD NETWORK

The road network to be addressed by this study consists of Victoria Street, Beaver Street and Louisa Street, and their respective intersections, namely:

- Beaver Street with Victoria Street;
- Beaver Street with Louisa Street; and
- Victoria Street with Louisa Street.

Furthermore, the following intersections have also been included for assessment where such are impacted by the proposed improvement scenarios:

- Victoria Street with Alice Street; and
- Beaver Street with Alice Street and Lansdowne Street.

The study area is illustrated in Figure 1.

2.1.1 Key Roads

Victoria Street, Beaver Street and Louisa Street are local roads under the jurisdiction of the Town of The Blue Mountains. The roads share the following characteristics:

- two-lanes (one lane of travel per direction);
- rural cross-section with gravel/grassed shoulders and open ditches (although it is noted that portions of Victoria Street and Beaver Street have semi-urban/urban cross-sections); and
- 50 km/h speed limit (60 km/h design speed assumed).

Victoria Street and Beaver Street have a paved width of approximately 6.5 metres, whereas Louisa Street has a width in the order of 5.0 to 5.5 metres. While each of the study area roads have an asphalt surface, portions of Louisa Street (west of Victoria Street) are severely distressed.

For purposes of this report, Victoria Street is considered as having a north-south orientation, whereas Louisa Street is considered east-west.



2.1.2 Key Intersections

Beaver Street with Victoria Street

The intersection of Beaver Street with Victoria Street is a 3-leg intersection with stop control on Beaver Street. The north approach has a single shared through/right turn lane, whereas the south approach has a shared left/through lane. The west approach (Beaver Street) has a shared left/right turn lane. The intersection is skewed, with Beaver Street intersecting Victoria Street at an angle of approximately 45°.

Beaver Street with Louisa Street

The intersection of Beaver Street with Louisa Street is a 4-leg intersection with stop control on Louisa Street. All approaches consist of a shared left/through/right turn lane. Similar to the intersection of Beaver Street with Victoria Street, the intersection is skewed with Beaver Street intersecting Louisa Street at an angle of 45°.

Victoria Street with Louisa Street

The intersection of Victoria Street with Louisa Street is a 4-leg intersection with stop control on Louisa Street, the minor approach. All approaches consist of shared left/through/right turn lanes.

Victoria Street with Alice Street

The intersection of Victoria Street with Alice Street is also a 4-leg intersection, stop controlled on the minor approach (Alice Street) with shared left/through/right approaches.

Beaver Street with Alice Street and Lansdowne Street

The intersection of Beaver Street with Alice Street and Lansdowne Street is a 5-leg intersection with stop control on Alice Street (east and west legs) and Lansdowne Street (north leg). Alice Street and Lansdowne Street intersect at a 90° angle, with Beaver Street intersecting at 45°. Each approach consists of a shared left/through/right turn lane.

2.2 EXISTING TRAFFIC VOLUMES

To determine existing traffic volumes, traffic counts were conducted at the study area intersections on Wednesday November 20, 2019 from 7:00 to 10:00, 12:00 to 14:00 and 16:00 to 19:00. The corresponding traffic count details are provided in Appendix A.

While the traffic counts did not include the intersection of Beaver Street with the Foodland/LCBO access, volumes at the Foodland/LCBO access were established based on a review of the traffic patterns at the surrounding intersections.



The resulting 2019 traffic volumes are illustrated in Figure 2. Given the time of counts, the 2019 volumes remain indicative of existing conditions.

2.3 EXISTING TRAFFIC OPERATIONS

2.3.1 Intersection Operations

To establish the existing conditions, the study area intersections were assessed based on the 2019 traffic volumes, the existing intersection control and configuration and procedures outlined in the *2000 Highway Capacity Manual*¹ (using Synchro v.10 software). For unsignalized intersections, the review considers the average delay (measured in seconds), level of service (LOS) and volume to capacity (v/c) for the critical movements. Level of service 'A' corresponds to the best operating condition with minimal delays whereas level of service 'F' corresponds to poor operations resulting from high intersection delays. A v/c ratio of less than 1.0 indicates the intersection movement/approach is operating at less than capacity while v/c of 1.0 indicates capacity has been reached. A summary of the analysis is provided in Table 1, whereas detailed operations worksheets are included in Appendix B. It is noted that for movements where zero vehicles were observed during the traffic counts, a minimum volume of 1 vehicle has been assumed for the assessment. It is noted that the intersection of Beaver Street with Alice Street and Lansdowne Street is not included in the assessment as Synchro does not support 5-leg stop control intersections.

Table 1: 2019 Intersection Operations

INTERSECTION & MOVEMENT	CONTROL	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR			
		DELAY	LOS	V/C	DELAY	LOS	V/C	
Beaver Street & Victoria Street	EB	stop	9	A	0.04	9	A	0.07
Victoria Street & Louisa Street	EB	stop	9	A	0.01	9	A	0.05
	WB	stop	9	A	0.01	9	A	0.03
Beaver Street & Louisa Street	EB	stop	9	A	0.00	9	A	0.00
	WB	stop	9	A	0.01	9	A	0.03
Victoria Street & Alice Street	EB	stop	9	A	0.01	9	A	0.02
	WB	stop	9	A	0.01	9	A	0.02

¹ *Highway Capacity Manual*. Transportation Research Board, Washington DC. 2000.



Based on the existing volumes and intersection control, the subject intersections provide excellent overall levels of service (LOS A) with minimal delays during both peak hours. While the intersection of Beaver Street with Alice Street and Lansdowne Street has not been assessed, excellent levels of service can be inferred based on the findings at the other intersections and given that it serves the least number of vehicles of all the intersections.

2.3.2 Road Section Operations

As previously noted, the study area road network consists of local roads. As per industry standards, a typical local road has a lane capacity of 400 vehicles per hour per lane (vphpl). In considering the 2019 traffic volumes, the peak hour peak directional volumes are in the order of 100 vehicles or less. In this respect, the local road network is operating at 25% of capacity or less.



3 Alternative Solutions

In consideration of the planned reconstruction of Victoria Street and Louisa Street, the Town is exploring the opportunity to address the existing alignment of the intersections of Beaver Street with Victoria Street and Louisa Street in parallel with the reconstruction work.

Various alternative solutions have been developed for consideration. The alternatives range from permanent road closures to operational improvements to reduce the volume of traffic utilizing the skewed intersections (and thus mitigating safety concerns). The alternative solutions are described below and further addressed in Chapters 4 and 5.

3.1 BASIS FOR DESIGN

It is generally desirable that an intersection be configured so that the roads intersect at an angle of 90°. Where skewing of the intersection is required, the Transportation Association of Canada (TAC) *Geometric Design Guideline for Canadian Roads*² recommends that an angle of skew within $\pm 20^\circ$ of a right angle be maintained (i.e. between 70° and 110°). Intersection angles that are less than 70° or greater than 110° are not recommended for the following reasons:

- flat angle of entry will encourage drivers to disobey the control device and enter the free flow street without stopping;
- vehicles that obey the stop control are standing in a position that affords poor visibility for judging the speed and distance of approaching vehicles;
- vehicles leaving the free flow movement are encouraged to enter the side street at high speeds due to the flat angle (potentially causing them to travel in the opposing lane of the side street);
- flat angle increases the distance to cross; and
- sharp angle is difficult to navigate for larger vehicles and snowplows.

The road system in the study area is predominantly grid based, with roads intersecting with one another at 90°. The exception being Beaver Street, which bisects the grid at an angle, resulting in a number of skewed intersections. As previously noted, the angle of intersection of Beaver Street with Victoria Street and Louisa Street is approximately 45°, which is well below the skew tolerance noted in the TAC design manual.

² *Geometric Design Guideline for Canadian Roads*. Transportation Association of Canada. June 2017



3.2 ALTERNATIVE 1 - MAINTAIN STATUS QUO

Maintaining the status quo assumes no changes to the existing road network. While it is recognized that this does not reflect any improvements, it has been considered in order to provide a reference or baseline scenario when assessing the other alternatives (particularly from an operations perspective).

3.3 ALTERNATIVE 2 - CLOSE BEAVER STREET FROM VICTORIA STREET TO LOUISA STREET

Alternative 2 considers the closure of Beaver Street from Victoria Street, thus eliminating the intersection of Beaver Street with Victoria Street and reducing the intersection of Beaver Street with Louisa Street from a 4-leg to a 3-leg intersection. With re-configuration to a 3-leg intersection, it has been assumed that the existing stop control on Louisa Street would be removed and stop control applied to Beaver Street (thus being consistent with a typical 'T' intersection).

Despite the road closure, access to the Foodland/LCBO would be maintained via Victoria Street. Under Alternative 2A (refer to Figure 3), the access would be relocated to the north in order to utilize the existing Beaver Street right-of-way to connect to Victoria Street at 90° (an aligning with the internal Foodland drive aisle). Under Alternative 2B (refer to Figure 4), the existing access is maintained and extended easterly through the adjacent vacant property to create a new connection with Victoria Street.

3.4 ALTERNATIVE 3 - CLOSE BEAVER STREET FROM VICTORIA STREET TO FOODLAND ACCESS

Alternative 3 (refer to Figure 5) explores the closure of Beaver Street from Victoria Street to the Foodland/LCBO access. The intersection of Beaver Street with Louisa Street would remain as currently configured with stop control on Louisa Street; however, given the closure of Beaver Street to the north of the commercial access, the north leg will only serve traffic accessing the Foodland/LCBO plaza.

Similar to Alternative 2, the intersection of Beaver Street with Victoria Street will be eliminated.

3.5 ALTERNATIVE 4 - CONVERT BEAVER STREET TO ONE-WAY SB & REALIGN

Alternative 4 (refer to Figure 6) involves converting Beaver Street to provide one-way operations in the southbound direction between Victoria Street and Louisa Street. With the north leg of the intersection of Beaver Street with Louisa Street becoming one-way in the southbound direction, it is recommended that the north leg be realigned to the east - thus, creating two 'T' intersections. This is recommended to prevent northbound vehicles on Beaver Street from accidentally proceeding through the intersection into the one-way section of Beaver Street (i.e. the wrong way). This alternative also converts the existing Foodland/LCBO access into a right-in/right-out.



3.6 ALTERNATIVE 5 - CLOSE BEAVER STREET AT ALICE STREET

Alternative 5 considers the closure of Beaver Street at Alice Street with the implementation of a cul-de-sac at the Beaver Street terminus (refer to Figure 7). While this improvement does not introduce any changes to the intersections of Beaver Street with Victoria Street and Louisa Street, it will alter the traffic patterns in the area and reduce the through volumes on Beaver Street significantly (in that “through” traffic will be forced to remain on Victoria Street).

This alternative has the added benefit of eliminating the northwest leg at the intersection of Beaver Street with Alice Street and Lansdowne Street, thus leaving it as a 4-leg intersection. With this reconfiguration, it has been assumed that the intersection will be converted to all-way stop control. While the volumes do not warrant all-way stop control, the south leg of the intersection (Beaver Street) remains at an angle and does not align with the north leg (Lansdowne Street). Thus, establishing the north-south movement as free flow is not recommended. A slight realignment of the remaining approaches to improve the intersection alignment has also been identified for consideration, as evident in Figure 7.



4 Future Conditions

For the purpose of assessing the traffic operations associated with each alternative solution, a 2030 horizon has been considered.

4.1 FUTURE TRAFFIC VOLUMES

The future volumes have been determined based on the existing volumes and historical and projected growth for the area.

4.1.1 Historic Traffic Growth

Historic traffic volumes were obtained from MTO for the segments of Highway 26 to the east and west of the Village of Thornbury. The Annual Average Daily Traffic (AADT) volumes on Highway 26 for the 10-year period of 2006 to 2016 (with 2016 being the most current published data) indicate an average annual increase of 1.14% to the east of Thornbury and 0.69% to the west.

4.1.2 Population & Employment Growth

As per 2016 census data, the population of the Town of The Blue Mountains increased from 6,450 in 2011 to 7,025 in 2016, translating to an annual increase of 1.7%. The census data also indicates that the population of Thornbury increased from 2,363 in 2011 to 2,485 in 2016, or 1.0% per annum.

The *Grey County Growth Management Strategy Update*³ forecasted the population of the Town of The Blue Mountains to increase from 6,850 in 2016 to 8,460 in 2036, which translates to an annual growth rate of 1.06%. It also projected that employment within the Town would grow from 4,170 in 2016 to 4,330 in 2036, or 0.19% per annum.

4.1.3 Overall Background Growth

While historic growth and projected population and employment data indicates that an annual growth rate of 1.0% is appropriate, a conservative growth rate of 2.0% per annum has been applied to the traffic volumes on the study area road network.

4.1.4 Development Growth

In reviewing the Town's development activity map, the following residential developments were located in the immediate area:

³ *Grey County Growth Management Strategy Update*. Hemson Consulting Ltd. December 17, 2015.



- Ashbury (Applevale) Subdivision - 11 single units located on the southwest corner of the intersection of Alfred Street with Victoria Street;
- Thornbury Meadows Subdivision - 86 units (singles, semis and towns) adult lifestyle development located on the southeast corner of the intersection of Napier Street with Victoria Street; and
- Towns of Thornbury Subdivision - 23 townhouse units located south of Louisa Street, between Lansdowne Street and Beaver Street (with access proposed to each).

The Ashbury (Applevale) Subdivision is built-out, whereas the Thornbury Meadows Subdivision is partially built. The Towns of Thornbury development has not yet commenced construction.

Given that trips associated with the Ashbury development and partially built Thornbury Meadows development were captured during the traffic counts, and further recognizing that the remaining units to be constructed are not expected to generate significant volumes (23 townhouses in the Towns of Thornbury + the remaining ± 60 adult lifestyle units in Thornbury Meadows will generate in the order of 30 trips during the PM peak hour), no adjustments have been made to account for the remaining development - rather, the 2% background growth rate is considered sufficient in addressing future traffic volumes. Regardless, the volumes on the road network are very low and the operations will not be impacted by the remaining development.

4.1.5 Future Traffic Volumes

The future traffic volumes were established based on the 2019 volumes, adjusted by an annual growth rate of 2% through to 2030. Furthermore, the volumes were redistributed through the network as necessary (based on anticipated travel routes) to reflect the impact of each alternative solution. The resulting 2030 volumes for each alternative are illustrated as follows:

- Alternative 1 - Figure 8;
- Alternative 2 - Figure 9;
- Alternative 3 - Figure 10;
- Alternative 4- Figure 11; and
- Alternative 5 - Figure 12.

4.2 FUTURE TRAFFIC OPERATIONS

4.2.1 Intersection Operations

To establish the operational impact of each alternative, the study area intersections were re-assessed to consider the 2030 traffic volumes and revised intersection configurations. As



previously noted, the volumes have been redistributed to reflect the revised traffic patterns associated with each alternative solution. Where zero movements were observed during the traffic counts, a minimum volume of 1 vehicle has been assumed.

As previously noted, the intersection of Beaver Street with Alice Street and Lansdowne Street is not included in the assessment as Synchro does not support 5-leg stop control intersections. However, the intersection is assessed under Alternative 4, whereby the intersection is reduced to a 4-leg intersection.

The results of the analyses are summarized in Table 2 through Table 6 (detailed operations worksheets are provided in Appendix C).

Table 2: 2030 Intersection Operations Alt 1 - Status Quo

INTERSECTION & MOVEMENT	CONTROL	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
		DELAY	LOS	V/C	DELAY	LOS	V/C
Beaver Street & Victoria Street	EB stop	9	A	0.05	9	A	0.08
Victoria Street & Louisa Street	EB stop	9	A	0.01	9	A	0.05
	WB stop	9	A	0.01	9	A	0.03
Beaver Street & Louisa Street	EB stop	9	A	0.00	9	A	0.00
	WB stop	9	A	0.01	9	A	0.03
Victoria Street & Alice Street	EB stop	9	A	0.01	9	A	0.02
	WB stop	9	A	0.02	9	A	0.03



Table 3: 2030 Intersection Operations Alt 2 - Close Beaver St from Victoria St to Louisa St

INTERSECTION & MOVEMENT	CONTROL		WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			DELAY	LOS	V/C	DELAY	LOS	V/C
			Foodland/LCBO Access & Victoria Street	EB	stop	9	A	0.03
Victoria Street & Louisa Street	EB	stop	9	A	0.04	10	B	0.06
	WB	stop	9	A	0.01	9	A	0.03
Beaver Street & Louisa Street	NB	stop	8	A	0.03	9	A	0.04
Victoria Street & Alice Street	EB	stop	9	A	0.01	9	A	0.02
	WB	stop	9	A	0.02	9	A	0.03

Table 4: 2030 Intersection Operations Alt 3 - Close Beaver St from Victoria St to Foodland

INTERSECTION & MOVEMENT	CONTROL		WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
			DELAY	LOS	V/C	DELAY	LOS	V/C
			Victoria Street & Louisa Street	EB	stop	9	A	0.06
Victoria Street & Louisa Street	WB	stop	9	A	0.01	10	B	0.03
	EB	stop	9	A	0.00	9	A	0.00
Beaver Street & Louisa Street	WB	stop	9	A	0.04	9	A	0.12
	EB	stop	9	A	0.01	9	A	0.02
Victoria Street & Alice Street	WB	stop	9	A	0.02	9	A	0.03



Table 5: 2030 Intersection Operations Alt 4 - Convert Beaver St to One-way SB & Realign

INTERSECTION & MOVEMENT	CONTROL	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
		DELAY	LOS	V/C	DELAY	LOS	V/C
Beaver Street (one-way) & Victoria Street	NBL free	1	A	0.01	3	A	0.02
Victoria Street & Louisa Street	EB stop	9	A	0.04	9	A	0.08
	WB stop	9	A	0.01	9	A	0.03
Beaver Street & Louisa Street	NB stop	8	A	0.03	8	A	0.03
Beaver Street (one-way) & Louisa Street	SB stop	9	A	0.03	9	A	0.09
Victoria Street & Alice Street	EB stop	9	A	0.01	9	A	0.02
	WB stop	9	A	0.02	9	A	0.03

Table 6: 2030 Intersection Operations Alt 5 - Close Beaver St at Alice St

INTERSECTION & MOVEMENT	CONTROL	WEEKDAY AM PEAK HOUR			WEEKDAY PM PEAK HOUR		
		DELAY	LOS	V/C	DELAY	LOS	V/C
Beaver Street & Victoria Street	EB stop	9	A	0.03	9	A	0.05
Victoria Street & Louisa Street	EB stop	9	A	0.01	9	A	0.05
	WB stop	9	A	0.01	10	B	0.03
Beaver Street & Louisa Street	EB stop	9	A	0.00	9	A	0.00
	WB stop	9	A	0.01	9	A	0.03
Victoria Street & Alice Street	EB stop	9	A	0.03	10	B	0.05
	WB stop	9	A	0.02	9	A	0.03
Beaver Street & Lansdowne Street/ Alice Street	EB stop	7	A	0.01	7	A	0.00
	WB stop	7	A	0.02	7	A	0.05
	NB stop	7	A	0.04	7	A	0.05
	SB stop	7	A	0.01	7	A	0.03



As indicated, the study area intersections will continue to provide excellent operations (LOS B or better) with minimal delays through the 2030 horizon regardless of the alternative solution introduced. It is also noted that the intersections operate at 14% of capacity or less ($v/c \leq 0.14$). This is an indication of the relatively low volumes on the study area road network, and the ability of the intersections to accommodate rerouted traffic and/or significant growth in traffic. Based on the results of the intersection assessment, intersection operations will not dictate the selection of a preferred alternative solution, recognizing that the intersection operations are excellent through 2030 regardless of improvement.

4.2.2 Road Section Operations

As previously noted, the study area roads have an assumed lane capacity of 400 vphpl (typical of a local road). In considering the projected 2030 traffic volumes, the peak hour peak directional volumes are in the order of 120 vehicles or less. In this respect, the local road network is operating at 30% of capacity or less.



5 Assessment of Alternative Solutions

This chapter provides an assessment of each alternative solution, considering traffic operations, development access, road safety and overall impacts to the road network.

5.1 ALTERNATIVE 1 - MAINTAIN STATUS QUO

As previously noted, the Status Quo alternative is intended for reference in the assessment of the other alternative solutions. While the intersections and road sections will provide excellent operations through the 2030 horizon based on the existing configurations, Alternative 1 does not address the primary safety concerns regarding the configuration of the intersections of Beaver Street with Victoria Street and Louisa Street.

5.2 ALTERNATIVE 2 - CLOSE BEAVER STREET FROM VICTORIA STREET TO LOUISA STREET

Advantages

- eliminates Beaver Street/Victoria Street intersection
- reduces Beaver Street/Louisa Street intersection to 3-legs (thus reducing the number of conflicting movements)
- maintains full-moves access to Foodland/LCBO plaza
- consistent with typical grid network
- does not impact existing stormwater features (Alternative 2A)
- no impact to internal layout of commercial parking area (Alt 2B)

Disadvantages

- limited separation between commercial access and Victoria Street/Louisa Street intersection
- commercial access located opposite residential properties
- impact to internal layout of commercial parking area (Alternative 2A)
- requires purchase of vacant corner lot (Alternative 2B)
- additional costs associated with stormwater management features (Alternative 2B)

5.3 ALTERNATIVE 3 - CLOSE BEAVER STREET FROM VICTORIA STREET TO FOODLAND ACCESS

Advantages

- eliminates Beaver Street/Victoria Street intersection
- maintains full-moves access to Foodland/LCBO plaza
- utilizes existing Beaver Street platform as commercial access (i.e. no need to construct new access, no impact to existing SMW features)
- no need to purchase additional land

Disadvantages

- does not address Beaver Street/Louisa Street intersection
- increases conflicting left turn volumes at Beaver Street/Louisa Street intersection (WBL and SBL)



5.4 ALTERNATIVE 4 - CONVERT BEAVER STREET TO ONE-WAY SB & REALIGN

Advantages

- mitigates sight line concerns at Beaver Street/Victoria Street intersection by eliminating outbound movement from Beaver Street to Victoria Street
- reduces Beaver Street/Louisa Street intersection to 3-legs (thus reducing the number of conflicting movements)

Disadvantages

- does not full address intersection of Beaver Street with Victoria Street
- increases northbound left turn movement from Victoria Street to Beaver Street (difficult and unsafe manoeuvre due to intersection angle)
- reduces commercial access to right-in/right-out
- requires purchase of vacant corner lot
- increased construction costs associated with realignment of Beaver Street

5.5 ALTERNATIVE 5 - CLOSE BEAVER STREET AT ALICE STREET

Advantages

- reduces volumes at intersections of Beaver Street with Victoria Street and Louisa Street
- reduces the intersection of Beaver Street with Alice Street and Lansdowne Street to a 4-leg intersection
- traffic calming effect on Beaver Street (south of Alice Street) as Beaver Street will no longer be a free flow through movement at Alice Street (i.e. motorists traveling to or from intersection will be required to stop)

Disadvantages

- does not address substandard geometry of Beaver Street/Victoria Street or Beaver Street/Louisa Street
- property requirements to implement appropriate cul-de-sac

5.6 RECOMMENDED ALTERNATIVE

The alternative solutions have been ranked based on the advantages and disadvantages noted above and the degree to which each respective alternative addresses the overall concerns of the road network.

- 1st Alternative 2 - Close Beaver Street from Victoria Street to Louisa Street
- 2nd Alternative 3 - Close Beaver Street from Victoria Street to Foodland Access
- 3rd Alternative 4 - Convert Beaver Street to One-way SB & Realign
- 4th Alternative 5 - Close Beaver Street at Alice Street
- 5th Alternative 1 - Maintain Status Quo



5.6.1 Alternative 2

Alternative 2 is considered the preferred solution in that it best addresses safety concerns at the intersections of Beaver Street with Victoria Street and Louisa Street. Furthermore, it provides a standard 'T' intersection access to the existing commercial development.

As previously noted, Alternative 2 was subdivided into Alternatives 2A and 2B which differ only in how access to the Foodland/LCBO site is provided.

- With Alternative 2A, the access is located so as to make use of the existing Beaver Street ROW where it currently connects to Victoria Street. The primary benefits to this location are that it mitigates any impact to the existing stormwater features and does not require the purchase of property. However, shifting the access to the north will have significant impacts to the Foodland/LCBO site, as the parking area would require reconfiguration to accommodate the new access location.
- With Alternative 2B, the internal layout of the commercial plaza would not be impacted - the existing access location would remain as is. However, the extension to Victoria Street would require purchase of the adjacent property to the south. Furthermore, the access location in Alternative 2B would have impacts on the existing SMW features. Additional review is required to identify which alternative, 2A or 2B, is most appropriate in terms of cost and feasibility to construct.

Regardless of various advantages/disadvantages between Alternatives 2A and 2B, the overall impact of both on the study area road network are the same. In this respect, both Alternative 2A and 2B will provide the best overall benefit to the road network when compared to the other alternatives considered.

5.6.2 Interim Solution

Recognizing that Alternatives 2A and 2B may not be immediately feasible from a cost or timing perspective (i.e. land acquisition, coordination with commercial property owners, cost to construct, etc.), Alternative 3 - Closure of Beaver Street from Victoria Street to the Commercial Access - is considered a reasonable interim solution. Similar to Alternative 2, Alternative 3 also eliminates the intersection of Beaver Street with Victoria Street - which is a key consideration of this study. While Alternative 3 does not address the conditions at the intersection of Beaver Street with Louisa Street, it is more readily implemented than Alternative 2 in that it does not require any land acquisition and does not impact the internal layout of the commercial plaza. Furthermore, Alternative 3 makes use of the existing Beaver Street ROW between Louisa Street and the commercial access, thus reducing the construction costs.



6 Summary

This study has reviewed various potential improvement opportunities for the Beaver/Victoria/Louisa intersections, assessing the impacts associated with each scenario with respect to traffic operations, development access, road safety and intersection design standards.

Existing Conditions

While the traffic operations on the study area road network are otherwise excellent in terms of intersection operation and mid-block capacity, the orientation of Beaver Street, which bisects the otherwise grid-based road network at a 45% angle, creates substandard intersections at Louisa Street and Victoria Street.

Alternative Solutions

In consideration of the planned reconstruction of Victoria Street and Louisa Street, the Town is exploring the opportunity to address the existing alignment of the intersections of Beaver Street with Victoria Street and Louisa Street in parallel with the reconstruction work. In identifying a preferred solution, the following alternative solutions were considered:

- Alternative 1 - Maintain Status Quo;
- Alternative 2 - Close Beaver Street from Victoria Street to Louisa Street;
- Alternative 3 - Close Beaver Street from Victoria Street to Foodland Access;
- Alternative 4- Convert Beaver Street to One-way SB & Realign; and
- Alternative 5 - Close Beaver Street at Alice Street.

Future Conditions

The intersection and mid-block operations were reviewed for the 2030 horizon with traffic volumes established from historic and projected growth for the area. An operations assessment was completed for each improvement, with traffic volumes redistributed through the network to reflect the impact of the various improvements on traffic patterns in the study area. The results of the operational assessment indicate that the road network will continue to provide excellent operations regardless of the alternative solution considered in the assessment. As such, intersection and mid-block operations will not dictate the selection of a preferred alternative solution



Recommended Solution

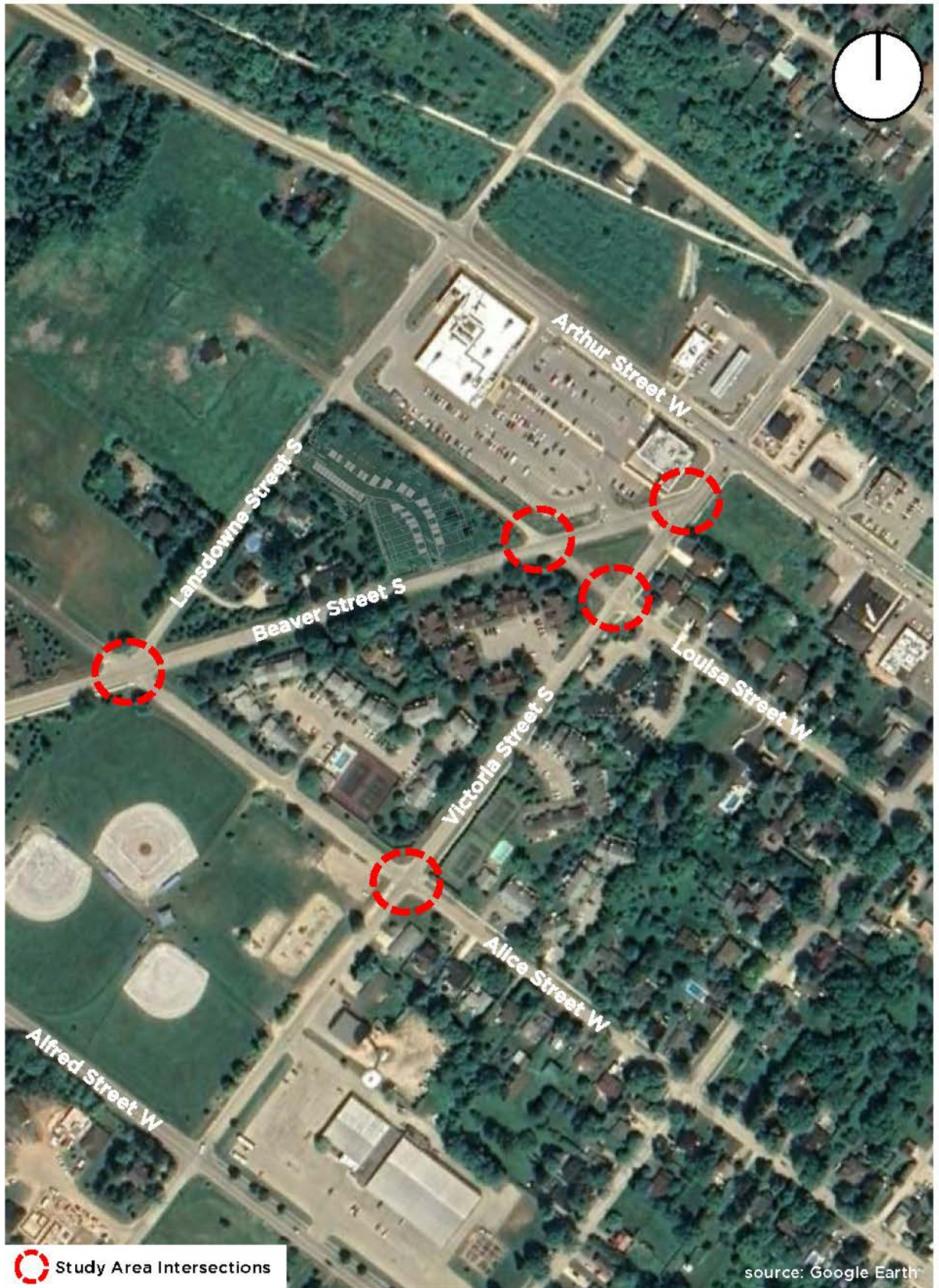
The alternative solutions were ranked based on the advantages and disadvantages of each alternative and the degree to which they addressed the overall concerns of the road network. As a result of the assessment, the following was identified as the preferred improvement solution given that it best addresses safety concerns at the intersections of Beaver Street with Victoria Street and Louisa Street:

- Alternative 2 - Close Beaver Street from Victoria Street to Louisa Street

As an interim solution, in the event that Alternative 2 is not immediately feasible, the following should be considered:

- Alternative 3 - Close Beaver Street from Victoria Street to Foodland Access.

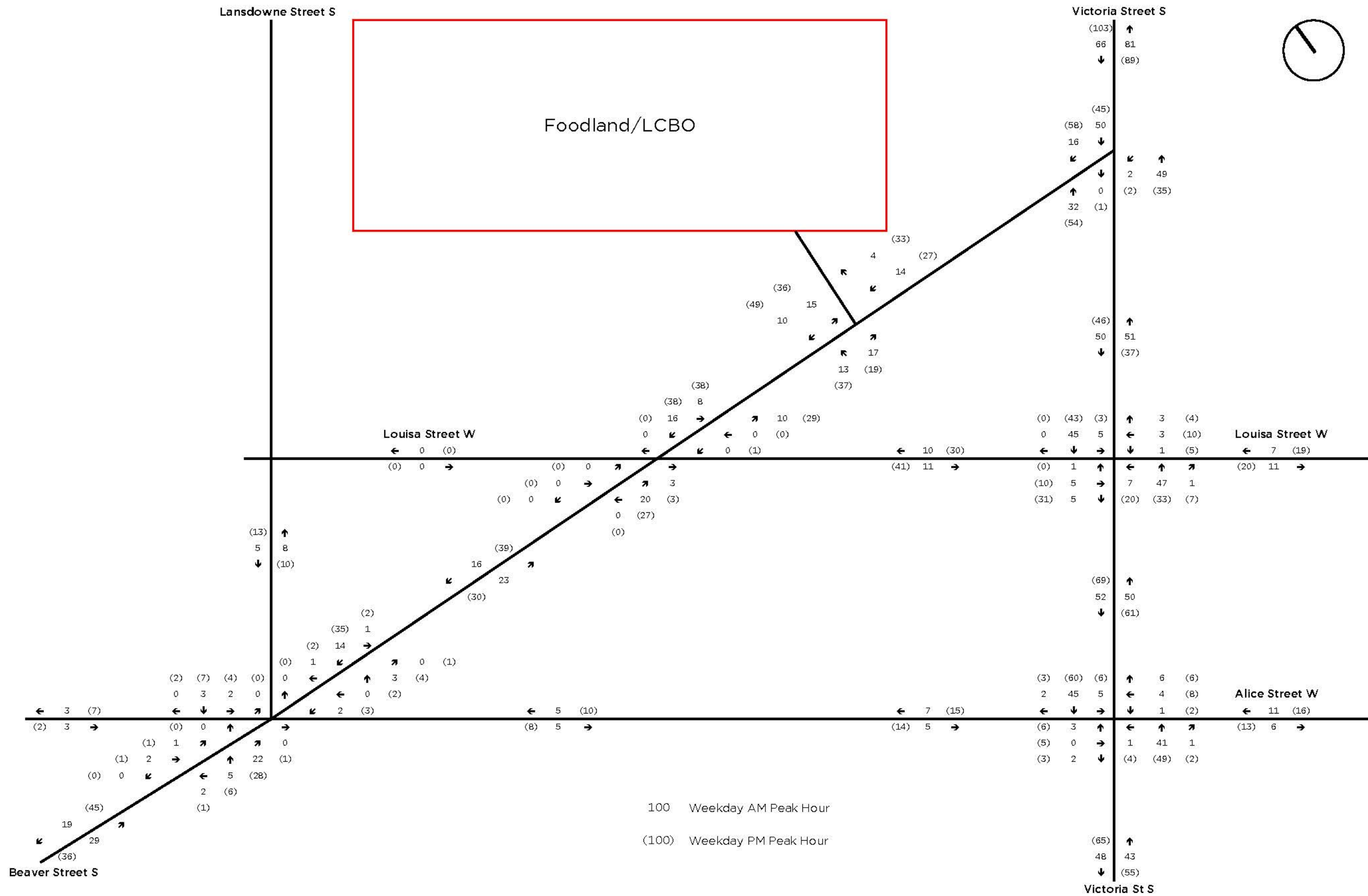




VICTORIA & LOUISA STREETS AREA RECONSTRUCTION

Figure 1: Study Area

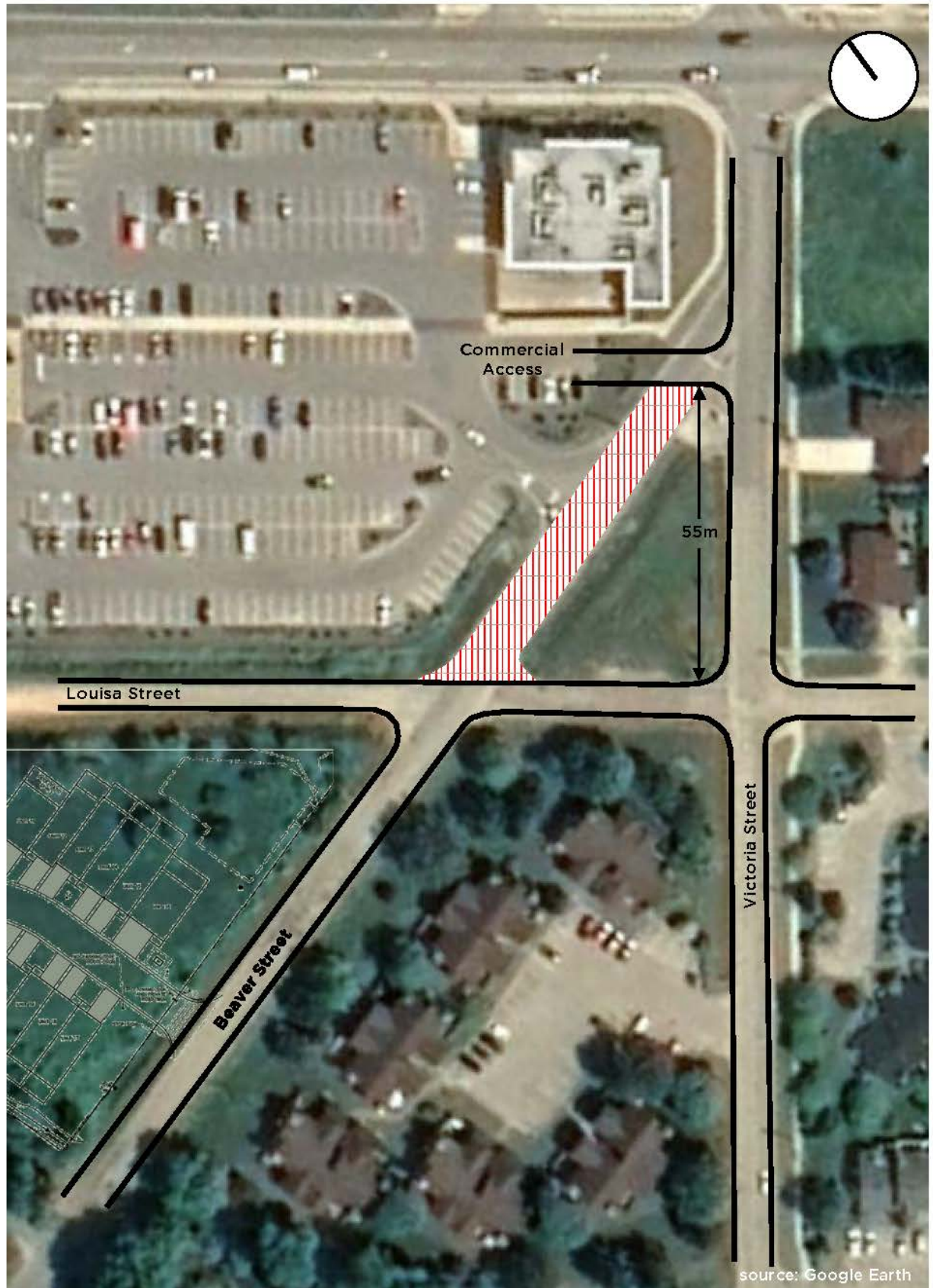




VICTORIA & LOUISA STREETS AREA RECONSTRUCTION

Figure 2: 2019 Traffic Volumes

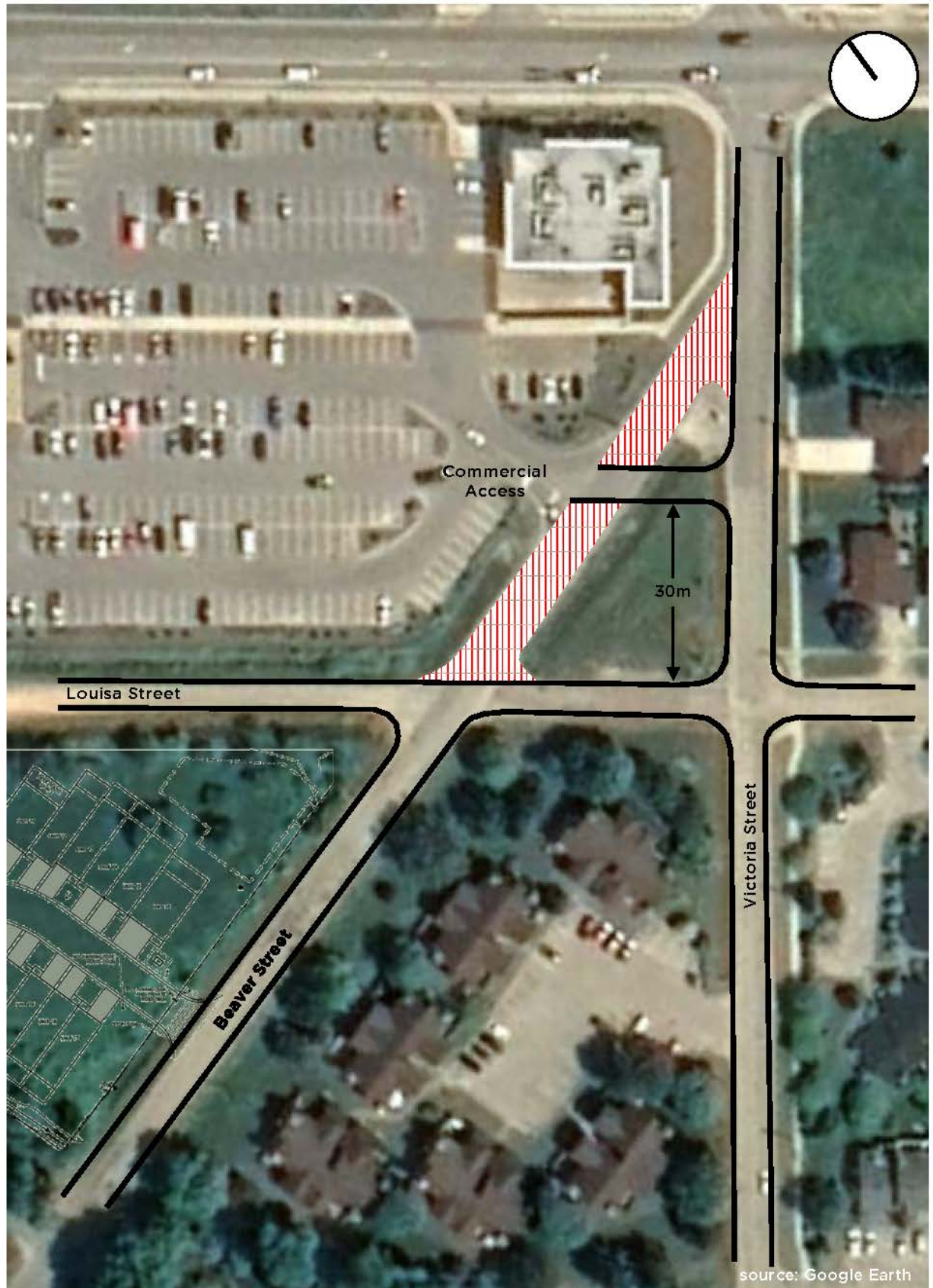




VICTORIA & LOUISA STREETS AREA RECONSTRUCTION

Figure 3: Alternative 2A - Close Beaver St from Victoria St to Louisa St

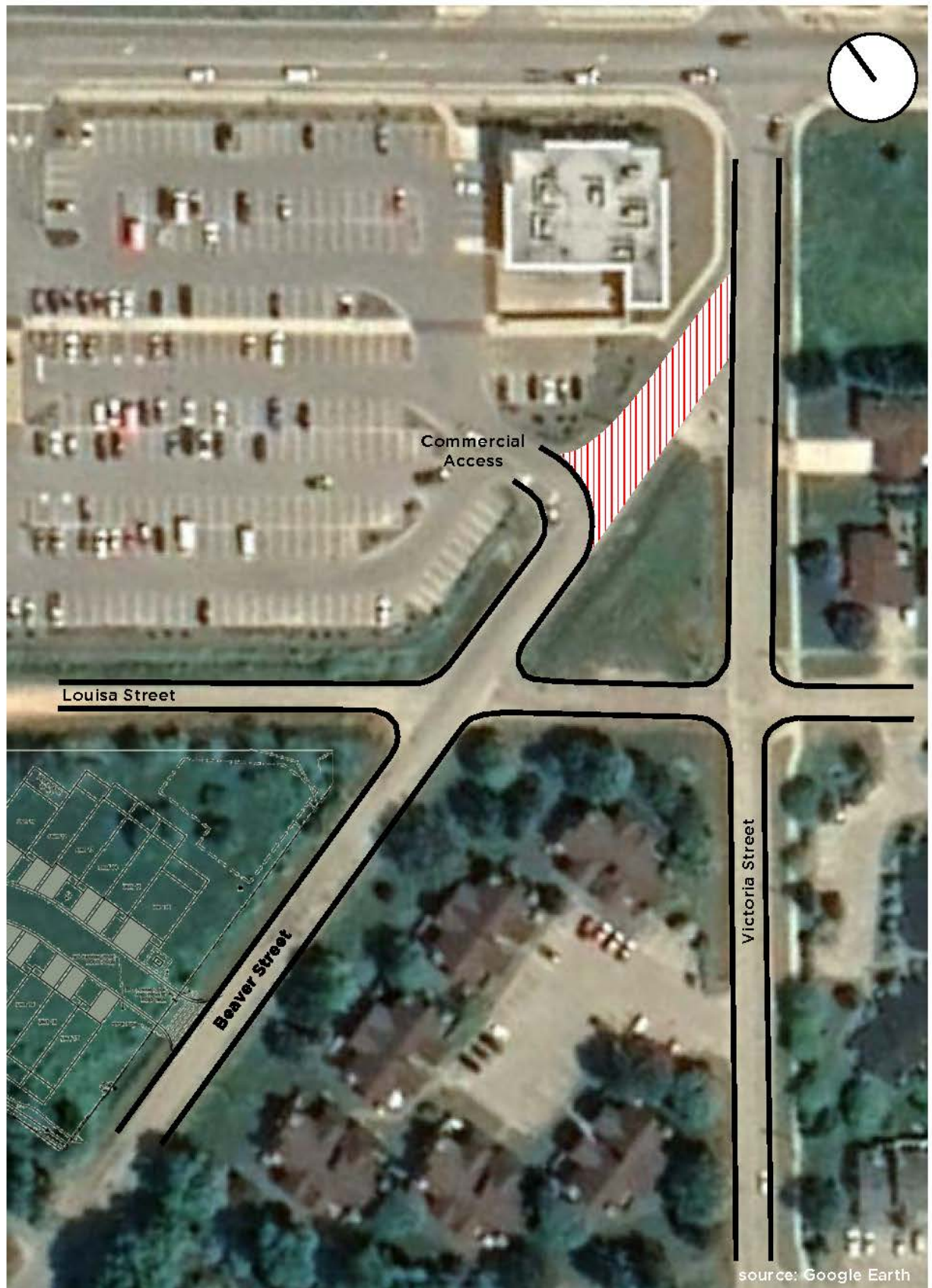




VICTORIA & LOUISA STREETS AREA RECONSTRUCTION

Figure 4: Alternative 2B - Close Beaver St from Victoria St to Louisa St

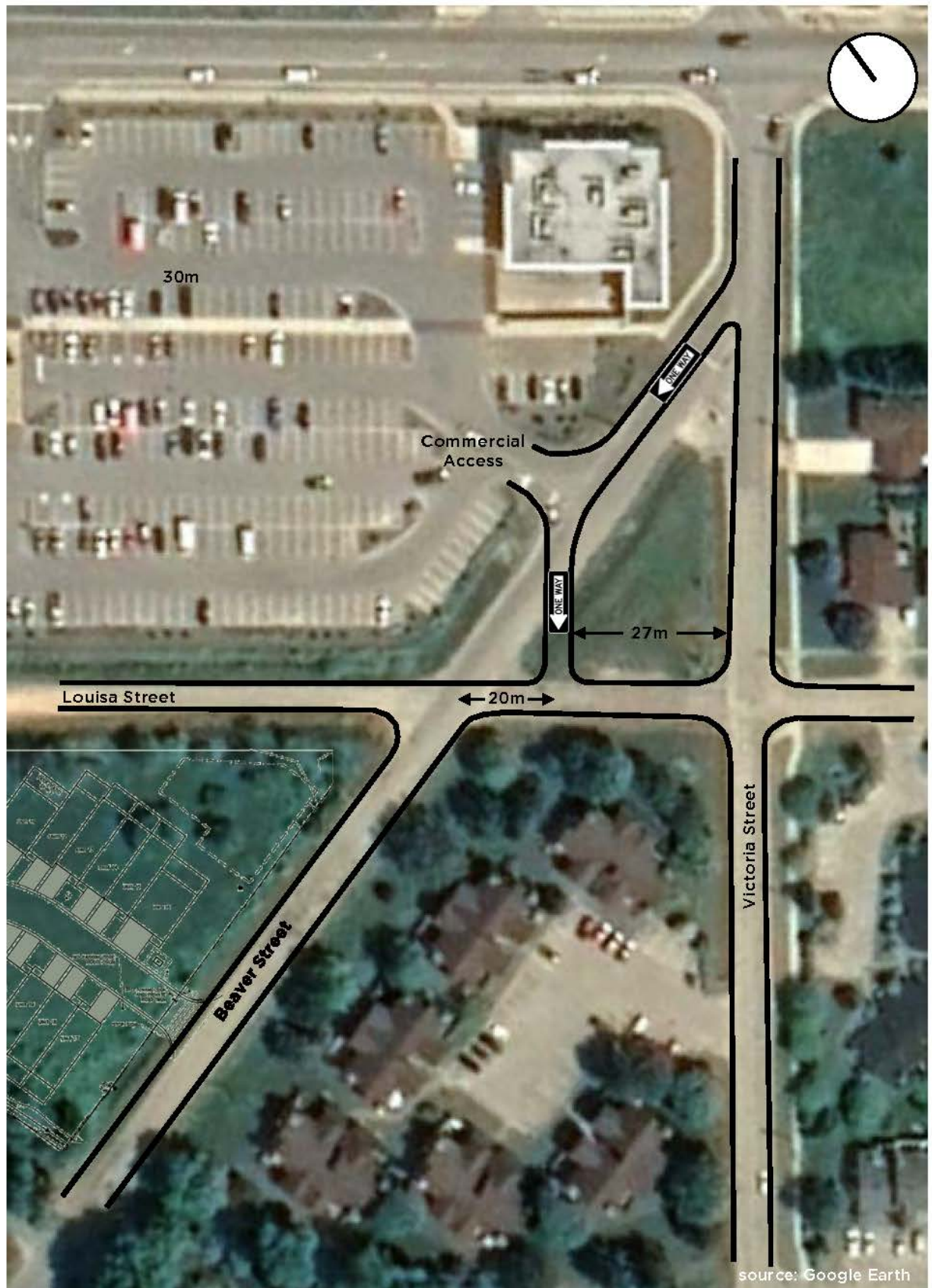




VICTORIA & LOUISA STREETS AREA RECONSTRUCTION

Figure 5: Alternative 3 - Close Beaver St from Victoria St to Foodland Access

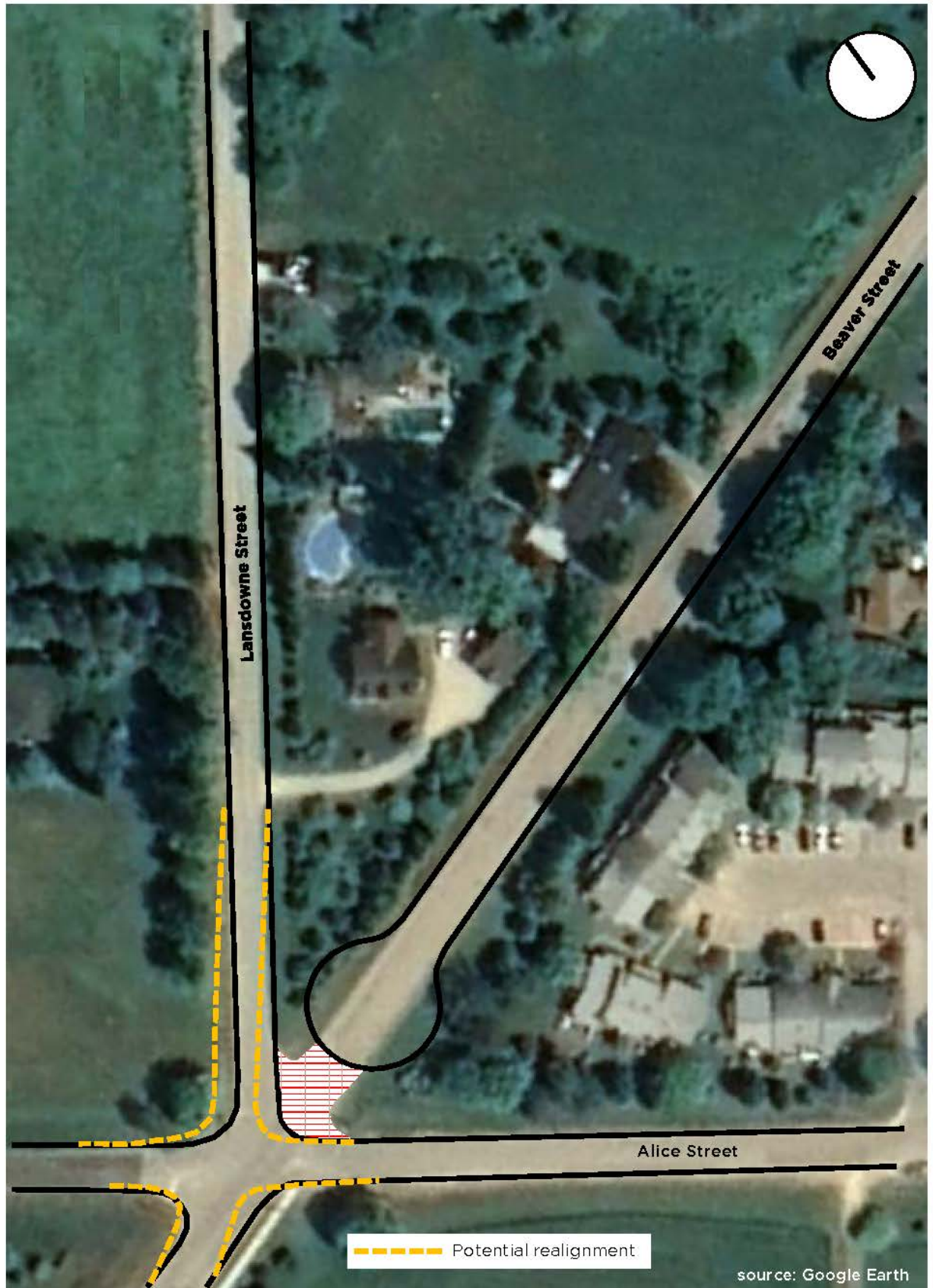




VICTORIA & LOUISA STREETS AREA RECONSTRUCTION

Figure 6: Alternative 4 - Convert Beaver St to One-way SB & Re-align

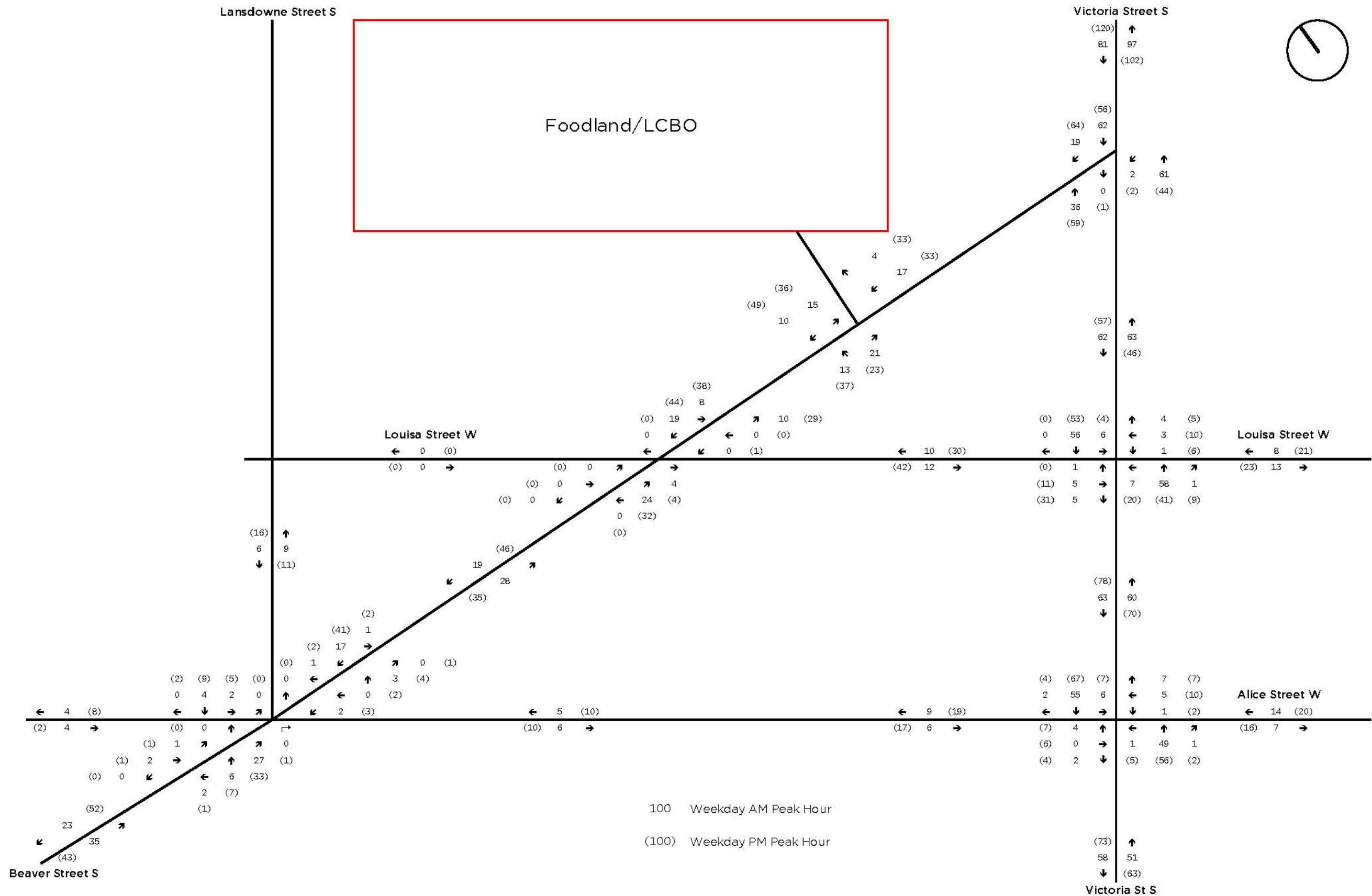




VICTORIA & LOUISA STREETS AREA RECONSTRUCTION

Figure 7: Alternative 5 - Close Beaver St at Alice St

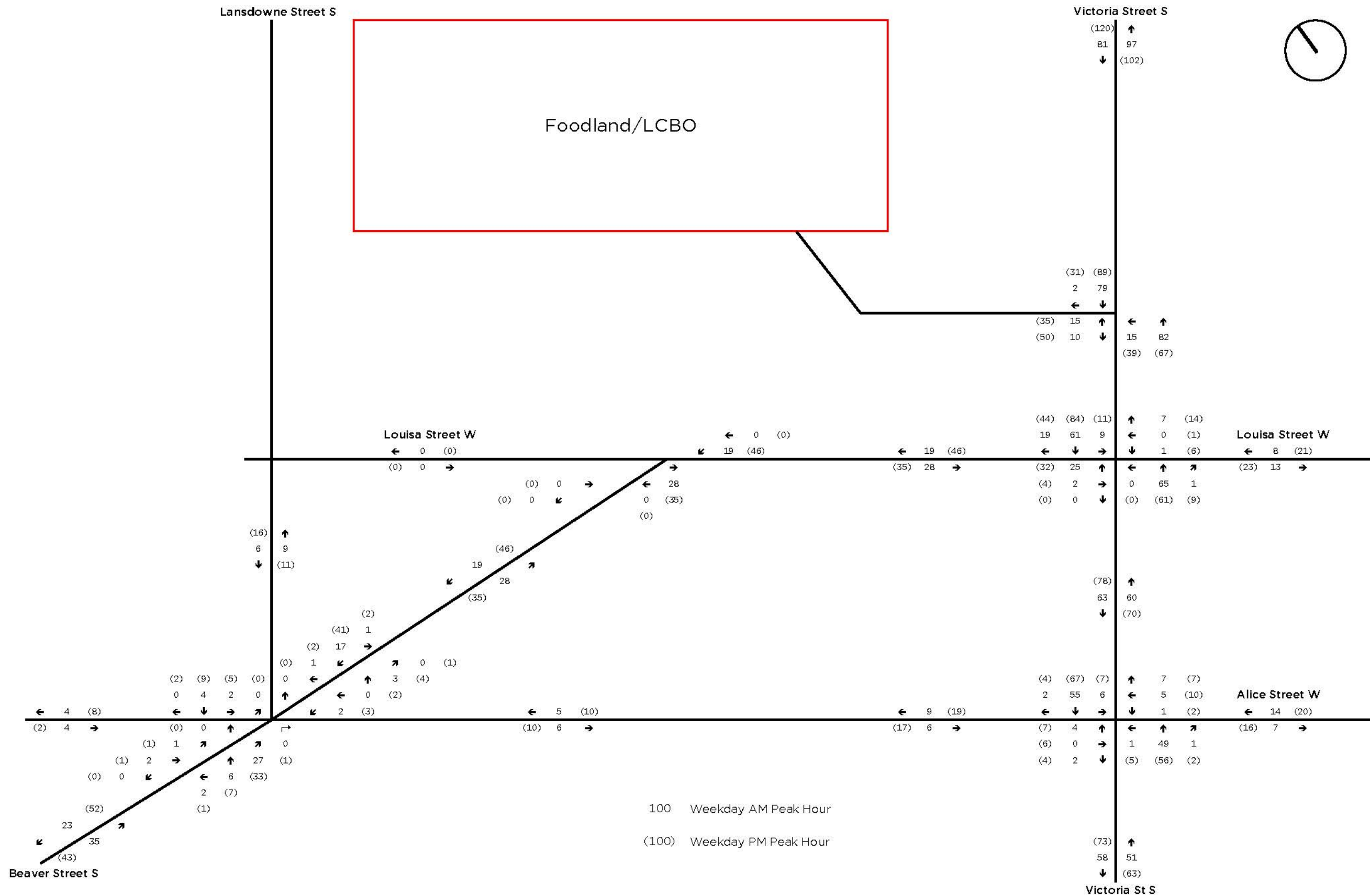




VICTORIA & LOUISA STREETS AREA RECONSTRUCTION

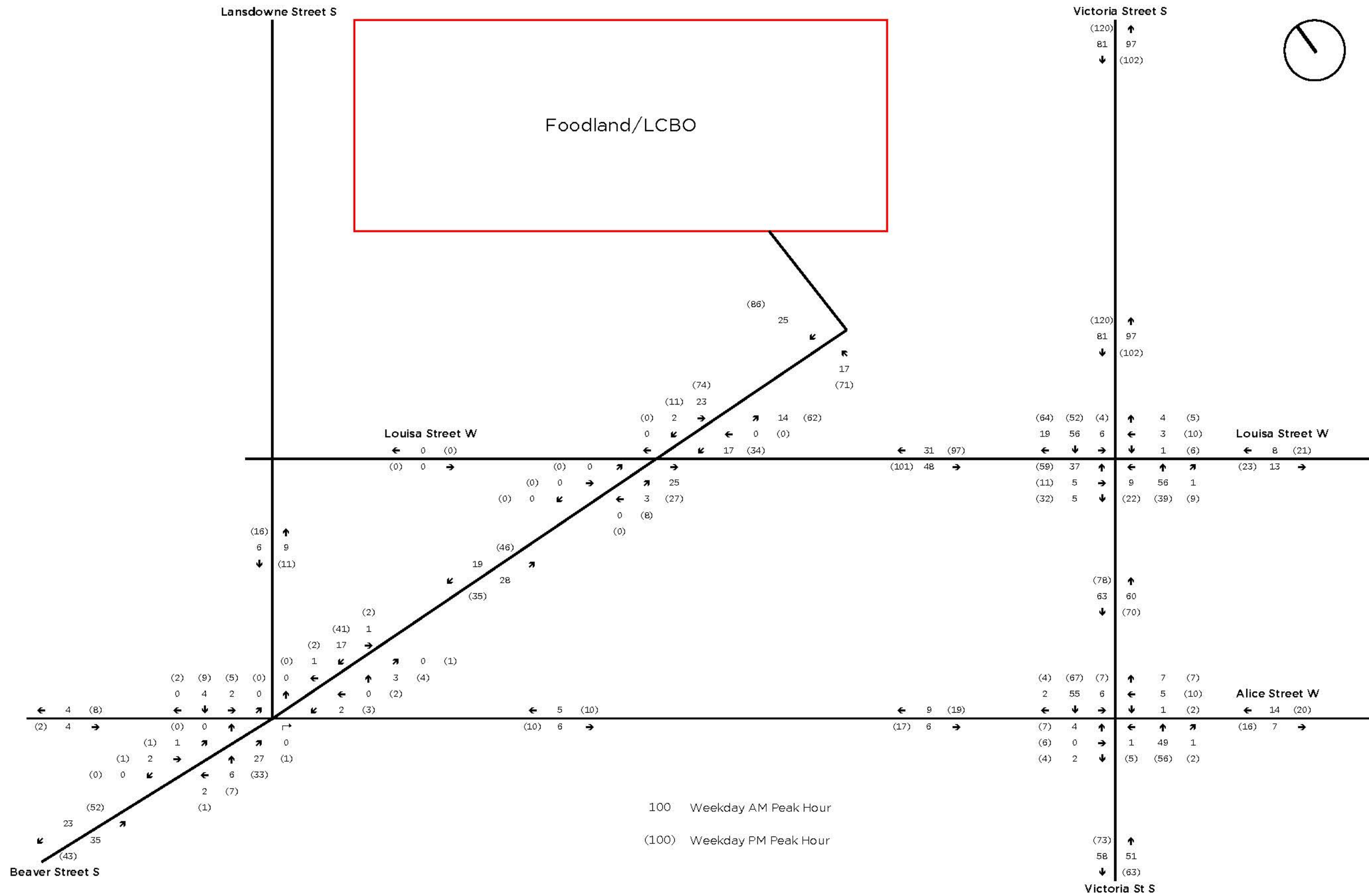
Figure 8: 2030 Traffic Volumes Alternative 1 - Maintain Status Quo





VICTORIA & LOUISA STREETS AREA RECONSTRUCTION
 Figure 9: 2030 Traffic Volumes Alternative 2 - Close Beaver St from Victoria St to Louisa St

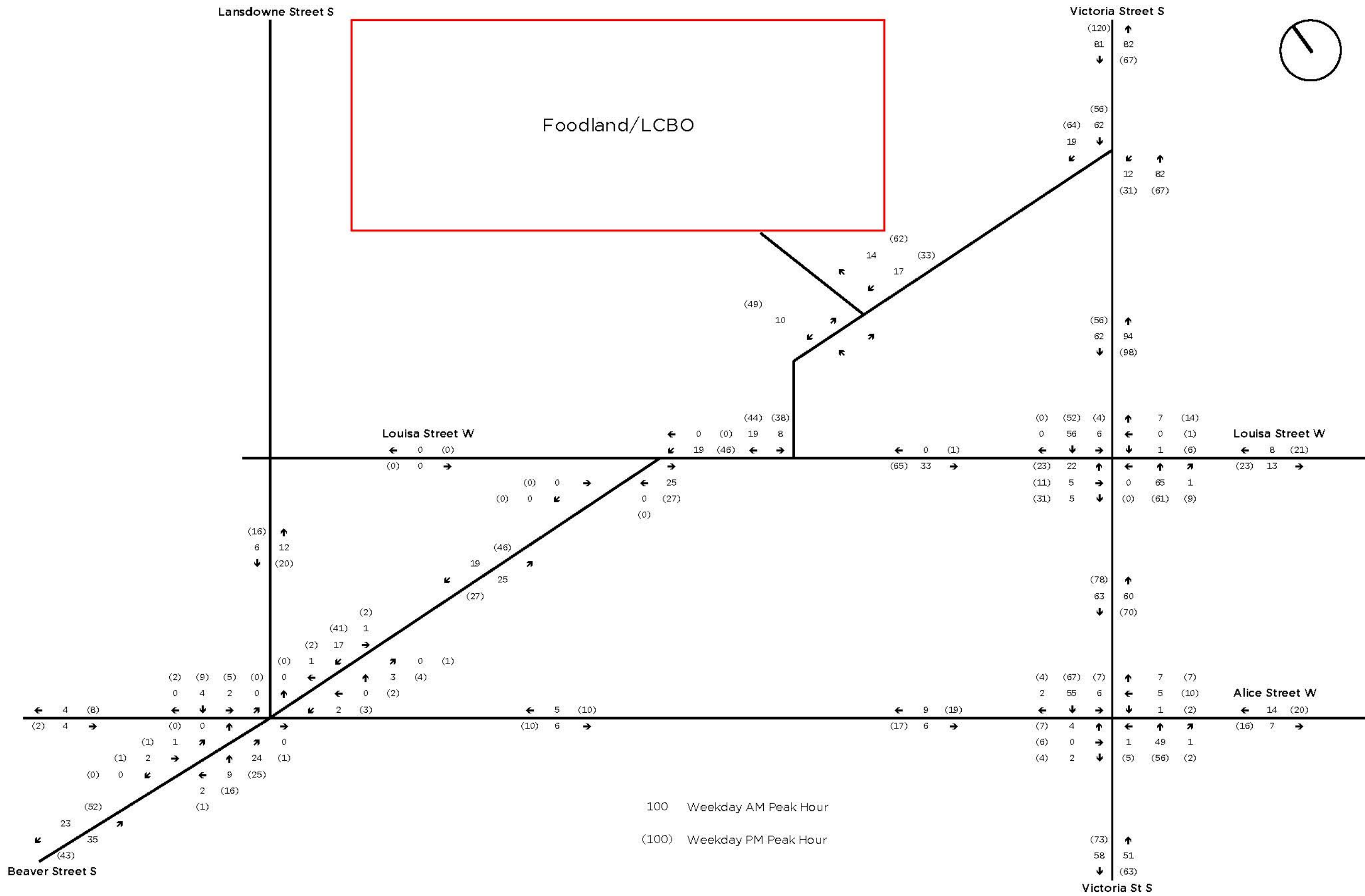




VICTORIA & LOUISA STREETS AREA RECONSTRUCTION

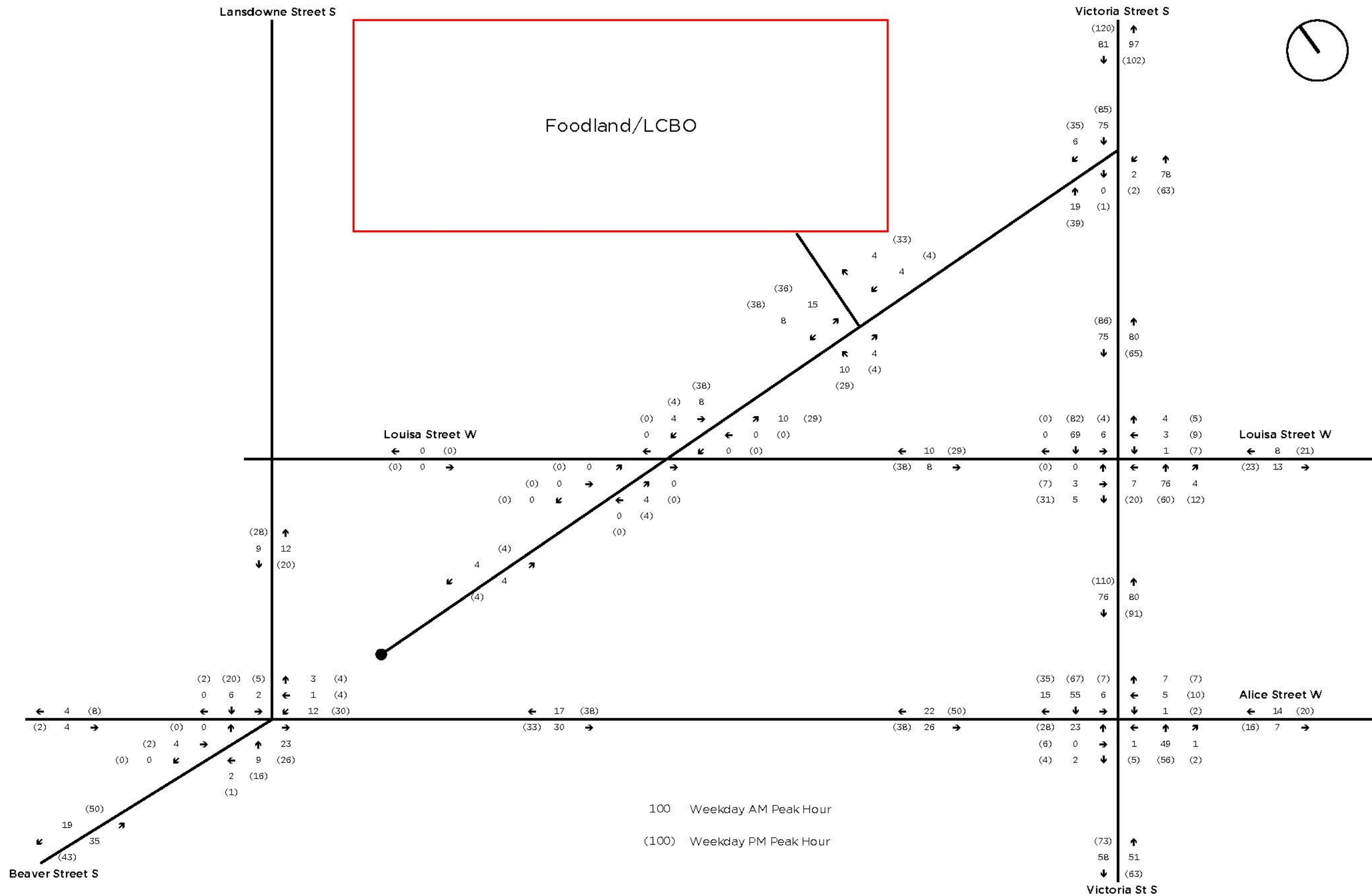
Figure 10: 2030 Traffic Volumes Alternative 3 - Close Beaver St from Victoria St to Foodland Access





VICTORIA & LOUISA STREETS AREA RECONSTRUCTION
 Figure 11: 2030 Traffic Volume Alternative 4 - Convert Beaver Street to One-way SB & Realign





VICTORIA & LOUISA STREETS AREA RECONSTRUCTION
 Figure 12: 2030 Traffic Volumes Alternative 5 - Close Beaver Street at Alice Street




Appendix A: Traffic Counts

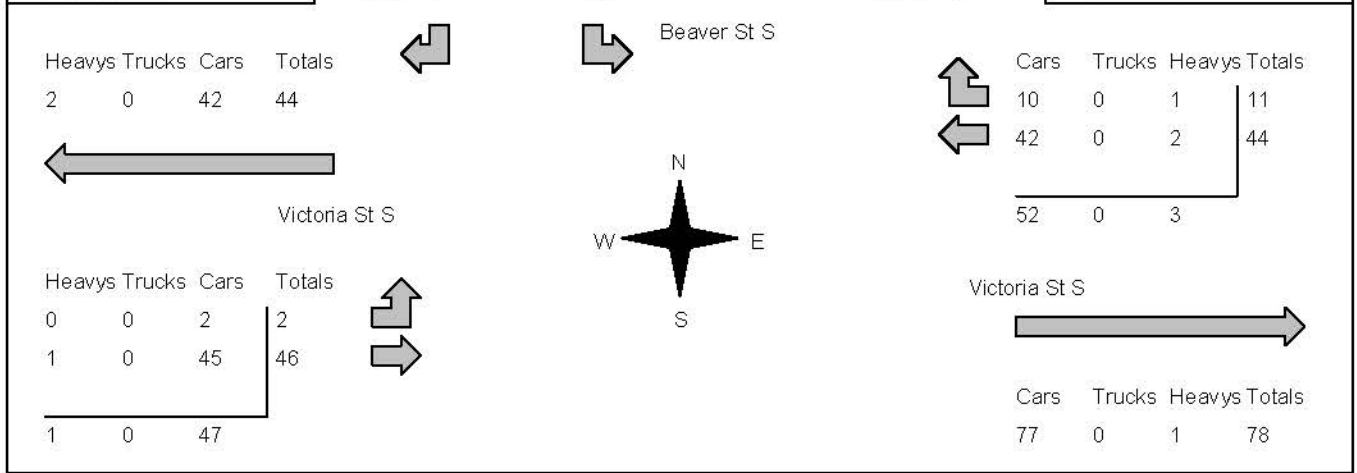
Accu-Traffic Inc.

Morning Peak Diagram	Specified Period From: 7:00:00 To: 10:00:00	One Hour Peak From: 9:00:00 To: 10:00:00
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Municipality: The Blue Mountains Site #: 1918900001 Intersection: Victoria St S & Beaver St S TFR File #: 1 Count date: 20-Nov-19	Weather conditions: Person counted: Person prepared: Person checked:
--	---

** Non-Signalized Intersection **	Major Road: Victoria St S runs W/E
--	---

North Leg Total: 45 North Entering: 32 North Peds: 0 Peds Cross: X	<table style="margin: auto;"> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Cars</td><td>0</td><td>32</td><td>32</td></tr> <tr><td>Totals</td><td>0</td><td>32</td><td></td></tr> </table>	Heavys	0	0	0	Trucks	0	0	0	Cars	0	32	32	Totals	0	32			Heavys 1 Trucks 0 Cars 12 Totals 13	East Leg Total: 133 East Entering: 55 East Peds: 0 Peds Cross: X
Heavys	0	0	0																	
Trucks	0	0	0																	
Cars	0	32	32																	
Totals	0	32																		



Peds Cross: X West Peds: 0 West Entering: 48 West Leg Total: 92	
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Comments

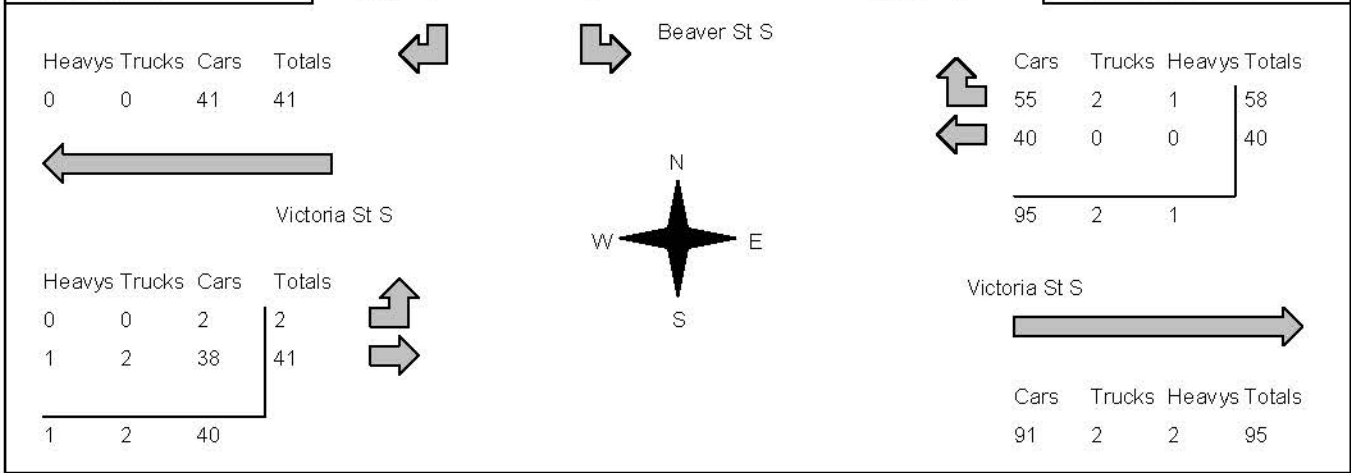
Accu-Traffic Inc.

Afternoon Peak Diagram	Specified Period From: 16:00:00 To: 19:00:00	One Hour Peak From: 16:00:00 To: 17:00:00
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Municipality: The Blue Mountains Site #: 1918900001 Intersection: Victoria St S & Beaver St S TFR File #: 1 Count date: 20-Nov-19	Weather conditions: Person counted: Person prepared: Person checked:
--	---

** Non-Signalized Intersection **	Major Road: Victoria St S runs W/E
--	---

North Leg Total: 115 North Entering: 55 North Peds: 0 Peds Cross: X	<table style="margin: auto;"> <tr><td>Heavys</td><td>0</td><td>1</td><td>1</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Cars</td><td>1</td><td>53</td><td>54</td></tr> <tr><td>Totals</td><td>1</td><td>54</td><td></td></tr> </table>	Heavys	0	1	1	Trucks	0	0	0	Cars	1	53	54	Totals	1	54			Heavys 1 Trucks 2 Cars 57 Totals 60	East Leg Total: 193 East Entering: 98 East Peds: 0 Peds Cross: X
Heavys	0	1	1																	
Trucks	0	0	0																	
Cars	1	53	54																	
Totals	1	54																		



Peds Cross: X West Peds: 1 West Entering: 43 West Leg Total: 84	
---	--

Comments

Accu-Traffic Inc.

Total Count Diagram

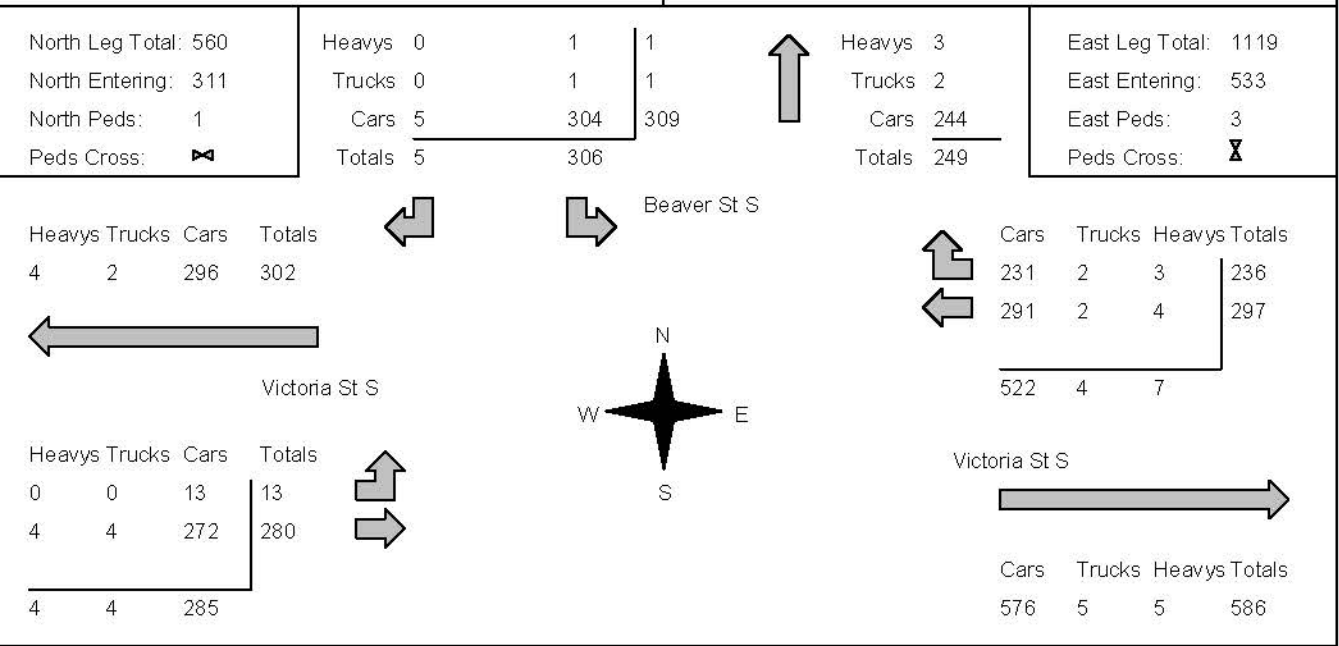
Municipality: The Blue Mountains
Site #: 1918900001
Intersection: Victoria St S & Beaver St S
TFR File #: 1
Count date: 20-Nov-19

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: Victoria St S runs W/E



Peds Cross:

West Peds: 4
 West Entering: 293
 West Leg Total: 595

Comments



Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

Intersection: **Victoria St S & Beaver St S** Count Date: **20-Nov-19** Municipality: **The Blue Mountains**

North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	23	0	0	23	0	23	8:00:00	0	0	0	0	0
9:00:00	20	0	2	22	0	22	9:00:00	0	0	0	0	0
10:00:00	32	0	0	32	0	32	10:00:00	0	0	0	0	0
12:00:00	0	0	0	0	0	0	12:00:00	0	0	0	0	0
13:00:00	49	0	0	49	1	49	13:00:00	0	0	0	0	0
14:00:00	51	0	1	52	0	52	14:00:00	0	0	0	0	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	54	0	1	55	0	55	17:00:00	0	0	0	0	0
18:00:00	43	0	0	43	0	43	18:00:00	0	0	0	0	0
19:00:00	34	0	1	35	0	35	19:00:00	0	0	0	0	0
Totals:	306	0	5	311	1	311	S Totals:	0	0	0	0	0
East Approach Totals						East/West Total Approaches	West Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	0	18	11	29	0	62	8:00:00	0	33	0	33	0
9:00:00	0	30	20	50	0	89	9:00:00	0	39	0	39	0
10:00:00	0	44	11	55	0	103	10:00:00	2	46	0	48	0
12:00:00	0	0	0	0	0	0	12:00:00	0	0	0	0	0
13:00:00	0	46	43	89	0	121	13:00:00	1	31	0	32	2
14:00:00	0	39	30	69	2	113	14:00:00	1	43	0	44	1
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	0	40	58	98	0	141	17:00:00	2	41	0	43	1
18:00:00	0	43	45	88	1	113	18:00:00	3	22	0	25	0
19:00:00	0	37	18	55	0	84	19:00:00	4	25	0	29	0
Totals:	0	297	236	533	3	826	W Totals:	13	280	0	293	4
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	8:00	9:00	10:00	13:00			14:00	17:00	18:00	19:00		
Crossing Values:	23	20	32	51			54	55	44	34		

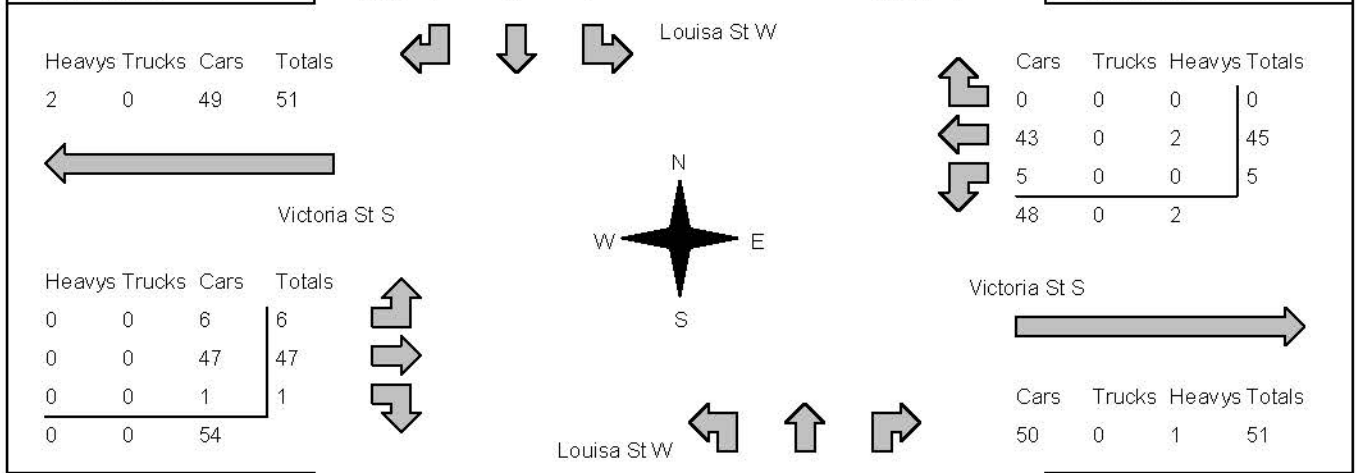
Accu-Traffic Inc.

Morning Peak Diagram	Specified Period From: 7:00:00 To: 10:00:00	One Hour Peak From: 9:00:00 To: 10:00:00
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Municipality: The Blue Mountains Site #: 1918900002 Intersection: Victoria St S & Louisa St W TFR File #: 1 Count date: 20-Nov-19	Weather conditions: Person counted: Person prepared: Person checked:
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** Non-Signalized Intersection **	Major Road: Victoria St S runs W/E
--	---

North Leg Total: 20 North Entering: 11 North Peds: 0 Peds Cross: \times	<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Cars</td><td>5</td><td>5</td><td>1</td><td>11</td></tr> <tr><td>Totals</td><td>5</td><td>5</td><td>1</td><td></td></tr> </table>	Heavys	0	0	0	0	Trucks	0	0	0	0	Cars	5	5	1	11	Totals	5	5	1		↑	<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Cars</td><td>9</td></tr> <tr><td>Totals</td><td>9</td></tr> </table>	Heavys	0	Trucks	0	Cars	9	Totals	9	East Leg Total: 101 East Entering: 50 East Peds: 4 Peds Cross: \times
Heavys	0	0	0	0																												
Trucks	0	0	0	0																												
Cars	5	5	1	11																												
Totals	5	5	1																													
Heavys	0																															
Trucks	0																															
Cars	9																															
Totals	9																															



Peds Cross: \times West Peds: 1 West Entering: 54 West Leg Total: 105	<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>11</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Heavys</td><td>0</td></tr> <tr><td>Totals</td><td>11</td></tr> </table>	Cars	11	Trucks	0	Heavys	0	Totals	11	↓	<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>1</td><td>3</td><td>2</td><td>6</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Heavys</td><td>0</td><td>0</td><td>1</td><td>1</td></tr> <tr><td>Totals</td><td>1</td><td>3</td><td>3</td><td></td></tr> </table>	Cars	1	3	2	6	Trucks	0	0	0	0	Heavys	0	0	1	1	Totals	1	3	3		Peds Cross: \times South Peds: 2 South Entering: 7 South Leg Total: 18
Cars	11																															
Trucks	0																															
Heavys	0																															
Totals	11																															
Cars	1	3	2	6																												
Trucks	0	0	0	0																												
Heavys	0	0	1	1																												
Totals	1	3	3																													

Comments

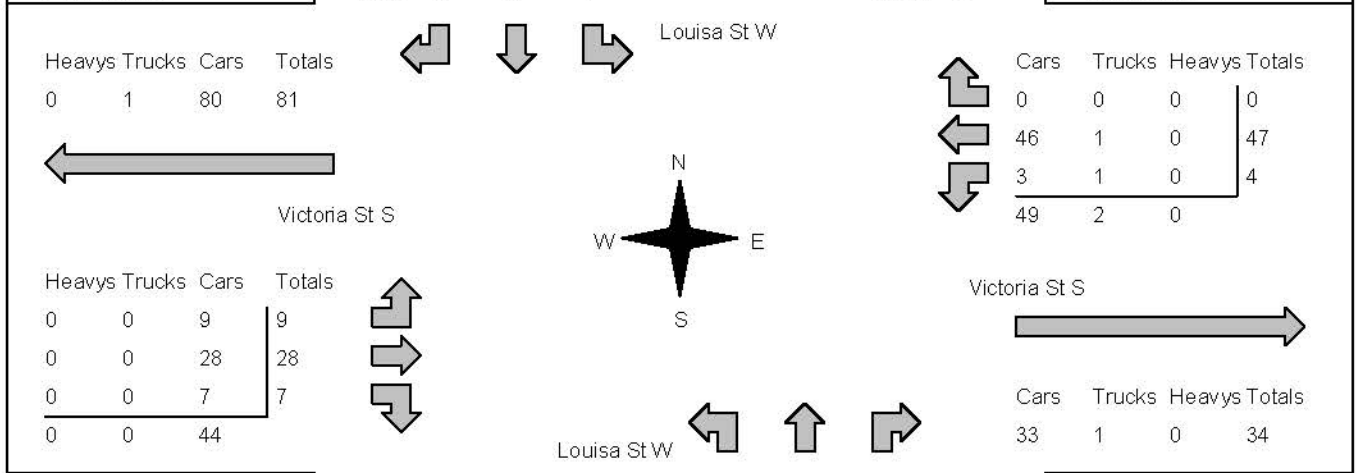
Accu-Traffic Inc.

Mid-day Peak Diagram	Specified Period From: 12:00:00 To: 14:00:00	One Hour Peak From: 12:15:00 To: 13:15:00
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Municipality: The Blue Mountains Site #: 1918900002 Intersection: Victoria St S & Louisa St W TFR File #: 1 Count date: 20-Nov-19	Weather conditions: Person counted: Person prepared: Person checked:
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**** Non-Signalized Intersection **** **Major Road:** Victoria St S runs W/E

North Leg Total: 50 North Entering: 31 North Peds: 0 Peds Cross: \times	<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Cars</td><td>26</td><td>3</td><td>2</td><td>31</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>26</td><td>3</td><td>2</td><td></td></tr> </table>	Heavys	0	0	0	0	Trucks	0	0	0	0	Cars	26	3	2	31	Totals	26	3	2		↑	<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Cars</td><td>19</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>19</td></tr> </table>	Heavys	0	Trucks	0	Cars	19	Totals	19	East Leg Total: 85 East Entering: 51 East Peds: 1 Peds Cross: \times
Heavys	0	0	0	0																												
Trucks	0	0	0	0																												
Cars	26	3	2	31																												
Totals	26	3	2																													
Heavys	0																															
Trucks	0																															
Cars	19																															
Totals	19																															



Peds Cross: \times West Peds: 1 West Entering: 44 West Leg Total: 125	<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>13</td></tr> <tr><td>Trucks</td><td>1</td></tr> <tr><td>Heavys</td><td>0</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>14</td></tr> </table>	Cars	13	Trucks	1	Heavys	0	Totals	14	↓	<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>8</td><td>10</td><td>3</td><td>21</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>1</td><td>1</td></tr> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>8</td><td>10</td><td>4</td><td></td></tr> </table>	Cars	8	10	3	21	Trucks	0	0	1	1	Heavys	0	0	0	0	Totals	8	10	4		Peds Cross: \times South Peds: 4 South Entering: 22 South Leg Total: 36
Cars	13																															
Trucks	1																															
Heavys	0																															
Totals	14																															
Cars	8	10	3	21																												
Trucks	0	0	1	1																												
Heavys	0	0	0	0																												
Totals	8	10	4																													


Comments

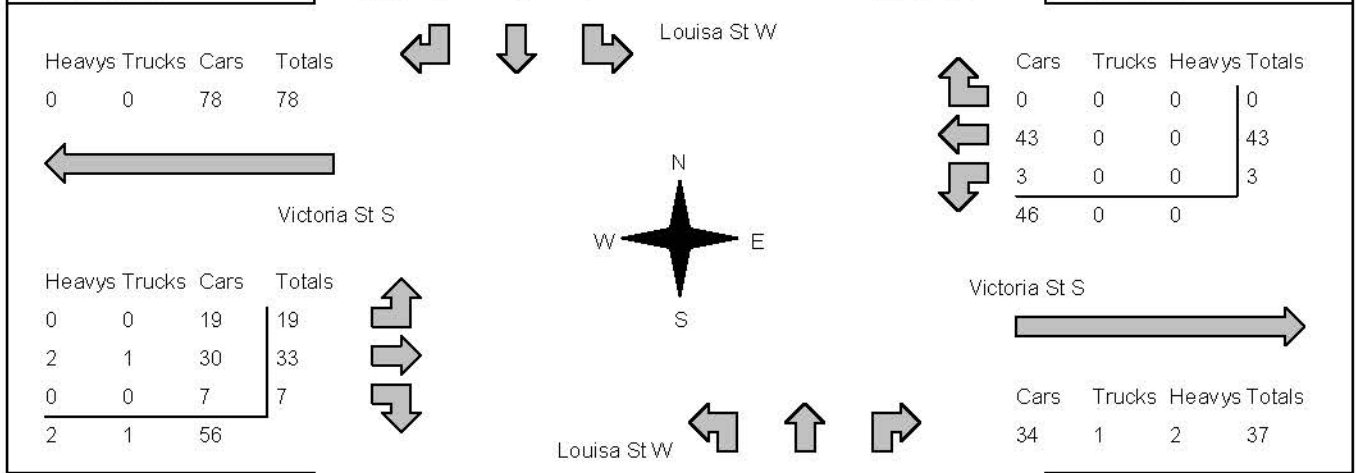
Accu-Traffic Inc.


Afternoon Peak Diagram	Specified Period From: 16:00:00 To: 19:00:00	One Hour Peak From: 16:15:00 To: 17:15:00
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Municipality: The Blue Mountains Site #: 1918900002 Intersection: Victoria St S & Louisa St W TFR File #: 1 Count date: 20-Nov-19	Weather conditions: Person counted: Person prepared: Person checked:
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** Non-Signalized Intersection **	Major Road: Victoria St S runs W/E
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North Leg Total: 69 North Entering: 40 North Peds: 0 Peds Cross: \times	<table style="margin: auto;"> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Cars</td><td>30</td><td>10</td><td>0</td><td>40</td></tr> <tr><td>Totals</td><td>30</td><td>10</td><td>0</td><td></td></tr> </table>	Heavys	0	0	0	0	Trucks	0	0	0	0	Cars	30	10	0	40	Totals	30	10	0			Heavys 0 Trucks 0 Cars 29 Totals 29	East Leg Total: 83 East Entering: 46 East Peds: 2 Peds Cross: \times
Heavys	0	0	0	0																				
Trucks	0	0	0	0																				
Cars	30	10	0	40																				
Totals	30	10	0																					



Peds Cross: \times West Peds: 2 West Entering: 59 West Leg Total: 137	<table style="margin: auto;"> <tr><td>Cars</td><td>20</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Heavys</td><td>0</td></tr> <tr><td>Totals</td><td>20</td></tr> </table>	Cars	20	Trucks	0	Heavys	0	Totals	20		<table style="margin: auto;"> <tr><td>Cars</td><td>5</td><td>10</td><td>4</td><td>19</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Totals</td><td>5</td><td>10</td><td>4</td><td></td></tr> </table>	Cars	5	10	4	19	Trucks	0	0	0	0	Heavys	0	0	0	0	Totals	5	10	4		Peds Cross: \times South Peds: 2 South Entering: 19 South Leg Total: 39
Cars	20																															
Trucks	0																															
Heavys	0																															
Totals	20																															
Cars	5	10	4	19																												
Trucks	0	0	0	0																												
Heavys	0	0	0	0																												
Totals	5	10	4																													

Comments

Accu-Traffic Inc.

Total Count Diagram

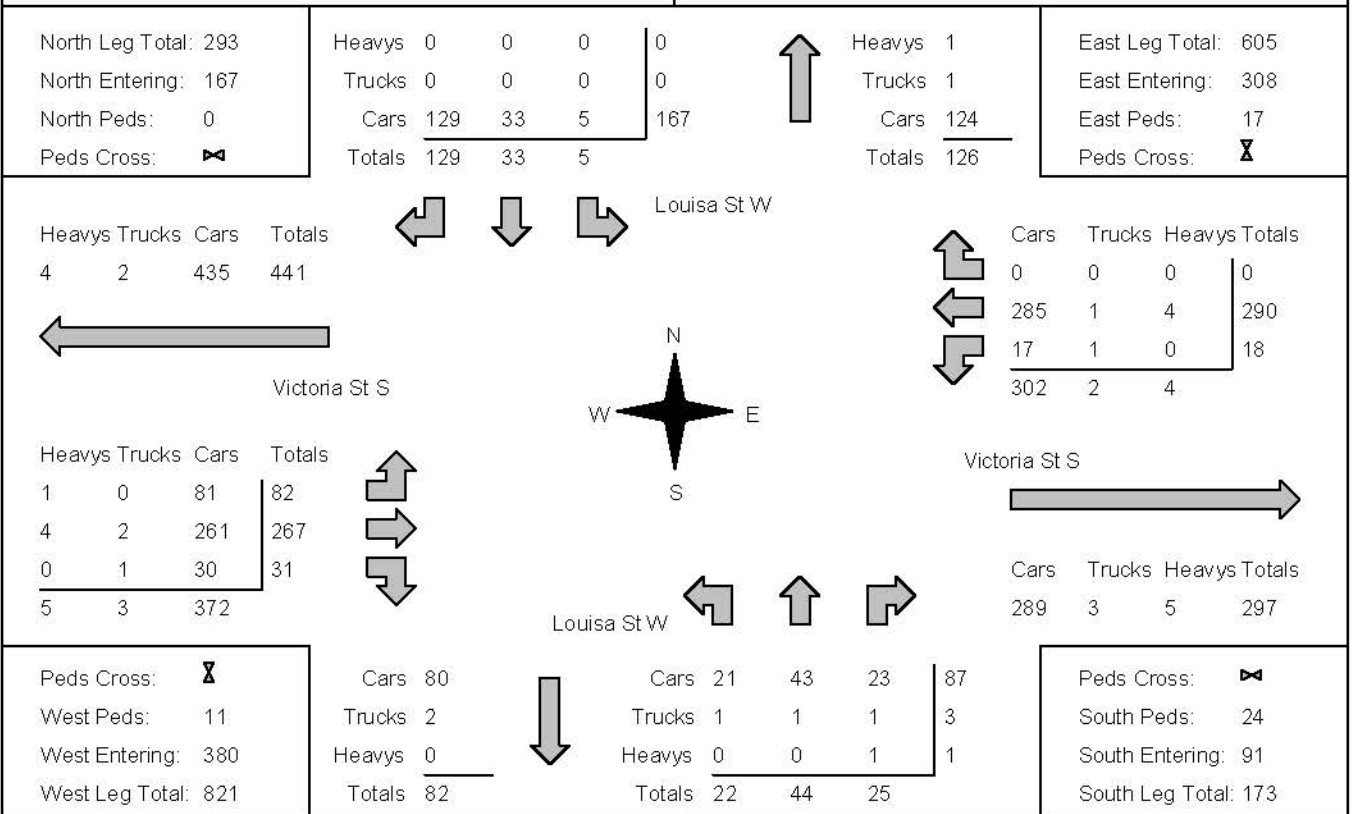
Municipality: The Blue Mountains
Site #: 1918900002
Intersection: Victoria St S & Louisa St W
TFR File #: 1
Count date: 20-Nov-19

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: Victoria St S runs W/E



Comments



Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

Intersection: **Victoria St S & Louisa St W** Count Date: **20-Nov-19** Municipality: **The Blue Mountains**

North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	0	1	3	4	0	7	8:00:00	1	0	2	3	4
9:00:00	1	1	3	5	0	11	9:00:00	2	1	3	6	1
10:00:00	1	5	5	11	0	18	10:00:00	1	3	3	7	2
12:00:00	0	0	0	0	0	0	12:00:00	0	0	0	0	0
13:00:00	1	4	28	33	0	49	13:00:00	5	7	4	16	3
14:00:00	1	3	17	21	0	43	14:00:00	5	10	7	22	3
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	0	9	29	38	0	54	17:00:00	2	11	3	16	5
18:00:00	0	9	27	36	0	48	18:00:00	4	7	1	12	2
19:00:00	1	1	17	19	0	28	19:00:00	2	5	2	9	4
Totals:	5	33	129	167	0	258	S Totals:	22	44	25	91	24
East Approach Totals						East/West Total Approaches	West Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	1	17	0	18	0	55	8:00:00	4	31	2	37	0
9:00:00	0	34	0	34	4	73	9:00:00	2	36	1	39	3
10:00:00	5	45	0	50	4	104	10:00:00	6	47	1	54	1
12:00:00	0	0	0	0	0	0	12:00:00	0	0	0	0	0
13:00:00	3	43	0	46	1	94	13:00:00	14	26	8	48	1
14:00:00	3	37	0	40	1	93	14:00:00	8	38	7	53	2
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	2	38	0	40	3	107	17:00:00	18	39	10	67	2
18:00:00	2	40	0	42	4	87	18:00:00	21	23	1	45	2
19:00:00	2	36	0	38	0	75	19:00:00	9	27	1	37	0
Totals:	18	290	0	308	17	688	W Totals:	82	267	31	380	11
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	8:00	9:00	10:00	13:00		14:00	17:00	18:00	19:00			
Crossing Values:	2	11	12	15		19	18	19	8			

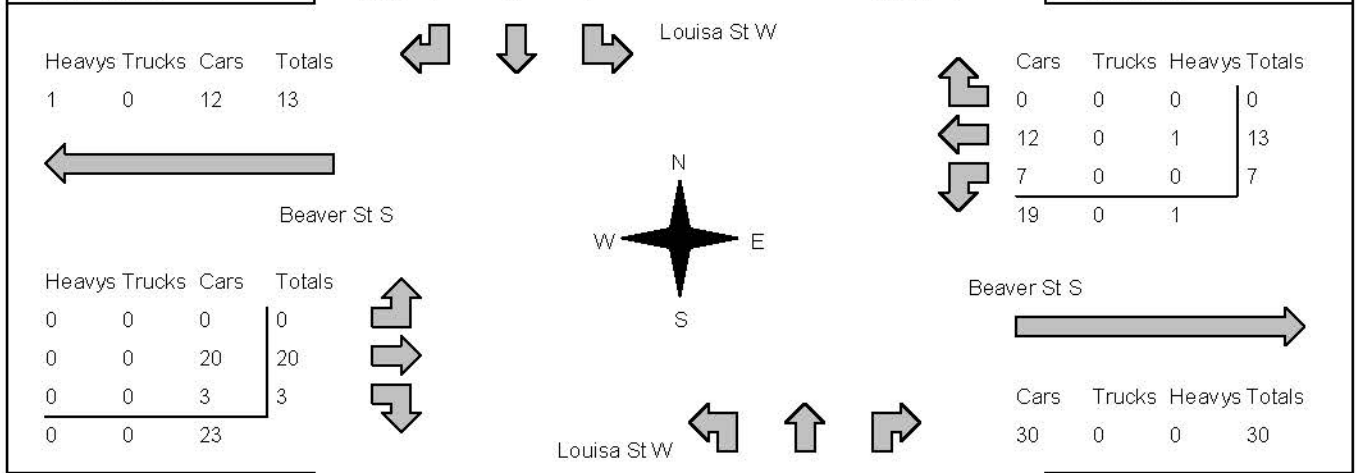
Accu-Traffic Inc.

Morning Peak Diagram	Specified Period From: 7:00:00 To: 10:00:00	One Hour Peak From: 9:00:00 To: 10:00:00
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Municipality: The Blue Mountains Site #: 1918900003 Intersection: Beaver St S & Louisa St W TFR File #: 1 Count date: 20-Nov-19	Weather conditions: Person counted: Person prepared: Person checked:
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** Non-Signalized Intersection **	Major Road: Beaver St S runs W/E
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North Leg Total: 0 North Entering: 0 North Peds: 0 Peds Cross: <input checked="" type="checkbox"/>	<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Cars</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> </table>	Heavys	0	0	0	0	Trucks	0	0	0	0	Cars	0	0	0	0	Totals	0	0	0	0	↑	<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Cars</td><td>0</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>0</td></tr> </table>	Heavys	0	Trucks	0	Cars	0	Totals	0	East Leg Total: 50 East Entering: 20 East Peds: 1 Peds Cross: <input checked="" type="checkbox"/>
Heavys	0	0	0	0																												
Trucks	0	0	0	0																												
Cars	0	0	0	0																												
Totals	0	0	0	0																												
Heavys	0																															
Trucks	0																															
Cars	0																															
Totals	0																															



Peds Cross: <input checked="" type="checkbox"/> West Peds: 0 West Entering: 23 West Leg Total: 36	<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>10</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Heavys</td><td>0</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>10</td></tr> </table>	Cars	10	Trucks	0	Heavys	0	Totals	10	↓	<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>0</td><td>0</td><td>10</td><td>10</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>0</td><td>0</td><td>10</td><td>0</td></tr> </table>	Cars	0	0	10	10	Trucks	0	0	0	0	Heavys	0	0	0	0	Totals	0	0	10	0	Peds Cross: <input checked="" type="checkbox"/> South Peds: 0 South Entering: 10 South Leg Total: 20
Cars	10																															
Trucks	0																															
Heavys	0																															
Totals	10																															
Cars	0	0	10	10																												
Trucks	0	0	0	0																												
Heavys	0	0	0	0																												
Totals	0	0	10	0																												

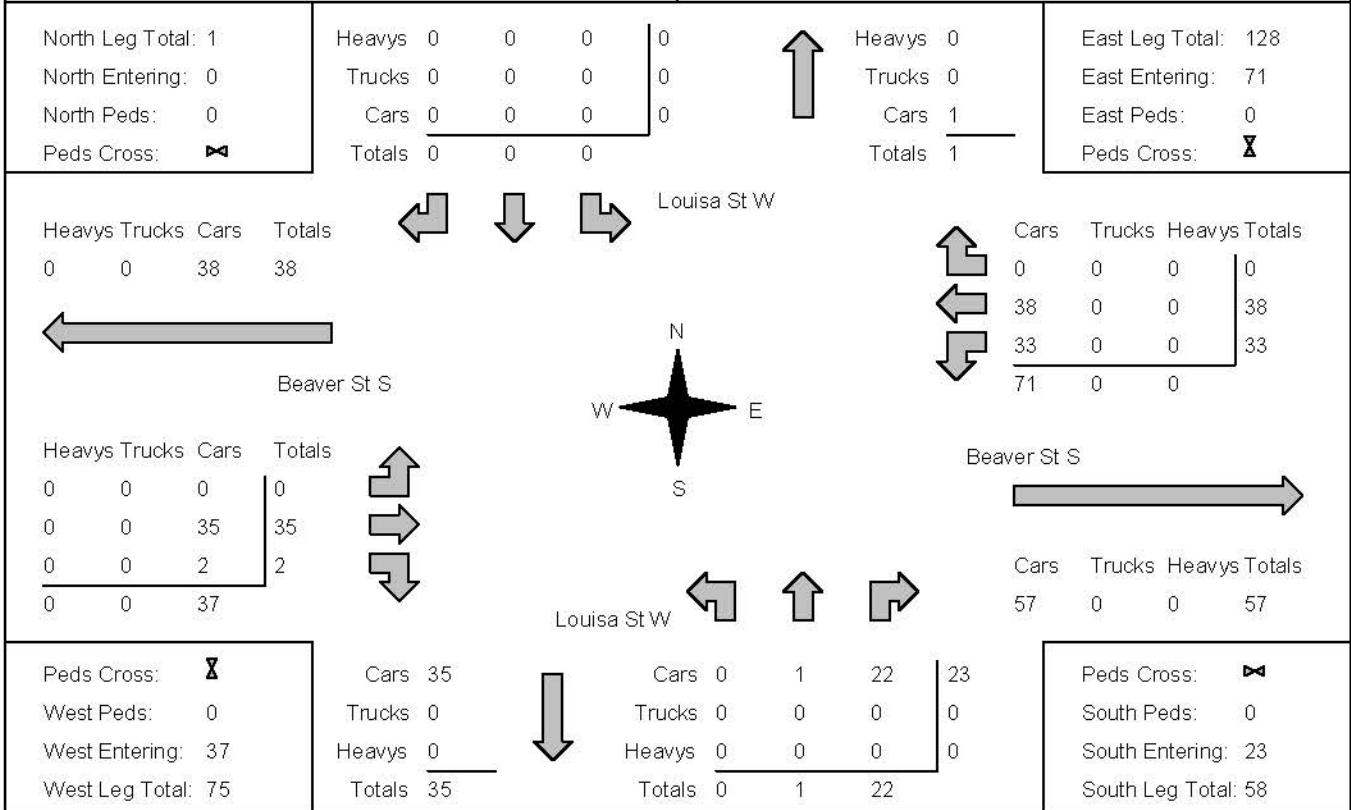
Comments

Accu-Traffic Inc.

Mid-day Peak Diagram	Specified Period From: 12:00:00 To: 14:00:00	One Hour Peak From: 12:00:00 To: 13:00:00
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Municipality: The Blue Mountains Site #: 1918900003 Intersection: Beaver St S & Louisa St W TFR File #: 1 Count date: 20-Nov-19	Weather conditions: Person counted: Person prepared: Person checked:
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**** Non-Signalized Intersection **** **Major Road:** Beaver St S runs W/E



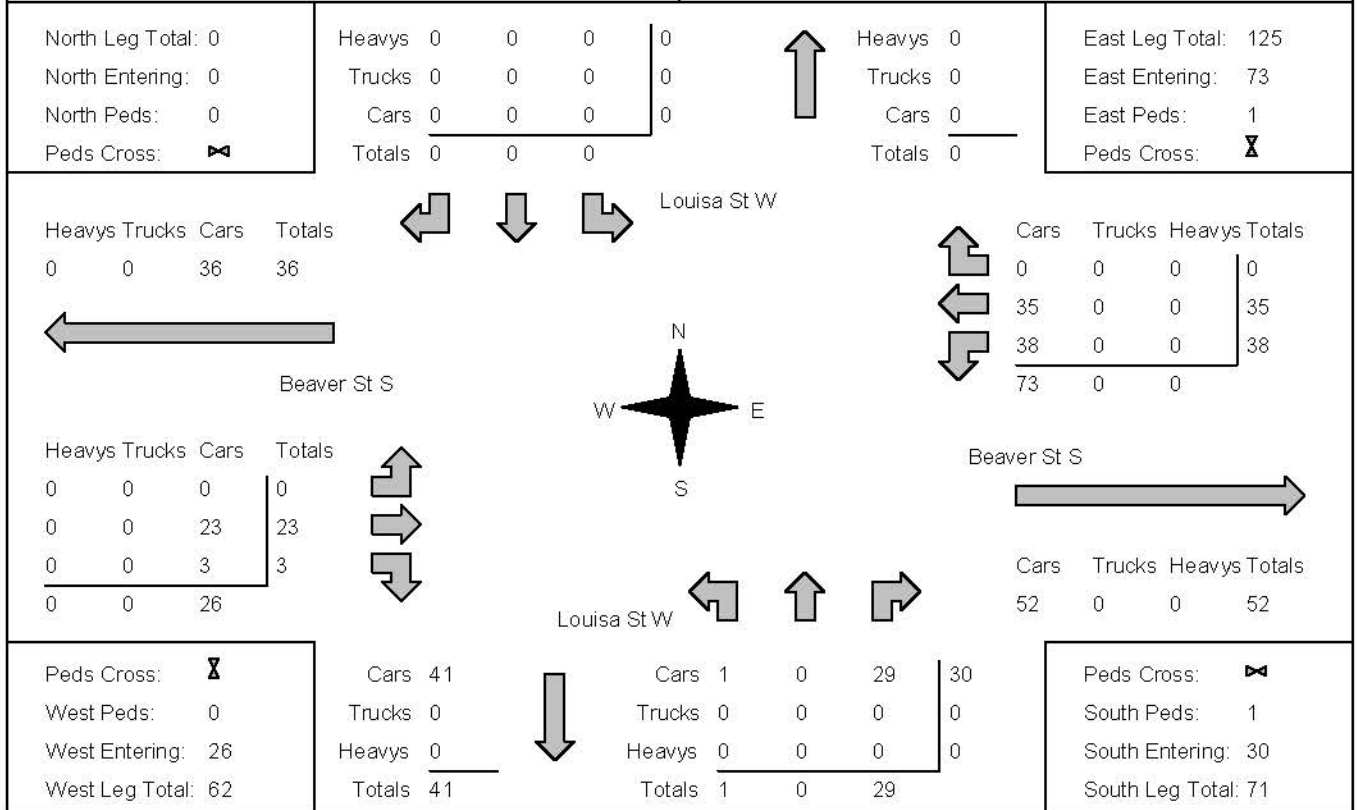
Comments

Accu-Traffic Inc.

Afternoon Peak Diagram	Specified Period From: 16:00:00 To: 19:00:00	One Hour Peak From: 16:30:00 To: 17:30:00
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Municipality: The Blue Mountains Site #: 1918900003 Intersection: Beaver St S & Louisa St W TFR File #: 1 Count date: 20-Nov-19	Weather conditions: Person counted: Person prepared: Person checked:
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** Non-Signalized Intersection **	Major Road: Beaver St S runs W/E
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Comments

Accu-Traffic Inc.

Total Count Diagram

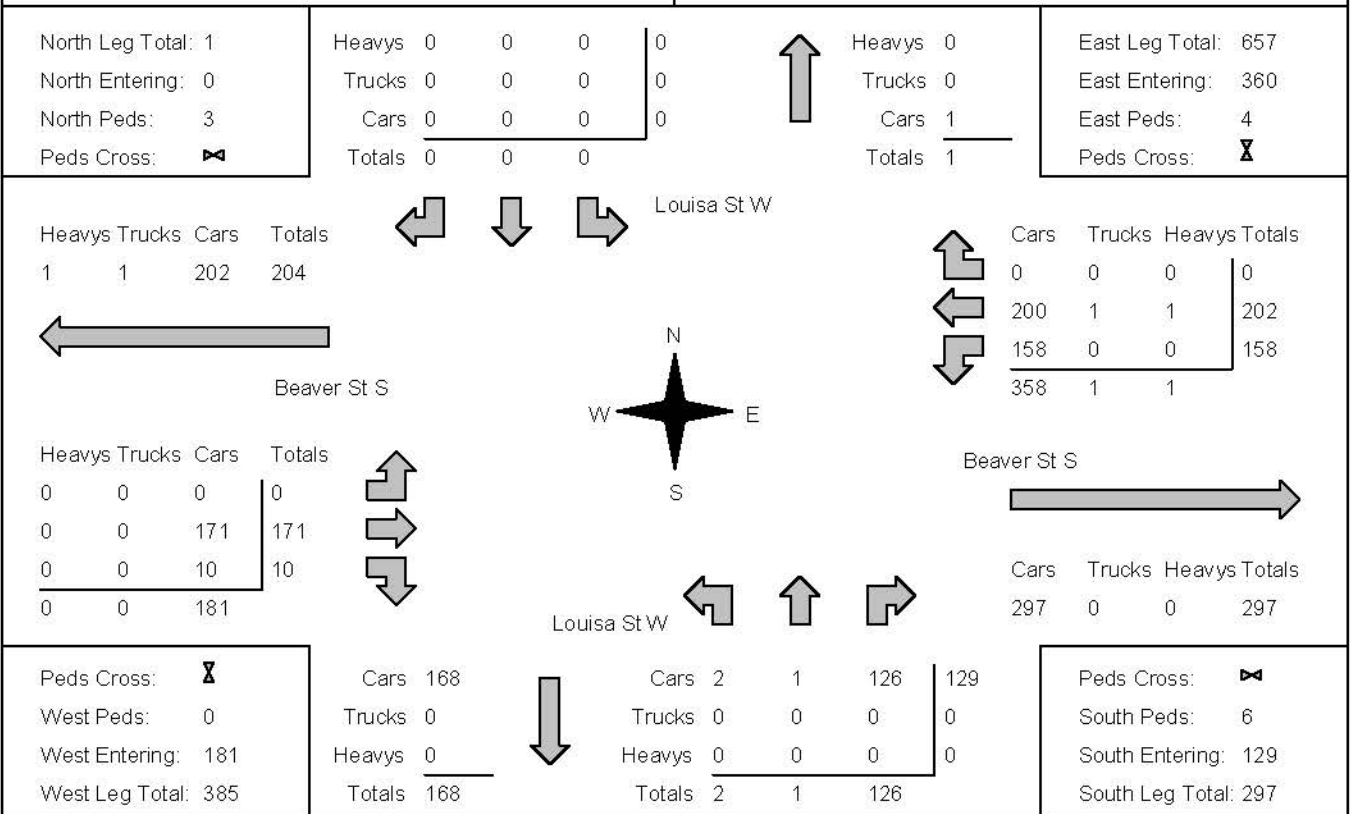
Municipality: The Blue Mountains
Site #: 1918900003
Intersection: Beaver St S & Louisa St W
TFR File #: 1
Count date: 20-Nov-19

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: Beaver St S runs W/E



Comments



Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

Traffic Count Summary

Intersection: **Beaver St S & Louisa St W** Count Date: **20-Nov-19** Municipality: **The Blue Mountains**

North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0	3	8:00:00	0	0	3	3	0
9:00:00	0	0	0	0	0	2	9:00:00	0	0	2	2	3
10:00:00	0	0	0	0	0	10	10:00:00	0	0	10	10	0
12:00:00	0	0	0	0	0	0	12:00:00	0	0	0	0	0
13:00:00	0	0	0	0	0	23	13:00:00	0	1	22	23	0
14:00:00	0	0	0	0	3	18	14:00:00	0	0	18	18	2
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	0	0	0	0	0	30	17:00:00	2	0	28	30	0
18:00:00	0	0	0	0	0	27	18:00:00	0	0	27	27	1
19:00:00	0	0	0	0	0	16	19:00:00	0	0	16	16	0
Totals:	0	0	0	0	3	129	S Totals:	2	1	126	129	6
East Approach Totals						East/West Total Approaches	West Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	3	10	0	13	0	32	8:00:00	0	18	1	19	0
9:00:00	5	11	0	16	2	32	9:00:00	0	16	0	16	0
10:00:00	7	13	0	20	1	43	10:00:00	0	20	3	23	0
12:00:00	0	0	0	0	0	0	12:00:00	0	0	0	0	0
13:00:00	33	38	0	71	0	108	13:00:00	0	35	2	37	0
14:00:00	20	28	0	48	0	68	14:00:00	0	19	1	20	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	35	37	0	72	0	96	17:00:00	0	23	1	24	0
18:00:00	36	34	0	70	1	89	18:00:00	0	17	2	19	0
19:00:00	19	31	0	50	0	73	19:00:00	0	23	0	23	0
Totals:	158	202	0	360	4	541	W Totals:	0	171	10	181	0
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	7:00	8:00	9:00	10:00			12:00	13:00	17:00	18:00		
Crossing Values:	0	0	2	1			0	1	2	1		

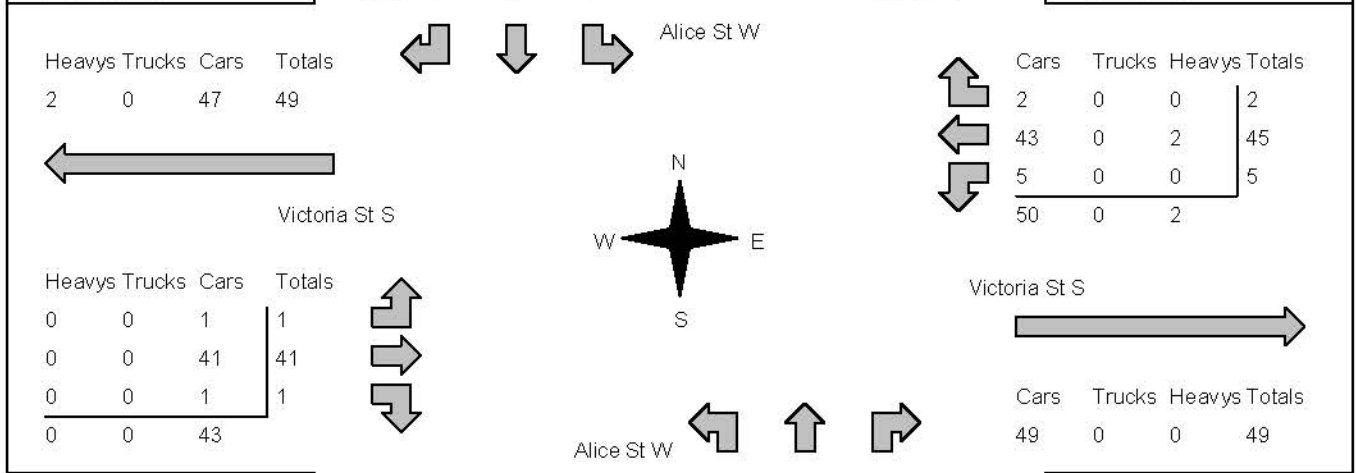
Accu-Traffic Inc.

Morning Peak Diagram	Specified Period From: 7:00:00 To: 10:00:00	One Hour Peak From: 9:00:00 To: 10:00:00
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Municipality: The Blue Mountains Site #: 1918900004 Intersection: Victoria St S & Alice St W TFR File #: 1 Count date: 20-Nov-19	Weather conditions: Person counted: Person prepared: Person checked:
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** Non-Signalized Intersection **	Major Road: Victoria St S runs W/E
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North Leg Total: 12 North Entering: 5 North Peds: 7 Peds Cross: <input checked="" type="checkbox"/>	<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td><td style="border-left: 1px solid black;">0</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td style="border-left: 1px solid black;">0</td></tr> <tr><td>Cars</td><td>3</td><td>0</td><td>2</td><td style="border-left: 1px solid black;">5</td></tr> <tr><td>Totals</td><td>3</td><td>0</td><td>2</td><td style="border-left: 1px solid black;"></td></tr> </table>	Heavys	0	0	0	0	Trucks	0	0	0	0	Cars	3	0	2	5	Totals	3	0	2		↑	<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Cars</td><td>7</td></tr> <tr><td>Totals</td><td>7</td></tr> </table>	Heavys	0	Trucks	0	Cars	7	Totals	7	East Leg Total: 101 East Entering: 52 East Peds: 8 Peds Cross: <input checked="" type="checkbox"/>
Heavys	0	0	0	0																												
Trucks	0	0	0	0																												
Cars	3	0	2	5																												
Totals	3	0	2																													
Heavys	0																															
Trucks	0																															
Cars	7																															
Totals	7																															



Peds Cross: <input checked="" type="checkbox"/> West Peds: 0 West Entering: 43 West Leg Total: 92	<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>6</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Heavys</td><td>0</td></tr> <tr><td>Totals</td><td>6</td></tr> </table>	Cars	6	Trucks	0	Heavys	0	Totals	6	↓	<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>1</td><td>4</td><td>6</td><td style="border-left: 1px solid black;">11</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td style="border-left: 1px solid black;">0</td></tr> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td><td style="border-left: 1px solid black;">0</td></tr> <tr><td>Totals</td><td>1</td><td>4</td><td>6</td><td style="border-left: 1px solid black;"></td></tr> </table>	Cars	1	4	6	11	Trucks	0	0	0	0	Heavys	0	0	0	0	Totals	1	4	6		Peds Cross: <input checked="" type="checkbox"/> South Peds: 0 South Entering: 11 South Leg Total: 17
Cars	6																															
Trucks	0																															
Heavys	0																															
Totals	6																															
Cars	1	4	6	11																												
Trucks	0	0	0	0																												
Heavys	0	0	0	0																												
Totals	1	4	6																													

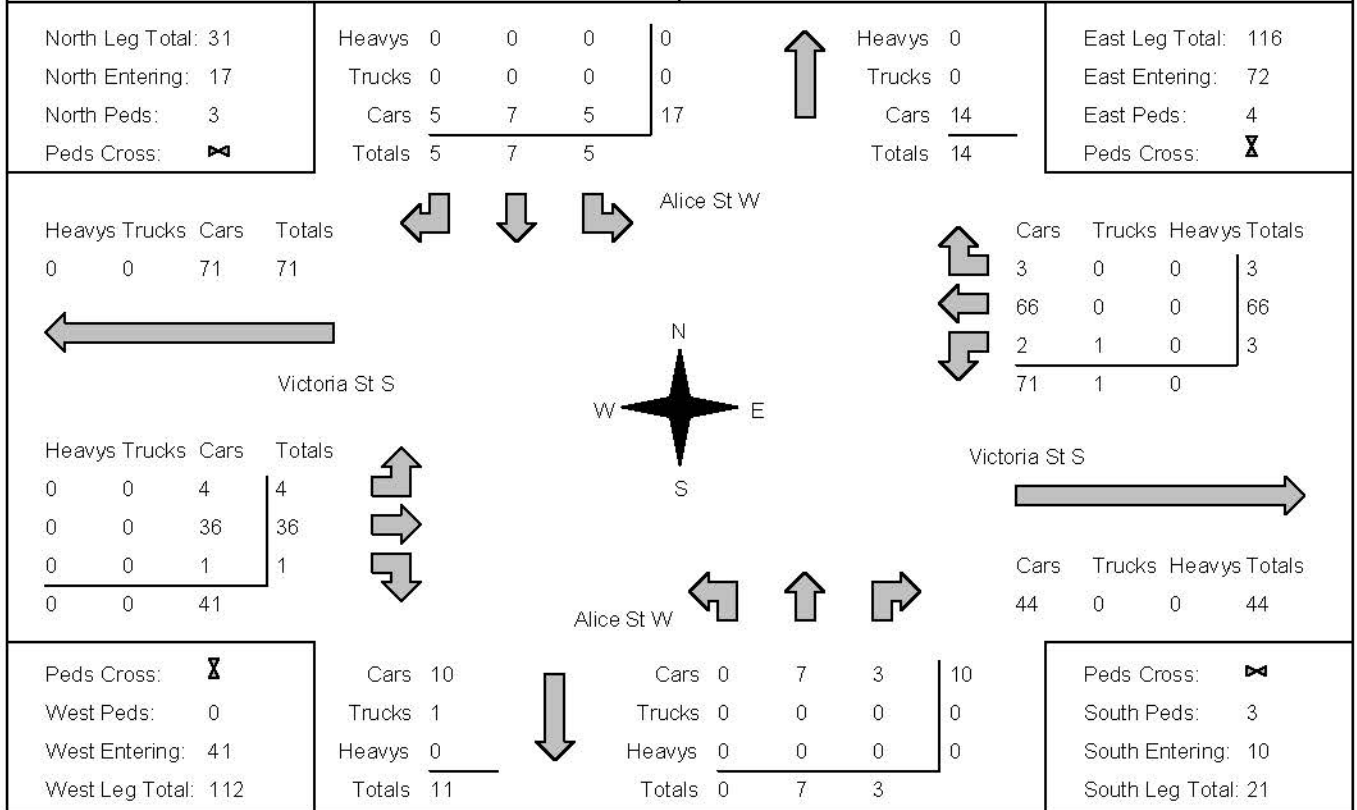
Comments

Accu-Traffic Inc.

Mid-day Peak Diagram	Specified Period From: 12:00:00 To: 14:00:00	One Hour Peak From: 12:00:00 To: 13:00:00
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Municipality: The Blue Mountains Site #: 1918900004 Intersection: Victoria St S & Alice St W TFR File #: 1 Count date: 20-Nov-19	Weather conditions: Person counted: Person prepared: Person checked:
---	---

** Non-Signalized Intersection **	Major Road: Victoria St S runs W/E
--	---



Comments

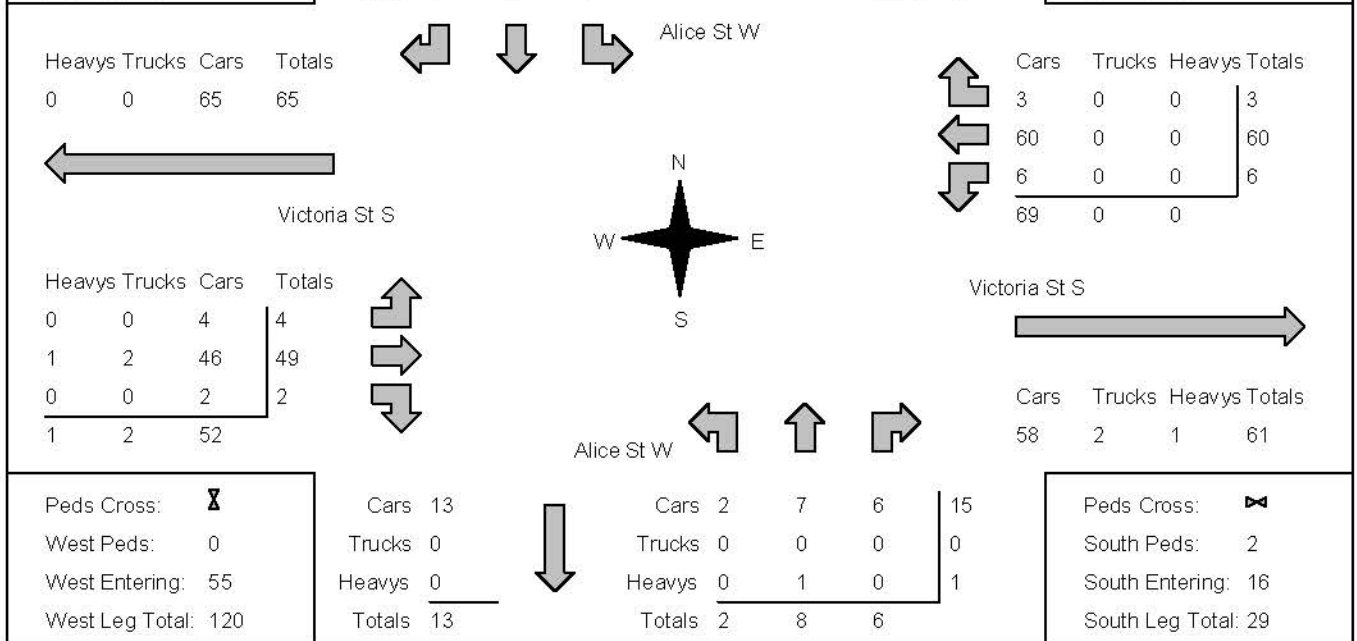
Accu-Traffic Inc.

Afternoon Peak Diagram	Specified Period From: 16:00:00 To: 19:00:00	One Hour Peak From: 16:15:00 To: 17:15:00
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Municipality: The Blue Mountains Site #: 1918900004 Intersection: Victoria St S & Alice St W TFR File #: 1 Count date: 20-Nov-19	Weather conditions: Person counted: Person prepared: Person checked:
---	---

** Non-Signalized Intersection **	Major Road: Victoria St S runs W/E
--	---

North Leg Total: 29 North Entering: 14 North Peds: 2 Peds Cross:	<table style="margin: auto;"> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Cars</td><td>3</td><td>5</td><td>6</td><td>14</td></tr> <tr><td>Totals</td><td>3</td><td>5</td><td>6</td><td></td></tr> </table>	Heavys	0	0	0	0	Trucks	0	0	0	0	Cars	3	5	6	14	Totals	3	5	6			Heavys 1 Trucks 0 Cars 14 Totals 15	East Leg Total: 130 East Entering: 69 East Peds: 2 Peds Cross:
Heavys	0	0	0	0																				
Trucks	0	0	0	0																				
Cars	3	5	6	14																				
Totals	3	5	6																					



Comments

Accu-Traffic Inc.

Total Count Diagram

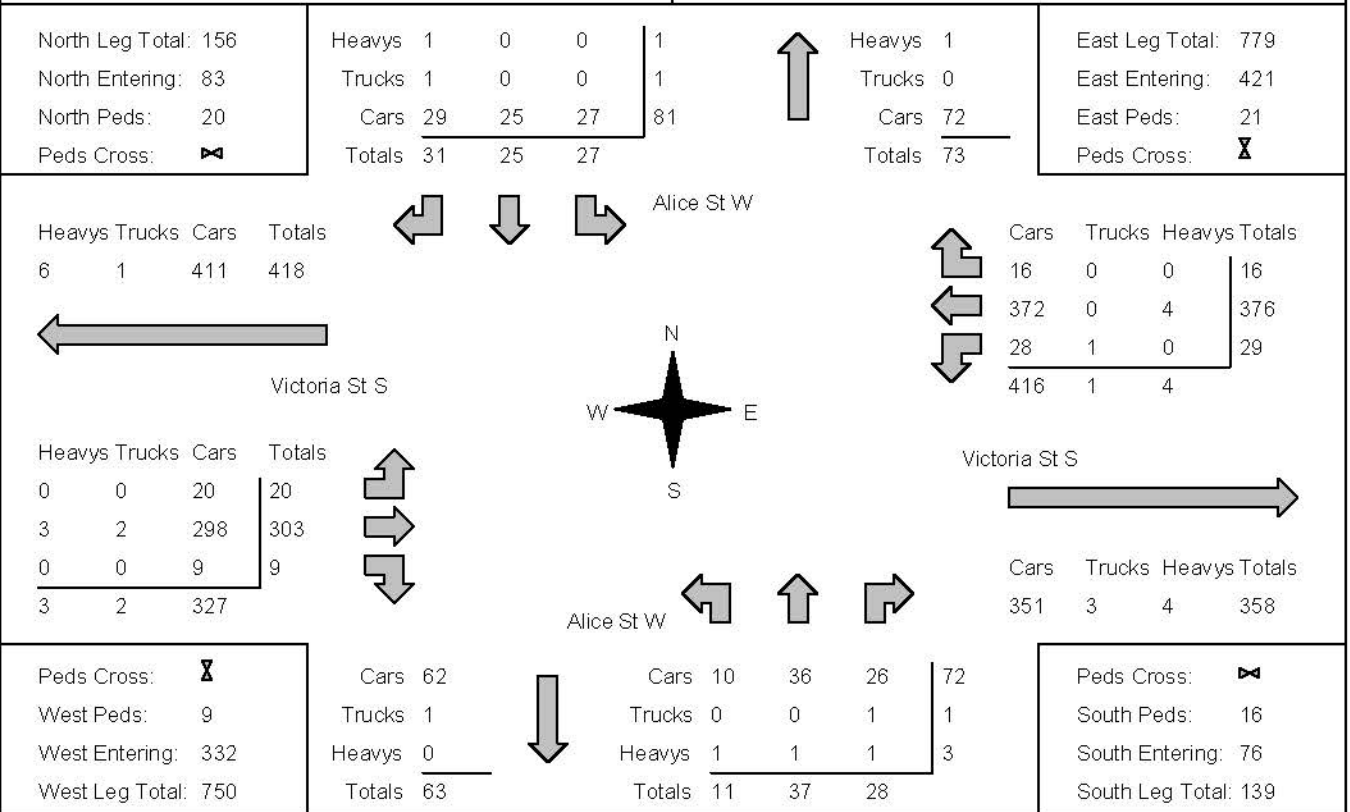
Municipality: The Blue Mountains
Site #: 1918900004
Intersection: Victoria St S & Alice St W
TFR File #: 1
Count date: 20-Nov-19

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: Victoria St S runs W/E



Comments



Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

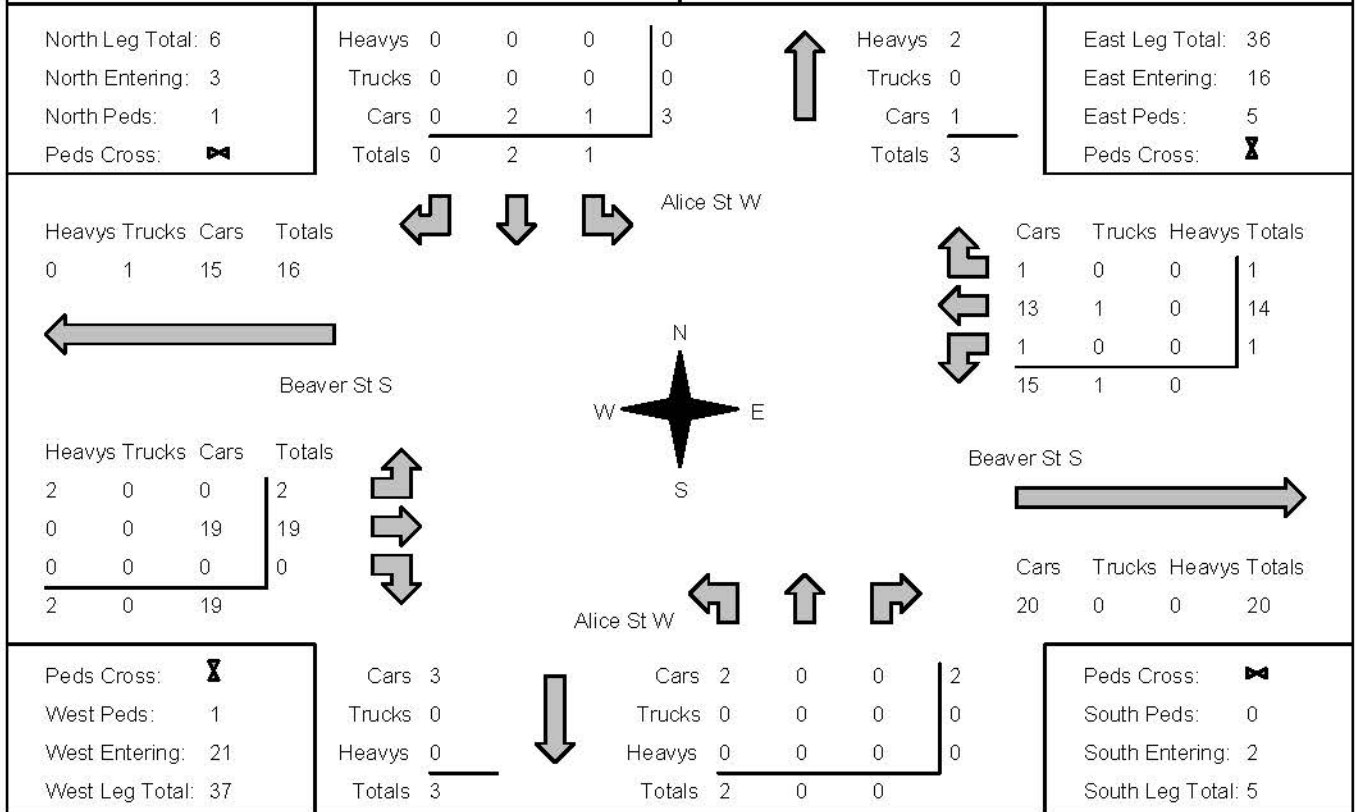
Traffic Count Summary

Intersection: **Victoria St S & Alice St W** Count Date: **20-Nov-19** Municipality: **The Blue Mountains**

North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	3	2	0	5	3	13	8:00:00	3	2	3	8	2
9:00:00	3	1	6	10	1	14	9:00:00	3	1	0	4	0
10:00:00	2	0	3	5	7	16	10:00:00	1	4	6	11	0
12:00:00	0	0	0	0	0	0	12:00:00	0	0	0	0	0
13:00:00	5	7	5	17	3	27	13:00:00	0	7	3	10	3
14:00:00	4	3	6	13	2	24	14:00:00	0	7	4	11	2
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	8	6	4	18	2	33	17:00:00	3	7	5	15	5
18:00:00	1	4	2	7	2	23	18:00:00	1	9	6	16	3
19:00:00	1	2	5	8	0	9	19:00:00	0	0	1	1	1
Totals:	27	25	31	83	20	159	S Totals:	11	37	28	76	16
East Approach Totals						East/West Total Approaches	West Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	1	20	1	22	3	49	8:00:00	1	25	1	27	1
9:00:00	5	34	0	39	3	78	9:00:00	2	35	2	39	2
10:00:00	5	45	2	52	8	95	10:00:00	1	41	1	43	0
12:00:00	0	0	0	0	0	0	12:00:00	0	0	0	0	0
13:00:00	3	66	3	72	4	113	13:00:00	4	36	1	41	0
14:00:00	5	46	3	54	1	101	14:00:00	4	42	1	47	1
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	4	55	3	62	2	117	17:00:00	3	50	2	55	2
18:00:00	3	60	3	66	0	106	18:00:00	4	36	0	40	1
19:00:00	3	50	1	54	0	94	19:00:00	1	38	1	40	2
Totals:	29	376	16	421	21	753	W Totals:	20	303	9	332	9
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	8:00	9:00	10:00	13:00		14:00	17:00	18:00	19:00			
Crossing Values:	12	12	15	16		13	22	12	5			

Accu-Traffic Inc.

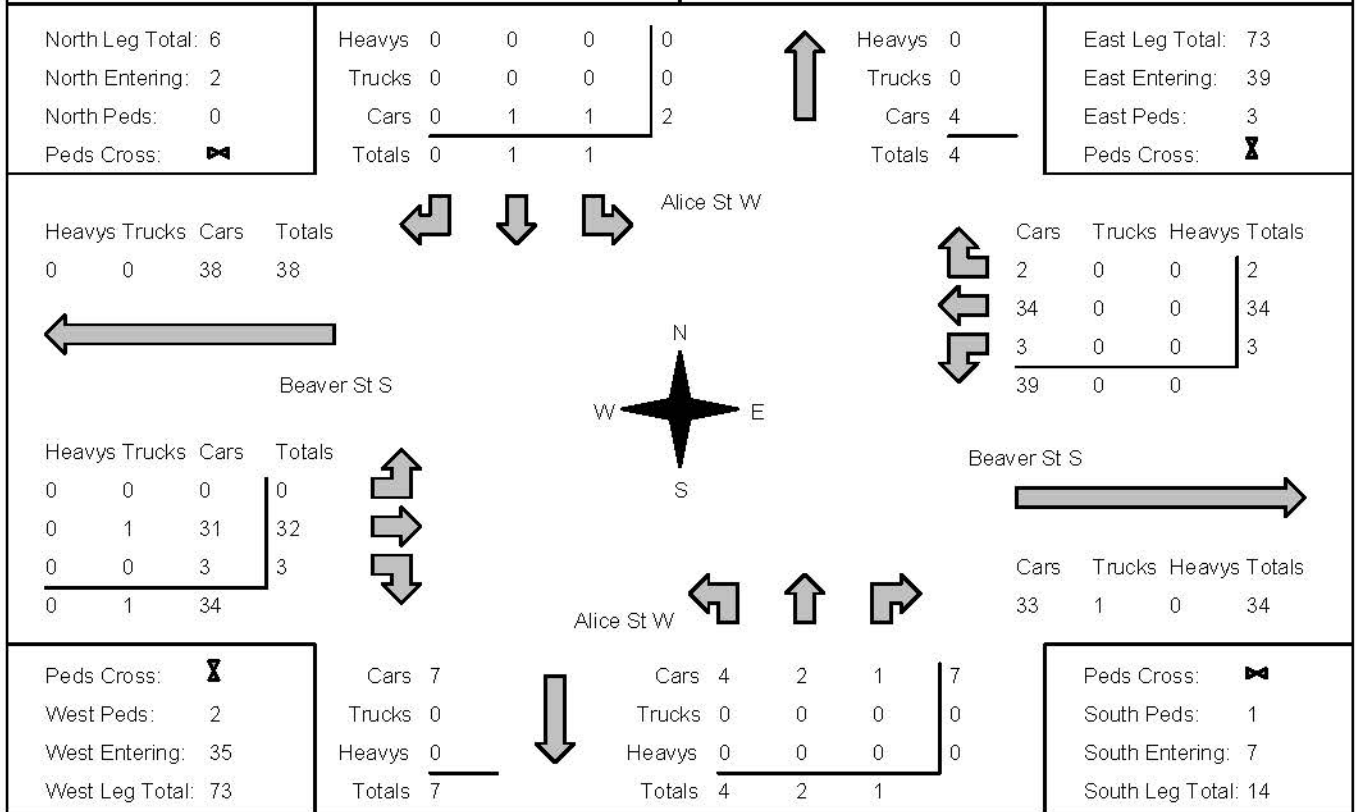
Morning Peak Diagram	Specified Period From: 7:00:00 To: 10:00:00	One Hour Peak From: 8:00:00 To: 9:00:00
Municipality: The Blue Mountains Site #: 1918900005 Intersection: Beaver St S & Alice St W TFR File #: 1 Count date: 20-Nov-19	Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **	Major Road: Beaver St S runs W/E	



Comments

Accu-Traffic Inc.

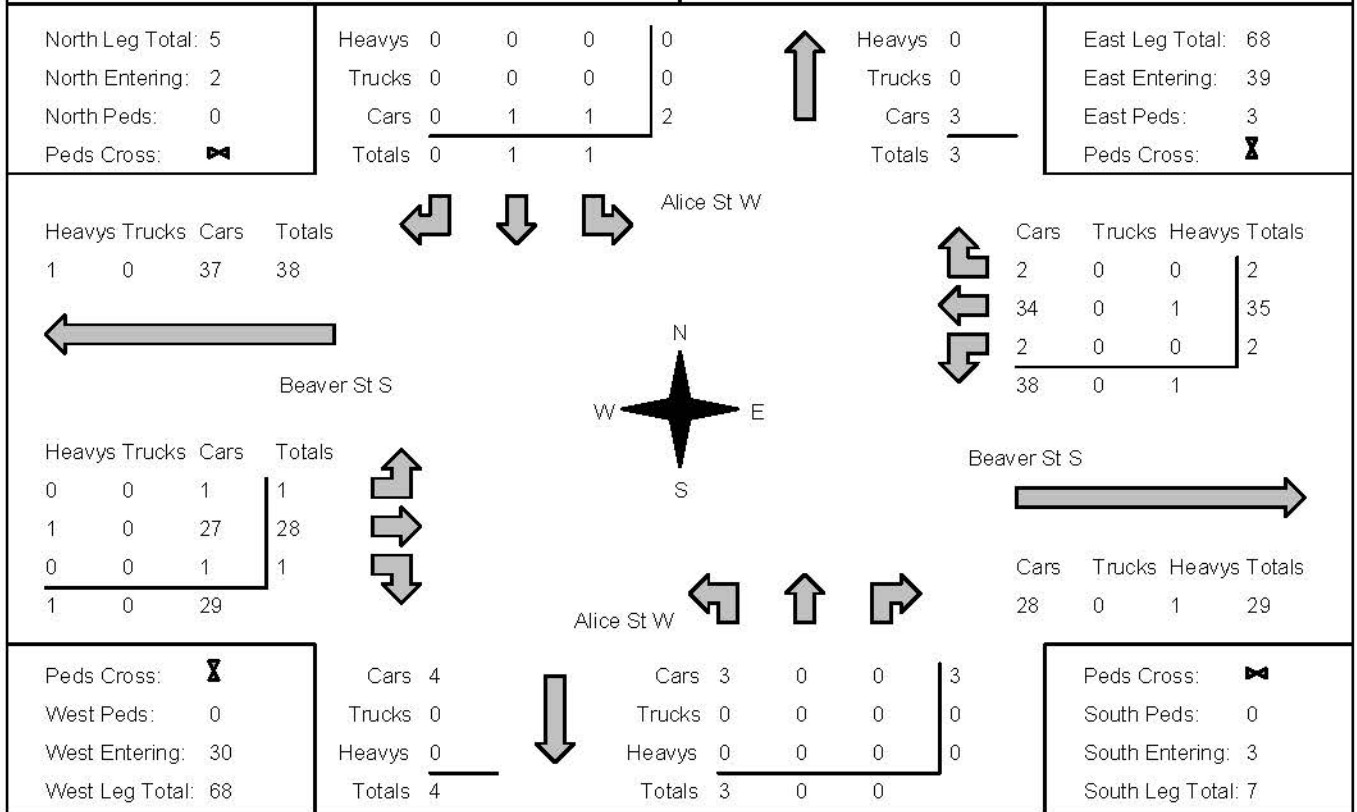
Mid-day Peak Diagram	Specified Period From: 12:00:00 To: 14:00:00	One Hour Peak From: 12:00:00 To: 13:00:00
Municipality: The Blue Mountains Site #: 1918900005 Intersection: Beaver St S & Alice St W TFR File #: 1 Count date: 20-Nov-19	Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **	Major Road: Beaver St S runs W/E	



Comments

Accu-Traffic Inc.

Afternoon Peak Diagram	Specified Period From: 16:00:00 To: 19:00:00	One Hour Peak From: 16:00:00 To: 17:00:00
Municipality: The Blue Mountains Site #: 1918900005 Intersection: Beaver St S & Alice St W TFR File #: 1 Count date: 20-Nov-19	Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **	Major Road: Beaver St S runs W/E	



Comments

Accu-Traffic Inc.

Total Count Diagram

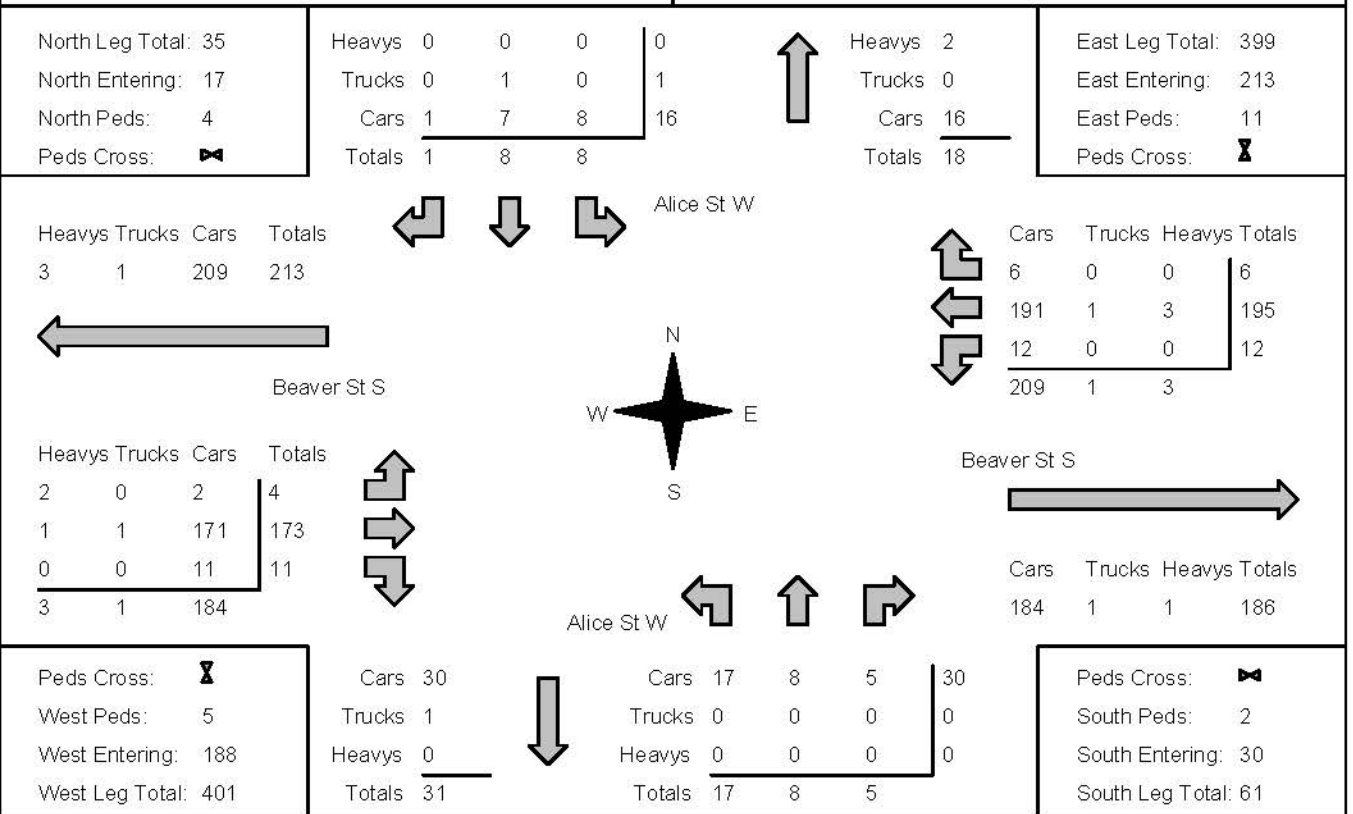
Municipality: The Blue Mountains
Site #: 1918900005
Intersection: Beaver St S & Alice St W
TFR File #: 1
Count date: 20-Nov-19

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: Beaver St S runs W/E



Comments



Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.

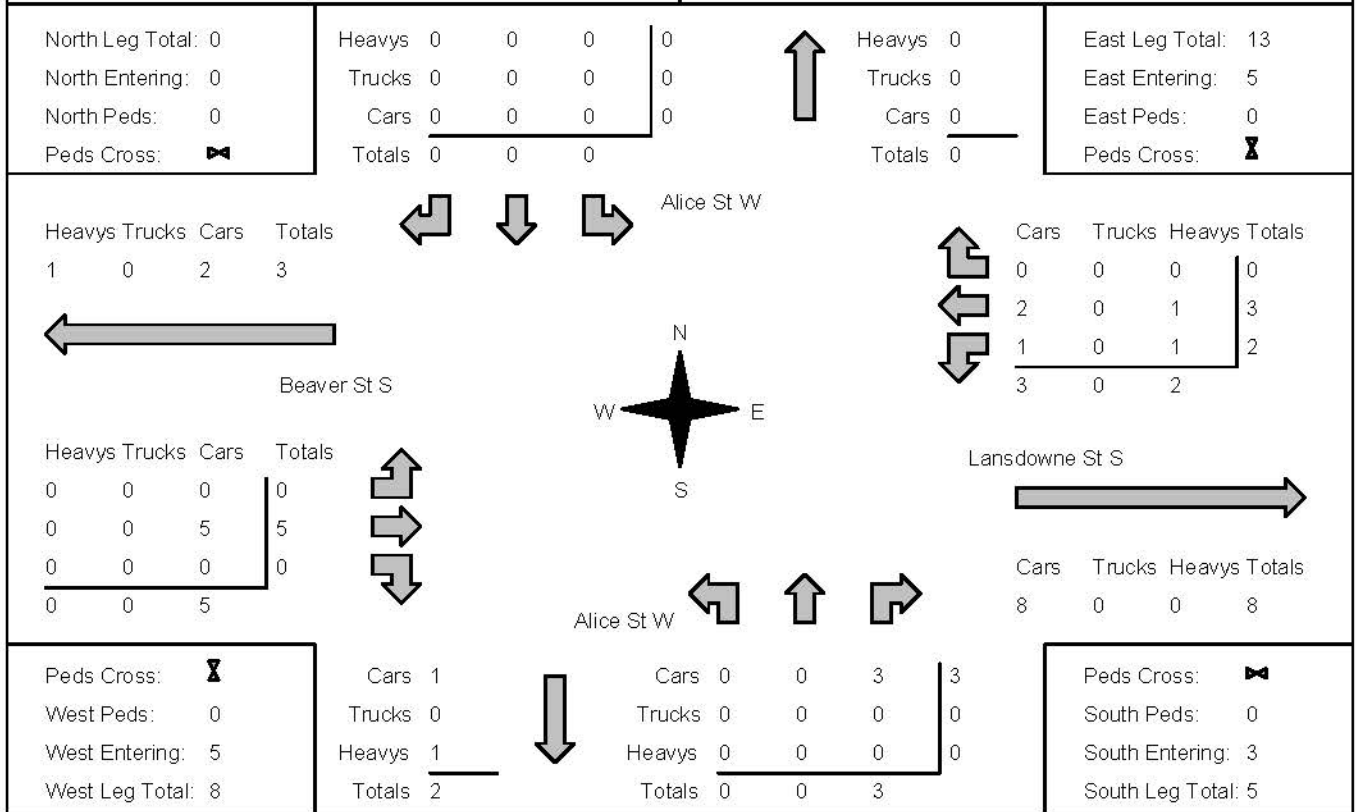
Traffic Count Summary

Intersection: **Beaver St S & Alice St W** Count Date: **20-Nov-19** Municipality: **The Blue Mountains**

North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	1	0	0	1	1	1	8:00:00	0	0	0	0	1
9:00:00	1	2	0	3	1	5	9:00:00	2	0	0	2	0
10:00:00	1	0	0	1	2	5	10:00:00	1	3	0	4	0
12:00:00	0	0	0	0	0	0	12:00:00	0	0	0	0	0
13:00:00	1	1	0	2	0	9	13:00:00	4	2	1	7	1
14:00:00	1	3	1	5	0	10	14:00:00	3	1	1	5	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	1	1	0	2	0	5	17:00:00	3	0	0	3	0
18:00:00	0	0	0	0	0	8	18:00:00	3	2	3	8	0
19:00:00	2	1	0	3	0	4	19:00:00	1	0	0	1	0
Totals:	8	8	1	17	4	47	S Totals:	17	8	5	30	2
East Approach Totals						East/West Total Approaches	West Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	0	9	0	9	0	26	8:00:00	0	16	1	17	0
9:00:00	1	14	1	16	5	37	9:00:00	2	19	0	21	1
10:00:00	1	13	0	14	0	36	10:00:00	0	21	1	22	0
12:00:00	0	0	0	0	0	0	12:00:00	0	0	0	0	0
13:00:00	3	34	2	39	3	74	13:00:00	0	32	3	35	2
14:00:00	1	27	0	28	0	52	14:00:00	1	20	3	24	2
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	2	35	2	39	3	69	17:00:00	1	28	1	30	0
18:00:00	3	31	0	34	0	51	18:00:00	0	17	0	17	0
19:00:00	1	32	1	34	0	56	19:00:00	0	20	2	22	0
Totals:	12	195	6	213	11	401	W Totals:	4	173	11	188	5
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	8:00	9:00	10:00	13:00			14:00	17:00	18:00	19:00		
Crossing Values:	1	11	5	12			9	8	5	4		

Accu-Traffic Inc.

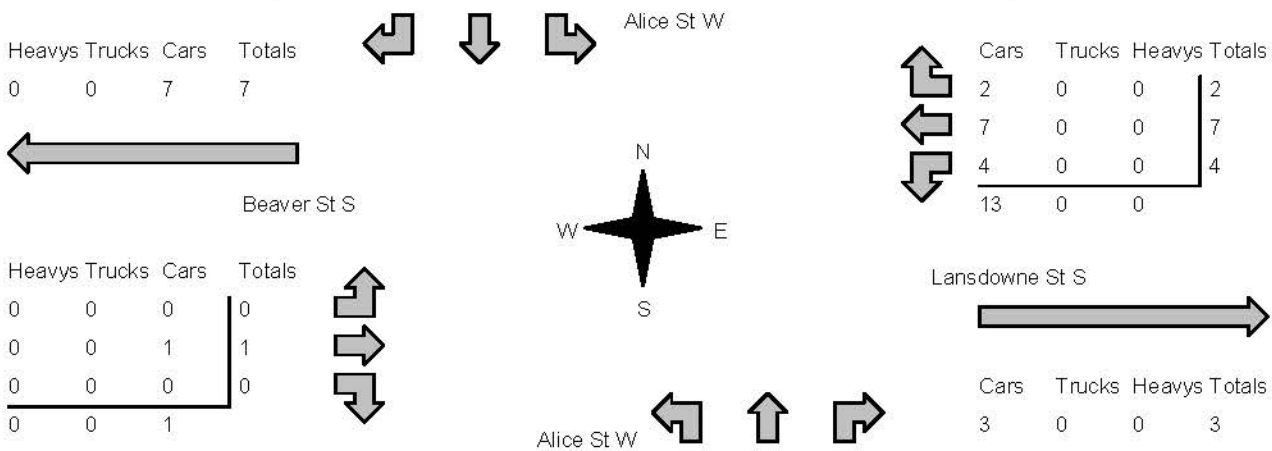
Morning Peak Diagram	Specified Period From: 7:00:00 To: 10:00:00	One Hour Peak From: 7:45:00 To: 8:45:00
Municipality: The Blue Mountains Site #: 1918900005 Intersection: Beaver St S & Alice St W TFR File #: 1 Count date: 20-Nov-19	Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **	Major Road: Beaver St S runs W/E	



Comments

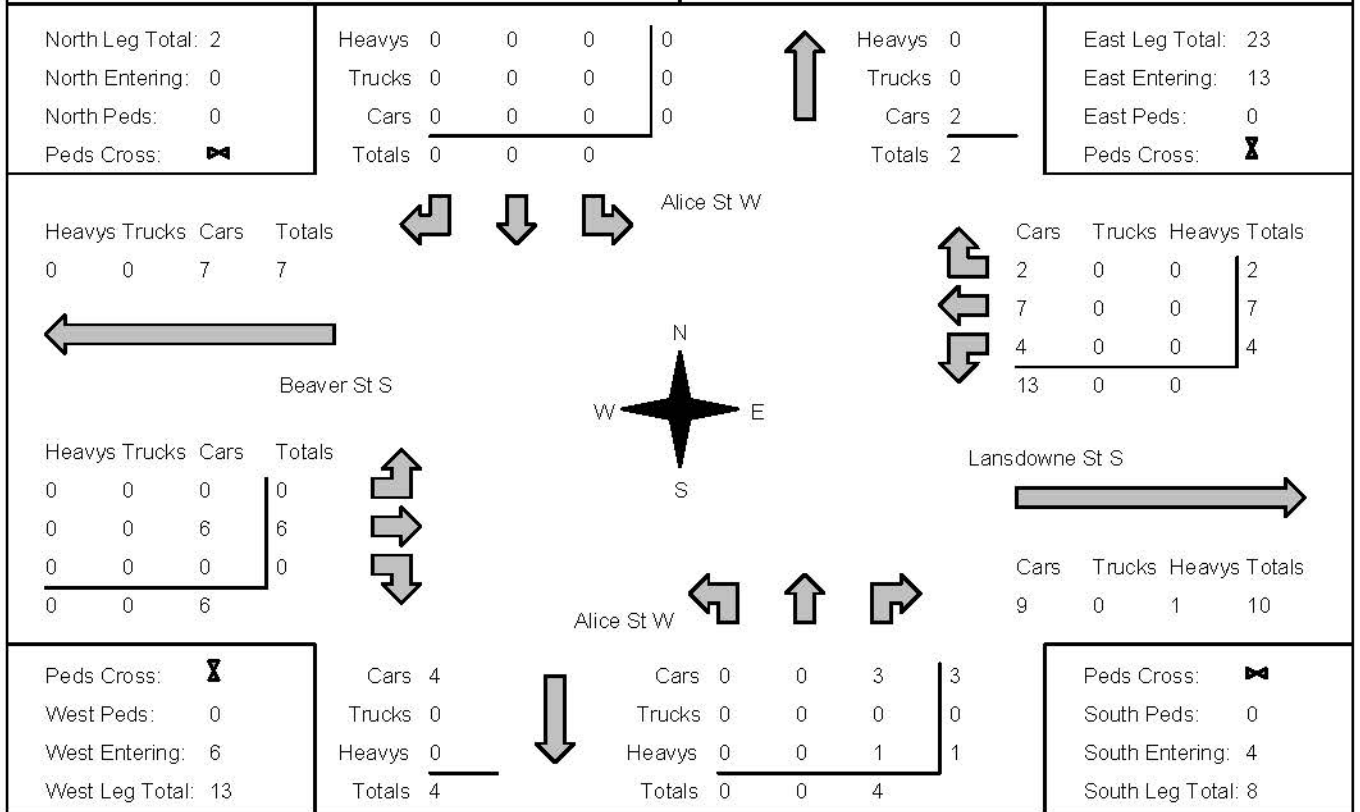
1 car from Lansdowne St S to Beaver St S East 12:30 - 12:45

Accu-Traffic Inc.

Mid-day Peak Diagram		Specified Period From: 12:00:00 To: 14:00:00	One Hour Peak From: 12:45:00 To: 13:45:00																																									
Municipality: The Blue Mountains Site #: 1918900005 Intersection: Beaver St S & Alice St W TFR File #: 1 Count date: 20-Nov-19		Weather conditions: Person counted: Person prepared: Person checked:																																										
** Non-Signalized Intersection **		Major Road: Beaver St S runs W/E																																										
North Leg Total: 2 North Entering: 0 North Peds: 0 Peds Cross:	<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Cars</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> </table>	Heavys	0	0	0	0	Trucks	0	0	0	0	Cars	0	0	0	0	Totals	0	0	0	0		<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Cars</td><td>2</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>2</td></tr> </table>	Heavys	0	Trucks	0	Cars	2	Totals	2	East Leg Total: 16 East Entering: 13 East Peds: 1 Peds Cross:												
Heavys	0	0	0	0																																								
Trucks	0	0	0	0																																								
Cars	0	0	0	0																																								
Totals	0	0	0	0																																								
Heavys	0																																											
Trucks	0																																											
Cars	2																																											
Totals	2																																											
																																												
<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Cars</td><td>0</td><td>0</td><td>1</td><td>1</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>0</td><td>0</td><td>1</td><td>0</td></tr> </table>	Heavys	0	0	0	0	Trucks	0	0	0	0	Cars	0	0	1	1	Totals	0	0	1	0			<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>2</td><td>0</td><td>0</td><td>2</td></tr> <tr><td>Trucks</td><td>7</td><td>0</td><td>0</td><td>7</td></tr> <tr><td>Heavys</td><td>4</td><td>0</td><td>0</td><td>4</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>13</td><td>0</td><td>0</td><td>13</td></tr> </table>	Cars	2	0	0	2	Trucks	7	0	0	7	Heavys	4	0	0	4	Totals	13	0	0	13	
Heavys	0	0	0	0																																								
Trucks	0	0	0	0																																								
Cars	0	0	1	1																																								
Totals	0	0	1	0																																								
Cars	2	0	0	2																																								
Trucks	7	0	0	7																																								
Heavys	4	0	0	4																																								
Totals	13	0	0	13																																								
<table style="border-collapse: collapse;"> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>1</td><td>1</td></tr> <tr><td>Cars</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>0</td><td>0</td><td>1</td><td>0</td></tr> </table>	Heavys	0	0	0	0	Trucks	0	0	1	1	Cars	0	0	0	0	Totals	0	0	1	0			<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>3</td><td>0</td><td>0</td><td>3</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>3</td><td>0</td><td>0</td><td>3</td></tr> </table>	Cars	3	0	0	3	Trucks	0	0	0	0	Heavys	0	0	0	0	Totals	3	0	0	3	
Heavys	0	0	0	0																																								
Trucks	0	0	1	1																																								
Cars	0	0	0	0																																								
Totals	0	0	1	0																																								
Cars	3	0	0	3																																								
Trucks	0	0	0	0																																								
Heavys	0	0	0	0																																								
Totals	3	0	0	3																																								
Peds Cross: West Peds: 0 West Entering: 1 West Leg Total: 8	<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>4</td></tr> <tr><td>Trucks</td><td>0</td></tr> <tr><td>Heavys</td><td>0</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>4</td></tr> </table>	Cars	4	Trucks	0	Heavys	0	Totals	4		<table style="border-collapse: collapse;"> <tr><td>Cars</td><td>0</td><td>0</td><td>2</td><td>2</td></tr> <tr><td>Trucks</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr><td>Heavys</td><td>0</td><td>0</td><td>0</td><td>0</td></tr> <tr style="border-top: 1px solid black;"><td>Totals</td><td>0</td><td>0</td><td>2</td><td>0</td></tr> </table>	Cars	0	0	2	2	Trucks	0	0	0	0	Heavys	0	0	0	0	Totals	0	0	2	0	Peds Cross: South Peds: 0 South Entering: 2 South Leg Total: 6												
Cars	4																																											
Trucks	0																																											
Heavys	0																																											
Totals	4																																											
Cars	0	0	2	2																																								
Trucks	0	0	0	0																																								
Heavys	0	0	0	0																																								
Totals	0	0	2	0																																								
Comments																																												
1 car from Lansdowne St S to Beaver St S East 12:30 - 12:45																																												

Accu-Traffic Inc.

Afternoon Peak Diagram	Specified Period From: 16:00:00 To: 19:00:00	One Hour Peak From: 16:00:00 To: 17:00:00
Municipality: The Blue Mountains Site #: 1918900005 Intersection: Beaver St S & Alice St W TFR File #: 1 Count date: 20-Nov-19	Weather conditions: Person counted: Person prepared: Person checked:	
** Non-Signalized Intersection **	Major Road: Beaver St S runs W/E	



Comments

1 car from Lansdowne St S to Beaver St S East 12:30 - 12:45

Accu-Traffic Inc.

Total Count Diagram

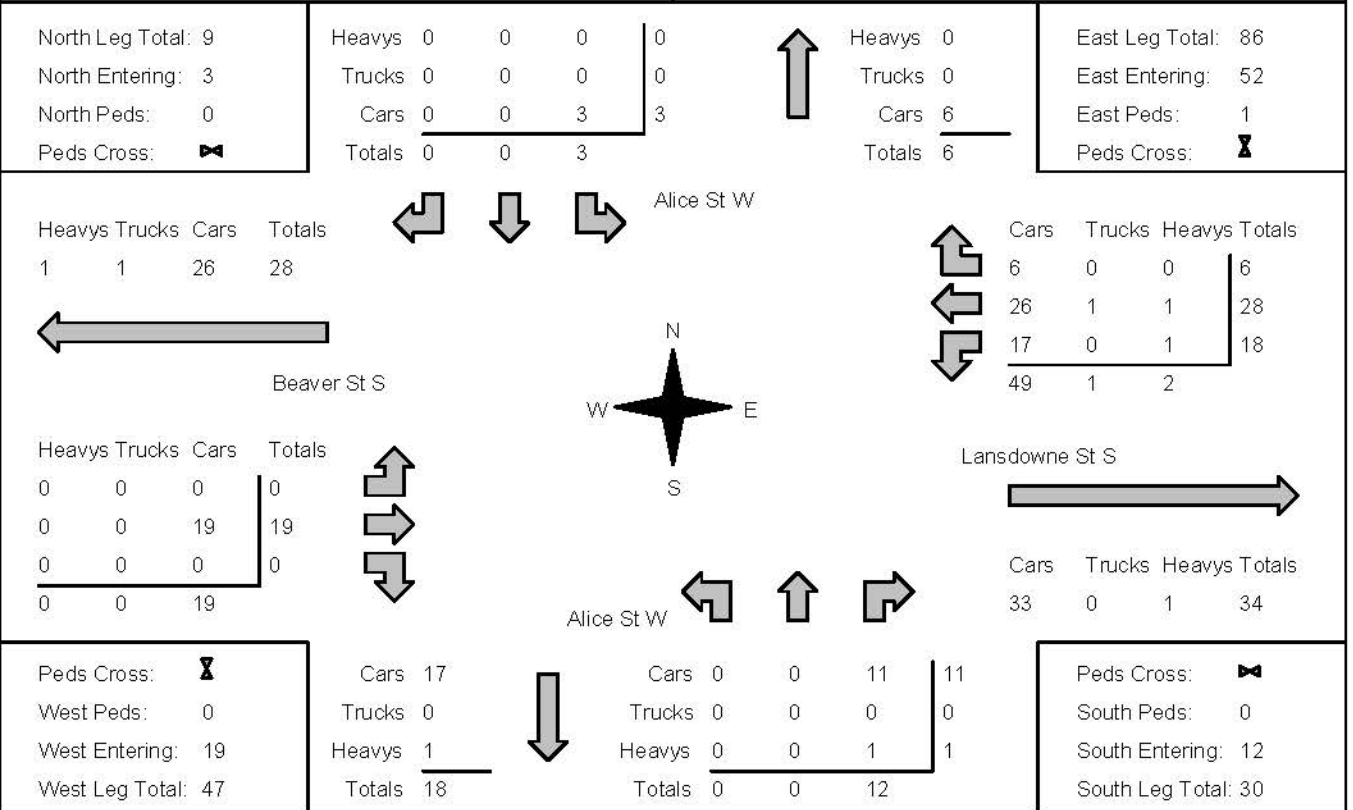
Municipality: The Blue Mountains
Site #: 1918900005
Intersection: Beaver St S & Alice St W
TFR File #: 1
Count date: 20-Nov-19

Weather conditions:

Person counted:
Person prepared:
Person checked:

**** Non-Signalized Intersection ****

Major Road: Beaver St S runs W/E



Comments

1 car from Lansdowne St S to Beaver St S East 12:30 - 12:45



Accu-Traffic Inc.
Traffic Monitoring & Data Analysis

Accu-Traffic Inc.










Traffic Count Summary

Intersection: Beaver St S & Alice St W					Count Date: 20-Nov-19		Municipality: The Blue Mountains					
North Approach Totals						North/South Total Approaches	South Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	0	0	0	0	0	0	8:00:00	0	0	0	0	0
9:00:00	0	0	0	0	0	3	9:00:00	0	0	3	3	0
10:00:00	1	0	0	1	0	1	10:00:00	0	0	0	0	0
12:00:00	0	0	0	0	0	0	12:00:00	0	0	0	0	0
13:00:00	1	0	0	1	0	2	13:00:00	0	0	1	1	0
14:00:00	0	0	0	0	0	1	14:00:00	0	0	1	1	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	0	0	0	0	0	4	17:00:00	0	0	4	4	0
18:00:00	1	0	0	1	0	4	18:00:00	0	0	3	3	0
19:00:00	0	0	0	0	0	0	19:00:00	0	0	0	0	0
Totals:	3	0	0	3	0	15	S Totals:	0	0	12	12	0
East Approach Totals						East/West Total Approaches	West Approach Totals					
Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds		Hour Ending	Includes Cars, Trucks, & Heavys				Total Peds
	Left	Thru	Right	Grand Total				Left	Thru	Right	Grand Total	
7:00:00	0	0	0	0	0	0	7:00:00	0	0	0	0	0
8:00:00	1	5	0	6	0	9	8:00:00	0	3	0	3	0
9:00:00	1	1	0	2	0	6	9:00:00	0	4	0	4	0
10:00:00	0	3	0	3	0	4	10:00:00	0	1	0	1	0
12:00:00	0	0	0	0	0	0	12:00:00	0	0	0	0	0
13:00:00	3	2	2	7	1	9	13:00:00	0	2	0	2	0
14:00:00	4	6	1	11	0	13	14:00:00	0	2	0	2	0
16:00:00	0	0	0	0	0	0	16:00:00	0	0	0	0	0
17:00:00	4	7	2	13	0	19	17:00:00	0	6	0	6	0
18:00:00	2	2	1	5	0	6	18:00:00	0	1	0	1	0
19:00:00	3	2	0	5	0	5	19:00:00	0	0	0	0	0
Totals:	18	28	6	52	1	71	W Totals:	0	19	0	19	0
Calculated Values for Traffic Crossing Major Street												
Hours Ending:	7:00	8:00	9:00	10:00		12:00	13:00	14:00	18:00			
Crossing Values:	0	0	0	1		0	2	0	1			

Appendix B: Existing Operations













HCM Unsignalized Intersection Capacity Analysis
 1: Victoria Street S & Beaver Street S

2020 Existing
 AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	32	1	2	49	50	16
Future Volume (Veh/h)	32	1	2	49	50	16
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)	35	1	2	53	54	17
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	120	62	71			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	120	62	71			
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	100	100			
cM capacity (veh/h)	875	1002	1529			
Direction, Lane #						
	EB 1	NB 1	SB 1			
Volume Total	36	55	71			
Volume Left	35	2	0			
Volume Right	1	0	17			
cSH	878	1529	1700			
Volume to Capacity	0.04	0.00	0.04			
Queue Length 95th (m)	1.0	0.0	0.0			
Control Delay (s)	9.3	0.3	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.3	0.3	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization			14.2%	ICU Level of Service		A
Analysis Period (min)			15			

















HCM Unsignalized Intersection Capacity Analysis
 2: Victoria Street S & Louisa Street W

2020 Existing
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	1	5	5	1	3	3	7	47	1	5	45	1
Future Volume (Veh/h)	1	5	5	1	3	3	7	47	1	5	45	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	5	5	1	3	3	8	51	1	5	49	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	132	128	50	134	128	52	50			52		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	132	128	50	134	128	52	50			52		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	99	100	100	100	100	99			100		
cM capacity (veh/h)	830	757	1019	823	757	1016	1557			1554		
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	11	7	60	55								
Volume Left	1	1	8	5								
Volume Right	5	3	1	1								
cSH	865	861	1557	1554								
Volume to Capacity	0.01	0.01	0.01	0.00								
Queue Length 95th (m)	0.3	0.2	0.1	0.1								
Control Delay (s)	9.2	9.2	1.0	0.7								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.2	9.2	1.0	0.7								
Approach LOS	A	A										
Intersection Summary												
Average Delay			2.0									
Intersection Capacity Utilization			14.2%		ICU Level of Service					A		
Analysis Period (min)			15									

















HCM Unsignalized Intersection Capacity Analysis
 3: Beaver Street S & Louisa Street W

2020 Existing
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	1	1	1	1	1	10	1	20	3	8	16	1
Future Volume (Veh/h)	1	1	1	1	1	10	1	20	3	8	16	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	1	1	1	1	11	1	22	3	9	17	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	72	62	18	62	62	24	18			25		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	72	62	18	62	62	24	18			25		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	99	100			99		
cM capacity (veh/h)	904	823	1061	926	824	1053	1599			1589		
Direction, Lane #												
	EB 1	WB 1	NE 1	SW 1								
Volume Total	3	13	26	27								
Volume Left	1	1	1	9								
Volume Right	1	11	3	1								
cSH	919	1021	1599	1589								
Volume to Capacity	0.00	0.01	0.00	0.01								
Queue Length 95th (m)	0.1	0.3	0.0	0.1								
Control Delay (s)	8.9	8.6	0.3	2.5								
Lane LOS	A	A	A	A								
Approach Delay (s)	8.9	8.6	0.3	2.5								
Approach LOS	A	A										
Intersection Summary												
Average Delay			3.1									
Intersection Capacity Utilization			14.6%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
4: Victoria Street S & Alice Street W










2020 Existing
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	1	2	1	4	6	1	41	1	5	45	2
Future Volume (Veh/h)	3	1	2	1	4	6	1	41	1	5	45	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	1	2	1	4	7	1	45	1	5	49	2
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	116	108	50	110	108	46	51			46		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	116	108	50	110	108	46	51			46		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	99	99	100			100		
cM capacity (veh/h)	848	779	1018	863	779	1024	1555			1562		
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	6	12	47	56								
Volume Left	3	1	1	5								
Volume Right	2	7	1	2								
cSH	884	914	1555	1562								
Volume to Capacity	0.01	0.01	0.00	0.00								
Queue Length 95th (m)	0.2	0.3	0.0	0.1								
Control Delay (s)	9.1	9.0	0.2	0.7								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.1	9.0	0.2	0.7								
Approach LOS	A	A										
Intersection Summary												
Average Delay			1.7									
Intersection Capacity Utilization			15.1%		ICU Level of Service					A		
Analysis Period (min)			15									

Intersection has too many legs for HCM analysis.

HCM Unsignalized Intersection Capacity Analysis
 1: Victoria Street S & Beaver Street S

















2020 Existing
 PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	54	1	2	35	45	58
Future Volume (Veh/h)	54	1	2	35	45	58
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)	59	1	2	38	49	63
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	122	80	112			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	122	80	112			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	93	100	100			
cM capacity (veh/h)	872	980	1478			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	60	40	112			
Volume Left	59	2	0			
Volume Right	1	0	63			
cSH	873	1478	1700			
Volume to Capacity	0.07	0.00	0.07			
Queue Length 95th (m)	1.7	0.0	0.0			
Control Delay (s)	9.4	0.4	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.4	0.4	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			2.7			
Intersection Capacity Utilization			15.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

















2: Victoria Street S & Louisa Street W

2020 Existing
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	10	31	5	10	4	20	33	7	3	43	1
Future Volume (Veh/h)	1	10	31	5	10	4	20	33	7	3	43	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	11	34	5	11	4	22	36	8	3	47	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	147	142	48	177	138	40	48			44		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	147	142	48	177	138	40	48			44		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	99	97	99	99	100	99			100		
cM capacity (veh/h)	799	738	1022	741	741	1031	1559			1564		
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	46	20	66	51								
Volume Left	1	5	22	3								
Volume Right	34	4	8	1								
cSH	930	785	1559	1564								
Volume to Capacity	0.05	0.03	0.01	0.00								
Queue Length 95th (m)	1.2	0.6	0.3	0.0								
Control Delay (s)	9.1	9.7	2.5	0.4								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.1	9.7	2.5	0.4								
Approach LOS	A	A										
Intersection Summary												
Average Delay			4.4									
Intersection Capacity Utilization			19.9%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 3: Beaver Street S & Louisa Street W

















2020 Existing
 PM Peak Hour

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR		
Lane Configurations														
Traffic Volume (veh/h)	1	1	1	1	1	29	1	27	3	38	38	1		
Future Volume (Veh/h)	1	1	1	1	1	29	1	27	3	38	38	1		
Sign Control		Stop			Stop			Free			Free			
Grade		0%			0%			0%			0%			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92		
Hourly flow rate (vph)	1	1	1	1	1	32	1	29	3	41	41	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	188	158	42	158	156	30	42					32		
vC1, stage 1 conf vol														
vC2, stage 2 conf vol														
vCu, unblocked vol	188	158	42	158	156	30	42					32		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1					4.1		
tC, 2 stage (s)														
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2					2.2		
p0 queue free %	100	100	100	100	100	97	100					97		
cM capacity (veh/h)	732	715	1029	791	716	1044	1567					1580		
Direction, Lane #	EB 1	WB 1	NE 1	SW 1										
Volume Total	3	34	33	83										
Volume Left	1	1	1	41										
Volume Right	1	32	3	1										
cSH	803	1020	1567	1580										
Volume to Capacity	0.00	0.03	0.00	0.03										
Queue Length 95th (m)	0.1	0.8	0.0	0.6										
Control Delay (s)	9.5	8.6	0.2	3.7										
Lane LOS	A	A	A	A										
Approach Delay (s)	9.5	8.6	0.2	3.7										
Approach LOS	A	A												
Intersection Summary														
Average Delay			4.2											
Intersection Capacity Utilization			20.8%	ICU Level of Service	A									
Analysis Period (min)			15											

HCM Unsignalized Intersection Capacity Analysis

4: Victoria Street S & Alice Street W

2020 Existing
PM Peak Hour










												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	5	3	2	8	6	4	49	2	6	60	3
Future Volume (Veh/h)	6	5	3	2	8	6	4	49	2	6	60	3
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	5	3	2	9	7	4	53	2	7	65	3
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	154	144	66	148	144	54	68			55		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	154	144	66	148	144	54	68			55		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	100	100	99	99	100			100		
cM capacity (veh/h)	795	742	997	809	742	1013	1533			1550		
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	15	18	59	75								
Volume Left	7	2	4	7								
Volume Right	3	7	2	3								
cSH	809	837	1533	1550								
Volume to Capacity	0.02	0.02	0.00	0.00								
Queue Length 95th (m)	0.4	0.5	0.1	0.1								
Control Delay (s)	9.5	9.4	0.5	0.7								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.5	9.4	0.5	0.7								
Approach LOS	A	A										
Intersection Summary												
Average Delay			2.4									
Intersection Capacity Utilization			15.0%		ICU Level of Service					A		
Analysis Period (min)			15									

Intersection has too many legs for HCM analysis.

Appendix C: Future Operations













HCM Unsignalized Intersection Capacity Analysis
 1: Victoria Street S & Beaver Street S

2030 - Option #1
 AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	36	1	2	61	62	19
Future Volume (Veh/h)	36	1	2	61	62	19
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)	39	1	2	66	67	21
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	148	78	88			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	148	78	88			
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	100	100			
cM capacity (veh/h)	844	983	1508			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	40	68	88			
Volume Left	39	2	0			
Volume Right	1	0	21			
cSH	847	1508	1700			
Volume to Capacity	0.05	0.00	0.05			
Queue Length 95th (m)	1.1	0.0	0.0			
Control Delay (s)	9.5	0.2	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.5	0.2	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			2.0			
Intersection Capacity Utilization			14.8%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 2: Victoria Street S & Louisa Street W

2030 - Option #1
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	1	5	5	1	3	4	7	58	1	6	56	1
Future Volume (Veh/h)	1	5	5	1	3	4	7	58	1	6	56	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	5	5	1	3	4	8	63	1	7	61	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	160	156	62	162	156	64	62			64		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	160	156	62	162	156	64	62			64		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	99	100	100	100	100	99			100		
cM capacity (veh/h)	793	729	1004	788	729	1001	1541			1538		
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	11	8	72	69								
Volume Left	1	1	8	7								
Volume Right	5	4	1	1								
cSH	840	853	1541	1538								
Volume to Capacity	0.01	0.01	0.01	0.00								
Queue Length 95th (m)	0.3	0.2	0.1	0.1								
Control Delay (s)	9.3	9.3	0.9	0.8								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.3	9.3	0.9	0.8								
Approach LOS	A	A										
Intersection Summary												
Average Delay			1.8									
Intersection Capacity Utilization			14.8%		ICU Level of Service					A		
Analysis Period (min)			15									

















HCM Unsignalized Intersection Capacity Analysis
 3: Beaver Street S & Louisa Street W

2030 - Option #1
 AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR	
Lane Configurations		↕			↕			↕			↕		
Traffic Volume (veh/h)	1	1	1	1	1	10	1	24	4	8	19	1	
Future Volume (Veh/h)	1	1	1	1	1	10	1	24	4	8	19	1	
Sign Control		Stop			Stop			Free			Free		
Grade		0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	1	1	1	1	1	11	1	26	4	9	21	1	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type							None						
Median storage (veh)													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	81	72	22	71	70	28	22					30	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	81	72	22	71	70	28	22					30	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1					4.1	
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2					2.2	
p0 queue free %	100	100	100	100	100	99	100					99	
cM capacity (veh/h)	892	814	1056	914	815	1047	1593					1583	
Direction, Lane #													
	EB 1	WB 1	NE 1	SW 1									
Volume Total	3	13	31	31									
Volume Left	1	1	1	9									
Volume Right	1	11	4	1									
cSH	910	1014	1593	1583									
Volume to Capacity	0.00	0.01	0.00	0.01									
Queue Length 95th (m)	0.1	0.3	0.0	0.1									
Control Delay (s)	9.0	8.6	0.2	2.1									
Lane LOS	A	A	A	A									
Approach Delay (s)	9.0	8.6	0.2	2.1									
Approach LOS	A	A											
Intersection Summary													
Average Delay			2.7										
Intersection Capacity Utilization			15.0%	ICU Level of Service	A								
Analysis Period (min)			15										

HCM Unsignalized Intersection Capacity Analysis
4: Victoria Street S & Alice Street W










2030 - Option #1
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	1	2	1	5	7	1	49	1	6	55	2
Future Volume (Veh/h)	4	1	2	1	5	7	1	49	1	6	55	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	1	2	1	5	8	1	53	1	7	60	2
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	141	131	61	133	132	54	62			54		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	141	131	61	133	132	54	62			54		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	99	99	100			100		
cM capacity (veh/h)	815	756	1004	833	755	1014	1541			1551		
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	7	14	55	69								
Volume Left	4	1	1	7								
Volume Right	2	8	1	2								
cSH	851	891	1541	1551								
Volume to Capacity	0.01	0.02	0.00	0.00								
Queue Length 95th (m)	0.2	0.4	0.0	0.1								
Control Delay (s)	9.3	9.1	0.1	0.8								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.3	9.1	0.1	0.8								
Approach LOS	A	A										
Intersection Summary												
Average Delay			1.7									
Intersection Capacity Utilization			16.3%	ICU Level of Service	A							
Analysis Period (min)			15									

Intersection has too many legs for HCM analysis.













HCM Unsignalized Intersection Capacity Analysis
 1: Victoria Street S & Commercial Access

2030 - Option #2
 AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	10	15	82	79	2
Future Volume (Veh/h)	15	10	15	82	79	2
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)	16	11	16	89	86	2
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	208	87	88			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	208	87	88			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	99	99			
cM capacity (veh/h)	772	971	1508			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	27	105	88			
Volume Left	16	16	0			
Volume Right	11	0	2			
cSH	843	1508	1700			
Volume to Capacity	0.03	0.01	0.05			
Queue Length 95th (m)	0.8	0.2	0.0			
Control Delay (s)	9.4	1.2	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.4	1.2	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			1.7			
Intersection Capacity Utilization			21.8%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
2: Victoria Street S & Louisa Street W

2030 - Option #2
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	25	2	1	1	1	7	1	65	1	9	61	19
Future Volume (Veh/h)	25	2	1	1	1	7	1	65	1	9	61	19
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	27	2	1	1	1	8	1	71	1	10	66	21
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	178	170	76	172	180	72	87				72	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	178	170	76	172	180	72	87				72	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	97	100	100	100	100	99	100				99	
cM capacity (veh/h)	772	717	985	784	708	991	1509				1528	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	30	10	73	97								
Volume Left	27	1	1	10								
Volume Right	1	8	1	21								
cSH	774	929	1509	1528								
Volume to Capacity	0.04	0.01	0.00	0.01								
Queue Length 95th (m)	0.9	0.2	0.0	0.2								
Control Delay (s)	9.8	8.9	0.1	0.8								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.8	8.9	0.1	0.8								
Approach LOS	A	A										
Intersection Summary												
Average Delay			2.2									
Intersection Capacity Utilization			24.5%		ICU Level of Service				A			
Analysis Period (min)			15									

















HCM Unsignalized Intersection Capacity Analysis
 3: Beaver Street S & Louisa Street W

2030 - Option #2
 AM Peak Hour

	→	↘	↙	←	↗	↘
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↘			↗	↘	
Traffic Volume (veh/h)	1	1	19	1	1	28
Future Volume (Veh/h)	1	1	19	1	1	28
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	1	21	1	1	30
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			2		44	2
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2		44	2
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	97
cM capacity (veh/h)			1620		953	1083
Direction, Lane #	EB 1	WB 1	NE 1			
Volume Total	2	22	31			
Volume Left	0	21	1			
Volume Right	1	0	30			
cSH	1700	1620	1078			
Volume to Capacity	0.00	0.01	0.03			
Queue Length 95th (m)	0.0	0.3	0.7			
Control Delay (s)	0.0	6.9	8.4			
Lane LOS		A	A			
Approach Delay (s)	0.0	6.9	8.4			
Approach LOS			A			
Intersection Summary						
Average Delay			7.5			
Intersection Capacity Utilization			17.8%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
4: Victoria Street S & Alice Street W

















2030 - Option #2
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	1	2	1	5	7	1	49	1	6	55	2
Future Volume (Veh/h)	4	1	2	1	5	7	1	49	1	6	55	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	1	2	1	5	8	1	53	1	7	60	2
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	141	131	61	133	132	54	62			54		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	141	131	61	133	132	54	62			54		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	99	99	100			100		
cM capacity (veh/h)	815	756	1004	833	755	1014	1541			1551		
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	7	14	55	69								
Volume Left	4	1	1	7								
Volume Right	2	8	1	2								
cSH	851	891	1541	1551								
Volume to Capacity	0.01	0.02	0.00	0.00								
Queue Length 95th (m)	0.2	0.4	0.0	0.1								
Control Delay (s)	9.3	9.1	0.1	0.8								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.3	9.1	0.1	0.8								
Approach LOS	A	A										
Intersection Summary												
Average Delay			1.7									
Intersection Capacity Utilization			16.3%		ICU Level of Service					A		
Analysis Period (min)			15									

Intersection has too many legs for HCM analysis.

HCM Unsignalized Intersection Capacity Analysis
 2: Victoria Street S & Louisa Street W

2030 - Option #3
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	5	5	1	3	4	9	56	1	6	56	19
Future Volume (Veh/h)	37	5	5	1	3	4	9	56	1	6	56	19
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	40	5	5	1	3	4	10	61	1	7	61	21
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	172	168	72	174	178	62	82			62		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	172	168	72	174	178	62	82			62		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	99	99	100	100	100	99			100		
cM capacity (veh/h)	778	717	991	773	708	1004	1515			1541		
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	50	8	72	89								
Volume Left	40	1	10	7								
Volume Right	5	4	1	21								
cSH	788	841	1515	1541								
Volume to Capacity	0.06	0.01	0.01	0.00								
Queue Length 95th (m)	1.5	0.2	0.2	0.1								
Control Delay (s)	9.9	9.3	1.1	0.6								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.9	9.3	1.1	0.6								
Approach LOS	A	A										
Intersection Summary												
Average Delay			3.2									
Intersection Capacity Utilization			21.6%		ICU Level of Service					A		
Analysis Period (min)			15									

















HCM Unsignalized Intersection Capacity Analysis
 3: Beaver Street S/Commercial Access & Louisa Street W

2030 - Option #3
 AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR	
Lane Configurations		↕			↕			↕			↕		
Traffic Volume (veh/h)	1	1	1	17	1	14	1	3	25	23	2	1	
Future Volume (Veh/h)	1	1	1	17	1	14	1	3	25	23	2	1	
Sign Control		Stop			Stop			Free			Free		
Grade		0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	1	1	1	18	1	15	1	3	27	25	2	1	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type							None						
Median storage (veh)													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	86	84	2	72	72	16	3					30	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	86	84	2	72	72	16	3					30	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1					4.1	
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2					2.2	
p0 queue free %	100	100	100	98	100	99	100					98	
cM capacity (veh/h)	875	792	1082	905	806	1063	1619					1583	
Direction, Lane #	EB 1	WB 1	NE 1	SW 1									
Volume Total	3	34	31	28									
Volume Left	1	18	1	25									
Volume Right	1	15	27	1									
cSH	901	965	1619	1583									
Volume to Capacity	0.00	0.04	0.00	0.02									
Queue Length 95th (m)	0.1	0.8	0.0	0.4									
Control Delay (s)	9.0	8.9	0.2	6.5									
Lane LOS	A	A	A	A									
Approach Delay (s)	9.0	8.9	0.2	6.5									
Approach LOS	A	A											
Intersection Summary													
Average Delay				5.4									
Intersection Capacity Utilization				18.1%	ICU Level of Service							A	
Analysis Period (min)				15									

HCM Unsignalized Intersection Capacity Analysis
4: Victoria Street S & Alice Street W

2030 - Option #3
AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	4	1	2	1	5	7	1	49	1	6	55	2	
Future Volume (Veh/h)	4	1	2	1	5	7	1	49	1	6	55	2	
Sign Control		Stop			Stop			Free			Free		
Grade		0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	4	1	2	1	5	8	1	53	1	7	60	2	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type							None						
Median storage (veh)													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	141	131	61	133	132	54	62					54	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	141	131	61	133	132	54	62					54	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1					4.1	
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2					2.2	
p0 queue free %	100	100	100	100	99	99	100					100	
cM capacity (veh/h)	815	756	1004	833	755	1014	1541					1551	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1									
Volume Total	7	14	55	69									
Volume Left	4	1	1	7									
Volume Right	2	8	1	2									
cSH	851	891	1541	1551									
Volume to Capacity	0.01	0.02	0.00	0.00									
Queue Length 95th (m)	0.2	0.4	0.0	0.1									
Control Delay (s)	9.3	9.1	0.1	0.8									
Lane LOS	A	A	A	A									
Approach Delay (s)	9.3	9.1	0.1	0.8									
Approach LOS	A	A											
Intersection Summary													
Average Delay				1.7									
Intersection Capacity Utilization				16.3%	ICU Level of Service							A	
Analysis Period (min)				15									

Intersection has too many legs for HCM analysis.

HCM Unsignalized Intersection Capacity Analysis
 1: Victoria Street S & Beaver St (One-way)

















2030 - Option #4
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕	↕	
Traffic Volume (veh/h)	0	0	12	82	62	19
Future Volume (Veh/h)	0	0	12	82	62	19
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	0	13	89	67	21
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	192	78	88			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	192	78	88			
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	99			
cM capacity (veh/h)	790	983	1508			
Direction, Lane #	NB 1	SB 1				
Volume Total	102	88				
Volume Left	13	0				
Volume Right	0	21				
cSH	1508	1700				
Volume to Capacity	0.01	0.05				
Queue Length 95th (m)	0.2	0.0				
Control Delay (s)	1.0	0.0				
Lane LOS	A					
Approach Delay (s)	1.0	0.0				
Approach LOS						
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			15.0%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 2: Victoria Street S & Louisa Street W

2030 - Option #4
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	5	5	1	1	7	1	65	1	6	56	1
Future Volume (Veh/h)	22	5	5	1	1	7	1	65	1	6	56	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	5	5	1	1	8	1	71	1	7	61	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	158	150	62	156	150	72	62			72		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	158	150	62	156	150	72	62			72		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	99	100	100	100	99	100			100		
cM capacity (veh/h)	798	738	1004	798	738	991	1541			1528		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	34	10	73	69								
Volume Left	24	1	1	7								
Volume Right	5	8	1	1								
cSH	813	936	1541	1528								
Volume to Capacity	0.04	0.01	0.00	0.00								
Queue Length 95th (m)	1.0	0.2	0.0	0.1								
Control Delay (s)	9.6	8.9	0.1	0.8								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.6	8.9	0.1	0.8								
Approach LOS	A	A										
Intersection Summary												
Average Delay			2.6									
Intersection Capacity Utilization			20.5%			ICU Level of Service				A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 3: Beaver Street S & Louisa Street W

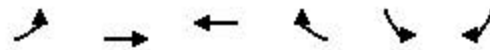
2030 - Option #4
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	←	←
Traffic Volume (veh/h)	1	1	19	1	1	25
Future Volume (Veh/h)	1	1	19	1	1	25
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	1	21	1	1	27
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			2	44	2	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2	44	2	
tC, single (s)			4.1	6.4	6.2	
tC, 2 stage (s)						
tF (s)			2.2	3.5	3.3	
p0 queue free %			99	100	98	
cM capacity (veh/h)			1620	953	1083	
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	2	22	28			
Volume Left	0	21	1			
Volume Right	1	0	27			
cSH	1700	1620	1078			
Volume to Capacity	0.00	0.01	0.03			
Queue Length 95th (m)	0.0	0.3	0.6			
Control Delay (s)	0.0	6.9	8.4			
Lane LOS		A	A			
Approach Delay (s)	0.0	6.9	8.4			
Approach LOS			A			
Intersection Summary						
Average Delay			7.5			
Intersection Capacity Utilization			17.8%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 4: Louisa Street W & Beaver St (One-way)

















2030 - Option #4
 AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↘	
Traffic Volume (veh/h)	0	25	1	0	8	19
Future Volume (Veh/h)	0	25	1	0	8	19
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	27	1	0	9	21
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	1				28	1
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1				28	1
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				99	98
cM capacity (veh/h)	1622				987	1084
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	27	1	30			
Volume Left	0	0	9			
Volume Right	0	0	21			
cSH	1700	1700	1053			
Volume to Capacity	0.02	0.00	0.03			
Queue Length 95th (m)	0.0	0.0	0.7			
Control Delay (s)	0.0	0.0	8.5			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	8.5			
Approach LOS			A			
Intersection Summary						
Average Delay			4.4			
Intersection Capacity Utilization			13.3%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 5: Victoria Street S & Alice Street W

2030 - Option #4
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	1	2	1	5	7	1	49	1	6	55	2
Future Volume (Veh/h)	4	1	2	1	5	7	1	49	1	6	55	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	1	2	1	5	8	1	53	1	7	60	2
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	141	131	61	133	132	54	62			54		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	141	131	61	133	132	54	62			54		
tC, single (\$)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (\$)												
tF (\$)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	99	99	100			100		
cM capacity (veh/h)	815	756	1004	833	755	1014	1541			1551		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	7	14	55	69								
Volume Left	4	1	1	7								
Volume Right	2	8	1	2								
cSH	851	891	1541	1551								
Volume to Capacity	0.01	0.02	0.00	0.00								
Queue Length 95th (m)	0.2	0.4	0.0	0.1								
Control Delay (s)	9.3	9.1	0.1	0.8								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.3	9.1	0.1	0.8								
Approach LOS	A	A										
Intersection Summary												
Average Delay			1.7									
Intersection Capacity Utilization			16.3%		ICU Level of Service					A		
Analysis Period (min)			15									

Intersection has too many legs for HCM analysis.

HCM Unsignalized Intersection Capacity Analysis
 1: Victoria Street S & Beaver Street S

















2030 - Option #5
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	19	1	2	78	75	6
Future Volume (Veh/h)	19	1	2	78	75	6
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)	21	1	2	85	82	7
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	174	86	89			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	174	86	89			
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	100	100			
cM capacity (veh/h)	814	973	1506			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	22	87	89			
Volume Left	21	2	0			
Volume Right	1	0	7			
cSH	820	1506	1700			
Volume to Capacity	0.03	0.00	0.05			
Queue Length 95th (m)	0.6	0.0	0.0			
Control Delay (s)	9.5	0.2	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.5	0.2	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			15.7%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 2: Victoria Street S & Louisa Street W

2030 - Option #5
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	3	5	1	3	4	7	76	4	6	69	1
Future Volume (Veh/h)	1	3	5	1	3	4	7	76	4	6	69	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	3	5	1	3	4	8	83	4	7	75	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	196	192	76	197	191	85	76			87		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	196	192	76	197	191	85	76			87		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	99	100	100	100	99			100		
cM capacity (veh/h)	752	696	986	750	697	974	1523			1509		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	9	8	95	83								
Volume Left	1	1	8	7								
Volume Right	5	4	4	1								
cSH	840	821	1523	1509								
Volume to Capacity	0.01	0.01	0.01	0.00								
Queue Length 95th (m)	0.2	0.2	0.1	0.1								
Control Delay (s)	9.3	9.4	0.7	0.7								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.3	9.4	0.7	0.7								
Approach LOS	A	A										
Intersection Summary												
Average Delay			1.4									
Intersection Capacity Utilization			16.1%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 3: Louisa Street W & Beaver Street S

















2030 - Option #5
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (veh/h)	1	1	1	1	1	10	1	4	1	8	4	1
Future Volume (Veh/h)	1	1	1	1	1	10	1	4	1	8	4	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	1	1	1	1	11	1	4	1	9	4	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	40	30	4	30	30	4	5			5		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	40	30	4	30	30	4	5			5		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	99	100			99		
cM capacity (veh/h)	948	858	1079	971	858	1079	1616			1616		
Direction, Lane #	EB 1	WB 1	NE 1	SW 1								
Volume Total	3	13	6	14								
Volume Left	1	1	1	9								
Volume Right	1	11	1	1								
cSH	953	1049	1616	1616								
Volume to Capacity	0.00	0.01	0.00	0.01								
Queue Length 95th (m)	0.1	0.3	0.0	0.1								
Control Delay (s)	8.8	8.5	1.2	4.7								
Lane LOS	A	A	A	A								
Approach Delay (s)	8.8	8.5	1.2	4.7								
Approach LOS	A	A										
Intersection Summary												
Average Delay			5.8									
Intersection Capacity Utilization			13.3%			ICU Level of Service				A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
4: Victoria Street S & Alice Street W

2030 - Option #5
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	1	2	1	5	7	1	49	1	6	55	15
Future Volume (Veh/h)	23	1	2	1	5	7	1	49	1	6	55	15
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	1	2	1	5	8	1	53	1	7	60	16
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	148	138	68	140	146	54	76			54		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	148	138	68	140	146	54	76			54		
tC, single (\$)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (\$)												
tF (\$)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	100	100	99	99	100			100		
cM capacity (veh/h)	806	749	995	824	742	1014	1523			1551		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	28	14	55	83								
Volume Left	25	1	1	7								
Volume Right	2	8	1	16								
cSH	815	884	1523	1551								
Volume to Capacity	0.03	0.02	0.00	0.00								
Queue Length 95th (m)	0.8	0.4	0.0	0.1								
Control Delay (s)	9.6	9.1	0.1	0.6								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.6	9.1	0.1	0.6								
Approach LOS	A	A										
Intersection Summary												
Average Delay			2.5									
Intersection Capacity Utilization			21.9%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 5: Beaver Street S/Lansdowne Street S & Alice Street W










2030 - Option #5
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	1	4	1	12	1	3	2	9	23	2	6	1
Future Volume (vph)	1	4	1	12	1	3	2	9	23	2	6	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	4	1	13	1	3	2	10	25	2	7	1
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	6	17	37	10								
Volume Left (vph)	1	13	2	2								
Volume Right (vph)	1	3	25	1								
Hadj (s)	-0.03	0.08	-0.36	0.01								
Departure Headway (s)	4.0	4.1	3.6	4.0								
Degree Utilization, x	0.01	0.02	0.04	0.01								
Capacity (veh/h)	888	868	990	889								
Control Delay (s)	7.0	7.2	6.7	7.0								
Approach Delay (s)	7.0	7.2	6.7	7.0								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			6.9									
Level of Service			A									
Intersection Capacity Utilization			13.3%		ICU Level of Service					A		
Analysis Period (min)			15									

















HCM Unsignalized Intersection Capacity Analysis
 1: Victoria Street S & Beaver Street S

2030 - Option #1
 PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	59	1	2	44	56	64
Future Volume (Veh/h)	59	1	2	44	56	64
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)	64	1	2	48	61	70
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	148	96	131			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	148	96	131			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	100	100			
cM capacity (veh/h)	843	960	1454			
Direction, Lane #						
	EB 1	NB 1	SB 1			
Volume Total	65	50	131			
Volume Left	64	2	0			
Volume Right	1	0	70			
cSH	845	1454	1700			
Volume to Capacity	0.08	0.00	0.08			
Queue Length 95th (m)	1.9	0.0	0.0			
Control Delay (s)	9.6	0.3	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.6	0.3	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			2.6			
Intersection Capacity Utilization			16.9%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 2: Victoria Street S & Louisa Street W

2030 - Option #1
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	11	31	6	10	5	20	41	9	4	53	1
Future Volume (Veh/h)	1	11	31	6	10	5	20	41	9	4	53	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	12	34	7	11	5	22	45	10	4	58	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	171	166	58	200	161	50	59			55		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	171	166	58	200	161	50	59			55		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	98	97	99	98	100	99			100		
cM capacity (veh/h)	769	715	1007	714	719	1018	1545			1550		
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	47	23	77	63								
Volume Left	1	7	22	4								
Volume Right	34	5	10	1								
cSH	907	766	1545	1550								
Volume to Capacity	0.05	0.03	0.01	0.00								
Queue Length 95th (m)	1.2	0.7	0.3	0.1								
Control Delay (s)	9.2	9.8	2.2	0.5								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.2	9.8	2.2	0.5								
Approach LOS	A	A										
Intersection Summary												
Average Delay			4.1									
Intersection Capacity Utilization			20.6%		ICU Level of Service					A		
Analysis Period (min)			15									

















HCM Unsignalized Intersection Capacity Analysis
 3: Beaver Street S & Louisa Street W

2030 - Option #1
 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR	
Lane Configurations		↔			↔			↔			↔		
Traffic Volume (veh/h)	1	1	1	1	1	29	1	32	4	38	44	1	
Future Volume (Veh/h)	1	1	1	1	1	29	1	32	4	38	44	1	
Sign Control		Stop			Stop			Free			Free		
Grade		0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	1	1	1	1	1	32	1	35	4	41	48	1	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type							None						
Median storage (veh)													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	202	172	48	171	170	37	49					39	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	202	172	48	171	170	37	49					39	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1					4.1	
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2					2.2	
p0 queue free %	100	100	100	100	100	97	100					97	
cM capacity (veh/h)	717	702	1020	775	704	1035	1558					1571	
Direction, Lane #	EB 1	WB 1	NE 1	SW 1									
Volume Total	3	34	40	90									
Volume Left	1	1	1	41									
Volume Right	1	32	4	1									
cSH	790	1011	1558	1571									
Volume to Capacity	0.00	0.03	0.00	0.03									
Queue Length 95th (m)	0.1	0.8	0.0	0.6									
Control Delay (s)	9.6	8.7	0.2	3.5									
Lane LOS	A	A	A	A									
Approach Delay (s)	9.6	8.7	0.2	3.5									
Approach LOS	A	A											
Intersection Summary													
Average Delay			3.8										
Intersection Capacity Utilization			21.1%	ICU Level of Service	A								
Analysis Period (min)			15										

HCM Unsignalized Intersection Capacity Analysis
 4: Victoria Street S & Alice Street W










2030 - Option #1
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	6	4	2	10	7	5	56	2	7	67	4
Future Volume (Veh/h)	7	6	4	2	10	7	5	56	2	7	67	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	7	4	2	11	8	5	61	2	8	73	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	176	164	75	170	165	62	77			63		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	176	164	75	170	165	62	77			63		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	100	100	98	99	100			99		
cM capacity (veh/h)	766	722	986	779	721	1003	1522			1540		
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	19	21	68	85								
Volume Left	8	2	5	8								
Volume Right	4	8	2	4								
cSH	785	814	1522	1540								
Volume to Capacity	0.02	0.03	0.00	0.01								
Queue Length 95th (m)	0.6	0.6	0.1	0.1								
Control Delay (s)	9.7	9.5	0.6	0.7								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.7	9.5	0.6	0.7								
Approach LOS	A	A										
Intersection Summary												
Average Delay			2.5									
Intersection Capacity Utilization			15.6%		ICU Level of Service					A		
Analysis Period (min)			15									

Intersection has too many legs for HCM analysis.













HCM Unsignalized Intersection Capacity Analysis
 1: Victoria Street S & Commercial Access

2030 - Option #2
 PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	50	39	67	89	31
Future Volume (Veh/h)	35	50	39	67	89	31
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)	38	54	42	73	97	34
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	271	114	131			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	271	114	131			
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	94	97			
cM capacity (veh/h)	698	939	1454			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	92	115	131			
Volume Left	38	42	0			
Volume Right	54	0	34			
cSH	821	1454	1700			
Volume to Capacity	0.11	0.03	0.08			
Queue Length 95th (m)	2.9	0.7	0.0			
Control Delay (s)	9.9	2.9	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.9	2.9	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			3.7			
Intersection Capacity Utilization			24.0%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 2: Victoria Street S & Louisa Street W

2030 - Option #2
 PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕			↕			↕			↕		
Traffic Volume (veh/h)	32	4	1	6	1	14	1	61	9	11	84	44	
Future Volume (Veh/h)	32	4	1	6	1	14	1	61	9	11	84	44	
Sign Control		Stop			Stop			Free			Free		
Grade		0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	35	4	1	7	1	15	1	66	10	12	91	48	
Pedestrians													
Lane Width (m)													
Walking Speed (m/s)													
Percent Blockage													
Right turn flare (veh)													
Median type							None						
Median storage (veh)													
Upstream signal (m)													
pX, platoon unblocked													
vC, conflicting volume	228	217	115	215	236	71	139					76	
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	228	217	115	215	236	71	139					76	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1					4.1	
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2					2.2	
p0 queue free %	95	99	100	99	100	98	100					99	
cM capacity (veh/h)	711	675	937	733	659	991	1445					1523	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1									
Volume Total	40	23	77	151									
Volume Left	35	7	1	12									
Volume Right	1	15	10	48									
cSH	712	878	1445	1523									
Volume to Capacity	0.06	0.03	0.00	0.01									
Queue Length 95th (m)	1.4	0.6	0.0	0.2									
Control Delay (s)	10.4	9.2	0.1	0.6									
Lane LOS	B	A	A	A									
Approach Delay (s)	10.4	9.2	0.1	0.6									
Approach LOS	B	A											
Intersection Summary													
Average Delay			2.5										
Intersection Capacity Utilization			25.8%	ICU Level of Service	A								
Analysis Period (min)			15										

















HCM Unsignalized Intersection Capacity Analysis
 3: Beaver Street S & Louisa Street W

2030 - Option #2
 PM Peak Hour

	→	↘	↙	←	↗	↘
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↘			↗	↘	
Traffic Volume (veh/h)	1	1	46	1	1	35
Future Volume (Veh/h)	1	1	46	1	1	35
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	1	50	1	1	38
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			2		102	2
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2		102	2
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		100	96
cM capacity (veh/h)			1620		868	1083
Direction, Lane #	EB 1	WB 1	NE 1			
Volume Total	2	51	39			
Volume Left	0	50	1			
Volume Right	1	0	38			
cSH	1700	1620	1076			
Volume to Capacity	0.00	0.03	0.04			
Queue Length 95th (m)	0.0	0.7	0.9			
Control Delay (s)	0.0	7.2	8.5			
Lane LOS		A	A			
Approach Delay (s)	0.0	7.2	8.5			
Approach LOS			A			
Intersection Summary						
Average Delay			7.6			
Intersection Capacity Utilization			19.3%	ICU Level of Service	A	
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 4: Victoria Street S & Alice Street W













2030 - Option #2
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	6	4	2	10	7	5	56	2	7	67	4
Future Volume (Veh/h)	7	6	4	2	10	7	5	56	2	7	67	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	7	4	2	11	8	5	61	2	8	73	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	176	164	75	170	165	62	77			63		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	176	164	75	170	165	62	77			63		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	100	100	98	99	100			99		
cM capacity (veh/h)	766	722	986	779	721	1003	1522			1540		
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	19	21	68	85								
Volume Left	8	2	5	8								
Volume Right	4	8	2	4								
cSH	785	814	1522	1540								
Volume to Capacity	0.02	0.03	0.00	0.01								
Queue Length 95th (m)	0.6	0.6	0.1	0.1								
Control Delay (s)	9.7	9.5	0.6	0.7								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.7	9.5	0.6	0.7								
Approach LOS	A	A										
Intersection Summary												
Average Delay			2.5									
Intersection Capacity Utilization			15.6%		ICU Level of Service					A		
Analysis Period (min)			15									

Intersection has too many legs for HCM analysis.

















HCM Unsignalized Intersection Capacity Analysis
 2: Victoria Street S & Louisa Street W

2030 - Option #3
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	59	11	32	3	10	5	22	39	9	4	52	64
Future Volume (Veh/h)	59	11	32	3	10	5	22	39	9	4	52	64
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	64	12	35	3	11	5	24	42	10	4	57	70
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	206	200	92	236	230	47	127			52		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	206	200	92	236	230	47	127			52		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	91	98	96	100	98	100	98			100		
cM capacity (veh/h)	728	683	965	673	657	1022	1459			1554		
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	111	19	76	131								
Volume Left	64	3	24	4								
Volume Right	35	5	10	70								
cSH	783	728	1459	1554								
Volume to Capacity	0.14	0.03	0.02	0.00								
Queue Length 95th (m)	3.7	0.6	0.4	0.1								
Control Delay (s)	10.4	10.1	2.5	0.2								
Lane LOS	B	B	A	A								
Approach Delay (s)	10.4	10.1	2.5	0.2								
Approach LOS	B	B										
Intersection Summary												
Average Delay			4.6									
Intersection Capacity Utilization			29.6%	ICU Level of Service						A		
Analysis Period (min)			15									

















HCM Unsignalized Intersection Capacity Analysis
 3: Beaver Street S/Commercial Access & Louisa Street W

2030 - Option #3
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	1	1	1	34	1	62	1	8	27	74	11	1
Future Volume (Veh/h)	1	1	1	34	1	62	1	8	27	74	11	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	1	1	37	1	67	1	9	29	80	12	1
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	266	212	12	200	198	24	13			38		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	266	212	12	200	198	24	13			38		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	95	100	94	100			95		
cM capacity (veh/h)	617	650	1068	728	661	1053	1606			1572		
Direction, Lane #												
	EB 1	WB 1	NE 1	SW 1								
Volume Total	3	105	39	93								
Volume Left	1	37	1	80								
Volume Right	1	67	29	1								
cSH	733	905	1606	1572								
Volume to Capacity	0.00	0.12	0.00	0.05								
Queue Length 95th (m)	0.1	3.0	0.0	1.2								
Control Delay (s)	9.9	9.5	0.2	6.4								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.9	9.5	0.2	6.4								
Approach LOS	A	A										
Intersection Summary												
Average Delay			6.8									
Intersection Capacity Utilization			25.8%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 4: Victoria Street S & Alice Street W

2030 - Option #3
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	6	4	2	10	7	5	56	2	7	67	4
Future Volume (Veh/h)	7	6	4	2	10	7	5	56	2	7	67	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	7	4	2	11	8	5	61	2	8	73	4
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	176	164	75	170	165	62	77			63		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	176	164	75	170	165	62	77			63		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	100	100	98	99	100			99		
cM capacity (veh/h)	766	722	986	779	721	1003	1522			1540		
Direction, Lane #												
	EB 1	WB 1	NB 1	SB 1								
Volume Total	19	21	68	85								
Volume Left	8	2	5	8								
Volume Right	4	8	2	4								
cSH	785	814	1522	1540								
Volume to Capacity	0.02	0.03	0.00	0.01								
Queue Length 95th (m)	0.6	0.6	0.1	0.1								
Control Delay (s)	9.7	9.5	0.6	0.7								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.7	9.5	0.6	0.7								
Approach LOS	A	A										
Intersection Summary												
Average Delay			2.5									
Intersection Capacity Utilization			15.6%		ICU Level of Service					A		
Analysis Period (min)			15									

Intersection has too many legs for HCM analysis.

HCM Unsignalized Intersection Capacity Analysis
 1: Victoria Street S & Beaver St (One-way)

















2030 - Option #4
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations				↕	↕	
Traffic Volume (veh/h)	0	0	31	67	56	64
Future Volume (Veh/h)	0	0	31	67	56	64
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	0	34	73	61	70
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	237	96	131			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	237	96	131			
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	98			
cM capacity (veh/h)	734	960	1454			
Direction, Lane #	NB 1	SB 1				
Volume Total	107	131				
Volume Left	34	0				
Volume Right	0	70				
cSH	1454	1700				
Volume to Capacity	0.02	0.08				
Queue Length 95th (m)	0.5	0.0				
Control Delay (s)	2.5	0.0				
Lane LOS	A					
Approach Delay (s)	2.5	0.0				
Approach LOS						
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			15.2%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 2: Victoria Street S & Louisa Street W

2030 - Option #4
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	11	31	6	1	14	1	61	9	4	52	1
Future Volume (Veh/h)	23	11	31	6	1	14	1	61	9	4	52	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	12	34	7	1	15	1	66	10	4	57	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	154	144	58	178	139	71	58			76		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	154	144	58	178	139	71	58			76		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	98	97	99	100	98	100			100		
cM capacity (veh/h)	798	745	1009	746	750	991	1546			1523		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	71	23	77	62								
Volume Left	25	7	1	4								
Volume Right	34	15	10	1								
cSH	875	890	1546	1523								
Volume to Capacity	0.08	0.03	0.00	0.00								
Queue Length 95th (m)	2.0	0.6	0.0	0.1								
Control Delay (s)	9.5	9.2	0.1	0.5								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.5	9.2	0.1	0.5								
Approach LOS	A	A										
Intersection Summary												
Average Delay			4.0									
Intersection Capacity Utilization			17.2%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 3: Beaver Street S & Louisa Street W

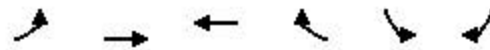
2030 - Option #4
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→			←	↶	↷
Traffic Volume (veh/h)	1	1	46	1	1	27
Future Volume (Veh/h)	1	1	46	1	1	27
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	1	50	1	1	29
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			2	102	2	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			2	102	2	
tC, single (s)			4.1	6.4	6.2	
tC, 2 stage (s)						
tF (s)			2.2	3.5	3.3	
p0 queue free %			97	100	97	
cM capacity (veh/h)			1620	868	1083	
Direction, Lane #						
	EB 1	WB 1	NB 1			
Volume Total	2	51	30			
Volume Left	0	50	1			
Volume Right	1	0	29			
cSH	1700	1620	1074			
Volume to Capacity	0.00	0.03	0.03			
Queue Length 95th (m)	0.0	0.7	0.7			
Control Delay (s)	0.0	7.2	8.4			
Lane LOS		A	A			
Approach Delay (s)	0.0	7.2	8.4			
Approach LOS			A			
Intersection Summary						
Average Delay			7.4			
Intersection Capacity Utilization			19.3%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 4: Louisa Street W & Beaver St (One-way)

















2030 - Option #4
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↘	
Traffic Volume (veh/h)	0	27	1	0	38	44
Future Volume (Veh/h)	0	27	1	0	38	44
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	29	1	0	41	48
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	1				30	1
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1				30	1
tC, single (\$)	4.1				6.4	6.2
tC, 2 stage (\$)						
tF (\$)	2.2				3.5	3.3
p0 queue free %	100				96	96
cM capacity (veh/h)	1622				984	1084
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	29	1	89			
Volume Left	0	0	41			
Volume Right	0	0	48			
cSH	1700	1700	1035			
Volume to Capacity	0.02	0.00	0.09			
Queue Length 95th (m)	0.0	0.0	2.1			
Control Delay (s)	0.0	0.0	8.8			
Lane LOS			A			
Approach Delay (s)	0.0	0.0	8.8			
Approach LOS			A			
Intersection Summary						
Average Delay			6.6			
Intersection Capacity Utilization			14.8%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
5: Victoria Street S & Alice Street W

2030 - Option #4
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	6	4	2	10	7	5	56	2	7	67	4
Future Volume (Veh/h)	7	6	4	2	10	7	5	56	2	7	67	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	7	4	2	11	8	5	61	2	8	73	4
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	176	164	75	170	165	62	77			63		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	176	164	75	170	165	62	77			63		
tC, single (\$)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (\$)												
tF (\$)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	100	100	98	99	100			99		
cM capacity (veh/h)	766	722	986	779	721	1003	1522			1540		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	19	21	68	85								
Volume Left	8	2	5	8								
Volume Right	4	8	2	4								
cSH	785	814	1522	1540								
Volume to Capacity	0.02	0.03	0.00	0.01								
Queue Length 95th (m)	0.6	0.6	0.1	0.1								
Control Delay (s)	9.7	9.5	0.6	0.7								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.7	9.5	0.6	0.7								
Approach LOS	A	A										
Intersection Summary												
Average Delay			2.5									
Intersection Capacity Utilization			15.6%		ICU Level of Service					A		
Analysis Period (min)			15									

Intersection has too many legs for HCM analysis.

HCM Unsignalized Intersection Capacity Analysis
 1: Victoria Street S & Beaver Street S

















2030 - Option #5
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W			4	4	
Traffic Volume (veh/h)	39	1	2	63	85	35
Future Volume (Veh/h)	39	1	2	63	85	35
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	1	2	68	92	38
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	183	111	130			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	183	111	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 %	95	100	100			
cM capacity (veh/h)	805	942	1455			
Direction, Lane #						
	EB 1	NB 1	SB 1			
Volume Total	43	70	130			
Volume Left	42	2	0			
Volume Right	1	0	38			
cSH	808	1455	1700			
Volume to Capacity	0.05	0.00	0.08			
Queue Length 95th (m)	1.3	0.0	0.0			
Control Delay (s)	9.7	0.2	0.0			
Lane LOS	A	A				
Approach Delay (s)	9.7	0.2	0.0			
Approach LOS	A					
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization			16.6%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
 2: Victoria Street S & Louisa Street W

2030 - Option #5
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	7	31	7	9	5	20	60	12	4	82	1
Future Volume (Veh/h)	1	7	31	7	9	5	20	60	12	4	82	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	8	34	8	10	5	22	65	13	4	89	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	223	220	90	251	214	72	90			78		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	223	220	90	251	214	72	90			78		
tC, single (\$)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (\$)												
tF (\$)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	99	96	99	99	99	99			100		
cM capacity (veh/h)	711	667	968	663	672	991	1505			1520		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	43	23	100	94								
Volume Left	1	8	22	4								
Volume Right	34	5	13	1								
cSH	886	719	1505	1520								
Volume to Capacity	0.05	0.03	0.01	0.00								
Queue Length 95th (m)	1.2	0.8	0.3	0.1								
Control Delay (s)	9.3	10.2	1.7	0.3								
Lane LOS	A	B	A	A								
Approach Delay (s)	9.3	10.2	1.7	0.3								
Approach LOS	A	B										
Intersection Summary												
Average Delay			3.2									
Intersection Capacity Utilization			23.2%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 3: Louisa Street W & Beaver Street S

















2030 - Option #5
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↔			↔			↕			↕	
Traffic Volume (veh/h)	1	1	1	1	1	29	1	4	1	38	4	1
Future Volume (Veh/h)	1	1	1	1	1	29	1	4	1	38	4	1
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	1	1	1	1	32	1	4	1	41	4	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	126	94	4	94	94	4	5			5		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	126	94	4	94	94	4	5			5		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	100	100	97	100			97		
cM capacity (veh/h)	806	776	1079	869	776	1079	1616			1616		
Direction, Lane #	EB 1	WB 1	NE 1	SW 1								
Volume Total	3	34	6	46								
Volume Left	1	1	1	41								
Volume Right	1	32	1	1								
cSH	868	1059	1616	1616								
Volume to Capacity	0.00	0.03	0.00	0.03								
Queue Length 95th (m)	0.1	0.8	0.0	0.6								
Control Delay (s)	9.2	8.5	1.2	6.5								
Lane LOS	A	A	A	A								
Approach Delay (s)	9.2	8.5	1.2	6.5								
Approach LOS	A	A										
Intersection Summary												
Average Delay			7.0									
Intersection Capacity Utilization			19.0%			ICU Level of Service				A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
4: Victoria Street S & Alice Street W

2030 - Option #5
PM Peak Hour

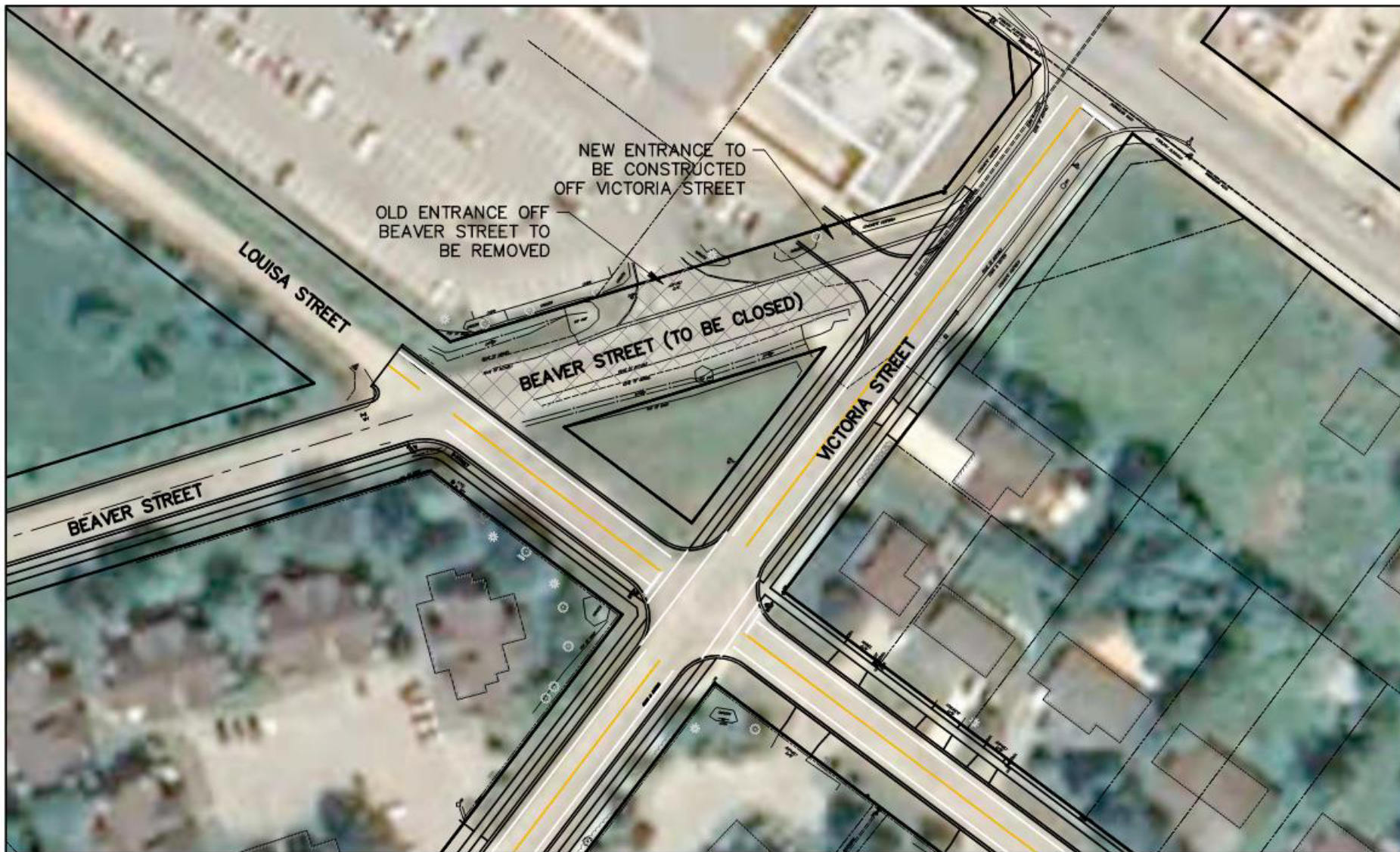
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	6	4	2	10	7	5	56	2	7	67	35
Future Volume (Veh/h)	28	6	4	2	10	7	5	56	2	7	67	35
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	30	7	4	2	11	8	5	61	2	8	73	38
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	194	181	92	188	199	62	111			63		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	194	181	92	188	199	62	111			63		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	99	100	100	98	99	100			99		
cM capacity (veh/h)	746	707	965	759	691	1003	1479			1540		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	41	21	68	119								
Volume Left	30	2	5	8								
Volume Right	4	8	2	38								
cSH	755	791	1479	1540								
Volume to Capacity	0.05	0.03	0.00	0.01								
Queue Length 95th (m)	1.3	0.6	0.1	0.1								
Control Delay (s)	10.0	9.7	0.6	0.5								
Lane LOS	B	A	A	A								
Approach Delay (s)	10.0	9.7	0.6	0.5								
Approach LOS	B	A										
Intersection Summary												
Average Delay			2.9									
Intersection Capacity Utilization			23.0%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
 5: Beaver Street S/Lansdowne Street S & Alice Street W

2030 - Option #5
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	1	2	1	30	4	4	1	16	26	5	20	2
Future Volume (vph)	1	2	1	30	4	4	1	16	26	5	20	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	2	1	33	4	4	1	17	28	5	22	2
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	4	41	46	29								
Volume Left (vph)	1	33	1	5								
Volume Right (vph)	1	4	28	2								
Hadj (s)	-0.07	0.14	-0.33	0.03								
Departure Headway (s)	4.0	4.2	3.7	4.1								
Degree Utilization, x	0.00	0.05	0.05	0.03								
Capacity (veh/h)	870	839	947	869								
Control Delay (s)	7.0	7.4	6.9	7.2								
Approach Delay (s)	7.0	7.4	6.9	7.2								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			7.1									
Level of Service			A									
Intersection Capacity Utilization			16.1%	ICU Level of Service	A							
Analysis Period (min)			15									



TOWN OF THE BLUE MOUNTAINS
ELMA & ALICE ST. AREA RECONSTRUCTION
BEAVER STREET CLOSURE

SCALE: 1:1,000

DATE: MAY/21

DWG. No. FIG. 2



TOWN OF THE BLUE MOUNTAINS
ELMA & ALICE ST. AREA RECONSTRUCTION
BEAVER STREET TURN AROUND

SCALE: 1:1,000

DATE: MAY/21

DWG. No. FIG. 1