McElhanney

Draft Report

MUNICIPALITY OF JASPER – TRANSPORTATION MASTER PLAN

July 2018

Municipality of
JASPER
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Municipality of Jasper

Transportation Master Plan

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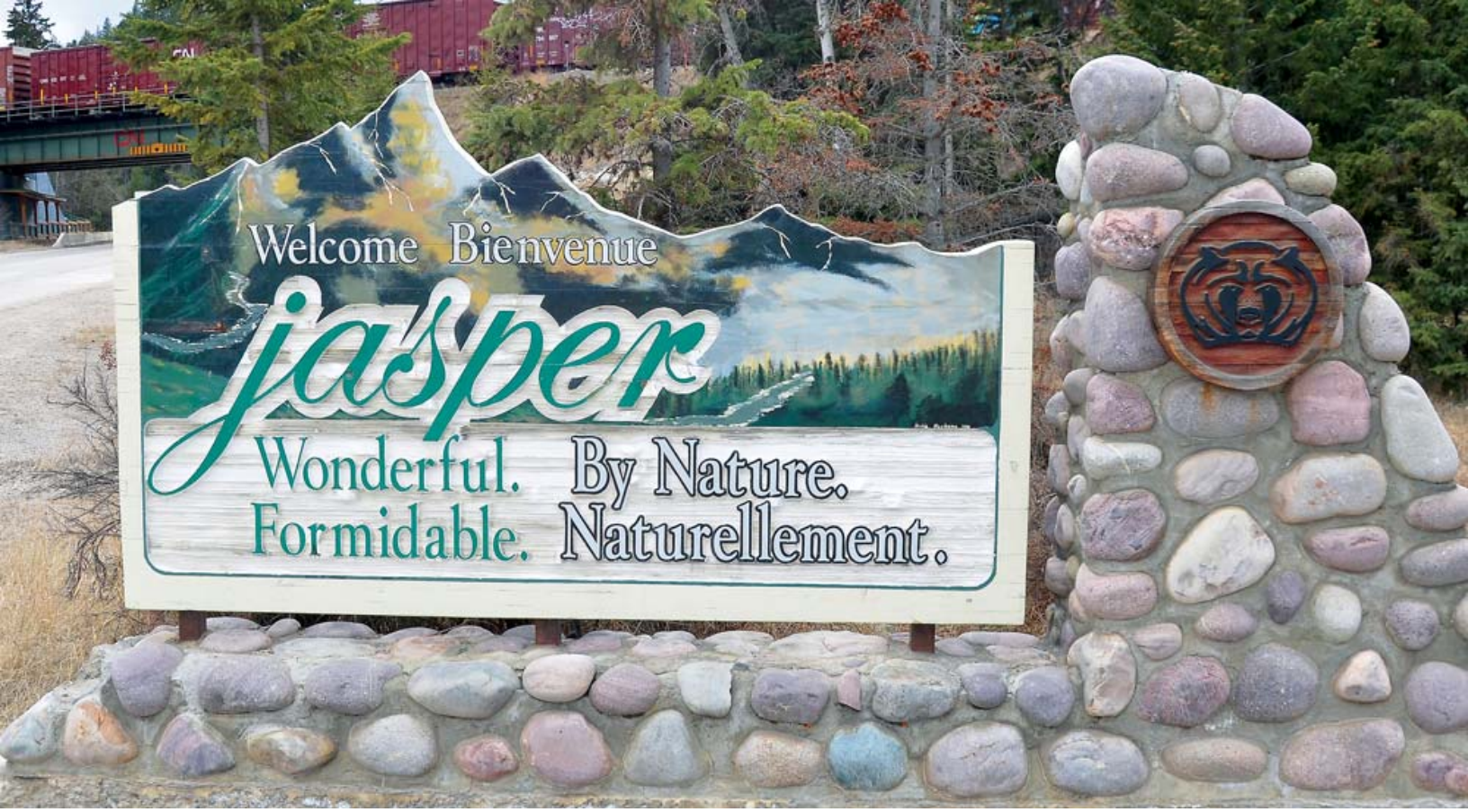

JASPER
TRANSPORTATION MASTER PLAN

SECTION 1

Introduction

1.1. Background

The Town of Jasper is located within Jasper National Park in Alberta, approximately 365 km west of the City of Edmonton and within the ecologically sensitive Three Valley Confluence Area of the Park. Jasper is bounded by the Athabasca River and the Miette River, which are located east and south of the municipality, respectively. The town is surrounded by coniferous forests, mountain lakes and the Colin, Maligne and Victoria Cross mountain ranges. With an abundance of natural areas, hiking trails, camping opportunities, and vibrant town amenities, as well as access to the popular Marmot Basin Ski Resort in winter months, Jasper serves as an attractive tourist destination year-round.

Jasper is a community characterized by walking and cycling supported by a vibrant central urban core. The Municipality wishes to build on this base and continue developing a multimodal transportation system that minimizes capital and operational costs while maximizing public benefit with regard to mobility efficiency, promotion of the tourism economy, public health, quality of public spaces, reduction of environmental emissions, and affordability and accessibility of the transportation system.

1.2. Town Profile

The Town of Jasper has a permanent population is 4,590 based on the 2016 census, though significant tourist and visitor traffic is observed visiting the town during both the summer and winter seasons. The transportation network within the town accommodates multi-modal travel options and provides connections to key areas within and around the townsite, including the popular town centre, commercial areas, neighbourhood developments, recreational pathways and trails, as well as key external regional network links.

Access to the popular commercial downtown area, residential neighbourhoods, and community greenspace is provided through a network of roadways, multi-use pathways and sidewalks. These infrastructure assets provide key connections aiding in the goal of providing safe and efficient transportation through areas that can experience significant volumes of local and visitor traffic throughout the year, and in particular, during the busy summer months.

1.3. Transportation Master Plan Objectives

The Town of Jasper (The Town) is looking to develop a Transportation Master Plan (TMP) that will provide a framework for the movement of people and goods around their community, and lay the foundation for future policy, planning and engineering initiatives. Given the role mobility plays in our daily lives, it is critical that the transportation network be compatible and supportive of the aspirations and vision of the community. The TMP will ensure that the entire network is considered, such that improvements can be identified and prioritized with long-term goals in mind in order to optimize the investment in infrastructure. This will avoid the construction of transportation improvements in a piece-by-piece manner, which can result in disconnected and incompatible improvements that only address spot-specific problems rather than the needs of the community at large.

Based on an assessment of the needs of the community as well as feedback collected through stakeholder consultation with town residents and staff from the Municipality, this study outlines four key objectives for the town. The sections that follow detail what we heard in the feedback collected during the stakeholder consultation process, the goals and benefits for each of the key objectives, as well as strategies and options for improvements in order to achieve these objectives.

1.4. Study Process

The study process consists of three phases as outlined in Figure 1, and elaborated on below.

Phase 1: Where we are now and where do we want to go

Phase 1 informed the community and key stakeholders of the project objectives, scope and context. Public engagement was carried out to establish community values and future vision for the study area prior to investigating any improvement concepts. On the technical side, existing conditions were established and analyzed.

Phase 2: How do we get there

During Phase 2, the feedback from Phase 1 was reviewed. TMP objectives and strategies were developed that met the project and stakeholder priorities. The objectives were prepared and presented to stakeholders for feedback. The objectives and TMP recommendations were refined with consideration for both the technical and stakeholder engagement findings.

Phase 3: Making it happen

In the final phase, the study recommendations were presented to stakeholders and were documented for approval

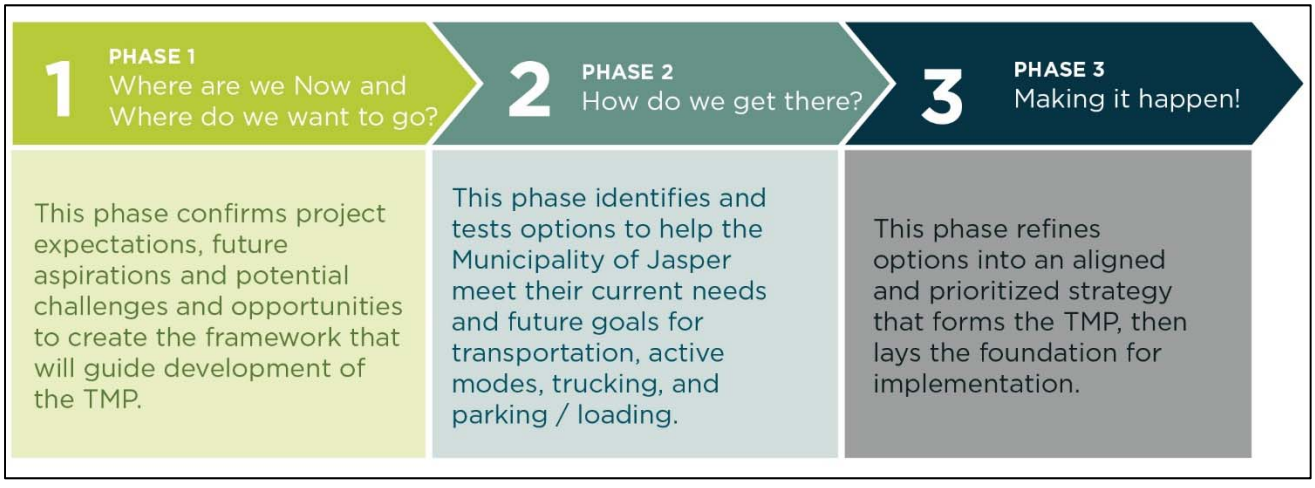

Figure 1: TMP Study Process

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SECTION 2

Existing Conditions

2.1. Existing Road Network

As shown in Figure 2, the existing road network within and surrounding The Municipality of Jasper has been functionally classified in accordance with the definitions from the Transportation Association of Canada (TAC). In addition to Highway 16 bordering the east side of town, the majority of the road network consists of local and arterial roadways, which are defined by TAC as follows:

> ***Local Roads**: intended primarily to provide access to adjacent properties. On local roads, there is generally less tolerance for large volumes of traffic and fast traffic speeds. Local roads are often candidates for traffic calming measures, especially in residential areas. Traffic volumes on local roads are typically less than 3,000 vpd.*
>
> ***Arterial Roads**: intended primarily to move large volumes of traffic safely and efficiently over relatively long distances. Arterials typically have higher traffic speeds, with little or no direct access to adjacent properties. These roads generally support heavy truck traffic and bus routes. Minor arterials may serve between 5,000 and 20,000 vpd. Major arterials (e.g. provincial highways) may serve between 10,000 and 20,000 vpd.*

The speed limit within the town is posted at 50 km/h, except for playground and school zones where the speed limit has been reduced to 30km/h. As shown in the map below, the existing road network features a predominantly grid-like configuration with several lengthy northbound and southbound roadways spanning the length of the town, which are intersected by shorter eastbound and westbound roads that allow for redundancy in the network and extensive routing options to town amenities. A network of pedestrian and cyclist infrastructure, including pathways, sidewalks and trails, is also in place within and surrounding the town, as detailed further in Section 2.3.

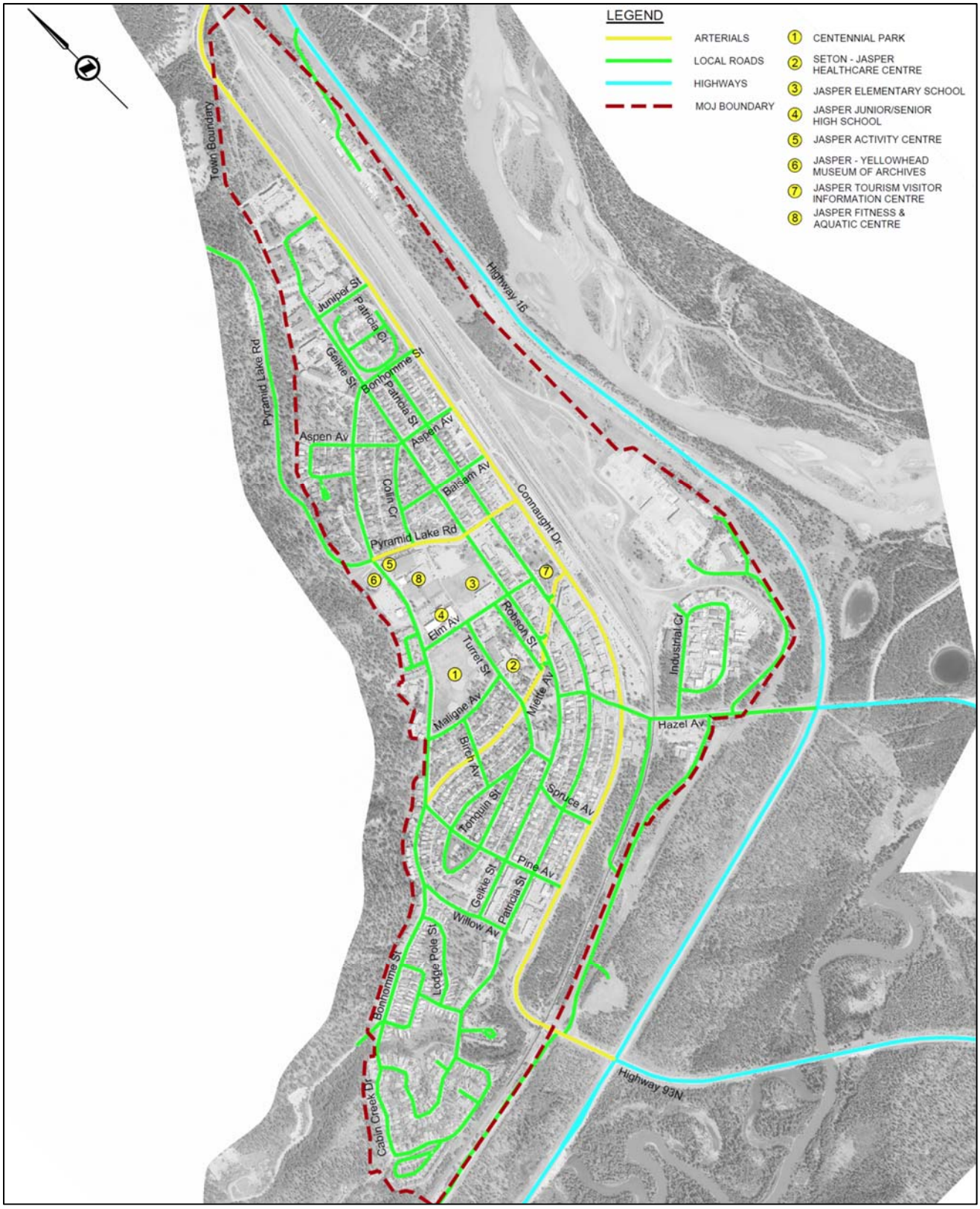


Figure 2: Town of Jasper Road Network

2.1. Traffic Operations

2.1.1. Seasonal Traffic Variance

Monthly traffic data was obtained from Alberta Transportation and Parks Canada Agency to analyze the seasonal variations and trends in traffic patterns from month to month and over the last eight years. Traffic data was reviewed for Highway 16, which runs through the town and connects to the local road network at three locations:

- Highway 16 and east town boundary connection to Connaught Drive (Highway 16A)
- Highway 16 and west town boundary connection to Connaught Drive (Highway 16A)
- Highway 16 connection to Hazel Avenue (Highway 93A-North)

Figure 3 and Figure 4 detail the monthly traffic variation in average daily traffic (MADT) from 2016 along Highway 16 at the west and east boundaries of the town, respectively. As expected, the volumes indicate that traffic volumes are significantly higher during the summer months of July and August during peak tourist season than during other months of the year. In addition, the months of May, June and September also observe elevated traffic volumes relative to the winter months. The volumes also indicated that the connection of Highway 16 at the east end of town experiences notably higher traffic volumes than the Highway 16 connection at the west end of Jasper.

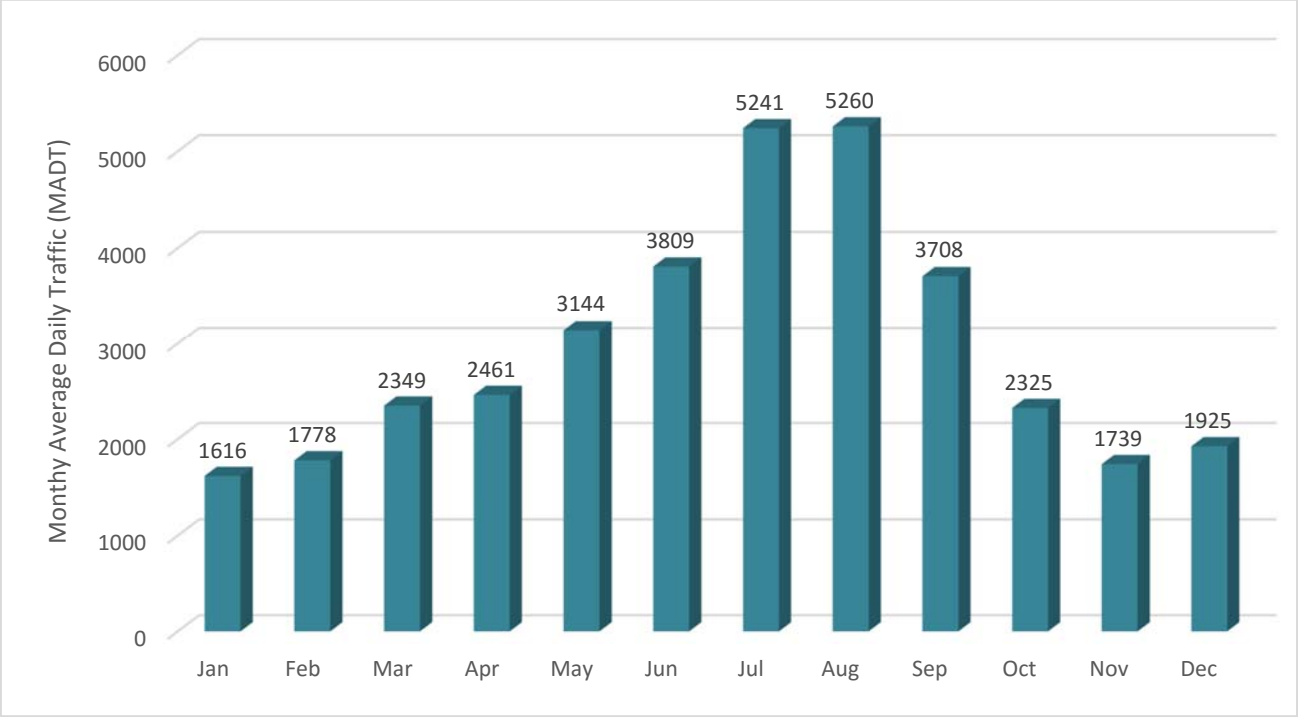


Figure 3: Highway 16 West Boundary – Monthly Average Daily Traffic (2016)

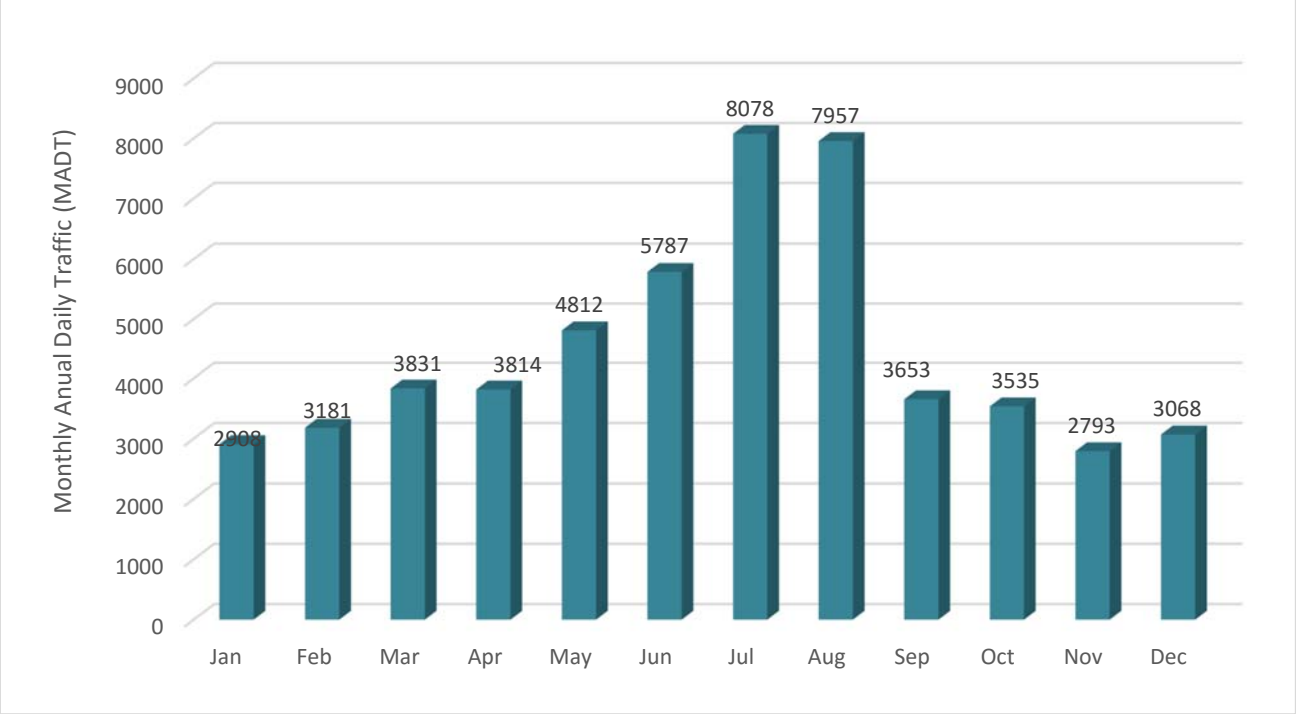


Figure 4: Highway 16 East Boundary – Monthly Average Daily Traffic (2016)

Data on the number of visitors to Jasper National Park for the last eight years was obtained from Parks Canada Agency. Figure 5 provides a summary of the available data for each year. The graph indicates that monthly traffic patterns are largely consistent from year to year, with a slight upwards trend (indicating growth) between 2010 and 2018 during the spring and summer months (April to September). Similar to the trends in town traffic volumes, the visitor volumes also confirm that the peak visitor season in Jasper National Park typically occurs during July and August, with June and September also experiencing increased tourist traffic. The Park's lowest visitor traffic volumes are observed from October to March.

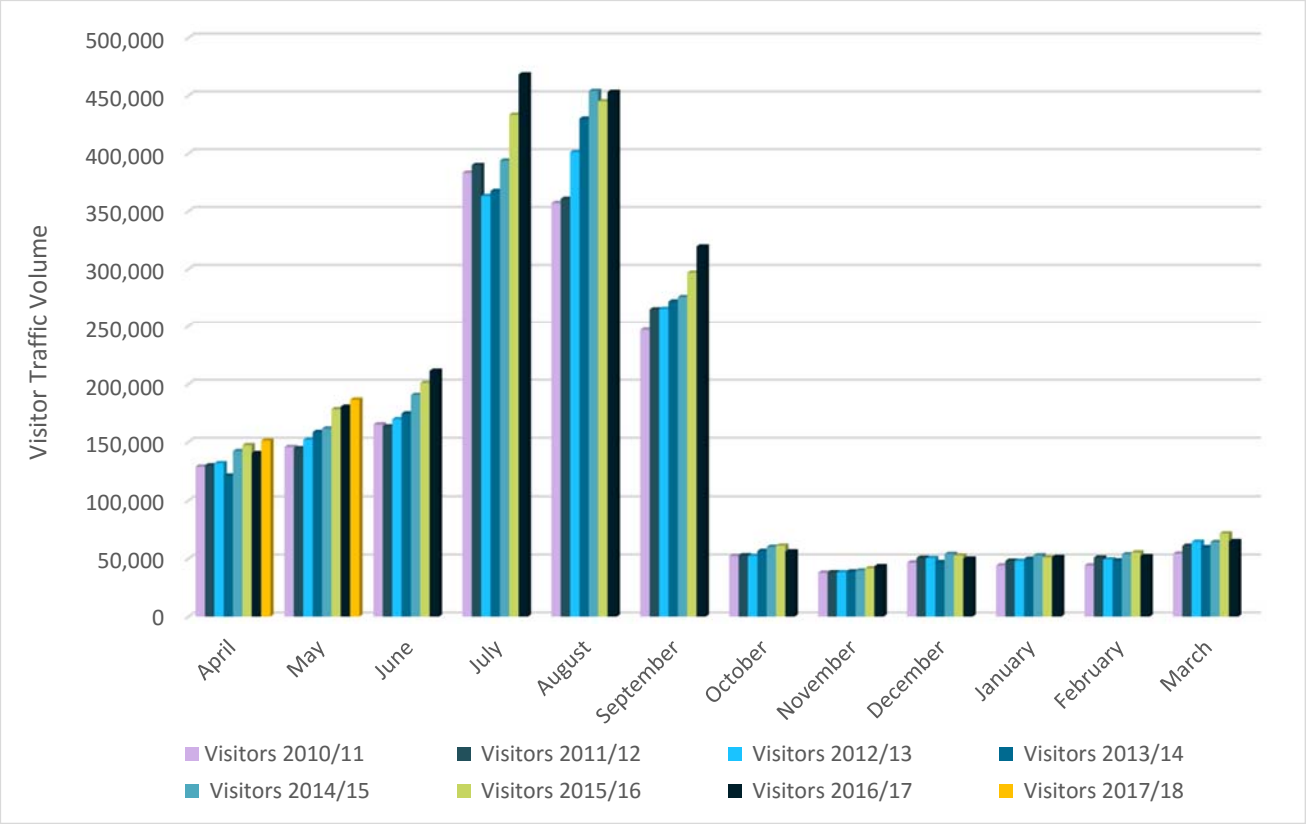


Figure 5: Jasper National Park – Monthly Visitor Volume by Year

2.1.2. Existing Town Volumes

To assess the existing traffic characteristics within the town, traffic counts were conducted at key intersections within Jasper during two different scenarios. The first was on a typical summer weekday (Wednesday June 7, 2017) in order to capture typical weekday traffic patterns during the busier summer season. The second was from August 5-7, 2017 (Saturday to Monday) of the August long weekend, in order to capture peak long week traffic patterns when the town typically experiences an influx of tourist and visitor traffic.

The traffic counts included 24-hour intersection turning movement count data, which captured the AM and PM peak traffic conditions. The highest morning and afternoon hour volumes based on the traffic counts were used as the AM and PM peak hours, respectively. The counts included all vehicle traffic, including passenger (light) vehicles, single-unit trucks, buses, recreational vehicles (RVs), articulated buses, as well as pedestrians and cyclists.

A total of ten key study intersections were counted for the weekday counts, and four locations were counted for the peak long weekend counts. The weekday and peak long weekend traffic volumes at the study intersections have been included Figure 6 and Figure 7 respectively.

Figure 6: Typical Summary Weekday Peak Hour Traffic Volumes

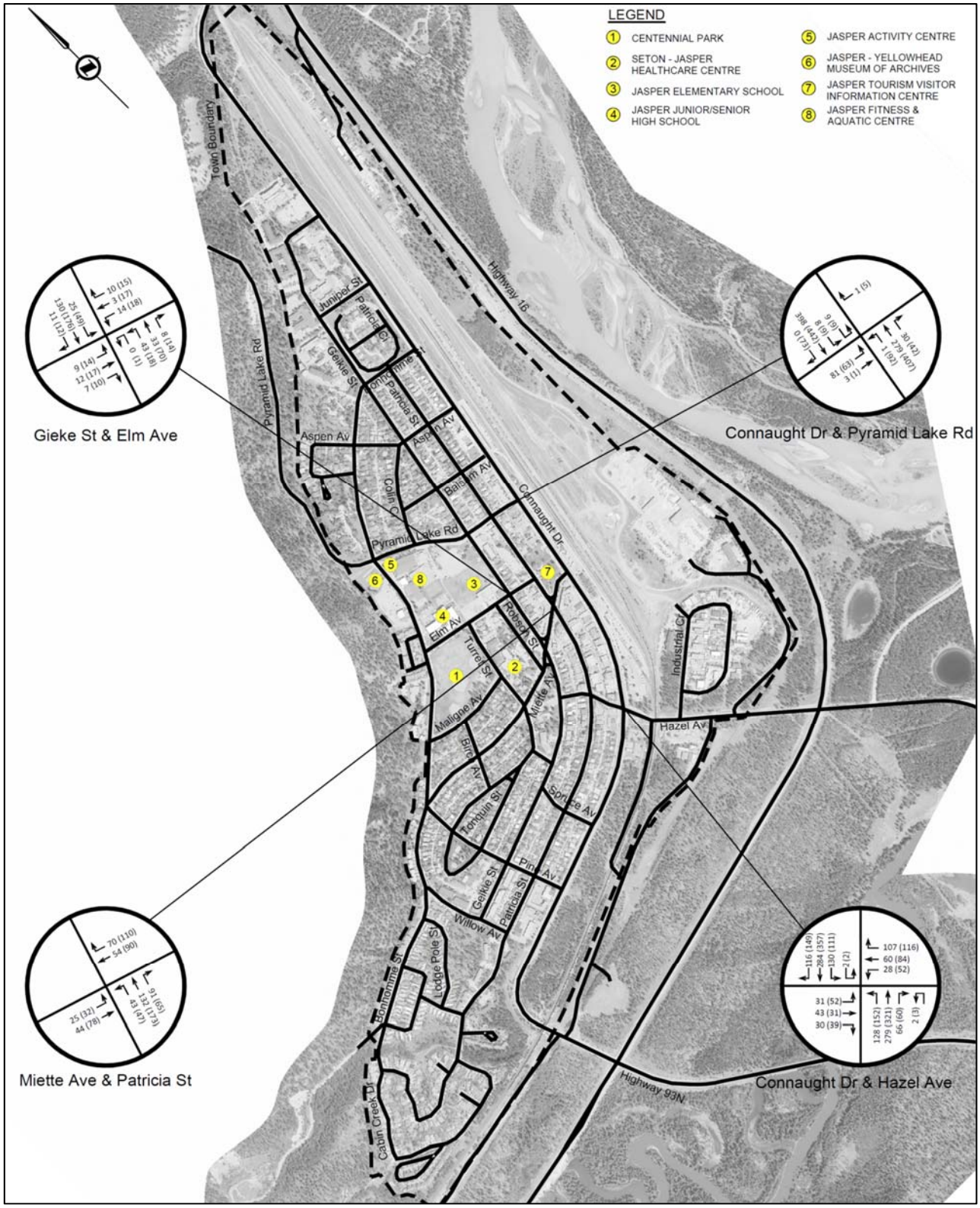


Figure 7: Typical Summary Weekday Peak Hour Traffic Volumes

2.1.3. Intersection Performance Evaluation

Intersection operating conditions during the peak hours were evaluated at the study intersections for both the typical weekday and peak long weekend scenarios using the Synchro / SimTraffic 10.0 software package, which is based on the methodology outlined in the 2010 Highway Capacity Manual[1].

For unsignalized intersections, the Level-of-Service (LOS) is based on the computed delays on each of the critical movements. LOS 'A' represents minimal delays for minor street traffic movements, and LOS 'F' represents a scenario with an insufficient number of gaps on the major street for minor street motorists to complete their movements without significant delays.

For signalized intersections, the methodology considers the intersection geometry, traffic volumes, the traffic signal phasing/timing plan and also pedestrian and cyclist volumes. The average delay for each lane group is calculated, as well as the delay for the overall intersection. The operating conditions can also be expressed in terms of volume-to-capacity (v/c) ratio. A v/c ratio of 0.90 is considered to be the threshold beyond which geometric or signal timing improvements should be considered. The signalized and unsignalized LOS criteria as summarized in HCM are shown in Table 1.

Table 1: Intersection Level of Service Definitions

Level of Service	Description	Unsignalized Intersections Delay (s)	Signalized Intersections Delay (s)
A	Represents free flow. Individual users are virtually unaffected by others in the traffic stream.	≤ 10	≤ 10
B	Stable flow, but the presence of others begins to be noticeable. Occasionally minor delay due to conflicting traffic.	> 10 to 15	> 10 to 20
C	Stable flow, but occasionally some delay due to conflicting traffic. Delay is noticeable, but not inconveniencing.	> 15 to 25	> 20 to 35
D	Represents high-density, but stable flow. Delay is noticeable and irritating.	> 25 to 35	> 35 to 55
E	Represents operating conditions at or near the capacity level. Delay approaching tolerance levels.	> 35 to 50	> 55 to 80
F	Traffic demand exceeds capacity of intersection, very long queues and delays. Represents forced or breakdown flow. Delay exceeds tolerance level.	> 50	> 80

[1] Transportation Research Board, National Research Council. Highway Capacity Manual 2010. Washington, D.C. 2010.

2.1.4. Existing Traffic Analysis

The existing weekday AM and PM peak hour traffic conditions were assessed using Synchro 10 software and the existing traffic. The intersections were analyzed using the existing lane configurations and traffic controls at each location. Default signal timings were assumed for the intersection of Hazel Avenue and Connaught Drive**.** The results of the analysis are summarized in Table 2.

Table 2: Existing Peak Hour Intersection Operations (Typical Summer Weekday)

Intersection / Movement			AM Peak Hour				PM Peak Hour			
			Delay (s)	LOS	v/c Ratio	Queue (m)	Delay (s)	LOS	v/c Ratio	Queue (m)
Hazel / Connaught (Signalized)	EB	Left	13	B	0.15	12	15	B	0.18	12
		Through	24	C	0.14	18	25	C	0.28	23
		Right	8	A	0.12	7	3	A	0.08	2
	WB	Left	14	B	0.21	19	17	B	0.25	17
		Through / Right	18	B	0.27	30	16	B	0.45	25
	NB	Left / Through	18	B	0.23	20	17	B	0.31	27
		Right	5	A	0.18	6	4	A	0.20	6
	SB	Left / Through	17	B	0.18	16	14	B	0.13	12
		Right	0	A	0.05	0	1	A	0.05	0
	Intersection Summary		**16**	B	-	-	**16**	B	-	-
Pine / Connaught (Stop Controlled)	EB	Left	8	A	0.03	1	9	A	0.06	2
		Through	0	A	0.07	0	0	A	0.10	0
	WB	Through / Right	0	A	0.18	0	0	A	0.12	0
	SB	Left / Right	12	B	0.13	3	15	B	0.20	6
	Intersection Summary		**2**	A	-	-	**2**	A	-	-
Bonhomme / Elm (Stop Controlled)	WB	Left / Right	10	A	0.07	2	10	B	0.09	2
	NB	Through / Right	0	A	0.08	0	0	A	0.07	0
	SB	Left / Through	4	A	0.03	1	2	A	0.02	1
	Intersection Summary		**3**	A	-	-	**3**	A	-	-
Elm / Geikie (Stop Controlled)	EB	Left / Through / Right	8	A	0.10	-	8	A	0.11	-
	WB	Left / Through / Right	8	A	0.03	-	8	A	0.10	-
	NB	Left / Through / Right	8	A	0.09	-	8	A	0.12	-
	SB	Left / Through / Right	8	A	0.16	-	9	A	0.25	-
	Intersection Summary		**8**	A	-	-	**9**	A	-	-

Intersection / Movement			AM Peak Hour				PM Peak Hour			
			Delay (s)	LOS	v/c Ratio	Queue (m)	Delay (s)	LOS	v/c Ratio	Queue (m)
Miette / Patricia (Stop Controlled)	EB	Left / Through	21	C	0.28	8	51	F	0.55	21
	WB	Through / Right	16	C	0.25	7	32	D	0.45	17
	NB	Left / Through / Right	2	A	0.08	1	2	A	0.11	1
	Intersection Summary		**9**	A	-	-	**16**	C	-	-
Connaught / Miette (Stop Controlled)	EB	Left / Through	22	C	0.25	8	196	F	1.16	66
		Right	22	C	0.25	8	196	F	1.16	66
	WB	Left / Through / Right	20	C	0.04	1	64	F	0.23	6
	NB	Left	10	A	0.07	2	12	B	0.11	3
		Through / Right	0	A	0.08	0	0	A	0.12	0
	SB	Left	8	A	0.02	1	9	A	0.03	1
		Through / Right	0	A	0.15	0	0	A	0.16	0
	Intersection Summary		**4**	A	-	-	**29**	D	-	-
Connaught / Pyramid (Stop Controlled)	EB	Left / Through	23	C	0.22	6	44	E	0.37	12
		Right	11	B	0.02	0	13	B	0.02	0
	WB	Left / Through / Right	17	C	0.02	1	15	C	0.01	0
	NB	Left	9	A	0.06	9	10	A	0.12	3
		Through / Right	0	A	0.08	2	0	A	0.11	0
	SB	Left	8	A	0.01	0	8	A	0.03	1
		Through / Right	0	A	0.13	0	0	A	0.13	0
	Intersection Summary		**3**	A	-	-	**4**	A	-	-
Pyramid / Patricia (Stop Controlled)	EB	Left / Through	8	A	0.13	-	9	A	0.14	-
	WB	Through / Right	8	A	0.12	-	9	A	0.23	-
	NB	Left / Through	8	A	0.17	-	9	A	0.21	-
		Right	7	A	0.11	-	7	A	0.14	-
	Intersection Summary		**8**	A	-	-	**9**	A	-	-
Connaught / Aspen (Stop Controlled)	EB	Left / Through / Right	11	B	0.07	2	14	B	0.12	3
	WB	Left / Through / Right	12	B	0.03	1	14	B	0.05	1
	NB	Left	8	A	0.02	0	9	A	0.06	1
		Through / Right	0	A	0.08	0	0	A	0.10	0
	SB	Left	8	A	0.00	0	8	A	0.00	0
		Through / Right	0	A	0.11	0	0	A	0.11	0
	Intersection Summary		**2**	A	-	-	**2**	A	-	-

As shown, the intersection operating conditions during the typical weekday scenario indicate that all but two of the intersections are operating adequately with overall levels of service D or better at all locations in both the AM and PM peak hours, and corresponding v/c ratios of 0.90 or less for all intersection movements. The exceptions to this are detailed below.

Miette Avenue and Patricia Street - PM Peak Hour

The intersection of Miette Avenue and Patricia Street in the PM peak hour experiences LOS F for the eastbound movement. However, the overall intersection level of service is still acceptable at LOS C, and the v/c ratio for the eastbound movement is low at 0.55, with an anticipated 95th percentile queue of only 21 m. As such, significant congestion and/or operational issues are not expected at this location. The overall intersection is expected to operate at LOS C in the PM peak hour, which is acceptable.

Connaught Drive and Miette Avenue - PM Peak Hour

The intersection of Connaught Drive and Miette Avenue experiences LOS F in the PM peak hour for the eastbound and westbound movements. However, the westbound shared left/through/right movement is expected to operate with a v/c ratio of 0.23 and a very low 95th percentile queue length of 6 m, and as such, significant operational issues are not expected for this movement. In addition, the left turn, through, and right turn movements have a total volume of 14 vehicles in the PM peak hour, so the expected delays of 64 seconds for the westbound approach are not expected to be critical. The overall intersection is expected to operate at LOS D, which is acceptable.

The eastbound approach has a total PM peak hour volume of 116 vehicles and experiences LOS F and extensive delays exceeding 3 minutes, largely due to the high volume of free-flow traffic on Connaught Drive, which limits gap availability for the side-street stop-controlled movements. The v/c ratios for the shared left/through lane and the right turn lane are 1.16, exceeding the 0.90 threshold beyond which improvements should be considered. The 95th percentile queue is expected to extend back almost 70 m for the eastbound approach, where a total storage of 90 m is available before queued traffic extends to the upstream intersection of Miette Avenue and Patricia Street.

Signal and Pedestrian Crossing Control Warrants

The need for traffic signals at the intersection of Connaught Drive and Miette Avenue was assessed using the Transportation Association of Canada (TAC) warrant methodology, which is the current industry standard practice.

The existing pedestrian and vehicular traffic volumes from a typical summer weekday were assessed to determine the need for traffic signals. Detailed results of the signal warrant analysis can be found in Appendix F. Based on the TAC signal warrant analysis, the intersection scored 28 points from a vehicle perspective, and 135 points from a pedestrian perspective. As such, the combined total warrant score of 163 points was attained, exceeding the 100-point threshold beyond which signalization should be considered.

However, it should be noted that the need for signalization of the intersection is not required from a traffic operations perspective, as the high pedestrian volumes in the area are triggering the warrant for a signal. For this reason, the TAC *Pedestrian Crossing Control Guide* (2012) was referenced to carry out a pedestrian crossing control warrant. The warrant results have been included in Appendix F and the evaluation indicated that an overhead mounted crosswalk system is warranted on Connaught Drive (northbound and southbound approaches). Due to low traffic volumes on the side-streets, additional crossing controls are not warranted on the eastbound and westbound approaches of Miette Avenue and the driveway access.

The recommended crossing control system on Connaught Drive consists of painted crosswalks as well as overhead mounted pedestrian crossing signage. The required signage includes RA-4L and RA-4R regulatory pedestrian crossing signage mounted overhead on both sides of the roadway at the intersection. In addition, restrictions on stopping within 15 m prior to the crossing and 10 m following the crossing are recommended, as well as lane-changing restrictions using solid white lines (30 m in length) on the northbound and southbound approaches. Details of the recommended crosswalk system and an example schematic of the layout is included in Appendix F.

TAC is currently updating the *Pedestrian Crossing Control Guide* to include guidance on the use of rectangular rapid flashing beacons (RRFBs). The intersection could be a good candidate for RRFBs and the Town may wish to wait for the updated guidelines prior to implementing an overhead sign as RRFBs would be more effective and less intrusive on the landscape.

Pine Avenue / Miette Avenue / Bonhomme Street

Because the intersection of Pine Avenue / Miette Avenue / Bonhomme Street has an atypical orientation that is stop-controlled for two adjacent approaches and free for the remaining two opposing directions, typical operations could not be modelled in Synchro based on the existing configuration. However, the Intersection Capacity Utilization (ICU) was shown to be 0.32 in the AM peak hour and 0.27 in the PM peak hour, with an ICU LOS A expected during both peaks (which signifies the intersection is operating at less than 55% of its potential signalized capacity). The two-way stop control was also converted to a four-way stop to approximate intersections operations, which yielded LOS A during both peak hours for all movements. Based on these results, the intersection is not expected to experience operational concerns in during the AM and PM peak hours.

Table 3: Existing Peak Hour Intersection Operations (Peak Long Weekend)

Intersection / Movement			AM Peak Hour				PM Peak Hour			
			Delay (s)	LOS	v/c Ratio	Queue (m)	Delay (s)	LOS	v/c Ratio	Queue (m)
Hazel / Connaught (Signalized)	EB	Left	15	B	0.38	24	23	C	0.60	28
		Through	26	C	0.40	36	24	C	0.38	36
		Right	8	A	0.20	8	6	A	0.16	7
	WB	Left	15	B	0.35	25	17	B	0.36	22
		Through / Right	25	C	0.56	46	29	C	0.72	54
	NB	Left / Through	19	B	0.25	21	20	B	0.34	32
		Right	5	A	0.28	8	5	A	0.26	8
	SB	Left / Through	19	B	0.23	19	19	B	0.24	21
		Right	2	A	0.08	2	2	A	0.09	2
	Intersection Summary		**20**	B	-	-	**22**	C	-	-
Elm / Geikie (Stop Controlled)	EB	Left / Through / Right	8	A	0.04	-	8	A	0.07	-
	WB	Left / Through / Right	8	A	0.04	-	8	A	0.09	-
	NB	Left / Through / Right	8	A	0.08	-	8	A	0.16	-
	SB	Left / Through / Right	9	A	0.24	-	10	A	0.36	-
	Intersection Summary		**8**	A	-	-	**9**	A	-	-
Miette / Patricia (Stop Controlled)	EB	Left / Through	26	D	0.34	11	226	F	1.22	68
	WB	Through / Right	20	C	0.39	14	109	F	1.03	77
	NB	Left / Through / Right	2	A	0.12	1	2	A	0.13	1
	Intersection Summary		**10**	B	-	-	**74**	F	-	-
Connaught / Pyramid (Stop Controlled)	EB	Left / Through	38	E	0.49	19	217	F	1.06	44
		Right	-	-	-	-	-	-	-	-
	WB	Left / Through / Right	10	A	0.00	0	11	B	-	0
	NB	Left	9	A	0.00	0	12	B	0.17	5
		Through / Right	0	A	0.14	0	0	A	0.20	0
	SB	Left	9	A	0.02	1	9	A	0.01	0
		Through / Right	0	A	0.20	0	0	A	0.22	0
	Intersection Summary		**4**	A	-	-	**13**	B	-	-

As with the typical weekday scenario, intersection operating conditions were modelled for key intersections during the long weekend to evaluate peak conditions. Of the four locations modelled, the following operational issues were observed:

Miette Avenue and Patricia Street - PM Peak Hour

The eastbound and westbound shared left/through/right lanes are expected to experience LOS F and v/c ratios of 1.22 and 1.03 respectively during the PM peak hour. The 95th percentile traffic queues are expected to extend approximately 70 m and 80 m, and the delays are expected to reach almost 2 and 4 minutes for the stop-controlled eastbound and westbound approaches. The overall intersection operates at LOS F under peak long weekend conditions, which is notably worse than typical summer weekday operations. However, as the August long weekend has significantly higher traffic volumes than any other time of the year, no recommendations are made to improve the intersection.

Connaught Drive and Pyramid Lake Road - PM Peak Hour

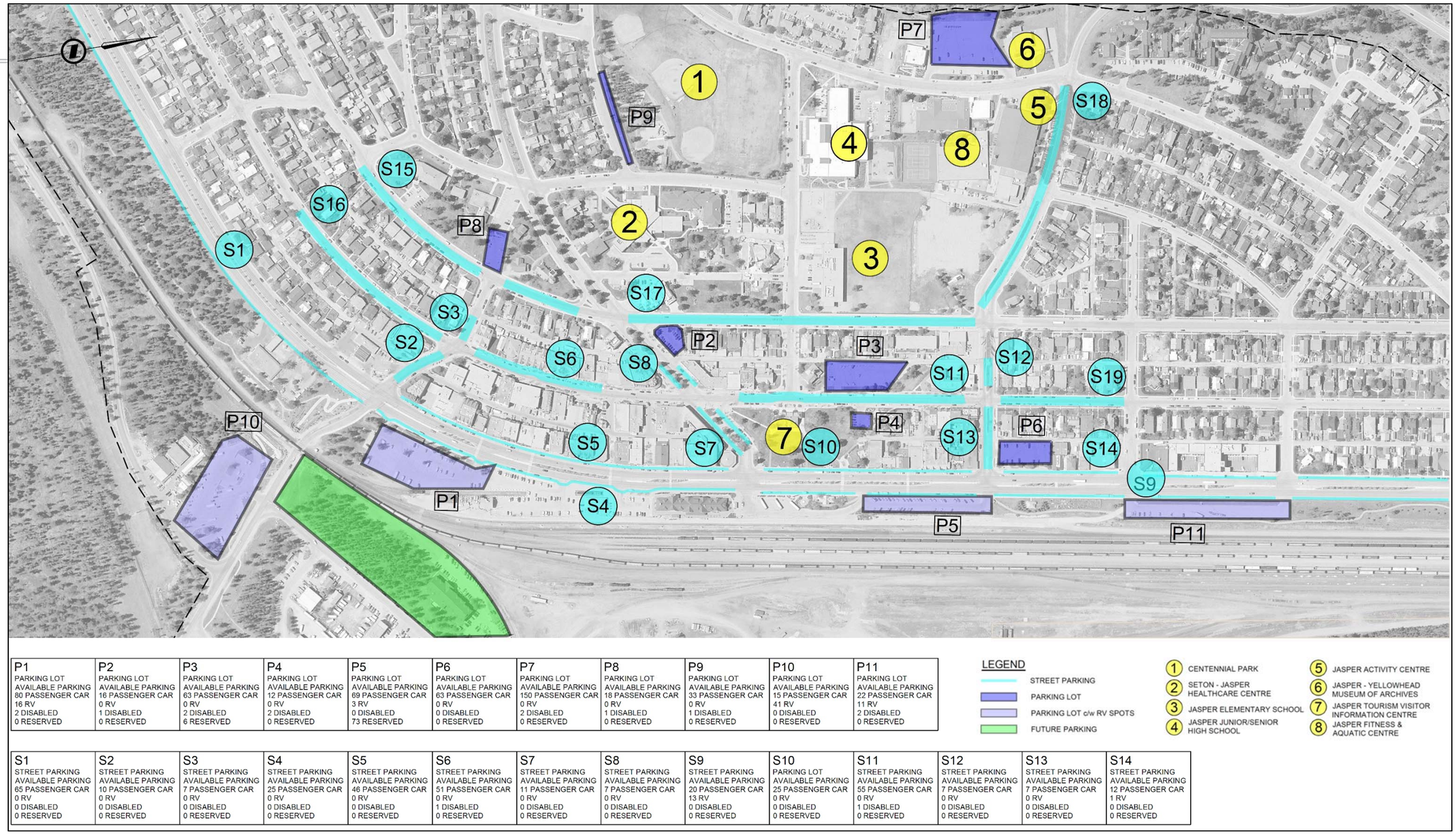
The eastbound shared left/through lane is expected to operate at LOS F and a v/c ratio of 1.06 in the PM peak hour, with 95th percentile queues extending approximately 45 m and delays exceeding 3.5 minutes. Similar to the congestion anticipated at Connaught Drive and Miette Avenue, this is expected to be due to the high volume of free-flow traffic on Connaught Drive, which limits gap availability for the side-street stop-controlled movements on Pyramid Lake Road. Overall, significant operational issues are not expected for the other intersection movements, as the overall intersection is expected to operate at LOS B.

Connaught Drive and Miette Avenue - PM Peak Hour

Although traffic data was not collected and modelled for this location under peak long weekend conditions, it is expected that operations would deteriorate under increasing traffic volumes. With higher volumes of free-flow traffic on Connaught Drive, the stop-controlled side-street movements on Miette Avenue are likely to experience even more delay and greater levels of queuing, as gap availability for the eastbound and westbound movements would decrease further. Congestion levels at this location are thus expected to worsen during peak long weekend traffic conditions.

2.2. Parking

Though the roadways typically do not experience significant levels of congestion from vehicular traffic, parking opportunities within the downtown area are limited during peak periods.



P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11
PARKING LOT	PARKING LOT	PARKING LOT	PARKING LOT	PARKING LOT	PARKING LOT	PARKING LOT	PARKING LOT	PARKING LOT	PARKING LOT	PARKING LOT
AVAILABLE PARKING	AVAILABLE PARKING	AVAILABLE PARKING	AVAILABLE PARKING	AVAILABLE PARKING	AVAILABLE PARKING	AVAILABLE PARKING	AVAILABLE PARKING	AVAILABLE PARKING	AVAILABLE PARKING	AVAILABLE PARKING
80 PASSENGER CAR	16 PASSENGER CAR	63 PASSENGER CAR	12 PASSENGER CAR	69 PASSENGER CAR	63 PASSENGER CAR	150 PASSENGER CAR	18 PASSENGER CAR	33 PASSENGER CAR	15 PASSENGER CAR	22 PASSENGER CAR
16 RV	0 RV	0 RV	0 RV	3 RV	0 RV	0 RV	0 RV	0 RV	41 RV	11 RV
2 DISABLED	1 DISABLED	2 DISABLED	2 DISABLED	0 DISABLED	0 DISABLED	2 DISABLED	1 DISABLED	1 DISABLED	0 DISABLED	2 DISABLED
0 RESERVED	0 RESERVED	6 RESERVED	0 RESERVED	73 RESERVED	0 RESERVED	0 RESERVED	0 RESERVED	0 RESERVED	0 RESERVED	0 RESERVED

S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14
STREET PARKING	STREET PARKING	STREET PARKING	STREET PARKING	STREET PARKING	STREET PARKING	STREET PARKING	STREET PARKING	STREET PARKING	PARKING LOT	STREET PARKING	STREET PARKING	STREET PARKING	STREET PARKING
AVAILABLE PARKING	AVAILABLE PARKING	AVAILABLE PARKING	AVAILABLE PARKING	AVAILABLE PARKING	AVAILABLE PARKING	AVAILABLE PARKING	AVAILABLE PARKING	AVAILABLE PARKING	AVAILABLE PARKING	AVAILABLE PARKING	AVAILABLE PARKING	AVAILABLE PARKING	AVAILABLE PARKING
65 PASSENGER CAR	10 PASSENGER CAR	7 PASSENGER CAR	25 PASSENGER CAR	46 PASSENGER CAR	51 PASSENGER CAR	11 PASSENGER CAR	7 PASSENGER CAR	20 PASSENGER CAR	25 PASSENGER CAR	55 PASSENGER CAR	7 PASSENGER CAR	7 PASSENGER CAR	12 PASSENGER CAR
0 RV	0 RV	0 RV	0 RV	0 RV	0 RV	0 RV	0 RV	13 RV	0 RV	0 RV	0 RV	0 RV	1 RV
0 DISABLED	0 DISABLED	0 DISABLED	0 DISABLED	0 DISABLED	1 DISABLED	0 DISABLED	0 DISABLED	0 DISABLED	0 DISABLED	1 DISABLED	0 DISABLED	0 DISABLED	0 DISABLED
0 RESERVED	0 RESERVED	0 RESERVED	0 RESERVED	0 RESERVED	0 RESERVED	0 RESERVED	0 RESERVED	0 RESERVED	0 RESERVED	0 RESERVED	0 RESERVED	0 RESERVED	0 RESERVED

LEGEND

- STREET PARKING
- PARKING LOT
- PARKING LOT c/w RV SPOTS
- FUTURE PARKING

1. CENTENNIAL PARK
2. SETON - JASPER HEALTHCARE CENTRE
3. JASPER ELEMENTARY SCHOOL
4. JASPER JUNIOR/SENIOR HIGH SCHOOL
5. JASPER ACTIVITY CENTRE
6. JASPER - YELLOWHEAD MUSEUM OF ARCHIVES
7. JASPER TOURISM VISITOR INFORMATION CENTRE
8. JASPER FITNESS & AQUATIC CENTRE

Figure 8: Existing Parking Facilities

2.3. Active Modes

The existing active modes infrastructure in Jasper is well used by residents and visitors alike, including the multi-use pathway and sidewalk system. Additional active modes connections are expected to be highly beneficial in providing sustainable transportation opportunities and alleviating the parking congestion issues observed within the town.

To implement improvement measures to facilitate active transportation within Jasper, the existing network of active modes infrastructure and potential origin and destination points within the town were reviewed.

Much of the Town of Jasper consists of residential area, while the central business district forms the centre of the town. Despite the relatively small size of the municipality, there are several existing amenities within the town, including commercial areas, businesses, playgrounds, greenspaces, hotels, recreational centres, and the elementary and junior high schools. In addition to the activity centre, museum, and aquatic centre, Jasper offers a variety of amenities such as nearby trails and natural areas, and in particular, the Discover Trail that encompasses the townsite.

Parks and greenspaces are also prevalent throughout Jasper, and much of the townsite is situated within walking distance of the central business district. The majority of the hotels within Jasper are located at the north end of town, which is also within walking distance of the downtown core.

The non-grid layout of predominately local residential roadways guides traffic towards the main routes of Connaught Drive, Pyramid Lake Road, Miette Avenue and Bonhomme Street for access around the town and into the town centre. The local street network is well equipped with pathways and sidewalks to allow for ease of active modes mobility.

2.4. Transit

Though no transit system is currently in place within the town, the Jasper Community Sustainability Plan, prepared The Municipality of Jasper and Parks Canada Agency in 2011, includes recommendations to explore the opportunity of future internal and regional transit connections for the town.

Improvements to the existing infrastructure and transportation network design were explored to enhance opportunities for sustainable transportation options that facilitate walking, cycling and transit use as primary mechanisms for transportation, and as viable alternatives to the use of private vehicles. The sections that follow detail the issues identified, stakeholder feedback collected, design constraints, and the potential improvement options explored to introduce transit services within Jasper.

JASPER
TRANSPORTATION MASTER PLAN

SECTION 3

Overarching Objectives & Town Priorities

The Municipality of Jasper has prepared several plans and policy documents in the past outlining the aspirations of the community, which have been referenced for this study. These include but are not limited to the Jasper Community Sustainability Plan (2011), Green Space Vision Plan (2003) and Jasper Community Land Use Plan (2001).

Goals and actions from the previous policies and plans, as they pertain to this TMP, are outlined in the following sections. The key objectives and strategies listed in this TMP have been prepared to support the implementation of these goals and actions.

3.1. Policies & Plans

3.1.1. Jasper Community Sustainability Plan

The Jasper Community Sustainability Plan (2011) is the first community plan to be completed jointly by the by the Municipality of Jasper and Parks Canada. The Plan outlines strategies for the Town to provide high-quality experiences for visitors, a high quality of life for residents, and achieve economic sustainability while minimizing environmental impacts. Five Sustainability Principles were identified in the plan and provided frameworks for recommendation of specific goals and actions:

- Environmental Integrity
- Society Equity
- Economic Sustainability
- Cultural Vitality
- Participative Governance

The recommendations provided in this TMP aligns closely with the overarching concepts, goals and actions provided in the Plan. Although specific transportation related goals have been identified under the Environmental Integrity principle, all five principles were considered when preparing the TMP.

Overarching Concepts

Several overarching concepts were consistently woven through the Plan's development and are reflected to a high degree in the community's Vision Statement, as well as the more detailed Goals, Strategies and Actions that flow from the Vision Statement. The TMP has been prepared in consideration and in support of each of these overarching concepts:

- **That Jasper should be a green community exhibiting best practices in the stewardship of ecological resources –** The TMP places a strong emphasis on promoting travel via environmentally sustainable modes such as walking, cycling and taking transit. Strategies outlined in the TMP aims to minimize indirect impacts to ecological resources through efficient management of automobile travel and parking.
- **That Jasper is and will remain a tourism-based community focused on delivering high-quality visitor experiences –** The TMP include strategies addressing road safety, parking, speed

management on the Town's road network, which aims to provide safe and efficient travel experiences for visitors.

- **That Jasper residents value a high quality of life and a high standard of social connectedness –** The TMP recognizes that for the residents of Jasper, accommodation of safe, efficient and sustainable modes of travel such as walking, cycling and taking transit are integral to achieving a high quality of life and a high standard of social connectedness. In the TMP, strategies were formulated specifically to accommodate the transportation needs of Jasper residents and reduce barriers to travel for all regardless of age, income or mobility.
- **That Jasper has a distinctive and rich mountain-town culture shaped by multiple layers of history –** The TMP considers the unique status of Jasper as a tourism-based community prone to the inflow and outflow of visitors. Strategies for travel demand management were formulated with the goal of preserving the unique history and culture of the community.
- **That Jasper residents value responsible and accountable systems of governance to ensure the effective functioning of their community;** The TMP integrates the results of extensive public engagement, which highlights the importance of community involvement in achieving responsible and accountable governance.

Goals and Actions

The Sustainability Plan identified several transportation-related goals in addition to the overarching concepts. These goals are also supported by strategies recommended in the TMP:

- **Goal 1: Promote Walking and Cycling in Jasper.** The TMP includes strategies for creating attractive, safe and inviting streetscapes that will encourage residents and tourists to make more trips via active modes.
- **Goal 2: Manage Vehicle Traffic and Parking Efficiently.** The TMP outlines solutions to accommodate fluctuating network demands with practical infrastructure investment levels to avoid overdesigning and overspending on road and parking facilities.
- **Goal 3: Provide Affordable and Accessible Alternatives to the Private Automobile.** In providing strategies to promote walking and cycling, as well as manage vehicle traffic and parking efficiently, significant consideration was paid to the integration of the two goals to ensure doing so will not encourage motor vehicle trips over walking or cycling.

The Plan also lists several actions designed in support of the aforementioned goals. These actions were considered in the development of key strategies in the TMP:

- **Action 1: Streets for Cars, Pedestrians and Cyclists:** In the design of new streets or the redesign of existing streets, the Municipality will respond to the needs of pedestrians and cyclists and consider environmental improvements by including features such as infrastructure that encourages walking and cycling, features to provide accessibility to mobility and/or visually-impaired individuals, and integration with Open Space Areas and trailheads where possible.

- **Action 2: Traffic Management.** Connaught Drive will continue to be the primary corridor through the community and the main truck and bus route. Overnight parking of buses on residential streets will continue to be prohibited. An updated study, reflecting current and future visitor and user patterns, will be used to guide traffic and parking management decisions in the Municipality, including consideration of the potential need for additional traffic signals.
- **Action 3: Parking.** All new development and redevelopment will continue to be required to provide parking at the ratios specified in applicable land use policies and regulations. The Municipality will work to increase visitor use of off-street parking through a program of maps and improved public signage, as well as examining the potential for paid parking. If future demand requires additional parking, development of a parking structure will be considered.
- **Action 4: Sustainable Transportation Initiatives**. The Municipality will examine the feasibility of developing sustainable transportation options, such as a car-sharing program or a public bike-share system.
- **Action 5: Public Transit**. The Municipality of Jasper and local partners will examine the feasibility of a green transit system to serve both visitor and resident needs within the town. The Municipality and Parks Canada will continue to work with local partners to develop a green bus service to link key attractions and walkable routes within Jasper and the surrounding area outside of the townsite (e.g. parking lots, campgrounds, nearby day use areas).
- **Action 6: Regional Transportation**. The Municipality of Jasper and Parks Canada, along with local and regional partners, will pursue the development of a coordinated regional transportation system offering enhanced connections to major cities and airports, other Rocky Mountain Park communities (such as Banff and Lake Louise) as well as communities outside the Park, including Hinton and Valemount.

3.1.2. Green Space Vision Plan

Jasper has implemented the Green Space Vision Plan (2003) with the intent of creating a shared vision, strategic priorities and specific action plans for green spaces within the Municipality. Green spaces are important to ecological and societal goals and serve to provide aesthetic, interpretative and natural spaces and corridors within the community.

The TMP outlines policies for wayfinding, road safety and streetscaping enhancements, which impact the following strategic priorities identified in the Plan:

- Multi-use Trail and Green Space Development
- Boulevard & Median Enhancements
- Town Gateway Entrances & Central Spine
- Park Sites
- Jasper Main Street Enhancements

Recommendation actions for each strategic priority in the Green Space Vision Plan are listed in the following sections and were taken into consideration when developing the TMP.

Multi-use Trail and Green Space Development

To ensure that Green Space areas are preserved and the appropriate linkages within the community are provided, the need for a safe, integrated, accessible multi-use trail system was identified in the Green Space Vision Plan. The recommended actions in support of this objective include the following:

- Improve linkages to Green Space areas, including provision of accessible and safe multi-use trails for use by pedestrians and cyclists
- Increase connectivity and network development between Green Space areas
- Improve external trail connections into town through safety, lighting and other enhancements
- Minimize potential for vehicular/pedestrian conflicts throughout the Town
- Interpretive nodes/seating areas that serve as connector linkages between trails and green spaces.
- Improve way-finding system to include lists resources/areas of interest and how to get there.

Town Gateway Entrances & Central Spine:

Entrances are an important component of creating a sense of arrival and place in communities. Actions to improve the two key entry points into the Town of Jasper include:

- Gateway designs that are barrier free and accessible for users of all ages and abilities.
- Median treatments on Connaught Drive. Visual screening of parking lots along the corridor to enhance aesthetics.

Jasper Main Street Enhancements:

The Green Space Vision Plan identified establishment of an “eco-community” environment and a pedestrian friendly downtown core as key needs for residents. The main action recommended in support of this objective was to close Patricia Street to vehicle access during peak and shoulder seasons. Based on the results these temporary closures a decision regarding total closure, service access only, continued temporary closures or no closure can be made.

3.1.3. Jasper Community Land Use Plan

The Jasper Community Land Use Plan contains comprehensive policies and planning actions designed to guide future development and land use for the Municipality of Jasper. The purpose of this plan is to ensure that both the ecological integrity of the Park and the small-town character of the community are maintained.

The TMP was developed in consideration of several transportation and circulation components of the Land Use Plan. These components include:

- The Park Road System
- The Community Road System
- Parking
- Pedestrian and Cycle Systems

The Park Road System

The Park Road System is integral to the visitor experience and serves to minimize the use of the Community Road System by larger vehicles that contribute to traffic congestion. Strategic directions for this component include maintaining the main entrances to the Town from the north and south, as well as the 93A entrance which will act secondary entrance to the Parks Canada compound, S block, CN lands, and a new recreational vehicle parking lot. Additionally, development of bike paths and public transportation between community and surrounding facilities shall be pursued. Key actions for this component of the Land Use Plan include:

- Community entrances will be enhanced and upgraded with appropriate signage, landscaping, information pull-offs and road alignments.
- To ensure safety, the 93A entrance will be upgraded as use increases. These upgrades may include electric traffic controls, street lights, turn lanes, improved view lines and signage.
- An integrated transportation and parking study will be undertaken to consider linkages between the community and other areas of the park.

The Community Road System

An efficient Community Road System allows residents and visitors to travel easily throughout the community. Strategic directions for this component include directing visitor traffic and parking to the commercial areas of the community. Trucks and bus routes will also be designated to minimize intrusions into residential areas. Key actions for this component of the Land Use Plan include:

- Connaught Drive will continue to be the main road through the community and the main truck and bus route.
- Tour buses will be directed to use Connaught Drive as their primary route through the community while their use of residential streets will be restricted to those leading directly to visitor accommodation, such as Juniper Avenue and Bonhomme Street. Overnight parking of tour buses on residential streets will not be allowed.
- A delivery strategy will be developed to review how goods are distributed to businesses.
- Signs will direct vehicles into residential neighbourhoods in a manner minimizes intrusion.
- Connaught Drive, Hazel Avenue, Geikie Street and Cedar Avenue will be designated as the primary downtown perimeter route.

- Intersections such as Connaught and Hazel and Connaught and Miette shall be evaluated for electric traffic controls.
- The Sleepy Hollow Road shall be maintained as an alternate access to areas south and east of Connaught Drive.

Parking

An efficient parking system serves to reduce the amount of traffic and parking congestion within the downtown and conflicts between resident/visitor parking. Strategic directions for this component include providing adequate parking for both visitors and residents in all land districts. A sustainable public transport system will also be encouraged to help reduce the amount of traffic and parking congestion in the city. Additionally, all new land developments will require off-street parking and parking management strategies will be re-examined for adequacy and efficiency. Key actions for this component of the Land Use Plan include:

- Parking requirements in the *Town of Jasper Zoning Regulations* will be amended to reflect current needs and trends regarding the size, number and layout of stalls.
- No payments in lieu of parking will be accepted until a parking authority is established. All new development and redevelopment will be required to provide required parking onsite and make it accessible to users.
- A variety of parking opportunities will be provided in the visitor service areas through a combination of onsite parking requirements, on-street parking and public lots.
- New parking areas will include landscaping. All existing public parking areas, particularly those east of Connaught Drive, will be reviewed to improve efficiency.
- The existing parking lot on the east side of Connaught Drive between the Friends of Jasper building and Cedar Avenue will be redeveloped to double capacity. If future demand warrants, this lot has the potential to be further expanded into a two-level parking structure while maintaining a similar street level profile.
- All new residential units will be required to have onsite parking in accordance with the revised zoning regulations.
- The former right of way of Hazel Avenue by the McCready Centre will be developed as parking.
- Using signage and maps, visitors will be encouraged to park in designated areas of the community.
- ”Camping” on community streets is contrary to Park regulations and will not be allowed.
- An annual notice will be sent to all businesses in the community to remind their employees to walk, cycle, or car pool during the busy summer months, in order to minimize employee parking in the downtown area.
- Additional handicap parking spaces will be located within the downtown area.
- Overnight parking for commercial and charter buses will be directed to non-residential areas of the community, such as parking lots along Connaught Drive or in S Block.

- A new oversize vehicle parking lot will be built immediately across the railroad tracks near the lumberyard.

Pedestrian and Cycle Systems

An efficient and comfortable Pedestrian and Cycle System promotes walking and cycling to allow for the easy movement and gathering of people. Strategic directions for this component include developing pedestrian and cycle routes to increase access to community facilities and park trails to reduce vehicular congestion. Key actions for this component of the Land Use Plan include:

- The pedestrian and cycle system will be integrated with open space and trailheads, where possible.
- Landscaping, signage and mapping will be used to identify the routes as they are developed.
- Improvements to the pedestrian environment in commercial and residential areas will continue to be made to highlight particular routes, to provide a more pleasant visual environment and to provide areas for gathering. Many of these improvements will be incorporated into plans for new development and redevelopment as they occur. Accessibility considerations will be incorporated into designs.
- Lanes in the downtown area will be improved and incorporated into the pedestrian system over time.
- Additional bicycle racks will be installed in appropriate locations throughout commercial areas.

3.2. Stakeholder & Public Engagement

Three stakeholder meetings were held at the Emergency Service Building in Jasper on July 12, 2017, September 22, 2017, and June 14, 2018. Three meetings were held for City Council and staff at the Committee of the Whole on July 11, 2017, May 8, 2018, and July 17, 2018. There were also two open houses / information sessions held for the general public on September 22, 2017 and June 13, 2018. Those individuals who were unable to attend one of the meetings were invited to provide feedback in writing afterwards. The combined comments from these three meetings are summarized in Appendix A.

In working collaboratively with the Municipality of Jasper, this TMP summarizes key objectives and strategies for implementing improvements that will accomplish these goals.

JASPER
TRANSPORTATION MASTER PLAN

SECTION 4

Objective 1 – Make the most of existing parking facilities

Goals:

Dedicated purpose-designed RV parking.

Encourage turnover in the Business District.

Increase use of under-utilized parking facilities.

Reduce circulation impacts on community.

The first objective of the transportation plan is to address the parking congestion issues within town by better utilizing existing parking facilities. Parking congestion is a critical issue for The Town, as it has a direct impact on the ability and desire of residents and visitors to visit local businesses. A significant proportion of Jasper's economy is tourism-based and relies on quick and convenient access to the central business district.

The cost of infrastructure is also an important consideration given Jasper's limited revenue sources. The town itself has a small population and tax base but is visited by millions of tourists year-round with a significant summer peak. For this reason, the design of improvements must balance seasonally-fluctuating network demands and avoid over-designing parking facilities to accommodate peak demand scenarios.

This chapter summarizes the responses received through public consultation regarding parking within Jasper. Also presented are strategies to enhance the visitor experience and accommodate parking demand by better utilizing the existing parking infrastructure through the introduction of modern urban design and wayfinding improvements. A careful balance will be required to avoid the negative consequences of traffic and parking congestion, but in a manner that does not encourage more people to travel by car.

4.1. What We Heard

A public open house was held on September 21, 2018 to gather feedback regarding the priorities of the town residents and stakeholders. A survey was conducted to identify issues related to parking within the town. All open house attendees indicated that they were full-time residents of Jasper.

When asked if finding parking throughout the town is difficult, 25% of attendees responded that parking was difficult, while 69% indicated it was only difficult during the peak season. Only 6% of respondents indicated that parking within Jasper was not difficult.

As detailed in Figure 9, the survey also asked respondents to indicate if they would be willing to pay for parking within the business district in order to help encourage short-term stay and to increase the availability of parking spaces in existing parking locations. As shown, 34% of the residents in attendance indicated support for paid parking, while 16% specified it would be supported in certain locations. However, 50% of respondents did not support the implementation of paid parking initiatives.

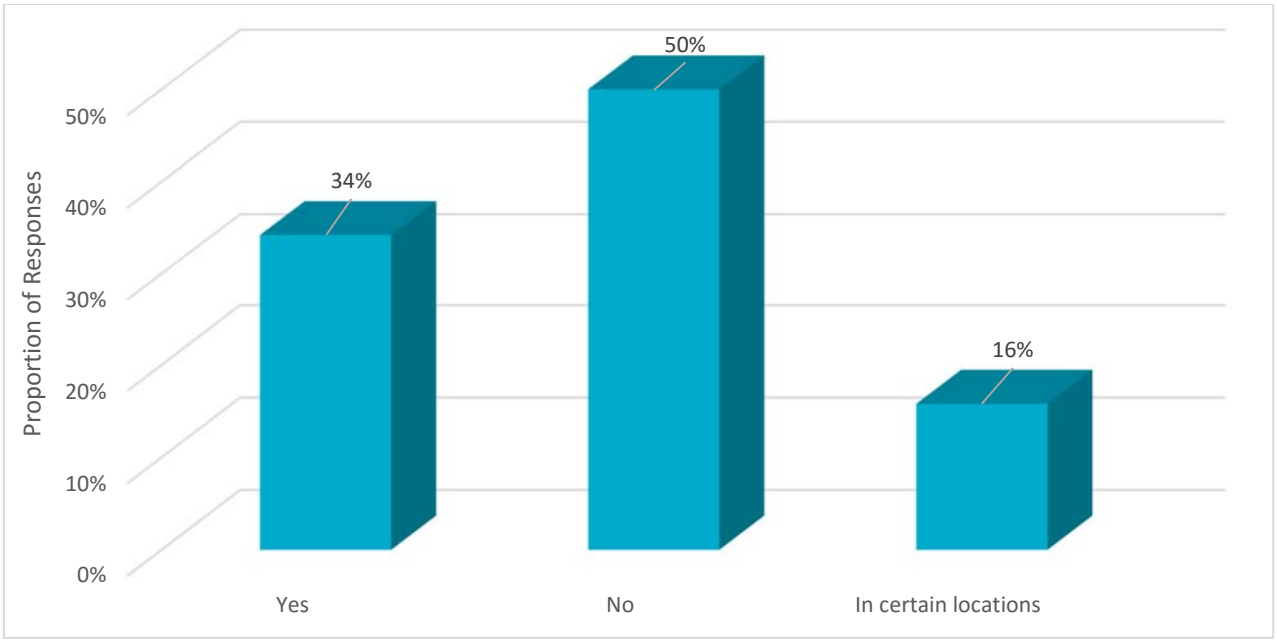


Figure 9: Survey Responses for Support of Paid Parking in Business District

Based on the survey responses, it was determined that finding available parking within the town is difficult, particularly during peak visitor season. However, residents are generally not in favor of implementing paid parking initiatives as a method of increasing parking supply by encouraging higher turnover rates.

4.2. Strategies

In tourist communities like Jasper, road infrastructure design decisions need to balance the accommodation of high season travel demands with practical infrastructure investments to avoid overdesigning and overspending on roadways and parking facilities. For this reason, the key strategies recommended for parking accommodation include optimizing the use of existing parking infrastructure.

By better utilizing existing facilities, parking congestion can be managed in a cost-effective manner that minimizes additional financial investment. In conjunction with the provision of quality walking and cycling links between parking facilities and amenities, the strategies below identify methods for making the most of existing parking facilities within the Town of Jasper, or otherwise implementing low-cost improvements to enhance parking opportunities.

Strategy 1: Wayfinding and Positive Guidance for Parking

There are a number of relatively simple strategies that can be implemented to improve wayfinding and increase the ease of navigation to existing parking supplies, as well as methods to manage parking more efficiently within the town. In general, it would be beneficial to remove RV parking from Connaught Drive and direct RVs to designated RV lots. This will remove RV circulation from the business district, allow for more passenger vehicle parking, and provide better guidance for tourists. Recommendations to improve circulation and provide positive guidance for parking include:

- The addition of painted parking stall lines on Connaught Drive to designate the west side the road for the parking of smaller passenger vehicles only. This is especially beneficial in areas with high turnover and drivers unfamiliar with the area.
- Prohibiting busses from stopping on Patricia Street and providing a dedicated bus parking, pick-up and drop-off at the parking lot by the public washrooms (P1). The provision of dedicated on-street pick-up and drop-off locations for tour buses will remove the large vehicles from circulation within the town and central business district. On-street tour bus parking can result in blocked accesses, occupancy of multiple parking stalls, and increased delays and congestion within the town.
- To improve wayfinding and navigation within town, a map of on-street and off-street parking locations, similar to Figure 10, could be provided at the visitor centre and Jasper park gates as well as online, to make motorists aware of parking options that are otherwise not apparent.
- Parking management staff could be retained during the peak season to direct motorists to available parking facilities and towards off-site parking lots. Staff could be placed at the entrance of parking lots to let tourists know whether there is available parking in that lot or not. This will increase the use of parking lots that are currently under-utilized and reduce parking circulation within town and busy lots.
- Parking wayfinding and signage improvements should be incorporated in the wayfinding guidelines program The Town is undertaking.

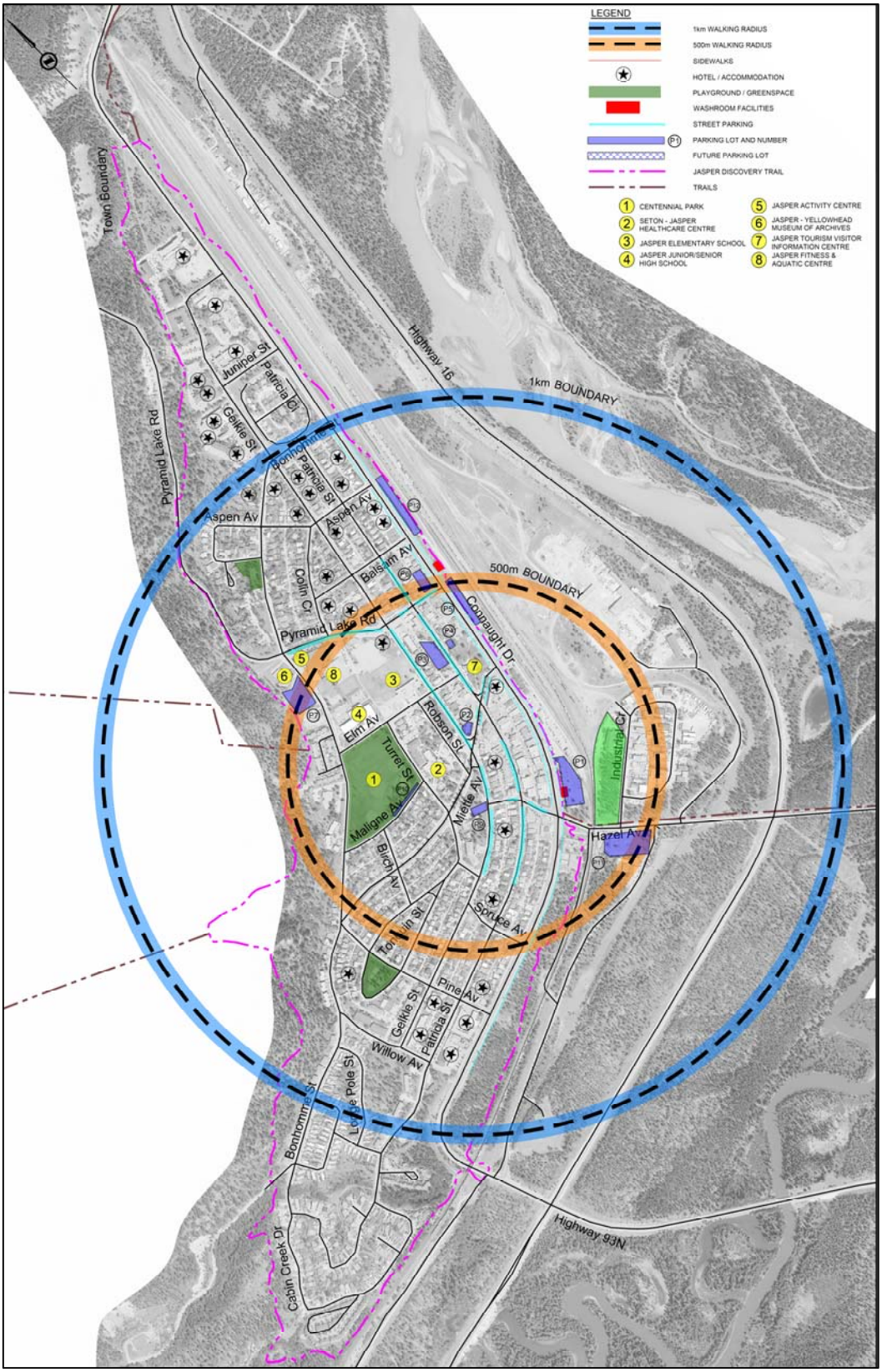


Figure 10: On Street & Off Street Parking Locations

Strategy 2: Increasing the Number of Parking Stalls

1) Reconfiguring Existing Parking Facilities

It is possible to increase capacity in the parking lots along Connaught Drive by reconfiguring the parking lots and removing RVs. Drawings of the reconfigured parking lots can be found in Appendix B.

The northern parking lot on Connaught Drive between Aspen Avenue and Balsam Avenue (P11) currently has 24 passenger car spots and 11 RV spots. There is a wide grass boulevard next to the parking lot which can be better utilized. A slight widening of the parking lot, removing the RV spots, and reconfiguring the parking angle could yield a parking lot with 124 passenger car spots.

The parking lot on Connaught Drive by Hazel Avenue and the public washrooms (P1) currently has capacity for 82 passenger car spots and 16 RV spots. Removing the RV spots and reconfiguring the parking angle could yield a parking lot with 117 passenger car spots.

2) Introducing New Parking Facilities

The provision of additional parking supply in Jasper can come from construction of surface parking lots or parkades (multi-level parking facilities). There are a number of items to consider when determining the most appropriate facility. Specific construction costs cannot be determined without estimates obtained from local contractors; however, this section attempts to outline items which affect cost and other considerations. More parking literature and a parking cost calculator are included in Appendix C.

To develop a per stall cost for a surface parking lot, the following items should be included:

- Land cost: direct land value of the parcel as well as indirect opportunity cost of the parcel should it have been used for development
- Construction costs: stalls, driving aisle and driveway
- Landscaping (usually accounts for 10-15% of parking lot area)
- Operations and maintenance: cleaning, lighting, maintenance, repairs, security, snow removal, access control, fee collection, enforcement, insurance, labor and administration, resurfacing and repaving (every 5-10 years)

Surface parking typically requires 25-35 m^2 per space, including access lanes and landscaping.[2] The Victoria Transport Policy Institute identifies a construction cost per parking space of $5,000 to $10,000. However, this is highly dependent on size and shape of the site, size of parking space, topography, drainage requirements, etc.

[2] Wesley Marshall (2014), "On-Street Parking," *Parking Issues and Policies*, Transport and Sustainability, p.367; at http://bit.ly/2EhgsFM.

In comparison, the Victoria Transport Policy Institute identifies a basic parking structure as costing $15,000 to $25,000 per space to build. The increase in cost for a parkade includes elevators or enclosed stairs, mechanical ventilation and fire control. Parking structures require major reconstruction or replacement after 20-40 years.

It should be noted that where land values are high, the increased parking supply provided by a parkade rather than a surface lot can reduce the cost difference between the two facilities. For example, a parking facility construction cost survey of 12 U.S. cities indicated that construction costs averaged $24,000 per space for above grade.

The 2018 Altus Canadian Construction Cost Guide indicates a construction cost of $5 - $15/ft^2 for surface parking and $75 - $95/ft^2 for above-grade parking garages for the Calgary/Edmonton areas. [3] These costs are based on the following assumptions:

- On-grade parking assumes an asphalt paved surface lot, including necessary curbs, line painting, storm servicing and pole lighting
- Above-grade parking assumes open air structure

It is recommended that the new surface parking lot under consideration in S block be constructed. The new parking lot should be designated for RV parking with 40 – 50 stalls to accommodate the RVs replaced from Connaught Drive.

Strategy 3: Development of a Parking Management Plan

Currently, parking in Jasper is free of charge, with a 2-hour time limit imposed on on-street parking. In an effort to manage parking more effectively within the downtown business district, this report conducted a high-level review of two strategies:

Paid Parking

Paid parking could be considered within the business district, particularly along Connaught Drive and Patricia Street. The benefits of paid parking include incentivizing higher turnover, which results in increased traffic for businesses. By reducing the duration of occupancy for parking spots, paid parking also increases the availability of parking. This, in turn, reduces the overall circulation of vehicles as they search for available parking spots. Depending on the parking revenue arrangement, additional income beyond covering the cost of operating the program can be reinvested in the community or business zone. Other jurisdictions have earmarked parking revenue for revitalization projects, street improvements, etc.

[3] Altus Group (2018), "2018 Canadian Cost Guide", p. 11.

The *Parking Handbook for Small Communities* notes the following reasons for installing parking meters:

- Promote parking turnover;
- Distribute limited on-street parking time equitably;
- Provide space for the short-term shopper and business client;
- Maximize the economic viability of the downtown by providing opportunities for more people to park conveniently; and,
- Generate revenue for the municipality.

While there are benefits to introducing paid parking within the business district, there are other items which should be considered. Paid parking along commercial streets may result in spillover parking effects in residential communities. Shorter parking durations may also reduce walk-by traffic for businesses adjacent to the primary destination. Enforcement and management of the parking will be required as well.

In order to determine if paid parking is sufficiently beneficial to the Jasper business district, a detailed parking study should be undertaken. This parking study would consist of license plate surveys along the streets under consideration and would provide results indicating turnover rates, duration of stay, overall parking availability/vacancy, etc. The detailed parking study should also assess the available technologies such as traditional parking meters or so-called 'smart park' systems. Given the touristic nature of Jasper, parking meters which require Canadian coins may not be the most suitable. The cost of implementing paid parking, as well as enforcing and managing it, will need to be investigated and will factor into decisions on technology. Bylaw changes will likely be required to allow enforcement and management of the paid parking system; these changes can be examined during the detailed parking study as well. Of additional consideration are the boundaries of the paid parking zone, or in other words, which streets are to be included. As mentioned previously, there could be spillover parking effects into adjacent residential areas. If this occurs, a residential parking permit system could be implemented.

The price of parking will need to be determined. A starting point may be to price parking such that it covers the cost of operating, managing, and/or enforcing the program. A jurisdictional survey of similar-sized communities may provide comparable pricing schemes which can be used to develop Jasper's parking prices. If the goal is to generate additional revenue, the pricing scheme will need to reflect this. Also to be considered is the price elasticity of demand; that is, at what price will shoppers choose not to patronize the downtown core, rendering the paid parking program irrelevant. Of additional consideration is the provision of alternatives such as unrestricted parking lots in designated locations at either end of the town, allowing visitors to park free of charge and then walk into the downtown. This reduces traffic within the business district and frees up parking spaces for destination shoppers. This is discussed in more detail below.

Dedicated / Consolidated Parking Facilities

As mentioned above, an effective parking management strategy can be the provision of dedicated or consolidated parking facilities towards the edge of town. This can be done in conjunction with the introduction of paid parking, or as an independent strategy.

Jasper currently has three large parking lots located off northbound Connaught Drive. Parking in these areas is allowed for up to 72 hours; however, overnight parking for the purpose of accommodation (camping) is prohibited. Providing similar facilities at the edges of town can be either in addition to, or as a replacement of these facilities, freeing up the central space for other amenities or development.

Consolidated parking at the edges of town removes vehicles from the core commercial streets, thereby promoting a more active exploration of the town on foot. Reducing vehicles entering the core also provides a safer, greener environment for pedestrians and cyclists.

Locations for dedicated / consolidated parking facilities should be selected to provide safe and direct pedestrian access and connections into the downtown core. Consideration could also be given to the implementation of bike rentals or bike share programs located at the parking facilities to provide an alternative active mode of transportation for visitors.

JASPER
TRANSPORTATION MASTER PLAN

SECTION 5

Objective 2 – Encourage use of active modes

Goals:

To achieve more pedestrian-friendly streets and better connections to parking, hotels, school sites, and recreational facilities.

The second objective of the transportation plan is to encourage the use of active and sustainable transportation modes, such as walking and cycling, within the Town of Jasper. This objective aims to facilitate active transportation within Jasper through the provision of increased active modes infrastructure as well as creating more pedestrian and cyclist-friendly streets that are safe and well connected to town amenities.

Providing comfortable, efficient, and inviting walking and cycling opportunities will improve mobility for all road users, regardless of socio-economic factors, modes of travel, or disabilities. The promotion of active transportation will also have advantageous effects in the management of vehicular parking congestion, and in reducing the level of vehicular traffic (and associated delays) on the road network.

This chapter outlines the feedback received through public and stakeholder consultation. The goals and strategies developed provide a methodology for the implementation of improvements that could enhance the active transportation network within the town and address the concerns identified.

5.1. What We Heard

The feedback received through public consultation provided an opportunity to learn about the issues facing active transportation within the town first-hand. Attendees of the public open house were surveyed on a variety of topics to better understand the priorities of the town residents. Figure 11 outlines various transportation priorities for the Town of Jasper. The most highly supported priority was the improvement of cyclist accommodation at 18%, The improvement of pedestrian accommodation tied for fourth priority with 11%.

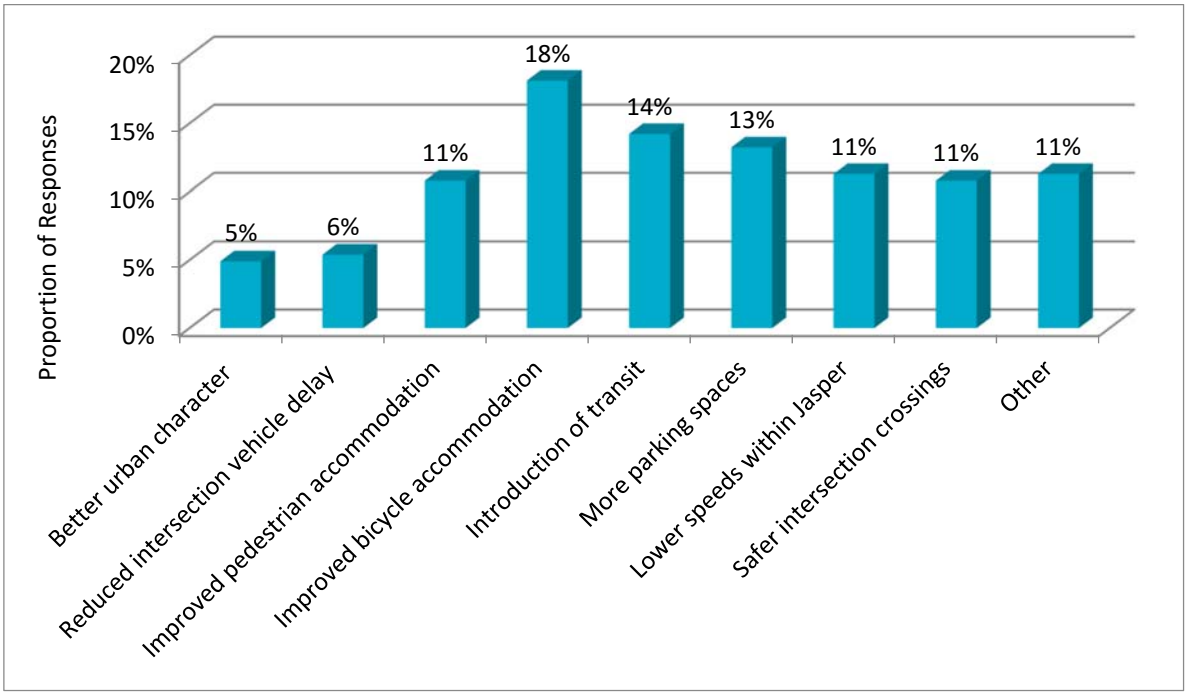


Figure 11: Survey Responses for Transportation Priorities

When asked how they travel to work/school, 40% of the survey respondents indicated they bike, while 23% said they walk. Therefore, approximately 63% of the residents surveyed are currently commuting via active modes, while 30% drive alone and 7% travel via other modes of transportation.

As shown in Figure 12, when asked if they felt comfortable cycling in Jasper, 46% of respondents confirmed that they were comfortable cycling within the town, while 13% said they were not. In addition, 71% of survey respondents said they were comfortable walking in Jasper, while 4% indicated they were not comfortable walking within the town.

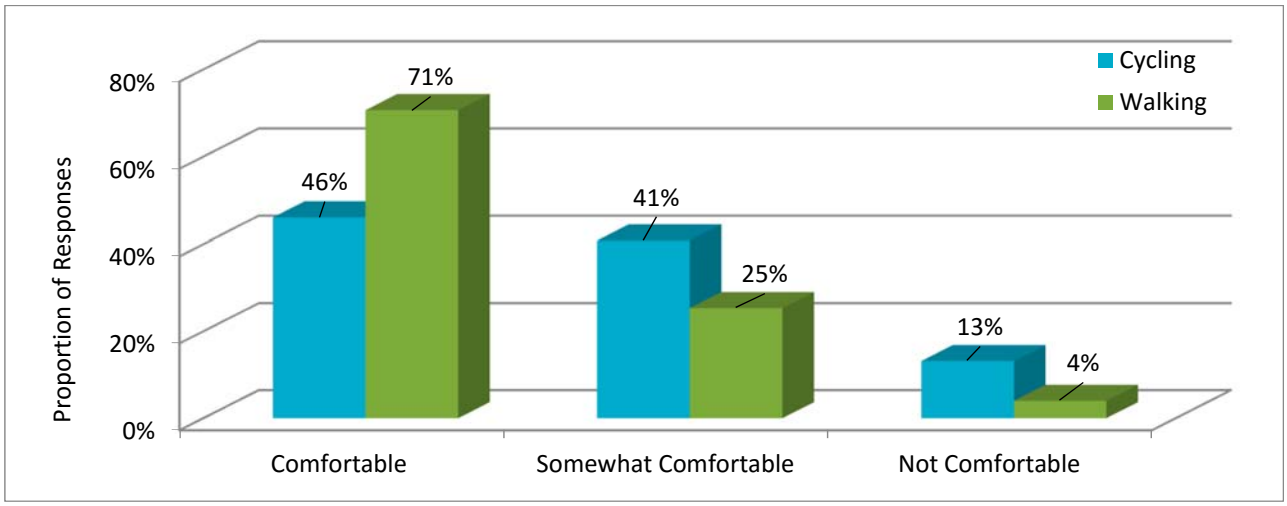


Figure 12: Survey Responses for Comfort of Active Modes Travel

As detailed in Figure 13, the survey also asked residents to indicate what would encourage them to use active transportation more often. The top responses included designated bike lanes (21% of responses), wider sidewalks (15% of responses), more multi-use trails (13% of responses), and secure bike parking (11% of responses).

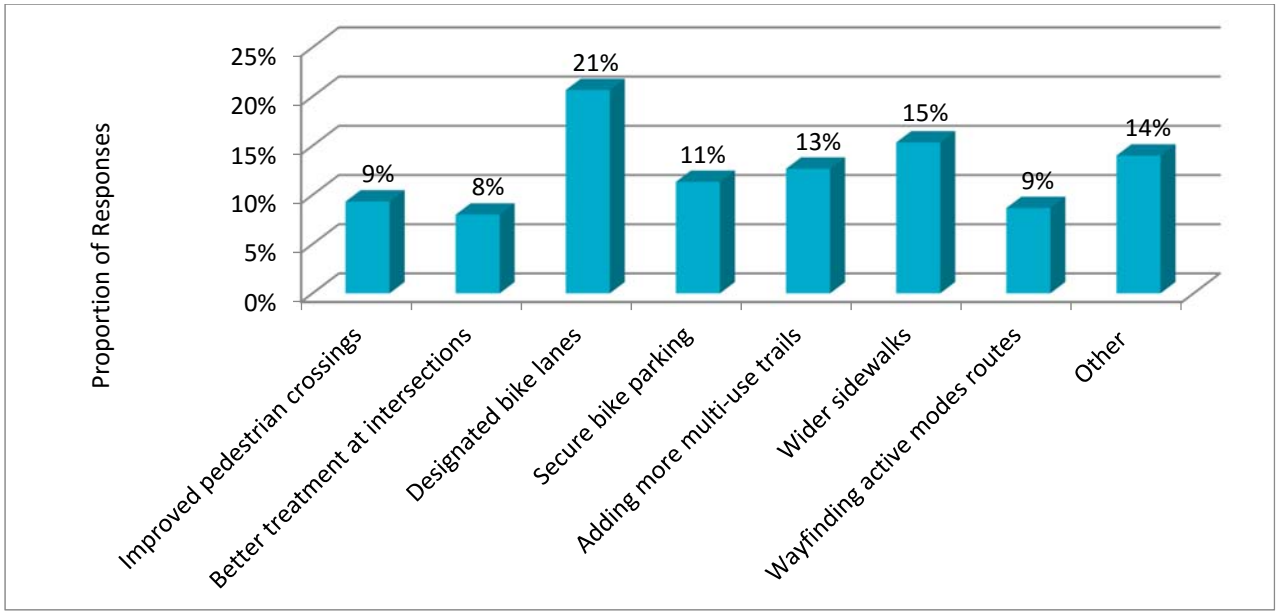


Figure 13: Survey Responses for Active Transportation Improvement Options

Overall, the public open house provided insight into the priorities of the town residents and showed that improvements to the active modes infrastructure within the town is a worthwhile and well-supported endeavor. In particular, the provision of designated bike lanes and secure bike parking was highly supported by town residents. The public responses to the survey questionnaire also indicated a desire for improved sidewalks and additional multi-use trails within Jasper.

5.2. Strategies

A fundamental step in promoting walking and cycling within the Town of Jasper is to provide a comprehensive, well connected, and safe network of active mode facilities. The facilities should be designed to be accessible for all users, including those with physical and/or cognitive disabilities. Not only will these facilities provide an affordable and environmentally-friendly travel option, they will also lay the groundwork to complement future transit services and bike-share initiatives, both of which have been identified as action items to investigate in the *Jasper Community Sustainability Plan (2011)*.

The strategies below were developed to highlight methods of improving accessibility and encouraging the use of walking and cycling as a safe, efficient, practical means of transportation within Jasper.

Strategy 1: Maintain and Enhance Existing Active Mode Network

Through the proper and timely maintenance of the existing active modes facilities within the town, residents and visitors will come to rely on active transportation as a safe and viable means of travel within Jasper. Maintaining these facilities should include:

1) Sidewalks and Pathway Maintenance

Existing active mode facilities should be regularly maintained, including surface repairs, repainting pathway markings and trimming intrusive vegetation. The timely clearing of snow on active mode routes is also recommended, as the stakeholder survey identified snow accumulation as a common impediment to active modes. Water ponding was also noted as an issue, so drainage improvements may be required.

2) Repaint Roadway Markings

The regular repainting of crosswalks and roadway pavement markings will enhance their visibility and increase motorist's awareness of the potential for conflicts with active modes. It will also emphasise that pedestrians have the right-of-way (thus increasing yield compliance amongst motorists) and encouraging pedestrians to cross at marked locations rather than jaywalking.

3) Provision and Maintenance of Bicycle Racks

There is an evident demand for bicycle parking within the business district, with many of the existing racks full and many other bikes parked against trees/poles and within public spaces. There also appears to be a desire to park bikes in close proximity to destinations, with many bikes parked adjacent to empty bicycle racks. Existing racks should be maintained, and additional racks added as required. It was noted that many bikes park parallel to existing racks rather than perpendicular, which reduces the capacity of the rack. New racks should be designed to discourage parallel parking.

4) Improved Sidewalk and Pathway Illumination

Improving illumination is recommended along pathways, sidewalks, and within the Jasper townsite in general, based on the feedback received during the public open house. A number of comments were received that walkways and pathways are not adequately illuminated during times of darkness. This perception can reduce the use of active mode travel during dark conditions. In particular, residents expressed concerns with wildlife within the town. Improved illumination is recommended to create a safe and inviting atmosphere for active modes users.

5) Additional Street Furniture

The addition of street-side furniture, including seating areas, planters and tree boxes, garbage and recycling bins, and other greenspace amenities can help create a vibrant and pedestrian-friendly atmosphere. Street-side furnishings can activate the pedestrian realm and incorporate elements of sustainable transportation and green infrastructure into the context of the surrounding land uses, thereby adding draw to the use of active modes as primary transportation options.

6) Pedestrianization Within Central Business District

Consideration could be given to transforming a certain roadway(s) into a pedestrian-only street (pedestrianization) within the downtown central business district. This initiative has been successfully implemented in other jurisdictions to improve pedestrian mobility, enhance shopping and business activity, revitalize and beautify the local environment, and promote active transportation as a priority within the town. Pedestrianization could be permanent or a seasonal implementation.

Strategy 2: Provide Missing Connections Within Active Mode Network

The Town of Jasper already has a very robust pedestrian network within Town. However, there are some additional links that could help connect the network even more. The network of dedicated bicycle facilities within town is very limited and could benefit from expansion. The following recommendations are made to improve the active modes network:

1) Provision of On-Street Bicycle Network

The implementation of painted and/or buffer-separated bike lanes should be considered to help construct a comprehensive network of cycle routes within town. Many of the existing roadways are excessively wide by today's standards. By reducing the width of vehicle travel and parking lanes, some roadways may have sufficient width to implement painted on-street bike lanes. Corridors such as Bonhomme Street and Geikie Street could provide a bicycle connection across town with cross-street connections to complete the network. In addition to providing a bicycle network, the bike lanes would encourage slower travel speeds, which has also been identified as a safety objective (see Section 6).

2) Implementation of Missing Sidewalk Connections

There is a lack of consistent sidewalk connections along the streets and internal development roads on the north side of town. Pedestrian desire lines are evident by the trails worn into the grass by repeated pedestrian use. It is recommended that sidewalks be constructed to provide a connected network throughout the area wherever presently missing. These locations include the south side of Juniper Street, both sides Geikie Street at various locations, and within Patricia Place, along NW side of Bonhomme between Miette and Maligne and Swift Crescent.

During stakeholder consultation, a crosswalk at the intersection of Miette Avenue and Birch Avenue was noted as a missing component of the pedestrian network. If implemented, it is recommended that the crosswalk be painted on the west side of the intersection where there are better sight lines and more space adjacent to the grass median.

3) Increase Substandard Sidewalk Widths

Recommended sidewalk widths have increased since the time most of the sidewalks within Jasper were constructed. Increasing sidewalk widths would improve the pedestrian carrying capacity and user comfort in addition to making them more accessible for wheelchairs and strollers. As noted above, many of the roadway widths are excessively large and space could be reallocated to sidewalks and the pedestrian realm. Given the cost of curb reconstruction, it would be most practical to increase

sidewalk widths in conjunction with adjacent road or underground reconstruction projects, with the priority being the busier central locations.

4) Provision of Wheelchair Ramps

In general, most sidewalks were observed to be equipped with curb-cut ramps to accommodate wheelchair and stroller use. However, some of these locations have ramps that are incorrectly oriented, such that they do not align with the adjacent crosswalk or access. It is recommended that the network be reviewed to identify locations with missing or misaligned wheelchair ramps and improvements implemented. In addition, it is recommended that detectible ground warning surfaces (ie: textured or tactile pavement) be consistently provided on wheelchair ramps throughout the town for better detection and accommodation of users with visual impairments.

Strategy 3: Develop Pedestrian and Cycling Wayfinding Plan

In order to encourage more people to travel via walking and cycling, users must feel comfortable knowing they will be provided with the guidance required to safely reach their destination.

The development of a wayfinding plan is an important component of a community that supports active modes. A wayfinding plan allows pedestrians and cyclists to identify what routes accommodate them and how. For example, a pedestrian will know if a sidewalk is provided along a particular corridor and cyclists can know if there is a separated pathway or an on-street cycle lane. The type of cycling facility is particularly important as cyclists can determine their route based on their individual comfort and skill. Components of the plan should include:

1) Active Modes Network Map

The preparation of an active mode wayfinding map allows users to plan their route prior to departing. This eliminates the fear of the unexpected that might discourage some from using active modes. The maps can be provided online, printed (available at info centre, stores, hotels), or posted on signs at key active mode origins, such as parking lots. In addition to routes, the map should also identify other facilities, such as indoor/outdoor storage, bike friendly businesses, and repair stations/shops. The map can also differentiate between commuter and scenic/recreation routes.

2) Wayfinding Signage

Additional to the active modes map, wayfinding signs should be provided along pedestrian and bicycle routes, such that users can identify their location and confirm their direction of travel during their trip. Signs should be consistent in design and placement. This predictability allows users to more easily navigate the network and increases comfort. Signage should focus on key corridors and then expand to the supporting network.

Strategy 4: Incentivise the Use of Active Mode Trips

The strategies outlined above encourage those already inclined to travel by active modes to do so. Other people may require further incentivization to use non-automotive travel modes. There are numerous techniques and programs that can encourage the use of active modes and/or discourage the use of automobiles, some of which could include:

1) Hotel Bicycles and Storage

Jasper is a major tourist destination. The majority of these tourists are likely not travelling with a bicycle and therefore may not have access to a bike without the inconvenience and cost of renting one. Some jurisdictions encourage hotels to provide bicycles for their guests to use free of charge. Some jurisdictions may supplement the cost of bicycles while others make it a bylaw requirement to provide them. Similar to vehicle parking requirements, some jurisdictions (such as Canmore, Alberta) have bylaws that hotels provide a minimum number of indoor secured and outdoor bicycle parking stalls.

2) Bike Share Programs

Bike share programs are becoming more and more prevalent in North America, with many successful examples (and some not so successful) being implemented. One of the biggest challenges with a town-wide bike share program is the cost of implementation, maintenance and operation. Respectable ridership is required for the system to be financially viable. Ridership is not expected to be high enough in Jasper due to the small population and geographic size. Tourist season could see an increase in use, but not likely large enough to sustain a bike share program. Although a town-wide program may not be feasible, a single point system, located at an intercept parking lot during peak periods, may have potential.

3) Redistribution of Road Right-of-Way

The Town of Jasper's road network was built in a car centric era. The roadways are excessively wide, sidewalks are narrow and bicycle facilities are relatively non-existent. A review of several roadways revealed opportunities to reallocate existing roadway to cyclists and/or pedestrians. The design standards for travel and parking lane widths have reduced in recent years and that excess width could be used for wider sidewalks, cycle lanes, or landscaped boulevards. If posted speed limits are reduced, as discussed in Section 6.2, lane widths could be reduced even further. Reallocation of the road right-of-way reduces some of the perceived incentives of travelling by car.

4) Parking Restrictions and/or Paid Parking

Another method for discouraging travel by car is to limit the availability of parking and/or introducing paid parking. The availability of ample free parking in close proximity to their destination encourages people to drive, even on shorter trips. By reducing the convenience of parking, people may evaluate whether driving is the best mode of travel.

JASPER
TRANSPORTATION MASTER PLAN

SECTION 6

Objective 3 – Address safety concerns identified by stakeholders

Goals:

Review Applicability of Reduced Statutory Speed Limit Within Town Limits

Improve Pedestrian Crossings Along Connaught Drive

Identify Safety Improvements for Intersections of Concern

Improve Intersection Sight Distances Along Connaught Drive

The third objective of this transportation plan is to address some of the more common safety concerns that were identified during the public consultation. This chapter summarizes the common road safety themes and presents strategies to reduce the risk of collisions.

6.1. What We Heard

There were four key themes that emerged based on public and stakeholder consultation as discussed in the following sections:

1) Improve Sightlines Along Connaught Drive

Concerns were raised regarding sight distances when trying to cross or turn onto Connaught Drive from the cross-streets. The issue is that parked cars on Connaught Drive can block the view of oncoming vehicles on Connaught Drive.

This is referred to as the intersection sight distance (ISD), which is the distance that motorists at a stop control need to be able see down the intersecting roadway. Motorists must be able to see far enough to be able to judge if there is a gap large enough to complete their movement without impeding or conflicting with a through vehicle. When adequate ISD is not provided, a motorist entering the intersection from the cross-street may accept and inadequate gap resulting in a collision.

A review of the on-street parking indicated that there are some locations where insufficient ISD is available. The review also indicated that there are no other obstructions, such as buildings or road geometry that obstruct ISD. Therefore, the ISD limitations are only present during times when parked cars are present.

2) Operating Speeds Within Town

Another common theme amongst the public and stakeholders is the general concern that vehicle operating speeds within town are too high, increasing the risk of both the collision frequency and severity. Given the small-town environment, people felt that speed limits less than the typical 50 km/h would be more appropriate within Jasper.

3) Intersection Safety Concerns

There were a few specific intersections within town that were identified as being a safety concern. In particular, the intersection of Miette Avenue / Connaught Drive and the intersection of Miette Avenue / Bonhomme Street / Pine Avenue were requested for further review.

4) Pedestrian Safety Along Connaught Drive

Both pedestrian and vehicle traffic along Connaught Drive are high, which has raised concerns regarding pedestrian safety. There are currently numerous pedestrian crossings along the corridor, including intersection and midblock crossings, but the design of these crossings is inconsistent. There is a demand to review the Connaught Drive corridor from a holistic approach to identify which crossings should remain, be removed, added, or improved.

6.2. Strategies

Strategy 1: Reduced Statutory Speed Limit Within Town Limits

One safety improvement that both The Town and residents would like investigated is to reduce the posted speed limit throughout town to 30 km/h or 40 km/h. Under the *Alberta Traffic Safety Act*, the statutory (default) speed limit for urban roadways is 50 km/h. However, in the case where the roads are under the control and management of a council, that council may prescribe a different speed limit. It is suggested that if a reduced statutory speed limit be implemented in Jasper, that the speed be 30 km/h as 40 km/h is only a marginal reduction and it would still require additional reductions and signage at schools and playgrounds.

Studies have shown that reducing operating speeds from 50 km/h to 30 km/h can have a significant impact on the severity of collisions with vulnerable road users (pedestrians and cyclists). One such study found that the risk of a pedestrian being killed is 80% at 50 km/h versus 10% at 30 km/h. Reducing operating speeds reduces both the frequency and severity of collisions. However, a careful distinction must be made between operating speeds and posted speed limits, as reducing a posted speed limit does not guarantee an equivalent reduction in operating speeds. Motorists often drive based on the characteristics of the road rather than the posted speed limit. Posting a speed limit that is seen as inappropriate by motorists will often result in poor compliance and a general disregard for speed limits. This is a challenge when considering a blanket speed limit regardless of the road classification and design.

Jasper is in a unique position given its compact size, isolated location, and predominately local road network. Due to these factors, travel distances within town are typically short and motorists are more likely to adhere to reduced speed limits. The need to reduce speeds within residential areas is also easily understood by motorists and justifies the need for slower speeds.

One corridor that would be more difficult to justify to motorists is Connaught Drive. A 30 km/h posted speed limit makes sense within the busy downtown environment, but consideration should be given to increasing the limit to 50 km/h north and south of the central business district as a posted limit of 30 km/h is not consistent with the road environment or motorist expectations and may result in poor compliance and speed differentials. Given the lack of surrounding development, it is also recommended that Pyramid Lake Road remain posted at 50 km/h west of Bonhomme Street.

The remaining road network would be a good candidate for a blanket speed reduction. Although some reduction in operating speeds is expected by reducing the posted speed limit, The Town should not expect operating speeds to drop by the same amount. Supporting changes to the geometric design would also be required to achieve significant speed reductions.

Motorists need to be informed that the statutory speed limit within town is less than the Alberta default. Alberta Transportation has developed a Community Speed Limit Information sign for this purpose (Figure 14). The sign should be installed near the town limits at the three entrance points into town.

Figure 14: Community Speed Limit Information Sign

Since it is suggested that Connaught Drive be posted at 50 km/h, motorists may forget that the speed limit on all other roads is 30 km/h. Therefore, some supplementary 30 km/h maximum speed signs should be installed on some of the cross-streets in close proximity to Connaught Drive as a reminder when entering the residential areas.

The cost of implementing a reduced statutory speed limit is estimated at $10,000 - 15,000 (three community speed limit signs, new 30 km/h “maximum speed” signs, removal of 50 km/h “maximum speed” signs).

Strategy 2: Improve Pedestrian Crossings Along Connaught Drive

The Town has requested that the pedestrian crossings along Connaught Drive be reviewed from a corridor perspective to determine if any crossings are missing or, or if there are existing crossings that could be improved or consolidated.

There are currently 20 marked crosswalks along the four-kilometre-long Connaught Drive, including nine at intersections and eleven midblock. The density of crossings is highest between Hazel Avenue and Aspen Avenue, where there is less than 100m between crossings. The separation of crossings is less than recommended by the Transportation Association of Canada’s (TAC) *Pedestrian Crossing Control Guide* (2012). The guide does not recommend that crossings be within 100 and 200 metres of one another. Having crossings in close proximity can result in incorrect driver decisions, which may lead to collisions.

The crossings were reviewed to identify ones that could be removed to increase separation. Based on an assessment of the distance between crossings and adjacent developments, the following recommendations are proposed:

- Remove the midblock crossing north of Hazel Avenue;
- Remove the midblock crossing south of Miette Avenue;
- Consolidate the two midblock crossings between Miette Avenue and Pyramid Lake Road. Ideally a new crossing on the north side of the parking lot exit would be constructed. Otherwise, the southern crossing should be retained with the north one removed;
- Remove the midblock crossing between Pyramid Lake Road and Balsam Avenue; and,
- Remove the midblock crossing between Balsam Avenue and Aspen Avenue.
- Provide a new crosswalk at the intersection of Connaught Drive and Bonhomme Street. Although pedestrian counts were not available, desire lines seem to indicate that the north side of the intersection is in higher demand.

A graphic showing the location of the existing and proposed crossings is provided in Figure 15.

The remaining crosswalks could be improved in the future by providing curb extensions to reduce crossing distances and improve pedestrian visibility. Proper pedestrian crossing signs (left and right) should be installed at each crossing. The Town has installed fluorescent yellow strips with “crosswalk zone” messages on the existing sign posts to help emphasise the crossings. These strips could still be used in conjunction with the sign improvements. However, the strips should be used in a consistent manner (for crosswalks only) throughout town. The similar strip near Miette Avenue with the “No Skateboarding” message should be removed.

One of the rationales for the existing crosswalk density was to mitigate concerns with jaywalking along the corridor. This is a valid concern, but can be mitigated by other means such as streetscaping. Both hard and soft, within the median and the roadside in an effort to channel pedestrians to the designated crossing locations.

The intersection of Connaught Drive and Miette Avenue could benefit from increased pedestrian control based on the TAC *Pedestrian Crossing Control Guide*. TAC is currently updating the guide to include rectangular rapid flashing beacons (RRFBs). The intersection could be a good candidate for these devices, but the Town may want to wait for the guidelines to be released, such that national standards are followed.

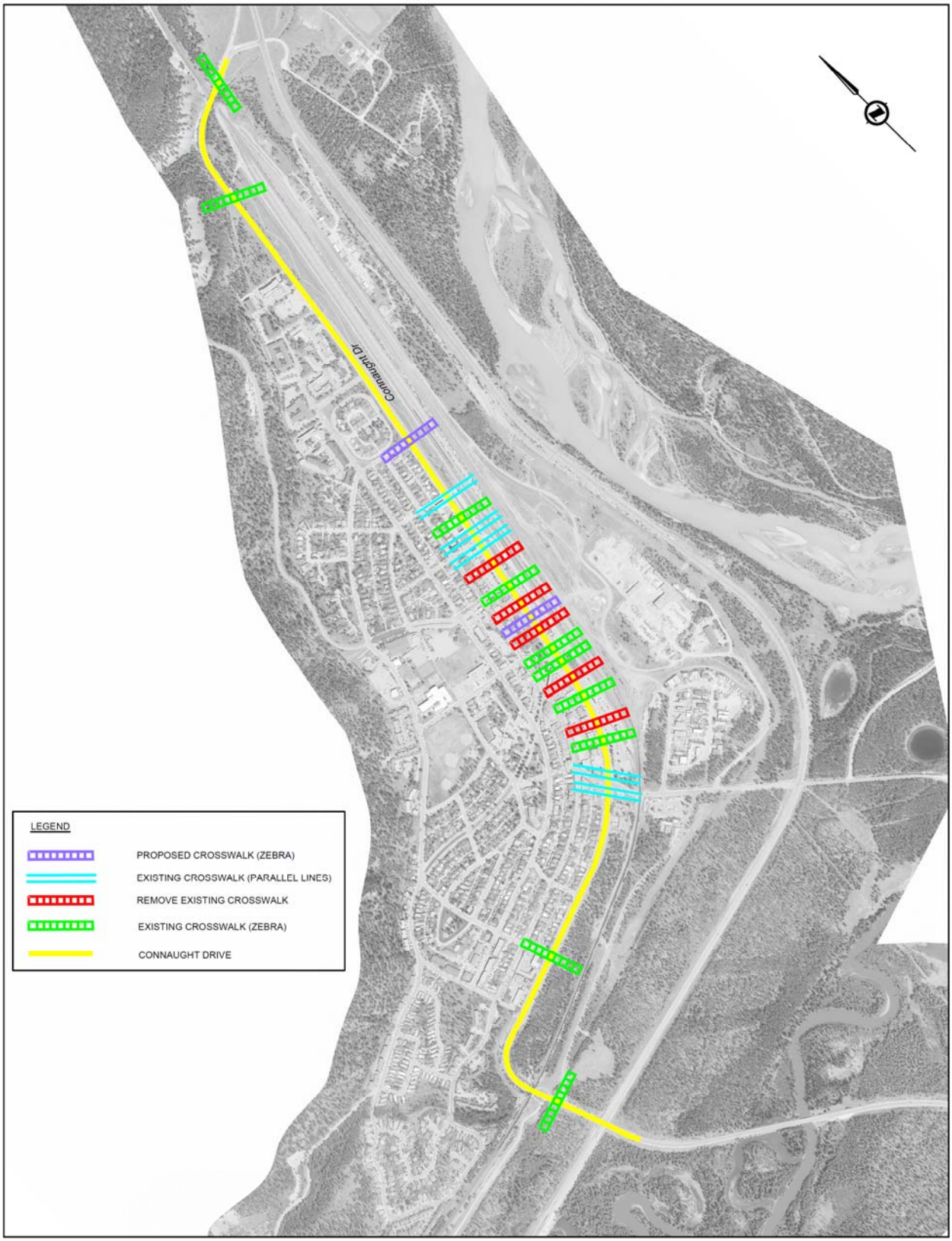


Figure 15: Connaught Drive Pedestrian Crosswalk Recommendations

Strategy 3: Identify Safety Improvements for Intersections of Concern

Based on discussions with The Town and Stakeholders, the questions was raised if Patricia Street would function better as a two-way street. Although there could be some benefits, such as reducing the risk of wrong-way movements, it is recommended that the roadway remain one-way to provide better access to parking and to prevent mid-block u-turns that may occur to access parking on the opposite side of the street. There were also two intersections of concern when it comes to safety:

1. Miette Avenue / Pine Avenue / Bonhomme Street
2. Miette Avenue / Connaught Drive

These intersections have been reviewed to identify factors that may be contributing to the risk of collisions. Improvement options to mitigate the risks have also been identified along with the associated costs. The detailed safety review is provided in Appendix A and a summary of the findings is provided in the following subsections.

1) Miette Avenue / Pine Avenue / Bonhomme Street Intersection

Most of the safety issues related to this intersection are associated with the geometric design, primarily the offset legs and skewed angle. Both are a safety risk in their own right, but it is the combination of the two that results in a complex and confusing intersection configuration. Further contributing to the complexity is the wide median width of Miette Avenue. As a result of the width, Miette Avenue operates more like two parallel one-way streets, so the intersection functions more like a five-leg intersection instead of a four-leg. A summary of the resulting safety issues is provided below, followed by a summary of recommendations. Detailed descriptions of the issues and recommendations are provided in Appendix A.

Potential Safety Issues:

Issue 1: Intersection Layout Creates Driver Confusion

The intersection layout is complex and acts as a 5-leg intersection rather than a 4-leg intersection. It can be difficult for motorists to understand intended travel paths, traffic control and rights of way. The configuration results in more conflict points compared to a typical 4-leg intersection.

Issue 2: Lack of Defined Pedestrian Crossings

There are no marked crosswalks at the intersection. The layout also results in long and potentially confusing crossings for pedestrians. The location and alignment of wheelchair ramps also create challenges for wheeled users.

Issue 3: Wide Streets May Result in Poor Speed Compliance

The wide pavement cross section on all three streets may encourage higher operating speeds and poor speed limit compliance.

Issue 4: Inconspicuous Stop Control on Westbound Miette Avenue

The stop-control on westbound Miette Avenue may not be obvious to motorists due to a combination of road alignment and poor sign visibility.

Issue 5: Various Sign Related Issues

There is little wayfinding at the intersection, there are small street name signs, but they are inconspicuous. On Pine Avenue there are conflicting 30km/h and 50km/h signs in close proximity to one another. Also, the right-hand stop sign on northbound Pine Avenue is not visible due to overgrown trees.

Improvement Options:

Intersection Reconfiguration (Longer-Term)

As discussed above, the intersection configuration is the primary issue at this location. Mitigating this issue would require reconfiguration to minimize the skew and offsets. However, this is a challenge given the residential development surrounding the intersection. Reconfiguration could result in property impacts, such as land acquisition or the addition of green space in front of existing properties. The biggest challenge is minimizing the impacts to on-street parking and residential driveways.

Traffic volume counts show that there is a demand between all four legs of the intersection, so closing any movements at the intersection(s) could face opposition from residents. The alignment of the roadways also makes it difficult to consolidate the intersections into one four-leg intersection.

A review of potential improvement options indicated that realigning the approaches to form two offset T-intersections or shifting westbound Miette Avenue south to form a four-leg intersection may help define the right-of-way at the intersection. However, given the high cost and impacts to adjacent residents, recommending an intersection design would require consultation with The Town, stakeholders, and public. Furthermore, the benefit/cost of these improvements may not be enough to justify the need for a major redesign. Given the 30 km/h speed limit, the existing collision risk is low.

If it is determined that redesign will not take place, there are some improvements that could be made to improve the existing configuration. Curb extensions would help delineate the travel paths and would also address some of the issues discussed in the following sections. Lower cost pavement marking improvements, such as white edge lines and hatched islands could be used as a short-term improvement.

Road Narrowing (Medium/Longer-Term)

All three roadways would benefit from road narrowing to encourage slower traffic speeds and improve conditions for pedestrians and cyclists. This could be accomplished by curb reconstruction (to improve pedestrian facilities) or the addition of painted bike lanes (to improve bicycle facilities).

It should be noted that intersection bulb-outs would obstruct bicycle lanes, so the longer-term plans for bicycle facilities along the corridors should be established prior to the construction of any bulb-outs.

Pedestrian Crosswalk Improvements (Short-Term)

Pedestrian crosswalks should be painted at the intersection. In the longer-term, curb extensions could be provided to reduce crossing distances and increase pedestrian visibility. The ultimate intersection configuration should be established prior to constructing any bulb-outs to avoid any rework or throw-away costs.

Sign Improvements (Short-Term)

As an interim improvement, the intersection could be converted to a 4-way stop control. This would require motorists to stop and assess conflicts prior to entering the intersection. A concept for how this might look is provided in Appendix D.

2) Miette Avenue / Connaught Drive Intersection

The intersection of Miette Avenue and Connaught Drive is a busy intersection within the downtown business district. The intersection is a four-leg intersection; however, the east leg is only for inbound busses accessing the parking lot.

The primary challenges facing the intersection are sight distance related. The visibility of the intersection itself is limited due to a combination of cross-street alignment and adjacent buildings blocking sight lines. As a result, motorists on Connaught Drive may not be aware of the intersection and the associated conflict points. Similarly, traffic entering the intersection from Connaught Drive may not be able to see traffic approaching on Connaught Drive. A summary of the resulting safety issues and recommendations are provided below and details are included in Appendix A.

Potential Safety Issues:

Issue 1: Poor Cross-Street Visibility on Northbound Connaught Drive

When approaching Miette Avenue on northbound Connaught Drive there is limited visibility of vehicles and pedestrians on Miette Avenue due to the buildings in the southwest and southeast corners. As a result, motorists on Connaught Drive, may not anticipate the intersection and the associated increase in conflict points with turning vehicles and crossing pedestrians.

Issue 2: Limited Intersection Sight Distance on Miette Avenue

Intersection sight distance is limited to the north (due to on-street parking) when turning from Miette Avenue on to Connaught Drive. The intersection sight distance is adequate if it is assumed that motorists reassess gap availability closer to the travel lanes. However, this may require motorists to stop within the crosswalk.

Issue 3: Limited Stopping Sight Distance on Miette Avenue

There are two stop signs on Miette Avenue, both of which are difficult to see on the approach due the horizontal alignment. The sign on the right-hand side is obstructed by the building and on-street parking, while the left-hand sign can be blocked by preceding vehicles.

Issue 4: Bus Only Restriction on East Leg is Not Clearly Evident

The east leg of the intersection is an entrance only and is restricted to buses only. Lack of adequate signage could result in motorists inadvertently entering the parking lot. The design of the east leg also looks like a standard two-way approach. This may result in vehicles exiting from the east leg that is intended as entrance only.

Issue 5: Inadequate Wayfinding

The placement and size of street name signs makes them difficult to identify and read. As a result, unfamiliar motorists may become distracted trying to navigate the intersection, increasing the risk of driver error.

Issue 6: Inconsistent and Incorrect Pedestrian Crossing Signage

The Pedestrian Crossing signage along Connaught Drive is inconsistent and incorrect in many places, including the Miette Avenue intersection.

Issue 7: Miette Avenue Median Encourages Jaywalking

The large median on Miette Avenue may encourage pedestrians to use it as an island to cross Miette Avenue. There are multiple pathways between the raised planters within the median which may entice pedestrians to jaywalk.

Improvement Options:

Provide Bulb-Outs in Southwest and Northwest Corners (Longer-Term)

Providing curb extensions (bulb-outs) on the southwest and northwest corners of the intersection would mitigate several of the safety issues by increasing visibility of the intersection and pedestrians, increasing the intersection sight distances and stopping sight distance on Miette Avenue, and reducing pedestrian crossing distances.

Reconstruct East Leg to Better Emphasise Access Restrictions (Medium/Longer-Term)

It is suggested that the east leg of the intersection be reconstructed to better resemble an entrance only. This could be accommodated by extending the northeast sidewalk further south to better emphasize that there is no westbound exit. This would have the additional benefits of reducing the pedestrian crossing distance and providing better opportunities for sign and pavement marking placement. In the interim, the signage on the east leg could be improved to better emphasise the entrance restrictions and to discourage westbound exits.

Sign and Pavement Marking Improvements (Short-Term)

Several sign and pavement marking improvements are proposed to increase the visibility of the eastbound stop signs, improve wayfinding, and improve consistency of pedestrian crossing identification.

Median Improvements on Miette Avenue (Short and Longer-Term)

Plants within the Mitte Avenue median should be trimmed on a regular basis to enhance the visibility of pedestrians that may jaywalk across the street. In the longer-term, improvements to the median may want to be considered to discourage pedestrians from crossing mid-block.

Strategy 4: Improve Intersection Sight Distances Along Connaught Drive

One of the potential safety issues identified by the public was the limited intersection sight distances (ISD) available at the intersections along Connaught Drive. ISD is the distance that motorists a stop sign can see down the major road. Sufficient distance is required such that motorists can assess if there is a large enough gap in traffic to safely enter or cross the intersection. In the case of Connaught Drive, it is on-street parking that is obstructing ISD rather than geometric features.

Based on the Transportation Association of Canada's (TAC) *Geometric Design Guide for Canadian Roads* (2017), the required ISDs for the cross-street approaches along Connaught Drive are 120m for left-turn movements and 95m for right-turn movements (measured along Connaught Drive). The drawings used to calculate the ISD are provided in Appendix B.

The results of the ISD review revealed that a setback of approximately 4–8m is required to the right of the stop control and 27-53m to the left are required. The setbacks are measured from the end of the intersection corner radius to the first parking spot on Connaught Drive.

Providing a setback of 5m to the right of the stop control is recommended. The 120m of ISD is conservative and restricting the parking any further could result in motorist disrespect and disregard for the parking restriction. The potential collision risk (frequency and severity) of slow speed right-turn collisions is also low.

The ISD required to the left is quite a bit longer. Providing the full ISD recommended by TAC is not considered practical. The TAC recommendations are based primarily on rural two-lane highway intersections, so they can be excessive for urban environments such as Jasper. Providing full ISD would severely limit on-street parking, resulting in frustration and possible parking violations amongst motorists that likely don't appreciate the rationale for the setbacks. It is recommended that a setback of 10m be used in an effort to balance ISD and parking compliance.

A summary of the recommended parking setbacks is provided in Table 4.

Table 4: Recommended Parking Setbacks

Intersection	Right	Left
Pine Avenue	5m	15m (property line)
Spruce Avenue	5m	15m (property line)
Hazel Avenue (West)	-	10m
Hazel Avenue (East)	-	No ISD issue. No parking due to right-turn lane.
Miette Avenue	Retain existing loading zone	Retain existing taxi zone
Pyramid Lake Road	5m	10m
Balsam Avenue	5m	10m
Aspen Avenue (West)	5m	10m
Aspen Avenue (East)	5m	10m
Bonhomme Street	5m	10m
Juniper Street	5m	10m
Geikie Street	5m	No ISD issue. No parking permitted

Comments about ISD often mentioned that RV sight obstructions were of particular concern because the larger vehicles further reduce sight distances as illustrated in Figure 16.

Figure 16: Example of RV Reducing Intersection Sight Distance

A suggestion that has been raised is to restrict RV parking on the west side of Connaught Drive. As discussed above, achieving decent ISD to the right of stop-controls is obtainable. Therefore, restricting RVs to the right of stop-controls would provide minimal benefit. However, achieving adequate ISD to the left of stop controls is more difficult. Given that providing full ISD at each intersection is impractical, there would be a benefit in restricting RVs to the left of stop controls, such as the above example, as they only further reduce the available ISD. With that in mind, allowing RVs to park in some locations along Connaught Drive, but not others, only increases the complexity of parking restrictions along the corridor.

For the above reasons, it is recommended that RVs not be permitted on either side of Connaught Drive within the central business area. RV parking could be accommodated on northbound Connaught Drive south of the Petro-Canada and north of Balsam Avenue. Prohibiting RV's on Connaught Drive would also improve the visibility of guide, warning, and regulatory signage that is often blocked by taller RVs.

JASPER
TRANSPORTATION MASTER PLAN

SECTION 7

Objective 4 – Identify options for transit service in/to Jasper

Goals:

Understanding the transit needs of the community.

Identifying feasible options for transit service delivery.

The fourth objective of this transportation plan is exploring the feasibility of introducing transit service in Jasper. There is no existing transit service, other than a privately-operated senior shuttle service. Though no transit system is currently in place within the town, the *Jasper Community Sustainability Plan (2011)*, includes recommendations to explore the opportunity of future internal and regional transit connections for the town.

Engaging the community in discussions about their transit needs will establish a baseline understanding of potential transit markets in Jasper and guide exploration of appropriate transit service options. For example, visitors parking in off-site facilities that are further from the town centre or staying in adjacent campgrounds or hotels on the edge of the community may desire a seasonal shuttle service to help them get around Jasper. Another potential transit market may include seniors or persons with limited mobility who are living in Jasper and desire reliable inter-municipal service to Hinton in support of their personal appointments, shopping and/or other weekly activities.

Options to meet Jasper's transit needs should be explored to identify appropriate service delivery models for implementation. There are a variety of options to deliver transit service in smaller communities, ranging from ride-matching or taxi tokens to dial-a-bus or group-sponsored shuttles. The merits of each option should be assessed against the actual transit need to confirm whether the option is appropriate and right-sized for implementation. Partnership opportunities should also be explored to help offset the cost of service delivery, including intermunicipal, industry-based or provincial partnerships.

This chapter outlines the feedback received through public and stakeholder consultation and details the issues identified with introducing transit in a small community like the Town of Jasper.

7.1. What We Heard

One of the survey questions asked the community to vote for the three transportation priorities that they felt were most important for the municipality. The responses indicated that "introduction of transit (local or regional)" was the second highest priority for the community, with 29 responses (15% of total).

The transit specific comments from those who completed the survey were as follow:

- Use of autonomous shuttles like Navya or Easymile
- Seniors + Handicapped Bus service
- the existence of transit would encourage the use of active modes of transportation
- less congestion and use of small mass transit solutions
- a big issue is oversized vehicles downtown and the congestion caused by overstuffing the town. Perhaps a shuttle service from Whistlers/Wapiti could tame some of it

- The municipality should manage the seniors/disabled bus service
- Shuttle services for seniors & handicapped would benefit congestion in the business area
- Consider a shuttle service which could serve seniors/handicapped as well as others i.e visitors at whistler campgrounds.

7.2. Strategies

Strategy 1: A Literature Review of Transit is Similar Communities

Transit planning for smaller and/or isolated communities presents unique challenges compared to transit planning for larger, more urban areas. Despite these challenges, transit is playing an increasingly important role in supporting the sustainability and social vitality of smaller Canadian communities by enhancing mobility for people of all ages and providing affordable access to travel. To that extent, it is important that smaller communities endeavouring to start, expand or sustain transit services adopt a transit planning approach that supports an in-depth understanding of challenges and opportunities to ensure their service meets the right needs and is well-received.

Case studies of transit service planning and delivery in smaller communities, such as Hinton, Peace River, Mayerthorpe and Yellowhead County, are presented in Appendix G for consideration. Building upon the experiences of these smaller communities, the following lessons-learned may be beneficial to Jasper Administration as they look to explore potential transit services for their community.

Seek Partnership Opportunities

Smaller and/or isolated communities can avoid, or at least offset, some of the challenges of starting a new transit service by seeking industry, inter-municipal and provincial partnership opportunities. For example, the West End Bus Excursion Program is a partnership between Lac Ste. Anne County, the Town of Mayerthorpe, Woodlands County, and the local West End Bus Society that provides subsidized trips for people over the age of 50. This partnership inter-municipal program addresses recreational transportation services that help to improve the quality of life for seniors in the region, in addition to medical-related travel needs.

Other partnership opportunities that may be relevant to Jasper include market-oriented transit services for local industry, such as shuttles connecting hotels, parking lots and attractions within the community during peak season. Further, recent partnerships with Uber in smaller communities, such as Innisfill, ON, have proven successful in addressing demand for public transit service.

Consider Flexible Service Delivery Options

Smaller communities tend to have a smaller geographic footprint with ample parking supply, resulting in lower transit ridership that can make it difficult to justify funding for conventional, fixed-route / fixed-schedule services. Some smaller communities are meeting the challenge associated with lower transit demand by adopting flexible, demand-responsive approaches to transit service, like community shuttles/dial-a-ride (Camrose) and subsidized taxi programs (Peace River). Other communities have addressed rising need for public, accessible transportation services by providing demand-responsive paratransit, such as Whitecourt, Edson and Wetaskiwin.

Test Service with a Pilot Project

Smaller-scale pilot projects may be necessary to demonstrate the viability of transit services in smaller communities, as was demonstrated in Hinton with their 18-month fixed route pilot transit project in 2007. Specifically targeting low-income families, seniors and youths, the project focused on improving access to local employment, shopping, health and education services, and recreation in a manner that would not compete with Hinton's existing Handibus service. Leveraging Green Trip funding to build accompanying infrastructure, such as shelters and benches, this trial created a solid case study that transit service in smaller Canadian communities could be viable and cost-effective.

Strategy 2: Conduct A Transit Feasibility Study

The first step of the Feasibility Study should be to quantify potential transit markets by engaging the community in discussions about their travel needs. This step should confirm how people currently move around Jasper and connect with adjacent communities, where they perceive mobility gaps and why those gaps exist. This step will identify who needs the transit service, where it should go and the purpose it will serve.

The next step of the Feasibility Study should be to explore transit service delivery options and identify the appropriate, right-sized alternatives that will address key travel needs. This step should include assessment of partnership opportunities to support service delivery, development of capital and operating cost estimates for each alternative, and identification of potential funding sources to help offset costs to the community. The goal of the Transit Feasibility Study is to recommend a best-fit transit option to meet the community's needs.

Recognizing the unique challenges faced in smaller communities, the Transportation Association of Canada (TAC) has developed the following guidance to support planning, design and implementation of small-scale transit services:

Be Adaptable - Develop services that suit your community's needs.

Several questions related to demographics, geography and trip purpose need be answered to support a strong understanding of transit markets and ensure the right service type is

implemented to address needs, including: Who should be served? Where should service be provided? What types of trips should be serviced?

Be Collaborative - Work closely with your community.

As noted above, successful transit must address the service needs of the community and community involvement in the transit planning process is critical to ensure those needs are understood. Further, community involvement is crucial to fostering buy-in and acceptance of a new or modified transit service, as well as identifying opportunities for partnership to support successful service delivery.

Be Informed - Present an informed case for new services or service changes.

The ability to articulate a clear picture of what a proposed service will look like and confidently outline its costs supports the credibility of the investment to decision-makers and the public. Creating a clear picture of proposed transit service requires an in-depth understanding of the service type, route alignment, service frequency and characteristics, and partnering details. From a costing perspective, revenue in terms of fares, government and community contributions must be accounted alongside costs in terms of operating and capital.

Be Prepared – Identify all activities that need to be completed before implementation.

The final guidance involves developing a thorough understanding of the steps that will be needed to support service implementation, ranging from ensuring proper governance to identify required infrastructure and creating the foundation for fare structure and information sharing with public.

Per this guidance, smaller communities looking to invest in transit should take the time to understand the feasibility of transit in their community in terms of need and opportunity, then plan to develop the right service that addresses those needs. Though there are several types of transit services, Table 5 illustrates the services that are generally more appropriate for smaller communities.

Table 5: Public Transit Services for Smaller Communities

Service Type	Service Description	Service coordinator	Examples
Ride / Car Sharing Programs	Organized programs to coordinate carpooling and/or vehicle sharing.	May be public (i.e. Facebook), private (i.e. carpool.ca) or a non-profit organization.	• Kootenayrideshare.com • Ottawaridematch.com • ride-share.com
Taxi Subsidies	Taxis receive subsidies for certain types of trips and/or destinations.	Typically, a partnership program between local government, non-profit, and industry.	• Camrose, AB • Peace River, AB • Innisfill, ON (Uber)
Volunteer Drivers	Volunteer drivers provide rides in their own vehicles. Often subsidized with a set fare structure for various destinations.	Non-profit organization.	• Mayerthorpe, AB
Community Buses	Flexible or scheduled transit service provided using passenger vans or small buses. Drivers may be paid or volunteer.	Non-profit organization or local government agency.	• Camrose, AB • Yellowhead County
Paratransit / Specialized Demand Responsive	Demand responsive service provided in subsidized vehicles, accessible shuttles, or small buses. Often includes services targeted at seniors.	Non-profit organization or local government agency.	• Camrose, AB • Whitecourt, AB • Edson, AB • Hinton, AB • Wetaskiwin, AB
Vanpool Services	Similar to carpooling but involves more passengers per vehicle. Typically for longer distance travel (rural, intermunicipal).	Privately-managed (i.e. employer-based) or non-profit organization.	• Jack Bell Foundation (BC) • Mayerthorpe, AB • Alexis Nakota Sioux First Nation
Fixed Route Transit Service	Standard transit services operated on fixed routes and fixed schedules.	Government agencies, private contractor.	• Hinton, AB • Whitecourt, AB
Regional Transit	coordinated transit services between communities.	Partnership between local and regional agencies	• County of Kings, NS • Bow Valley Regional Transit Services Commission (Banff & Canmore) • Yellowhead County

SECTION 8

Implementation Strategy

The Transportation Master Plan is a strategic document that guides decision makers in prioritizing transportation investments in the future. The TMP has outlined four objectives which focus on parking, active modes, safety, and transit, as illustrated in Figure 17. In addition to the strategic direction, the TMP also highlights recommendations that should be undertaken in order to achieve the objectives. Table 6 highlights the action items for each objective and categorizes the items as low, medium, or high costs and whether it requires further investigation.

There are 32 action items outlined below, with the majority being low to medium costs. The action items can be incorporated in The Town budget plan but ultimately, The Town should prioritize and allocate funding as they deem necessary.

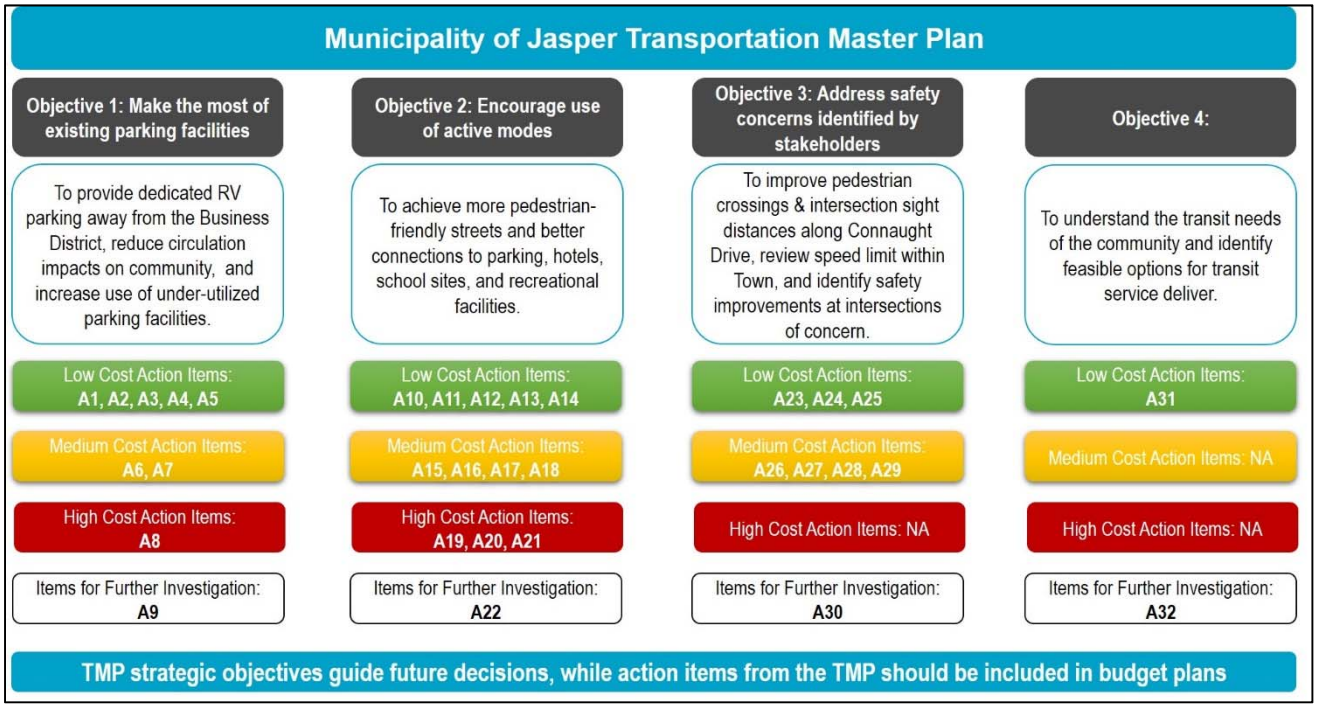


Figure 17: Transportation Master Plan Objectives & Action Plan

Table 6: Transportation Master Plan Action Plan

	Actions	Costs			Investigate Further
		Low	Medium	High	
	Objective 1				
A1	Paint parking stall lines on the west side of Connaught Drive for small passenger vehicles.	✓			
A2	Remove all RV parking from Connaught Drive where possible (west side of Connaught Drive and Parking lots) and direct RVs to east of Hazel Ave.	✓			
A3	Provide a dedicated bus parking, pick-up and drop-off at the parking lot by the public washrooms (P1) and prohibit busses from stopping on Patricia Street.	✓			
A4	Remove RV and bus parking from Patricia Street.	✓			
A5	Post parking maps at key locations such as the Visitor Centre, Jasper park gates, and online.	✓			
A6	Retain parking management staff during peak season to direct motorists to available facilities.		✓		
A7	Reconfigure parking lots on Connaught Drive (P1, P5, P11) to add passenger vehicle parking capacity.		✓		
A8	Construct the surface parking lot in S Block with priority given to RV parking spots.			✓	
A9	Conduct a Parking Management Study to examine feasibility of paid parking within the business district. of providing parking lots at either end of Town				✓
	Objective 2				
A10	Distribute active modes network map online, in printed form, and for posting at key active mode origins.	✓			
A11	Improve sidewalk and pathway illumination.	✓			
A12	Provide painted or buffered bike lanes on Bonhomme Street and Geikie Street.	✓			
A13	Provide painted or buffered bike lanes on appropriate cross-streets with adequate existing pavement width to provide a complete network.	✓			
A14	Coordinate 'hotel bicycle' program with area hotels.	✓			
A15	Install additional bicycle parking racks and street furniture where appropriate.		✓		
A16	Install a new crosswalk at Bonhomme Street and Connaught Drive		✓		
A17	Install a new crosswalk at Miette Avenue and Birch Avenue		✓		

A18	Install wayfinding signs along pedestrian and bicycle routes.		✓		
A19	Provide missing sidewalks on the south side of Juniper Street, both sides of Geikie Street (various locations), within Patricia Circle, within Patricia Place, along NW side of Bonhomme between Miette and Maligne and Swift Crescent.			✓	
A20	Increase sidewalk widths in conjunction with adjacent road or underground reconstruction projects; prioritize busier central locations.			✓	
A21	Reallocate roadway pavement width to provide wider sidewalks, cycle lanes or landscaped boulevards.			✓	
A22	Examine feasibility of bike share program.				✓
	Objective 3				
A23	Reduce speed limit within the Town to 30 km/h through signage; Pyramid Lake Road west of Bonhomme Street to remain at 50 km/h.	✓			
A24	Install proper pedestrian crossings signs at each crossing.	✓			
A25	Provide a parking setback at each intersection along Connaught Drive of 5m to the right and 10m – 15m to the left.	✓			
A26	Consolidate the two midblock crossings between Miette Avenue and Pyramid Lake Road (remove the north crossing, maintain the south crossing or create new crossing on north side of parking lot).		✓		
A27	Remove midblock pedestrian crossings at: • North of Hazel Street • South of Miette Avenue • Between Pyramid Lake Road and Balsam Avenue Between Balsam Avenue and Aspen Avenue		✓		
A28	Miette Avenue / Pine Avenue / Bonhomme Street Intersection Improvements: • Road narrowing of all 3 roadways through provision of painted bike lanes or wider sidewalks • Paint pedestrian crosswalks • Increase sign visibility • Install stop signs on Bonhomme Street		✓		
A29	Miette Avenue / Connaught Drive Intersection Improvements: • Provide curb extensions on the southwest and northwest corners • Reconstruct east leg by extending the northeast sidewalk further south; improve signage on east leg • Complete sign and pavement marking improvements		✓		

	• Increase pedestrian crossing visibility and sight lines on Miette Avenue by keeping the bottom canopy of median plants trimmed				
A30	Examine impacts of reconfiguring the intersection of Miette Avenue / Connaught Drive as a roundabout or 2 offset intersections.				✓
	Objective 4				
A31	Seek partnership opportunities with industry, other municipalities or provincial programs to develop transit service	✓			
A32	Conduct a transit feasibility study				✓