

CITY OF PORTAGE LA PRAIRIE

# A FEASIBILITY STUDY OF PUBLIC TRANSIT IN THE CITY OF PORTAGE LA PRAIRIE

OCTOBER 29, 2021

CONFIDENTIAL



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FINAL REPORT





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## REVISED REPORT

CITY OF PORTAGE LA PRAIRIE

FINAL REPORT  
CONFIDENTIAL

PROJECT NO.: 211-05085-00  
DATE: OCTOBER 29, 2021

WSP  
111-93 LOMBARD AVENUE  
WINNIPEG, MB  
CANADA R3B 3B1

T T +1 204 943-3178  
WSP.COM



October 29, 2021

Confidential

Jocelyn Lequier-Jobin  
City of Portage la Prairie  
495 - 11th Street N.W.  
Portage la Prairie, MB R1N 4B3

**Subject: A Feasibility Study for Public Transit in the City of Portage la Prairie**  
**Client ref.: RFP No. 21 OPS 18**

Dear Ms. Lequier-Jobin:

Please find enclosed the final report for the Feasibility Study for Public Transit in Portage la Prairie. Thank you for the opportunity to assist the City with this important project. If you have any questions or require further assistance, please do not hesitate to contact me at 204-259-5423, or via email at [diana.emerson@wsp.com](mailto:diana.emerson@wsp.com).

Yours sincerely,

A handwritten signature in blue ink that reads "Diana Emerson". The signature is written in a cursive style with a long horizontal stroke at the end.

Diana Emerson, P.Eng., MCIP, RPP, RSP1  
Senior Project Manager - Transportation Planning  
Manitoba

DE/cs

WSP ref.: 211-05085-00

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# REVISION HISTORY

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Prepared by	Reviewed by	Approved By		
Erin Toop	Richard Tebinka	Diana Emerson		
REVISION 1				
October 29, 2021	Final Report			
Prepared by	Reviewed by	Approved By		
Erin Toop	Richard Tebinka	Diana Emerson		



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# SIGNATURES

## PREPARED BY



---

Erin Toop, M.A.Sc., P.Eng.  
Senior Transportation Consultant

---

October 29, 2021

## APPROVED<sup>1</sup> BY



---

Diana Emerson, P.Eng, PMP  
Senior Project Manager

---

October 29, 2021

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# CONTRIBUTORS

## CLIENT

Project Manager                      Jocelyn Lequier-Jobin

Project Advisor                      Mitch Tilk

## WSP

Project Manager                      Diana Emerson

Project Advisor                      Richard Tebinka

Transit Planning Lead              Erin Toop

Public Engagement Lead            Meagan Boles

Transportation Planner            Abby Scaletta

Public Engagement Planner        Bradley Muller

Travel Demand Analyst            Eric Liu

Transportation Analyst            Beverley Ng

Transportation Engineer          Whitney Roe

Transit Advisor                      Paul Tetreault

Transit Advisor                      Sander Quartero



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# 1. STUDY PURPOSE

## 1.1. BACKGROUND

Public transportation introduces numerous benefits to a community. Having public transportation options increases community members independence and transportation equity. In addition to increasing access to vital sites and services such as schools, medical facilities and work, transit is considered an important component of strategies aimed at addressing climate change in urban centres.

Community members from Portage la Prairie have been expressing an interest in transit for several years. In 2015 the Portage Community Revitalization Corporation (PCRC) began studying the need for transit and released a report that outlined these needs and reviewed potential models for public transportation. In addition, the report recommended that a feasibility study would be a good first step towards determining the best public transportation solutions. The key public transit options considered in the previous report were traditional transit, on-demand transit and ridesharing.

The City's application to the Federation of Canadian Municipalities (FCM) for this feasibility study prepared by the City states that, "Although Portage la Prairie is a 'city with a small-town feel' and 'you can get anywhere in five minutes' that sense of freedom of movement and access is limited to those who have their own car or access to a car. For those who must rely on public transportation, the options are severely limited. It was also noted that the shuttle system is generally regarded as inadequate, and a lack of public transportation is viewed as a significant problem for people that do not own a personal vehicle or captive riders. City staff have also expressed concerns with perceived safety and reliability of the existing taxi/shuttle system

In the spring of 2021, the City engaged WSP Canada Inc. (WSP), to conduct a transit feasibility study. This study identifies possible methods of providing affordable public transit in the community, including potential service options to Poplar Bluff Industrial Park and adjacent communities, explores the costs and benefits of possible options, and develops a business case for justifying the preferred transit service and technology solution.

## 1.2. TRANSIT OPTIONS OVERVIEW

The transportation and public transit landscape is changing. New technologies are resulting in disruptions to existing transit delivery models and creating new opportunities for communities of all sizes to right-size their transit systems. In this study we have considered four key transit service models, which include both the traditional and newer technology. These options are described below.





### Conventional Fixed-Route

- Fixed-route bus systems use fixed schedules, routes and stops and are typically served by small to heavy duty transit buses.
- Service is usually intuitive to passengers, but they must plan according to the schedule and route.
- Fixed-routes do not respond to demand. They always run as scheduled, and schedules are usually constant for months at a time.
- Fixed-routes are appropriate for longer distance or regional trips, and where ridership demand is concentrated along a corridor or between two key destinations.



### On-Demand Transit

- On-demand transit has no schedule or fixed routing. It may use fixed or virtual stop locations or provide door-to-door service.
- An on-demand service zone or coverage area is defined, where passengers can book trips in real time, within the zone.
- Vehicles typically range from small or medium-duty buses to minivans.
- On-demand transit Apps, which coordinate and optimize ride booking and driver dispatching, have increased the popularity of on-demand transit.
- The on-demand transit software provides a rich data source to inform transit use patterns and aid in future planning.
- Most on-demand transit technology vendors offer the option to have a call centre for customers who do not have smart phones or access to data plans or Wi-Fi, but there can be challenges for people who are uncomfortable with new technology.
- On-demand transit is typically best suited to provide transit coverage where there is low ridership and destinations are dispersed.





### Hybrid Fixed and On-Demand

- Hybrid fixed and on-demand models use a combination of the two systems, to serve different demand patterns.
- Fixed routes are compatible with higher-demand travel patterns, while on-demand service is suited to areas with lower-demand and more dispersed travel patterns.
- Hybrid models vary. Some use on-demand zones that connect to hubs in the fixed-route system. Some use on-demand service to cover areas without fixed routes.



### Ridesharing Partnership

- A ridesharing partnership operates as an on-demand service, but the operator of the transit service is a taxi or shuttle company.
- Municipalities using this model typically subsidize taxi or shuttle rides up to a certain amount.
- Pooled or shared rides are encouraged.
- In this model, there is the least room for farebox cost recovery for the municipality and limited opportunity for ridership growth.

In this study electric bus technology is also considered as a component of all options due to the current transit landscape and increasing investment in zero emission transit systems from higher levels of government. At a high level, battery electric buses still tend to be a more costly up-front investment than gas or diesel, however with a high likelihood of grant funding being available, it is prudent for any municipality implementing or piloting transit service in 2021 to consider establishing its system with electric vehicles.

## 1.3. GOALS FOR PUBLIC TRANSIT

In early discussions with the City and PCRC, we identified the following goals for public transit in Portage la Prairie. These goals were also tested with the community and stakeholders through the public consultation process.

In Portage la Prairie, the transit solution will:

- 1 Improve access to opportunities and activities for those with limited travel options including:
  - Lower income citizens
  - New immigrants
  - Senior citizens
  - Students
  - Indigenous people
- 2 Be affordable to the users, accessible by wheelchair and other mobility aids, and barrier-free.



- 3 Realize environmental benefits through:
  - Reducing single occupant vehicle use and greenhouse gas emissions by shifting some travelers to higher occupancy transit service; and
  - Leveraging alternative fuel technology for the transit vehicles.
- 4 Work for as many people and destinations as possible, and be developed through partnerships and engagement with other organizations such as:
  - Southport
  - Indigenous communities
  - Major employers and industrial areas
  - Southern Health
  - Portage Handi Van
  - Rural Municipality
- 5 Be flexible and adaptable as community needs change and as new information is obtained about local transit use.

## 1.4. TRANSIT FEASIBILITY STUDY APPROACH

In addition to focusing on the goals above, our approach to assessing the feasibility of public transit in Portage la Prairie involved three main inputs and processes.

A **Jurisdictional Scan** was completed to review other Canadian communities that have implemented new transit options such as fully on-demand, hybrid of on-demand and fixed-route and ridesharing partnerships. The purpose of the Jurisdictional Scan was to validate the transit options under consideration, understand lessons learned from these communities, opportunities and challenges around implementing new transit solutions, and discern any available information about costs of the transit systems.

**Public and Stakeholder Engagement** was intended to incorporate community input into the development of transit options and review of the options. Phase one of engagement was intended to gather a full understanding of the segments of Portage la Prairie's population that are most likely to use transit or who currently face barriers to meeting their transportation needs. The second phase of engagement for this project consisted of reporting back to stakeholders and the public about the transit options that the study team had developed based off the findings in Phase 1 engagement and the technical data they had collected.

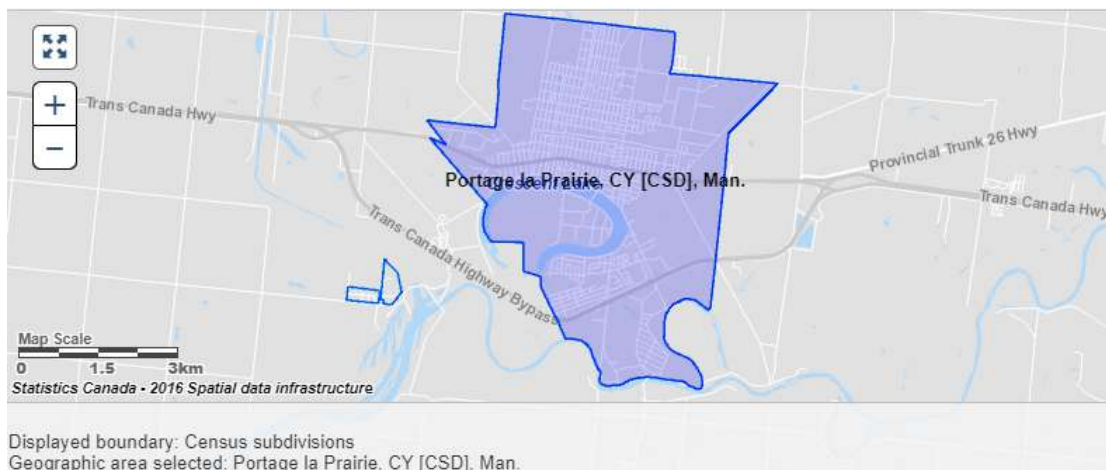
A **Travel Needs Assessment** was completed to develop a technical foundation for the study. The purpose of this was to provide an estimate of transit demand and ridership levels, and indicate approximate size of the transit system. This information informs the estimate of number and size of transit vehicles recommended for launch of transit service in Portage la Prairie.



## 2. EXISTING CONDITIONS

### 2.1. COMMUNITY PROFILE AND DEMOGRAPHICS

The community profile and demographic data is sourced from the Statistics Canada 2016 Census for the City of Portage la Prairie, which is designated as its own census subdivision. The statistics have not been modified to account for growth between 2016 and present year. **Figure 2.1** shows the boundary of the City of Portage la Prairie used for the following statistics.

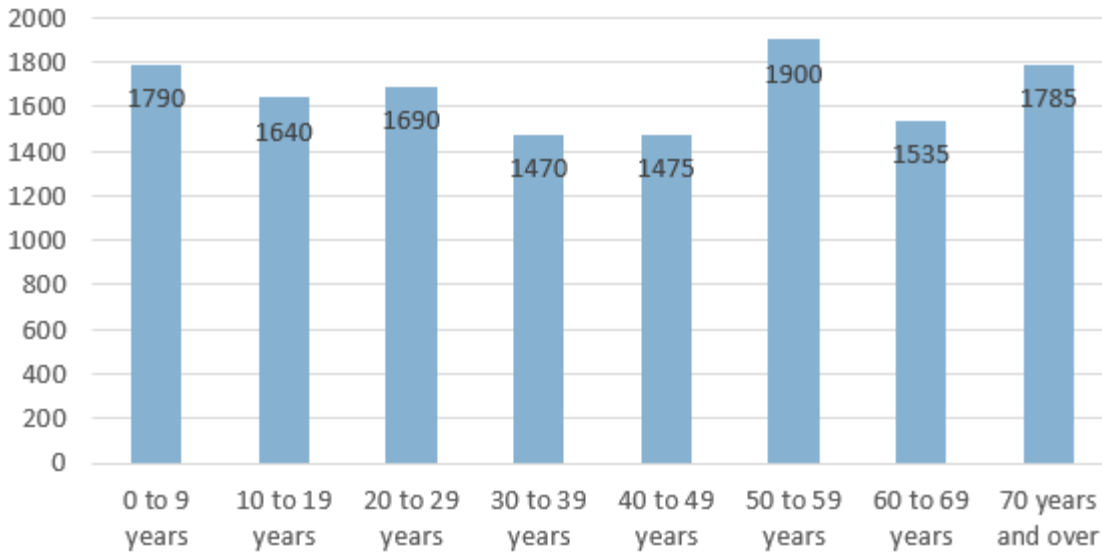


**Figure 2.1: Statistics Canada Boundary for the City of Portage la Prairie (source: Statistics Canada 2016)**

The City of Portage la Prairie has a population of 13,304 over approximately 25 square kilometres and is the fifth largest city in the Province of Manitoba (Statistics Canada 2016 Census). Five percent of the population identifies as Visible Minorities and 32% of the population identifies as Aboriginal (First Nations, Métis, and/or Inuit). The median age of the population is 40 years old and the average age of population is 41 years old. The distribution of the age of population is shown in **Figure 2.2** with the most populous age bracket of 50 to 59 years old and least populous age bracket of 30 to 39 years old.



## Age Characteristics in Portage la Prairie in 2016



**Figure 2.2: Age of Population in the City of Portage la Prairie (Data Source: Statistics Canada 2016)**

The total labor force consists of 6,295 people (62% of the population) for both employed and unemployed individuals. **Table 2.1** shows the median and average incomes for households and **Figure 2.3** shows the distribution of household income in Portage la Prairie in 2015.

**Table 2.1: Median and Average Total Income for Households in 2015 (Data Source: Statistics Canada 2016)**

INCOME TYPE	HOUSEHOLD SIZE	ANNUAL HOUSEHOLD INCOME BEFORE TAX
MEDIAN	All households	\$58,368
	One-person households	\$33,536
	Two-or-more person households	\$77,267
AVERAGE	All households	\$70,549
	One-person households	\$37,944
	Two-or-more person households	\$87,855



### Household Income Distribution in 2015

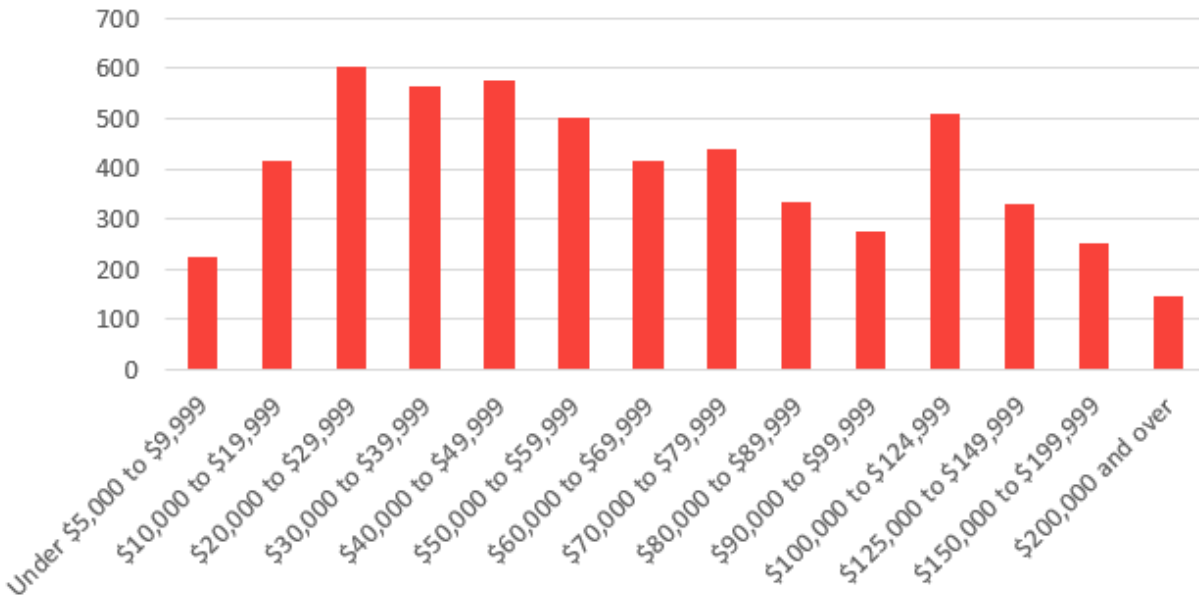


Figure 2.3: Household Total Income Groups in 2015 for Private Households (Data Source: Statistics Canada 2016)

Seventy-three percent of the labor force commutes within the census subdivision (i.e., the City of Portage la Prairie). **Figure 2.4** shows the commuting mode share in Portage la Prairie which consists of 89% vehicles (either as a driver or passenger), 8% walking, and 3% for transit, bicycling and other modes (scooter, taxi, shuttle) combined.

### Commuting Mode Share in 2016

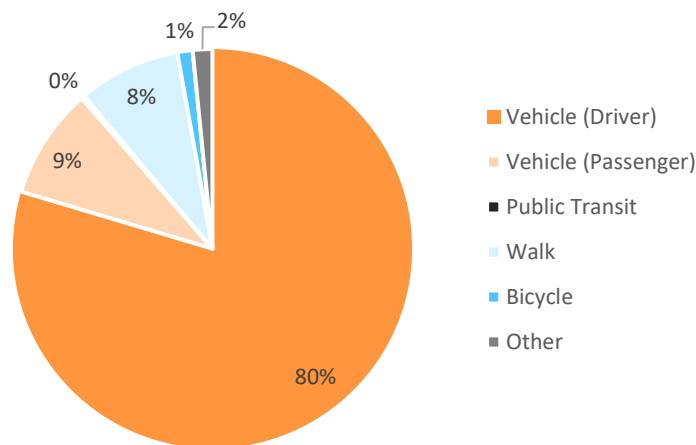


Figure 2.4: Commuting Mode Share for Portage la Prairie (Data Source: Statistics Canada 2016)



The review of the City's demographics shows a significant proportion of some of the key populations that the City is aiming to serve with a public transit system:

- Lower income citizens – 43% of the City's households have an income of less than \$50,000 with 22% of all households being less than \$30,000;
- Senior citizens – 25% of the City's population is age 60 years or older;
- Students – 26% of the City's population is under 20 years old; and
- Indigenous people – 32% of the City's population identifies as Indigenous.

## 2.2. EXISTING TRANSPORTATION SYSTEM

The existing transportation system consists of the vehicular road network, the active transportation network, and the rail network throughout the Portage la Prairie area. The existing transportation system impacts the proposed transit system as the road network review provides insight into higher traffic routes that could support a shift to transit, connectivity to active transportation to provide access to transit, and potential delays due to railway crossings. The three areas of the existing system are provided below, and a complete review of the existing transportation system can be found in **Appendix A**.

### 2.2.1 ROAD NETWORK

The road network includes Saskatchewan Avenue which functions as the main east-west thoroughfare through the city and is designated as Provincial Trunk Highway (PTH) 1A, serving as an alternate route for PTH 1, the TransCanada Highway, which bypasses the city to the south. Other significant routes in the network include 8<sup>th</sup> Street West, Tupper Street North and 3<sup>rd</sup> Street East which serve as important north-south routes through the city, with crossings of the CN Rivers and CP Carberry Subdivisions, linking the north and south sides of the city. There are 12 signalized intersections within the study area with 11 on Saskatchewan Avenue and one on River Road/Provincial Road (PR) 204. **Figure 2.5** shows the existing road network including local streets, collector roads, provincial highways, and traffic signals.

Annual Average Daily Traffic Volumes (AADT) in Portage la Prairie for 2019 consist of 5,330 vehicles per day on Saskatchewan Avenue east of PR 240 and 6,710 vehicles per day on Saskatchewan Avenue west of PR 240. The AADT on PR 240 is 1,290 vehicles per day north of Saskatchewan Avenue and 5,600 vehicles per day south of Saskatchewan Avenue.

Annual Average Daily Truck Traffic (AADTT), truck routes, and truck weight limits are discussed in **Appendix A**.



### 2.2.2 ACTIVE TRANSPORTATION

The existing active transportation network consists of facilities that include sidewalks, pathways, and trails. Sidewalks are narrow, paved, facilities intended for pedestrian use only; pathways are wider than sidewalks, paved, and intended to be shared by both pedestrians and cyclists; trails are gravel pathways intended to be shared by both pedestrians and cyclists. There are 19 marked pedestrian crossings within the study area. **Figure 2.6** shows the active transportation facilities and pedestrian crossings in the study area.

### 2.2.3 RAIL NETWORK

Rail lines owned by Canadian National (CN) and Canadian Pacific (CP) run through the City of Portage la Prairie. Rail crossings include two grade separated crossings on Tupper Street N and 17 at-grade crossings. The tracks and crossings are shown below in **Figure 2.7**.





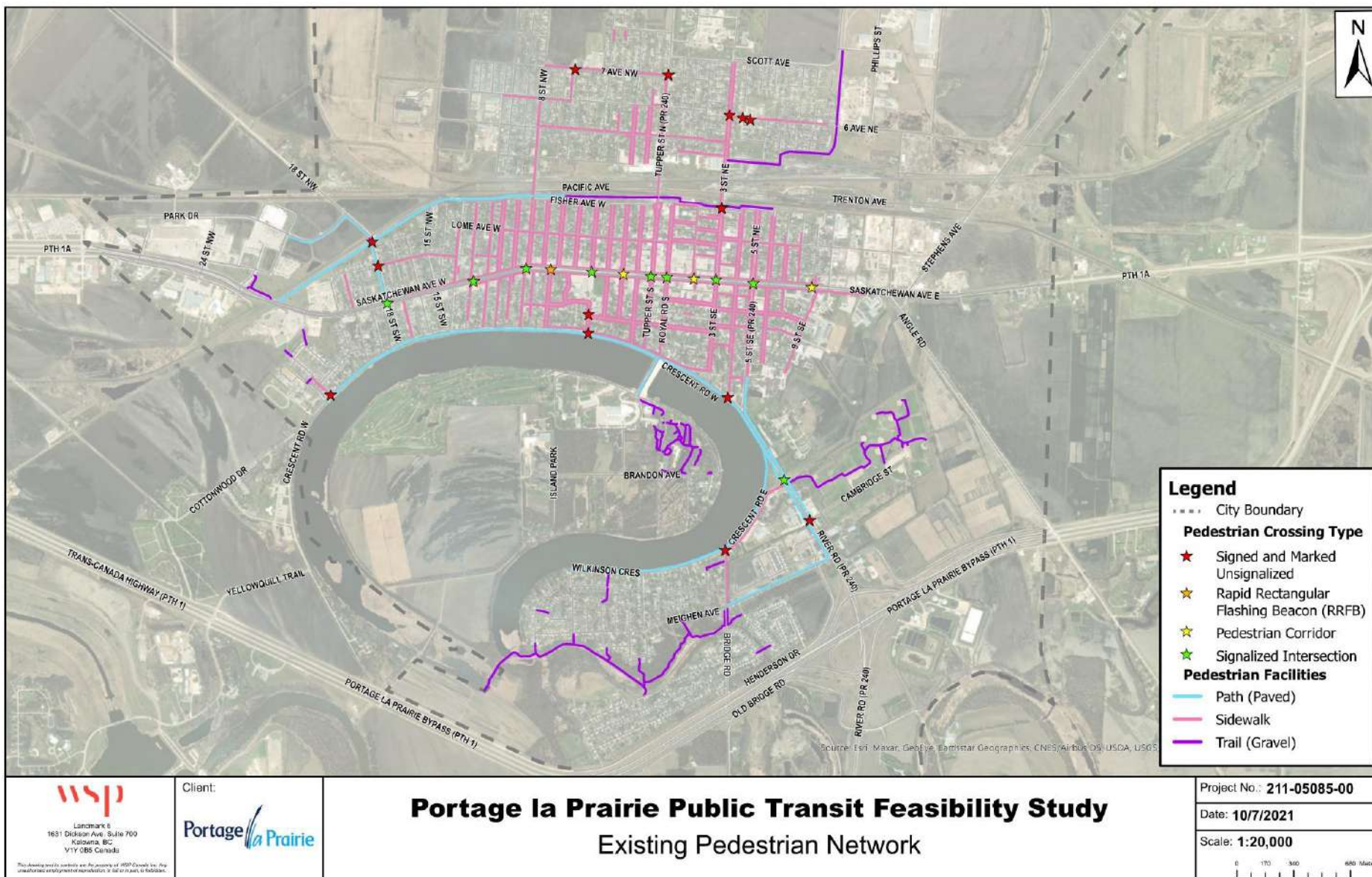


Figure 2.6: Active Transportation Facilities



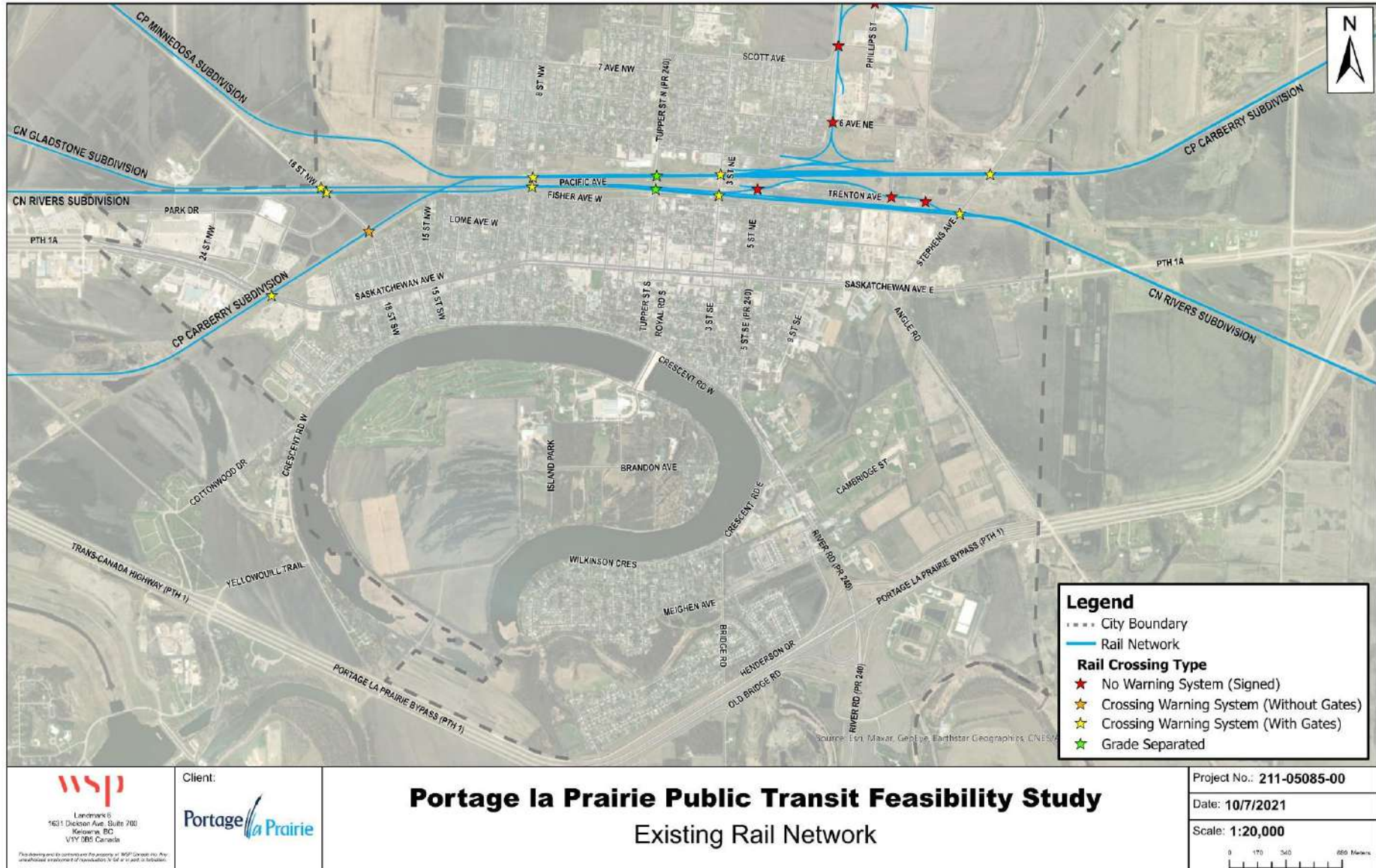


Figure 2.7: Rail Network and Crossings



### 2.2.4 TAXI AND SHUTTLE SERVICE

Taxi and shuttle services commonly offer door-to-door service in four-passenger vehicles at a fare determined by the length of a trip. City By-Law No. 11-8540 regulates licensing and operation of motor vehicle livery services in Portage la Prairie. Licenses from the City are required to operate taxi/ride-sharing services within Portage la Prairie. Fares must be displayed in each taxi and may either be a flat rate per trip or in accordance with the taxi meter regulations. There is no publicly available information on fares or rates used by taxi/shuttle companies in the city. **Table 2.2** shows the inventory of taxi and shuttle companies, the size of their fleet, number of drivers, range of service, type of fare, and operating hours. This information was collected using 2021 licensing records from the City and confirmed by a telephone survey completed by WSP as part of the stakeholder engagement for the project.. Details in the last three columns of the table below are only provided for companies we were able to reach through the telephone survey.

**Table 2.2: Existing Taxi and Shuttle Inventory**

COMPANY	NO. OF VEHICLES	NO. DRIVERS	SERVICE AREA	FARE TYPE	OPERATING HOURS
A-One Shuttle	One four-passenger vehicle	Two	Not surveyed		
Arrow/Portage Taxi	One four-passenger vehicle	Two	Not surveyed		
Cash Cab Shuttle	No longer in service				
City Taxi/Shuttle	One four-passenger vehicle	One	Not surveyed		
Diamond Taxi & Shuttle Services	One four-passenger vehicle shared with Portage Shuttle and Online Shuttle	One shared with Portage Shuttle and Online Shuttle	Portage la Prairie, Southport, Brandon, Sandy Bay, and Oakville	Flat rate of \$4-\$5 with some special rates for regular service	24/7
DMP Shuttle	One limousine (Seven passengers)	Two	City and surrounding area	Flat rate (\$5 within the city, \$10 return trip, \$3 for extra stop)	24/7
JK Taxi	No longer in service				
Kasper's Shuttle	One four-passenger vehicle	One	Not surveyed		
Mac's Shuttle	No longer in service				
My Ride	No vehicles	One	Not surveyed		



COMPANY	NO. OF VEHICLES	NO. DRIVERS	SERVICE AREA	FARE TYPE	OPERATING HOURS
Nick Shuttle Services	Two four-passenger vehicle	One	City and surrounding area	Flat rate (\$5 within city, \$10 to Dakota Tipi and Simplot, \$110 to Winnipeg)	AM Peak to PM Peak
Online Shuttle	Two four-person vehicles with one shared with Portage Shuttle and Diamond Taxi	Three shared with Tulip or Portage Shuttle	Not surveyed		
PB Shuttle	No longer in service				
Portage Shuttle & Limousine Service	Four four-passenger vehicles one shared with Online Shuttle and Diamond	One full-time and three part-time.	Mostly inside the city. Occasional service to neighbouring towns and First Nation communities.	Flat rate model (\$5 within the city, \$15 to Long Plain and Dakota Tipi	24/7
Skyways	11 four-passenger vehicles one shared with Tulip Taxi	Nine	Not surveyed		
Tulip Taxi	15 four-passenger vehicles and one shared vehicle with Skyways	12 plus two shared with Online Shuttle	City and surrounding area	Flat Rate (\$5 within city and \$15 to Dakota Tipi)	24/7

The results show that there are approximately a dozen active taxi/shuttle companies, most of which only have one vehicle and up to two drivers (67%). It should be noted that none of the private shuttle vehicles noted in the table above are accessible for the mobility disadvantaged. The current system is disjointed and may be difficult for users given the number of companies to coordinate with. The companies interviewed provide service within the city and surrounding area. All interviewed companies also have flat rate fees, often with a \$5 flat rate within the city and varying rates outside the city. Lastly, four of the five interviewed companies operate 24/7 and the other operates from the morning to evening and hopes to expand to 24/7 service. The results of these calls are also detailed in the Public and Stakeholder Engagement section of this report,



### 3. JURISDICTIONAL SCAN

To understand experiences with newer on-demand transit models, we conducted a jurisdictional scan of seven municipalities that have implemented some form of on-demand transit: Powell River (BC), Cochrane (AB), Airdrie (AB), Medicine Hat (AB), Innisfil (ON), Belleville (ON), and Stratford (ON).

Key findings from the new mobility jurisdictional scan are summarized below and the full Jurisdictional Scan document may be found in **Appendix B**. In addition to reviewing communities that have adopted on-demand transit technology, we also connected with Selkirk Transit to better understand their system and future plans. A brief review of Selkirk Transit is included at the end of this section.

On-demand transit has been introduced across an array of jurisdictions varying in scale and geographic area. The service hours and area depend on the specific context of the jurisdiction. Although on-demand transit is introduced for different reasons, all jurisdictions indicated cost-savings as a key objective. Other considerations include the selection of the service provider and integration with user-friendly software. Overall, most jurisdictions have experienced success with on-demand service and value the flexibility to increase or decrease service based on fluctuations in demand.

Key considerations for Portage la Prairie are discussed below.

#### SERVICE MODEL

Service models range between fully on-demand and hybrid on-demand and fixed-route systems. The model applied varies based on ridership profiles, geographic area and origins-destinations. In most cases on-demand services are deployed to meet demand of non-commute trips. On-demand also replaced fixed-routes where the trip time can be reduced significantly by removing a transfer. Although all jurisdictions interviewed indicated flexibility with on-demand services, the ridesharing partnership model in Innisfil, ON was found to provide the greatest operational flexibility.

The ridesharing transit model meets the needs of residents in a low-density town with an extremely large service area (approximately 10 times the service area of Portage la Prairie). For highly dispersed destinations and travel patterns, this service model is flexible and adaptable, but operational costs change with the number of trips taken. The downside of the ridesharing model is the potential to succeed or grow into cost-failure, where it becomes unsustainable to subsidize an ever-increasing number of rides. It does not transition well into a higher level of service in the same way that a municipally led on-demand service could.

A theme from the communities interviewed is the intention of and benefit of, scaling up existing on-demand routes with higher ridership to fixed-routes, thereby achieving a hybrid on-demand and conventional system. An intentionally hybrid on-demand and conventional system appears to be the most cost-sustainable for adapting to both ridership growth and decline.

#### DESIGNATED STOP MODEL

In most of the jurisdictions reviewed, designated stop models were the most common compared to door-to-door. This designated stop model is compatible with scaling up and down between fixed-route and on-demand service, as described in the previous section, as the bus-stop infrastructure used can remain in place regardless of the type of transit service operating. The designated stop systems allow the software



to more efficiently create routes for users travelling in the same direction. This model can also be used to track frequently used routes, and has potential for informing future fixed route service, if appropriate.

## OPERATING COST AND UTILIZATION

Many jurisdictions either replaced fixed-route transit with on-demand, or added on-demand service as a complement to fixed-route during off-peak hours, or in geographic areas with low ridership, to form a hybrid system as a strategy to improve cost-recovery. The ridership targets for on-demand service cited by different municipalities ranged from four to six passengers per hour. Stratford, ON, reported significant fuel cost-savings with the change from fixed-route to on-demand when compared to conventional transit. Medicine Hat found cost-savings by converting five underutilized fixed routes to an on-demand service requiring only three buses. Medicine Hat has found that on-demand service is allowing them to retain coverage transit service at a 25% cost reduction.

As each service is deployed uniquely, a specific cost-recovery ratio indicator has not been identified to transition from fixed-route to on-demand. Labour-cost-savings after switching to on-demand service were also noted by some municipalities that contracted their service to a third-party provider.

## SERVICE PROVIDER

During the review of municipal transit services, the importance in selecting an experienced service provider and integration between the provider and the software was revealed. Airdrie's service shortcomings in 2018/2019, while partnered with a private operator, was likely a result of being early adopters and that more on-demand application options exist in today's market.

This is confirmed in researching Cochrane who is currently partnered with the same operator and is satisfied with the service and software app. In some cases a partnership between the on-demand transit service and software providers has shown increased efficiency and responsiveness when changes are made to the system. The importance of a user-friendly app that could produce easily accessible data was also a theme that emerged in the review.

## SPECIALIZED TRANSIT

The incorporation of existing specialized transit services, for users with mobility impairments, into on-demand services, was noted in both Airdrie and Powell River. As both municipalities had existing accessible door-to-door service, the on-demand model provided a similar option for all users, regardless of their mobility needs. The opportunity to merge specialized transit with on-demand transit service for all customers was considered by Medicine Hat, to leverage excess capacity in the specialized transit system when there is lower utilization by its customer base. This approach can remain viable at large scale and is also used by larger transit agencies, such as Oakville, ON. Many regular users of the door-to-door transit service were residents with mobility restrictions.

## COMMUNICATION AND MARKETING

A recurring theme in several transit systems is the importance of investing in communication and marketing of a new on-demand transit system to all residents and potential users. Awareness of stakeholder needs will inform several aspects of the transit system such as software, transit model, service hours, etc. As the implementation of on-demand transit is still new across the country, and each community and system is unique, the population would benefit from informational material or



workshops. The availability of such information can affect ridership and the success of on-demand transit. There are also opportunities to tailor promotional programs to specific or target demographics such as students, commuters, or seniors.

On-demand transit models allow for an iterative approach during implementation and operation. Data are continuously collected through the on-demand software and can be used to inform service hours, designated stop locations (unless a door-to-door model is utilized), and eventually a fixed-route service if deemed appropriate.

### 3.1. SELKIRK TRANSIT

The City of Selkirk's transit system is a fixed-route system, with a single 60-minute bus route which loops around the City. Selkirk Transit offers service between 6 a.m. and 6 p.m. on weekdays and 8 a.m. to 6 p.m. on Saturdays, as well as Charter service, which may be requested by phone, email or online, one business day in advance.

Selkirk Transit is operated by a non-profit organization called the Selkirk Transit Authority, contracted by the City. The City owns its two transit vehicles, which are a 22 passenger accessible bus and an 18 passenger accessible minibus, and all other capital. The route system is illustrated on **Figure 3.1**.

The City tracks weekly passenger boardings at every stop. Their 2019 data shows just over 38,000 annual boardings across 70 transit stops. Some stops see fewer than six passengers per week (or one passenger per service day), on average, while others like Selkirk Crossing, near the Walmart, see greater than 100 passengers per week, or about 18 passengers per day. Of the City's 70 transit stops, 34 show average use by more than six passengers per week.

Passenger data by time of day shows that most Selkirk Transit ridership occurs in the late morning to late afternoon, with a small peak in the early morning between 8 a.m. and 9 a.m. Selkirk's peak ridership hours are Noon to 5 p.m.

Selkirk Transit collects revenue from four main sources: fares and passes, sponsorships, charter service, and advertising. Advertising income is the most significant, followed by fares and passes, charter income, and sponsorships. Selkirk Transit's 2019 high-level budget breakdown was as follows:

- Total Expenses: \$415,000
- Total Revenue: \$140,000
- Net Annual Operating Cost: \$275,000
  - Net Annual Operating Cost – City's Share: \$144,000 (52%)
  - Net Annual Operating Cost – Province's Share: \$131,000 (48%)

The City of Selkirk is now considering implementing on-demand transit service to expand coverage and enhance customer experience.





Figure 3.1: Selkirk Transit Map (Selkirk Transit)



## 4. PUBLIC AND STAKEHOLDER ENGAGEMENT

### 4.1. PHASE 1 ENGAGEMENT

Phase 1 engagement was focused on sharing the scope and intent of the transit feasibility study and gathering information from stakeholders and the public regarding desired transit features, key destinations and identifying potential barriers one might face when trying to access public transit. This information was gathered from key stakeholders through a Stakeholder Workshop and one-on-one stakeholder calls and from the general public through an online survey. Phase 1 engagement consisted of:

- A Stakeholder Workshop (virtual) hosted on June 23, 2021 with 23 people in attendance;
- An online survey hosted on the City’s website from June 23 through July 11, 2021 and garnering 254 responses; and
- Six one-on-one stakeholder calls with Long Plain First Nation, Simplot, McCain, Nutripea, Roquette, and Portage Handivan, occurring from June 25 through September 30, 2021.

#### 4.1.1 STAKEHOLDER WORKSHOP

A Stakeholder Workshop was held on June 23, 2021 from 1:30 pm – 2:30 pm. The workshop focused on obtaining input on key destinations, features of a transit system (i.e.: low wait time, affordability, etc.) and potential barriers when accessing public transit. Information was collected through discussion and Mentimeter, an online live polling software. Using Mentimeter, the project team took participants through an empathy exercise by asking them to answer questions on behalf of one of four personas presented: family of five, seniors, newcomers and students.

##### 4.1.1.1 WHAT WE HEARD: STAKEHOLDER WORKSHOP

Key points discussed at the Stakeholder Workshop include:

- Ease of use should be a focus of the proposed transit option;
- Schools, particularly the high school is a key destination;
- Employment areas are a key destination and transportation to employment has been identified previously as a barrier, particularly for urban Indigenous; and
- The idea of a pass system to avoid increased costs for people who require trips with multiple destinations was suggested.

#### 4.1.2 STAKEHOLDER CALLS

It was identified from the onset of the project that potential ridership groups and partnership for coordinating transit should be explored separate from the Stakeholder Workshop and public engagement. These included larger employers in the area as well as First Nations. A total of six calls were completed,



one each with Long Plain First Nation, Simplot, McCain, Nutripea, Roquette and Portage Handivan. The project team also reached out to Dakota Tipi First Nation but were not successful in connecting for a one-on-one call. A summary of stakeholder calls is provided below.

#### 4.1.2.1 WHAT WE HEARD: LONG PLAIN FIRST NATION

A call with Dennis Meeches from Long Plain First Nation was completed on June 25, 2021. Key takeaways from the call included:

- Long Plain First Nation is located within the City but is not under City jurisdiction as it is an urban reserve.
- Long Plain First Nation is supportive of a public transit system.
- The Keeshkeemaquah Conference and Gaming Centre is located on Long Plain First Nation and is a popular destination for the community.

#### 4.1.2.2 WHAT WE HEARD: SIMPLOT

A call with James Gargol from Simplot was completed on July 15, 2021. Key takeaways from the call included:

- Simplot is located within Poplar Bluff Industrial Park.
- Simplot has approximately 430 staff, with an estimated 160 of their employees living in the City.
- Hourly staff are working shift work and shifts are 8:00 am – 8:00 pm or 8:00 pm to 8:00 am, so shift change is at 8:00 am and 8:00 p.m. (single shift has around 80 employees).
- There are a lot of employees that have arranged their own carpool from various communities.
- Simplot currently operates a private shuttle from the City of Winnipeg every shift. The challenge with this shuttle has been finding common pick-up locations with free parking available. The shuttle is used by approximately 10 employees per shift.
- There has been some discussion amongst employees from Portage la Prairie expressing an issue that there is no pick-up in Portage la Prairie.
- Suggested locations such as the mall or Stride Place as a pick-up point for transit, but noted that employees that live in Portage la Prairie are not necessarily concentrated in a particular area.

#### 4.1.2.3 WHAT WE HEARD: MCCAIN

A Microsoft Teams call with Leah Gravatt, Dean Melnic and Kevin Nichol from McCain was completed on July 29, 2021. Key takeaways from the call included:

- McCain is located within McMillan Industrial Park.
- McCain currently has around 350 employees, including the plant and the warehouse (estimated around 200 of those employees live in the City and the remainder live in the City of Winnipeg and other communities around Portage la Prairie).
- McCain does not provide a shuttle service for any employees.
- McCain operates four shifts – two twelve hour shifts that run from 6:30 am to 6:30 pm each. An additional shift starts at 7:30 am and day staff (8 hour shift), 24/7 operation, runs 320 days a year.



- Attendees estimated about 20% of employees may use a shuttle service. Many employees use the private shuttle service already provided in the City, particularly some of the newly hired employees.
- West end 7-11, Gillespie Centre, Red River College, BDO Centre would be a good pick-up spots. The mall would not be a good pick-up spot for McCain.

#### 4.1.2.4 WHAT WE HEARD: NUTRIPEA

A Microsoft Teams call with Christianne Rosset from Nutripea was completed on July 29, 2021. Key takeaways from the call included:

- Nutripea is located within McMillan Industrial Park.
- Nutripea has 65 employees, with the vast majority (approximately 55) living within the City and the remainder in smaller communities outside of Portage la Prairie.
- Shift schedule is similar to McCain and Simplot. Nutripea operates a 7:00 am to 7:00 pm shift and a 7:00 pm to 7:00 am shift, 7 days a week, year-round. There is also a Monday to Friday day shift (8 hours).
- Around 30 employees work the Monday to Friday day shift, there are around 10 staff that work a 4-day per week 8-hour shift and the rest are split between the 12 hour 7:00 am to 7:00 pm and the 7:00 pm to 7:00 am shift.
- Nutripea is in an expansion phase and may be trying to recruit employees from outside of the City in the future.
- Nutripea is currently exploring options for internally promoting carpooling and/or providing incentives for employees to take alternate transportation to work (other than as a single driver in an automobile). This is partly to encourage sustainability.
- If a shuttle service were to be looked at, one option that would work for Nutripea employees would be a pick-up route along Saskatchewan Avenue, maybe with east, central and west pick up locations along Saskatchewan Avenue.

#### 4.1.2.5 WHAT WE HEARD: ROQUETTE

A Microsoft Teams call with Patricia Clark from Roquette was completed on September 7, 2021. Key takeaways from the call included:

- Roquette is currently looking at partnering with Simplot on a shuttle option for their employees from the City of Winnipeg - looking at having a pick-up point in Portage la Prairie, and three other pick-up points - two in Winnipeg and one in Elie.
- Total number of employees is 125 at full capacity.
- Shifts are M-F 8:00 am - 4:30 pm and then they operate their plant 24/7 with shifts running 7:00 am – 7:00 pm and 7:00 pm to 7:00 am.
- Employee base is about 50% in Portage and in neighbouring communities and have expressed interest in a shuttle.
- There are a lot of employees that have arranged their own carpool from various communities and from the City.



- There would be interest from Roquette and their employees in a public transit service from Portage la Prairie.
- Sustainability and emissions are a priority, so public transit or a private shuttle service fits well with their goals and objectives.

#### 4.1.2.6 WHAT WE HEARD: PORTAGE HANDIVAN

A call with Terry Porter from Portage Handivan was completed on September 30, 2021. Key takeaways from the call included:

- The opportunity to partner with Portage Handivan in delivery of a public transit service.
- The opportunity to coordinate on grant applications with Portage Handivan.
- The opportunity to coordinate on vehicle storage/charging stations with Portage Handivan.

#### 4.1.3 ONLINE SURVEY

The survey was primarily used to gather feedback from the general public and was posted on the City's website on June 23, 2021 and was available until end of day July 11, 2021. The survey was advertised via direct email to the stakeholders that attended the Stakeholder Workshop, by newspaper advertisement on June 24, 2021 and via the City's social media (Facebook and Twitter) on June 25, July 2 and July 9, 2021. There were 254 responses to the survey.

##### 4.1.3.1 WHAT WE HEARD: ONLINE SURVEY

Question 1 asked about the modes of transportation that the respondent currently uses. Of the 254 responses to this question, 75.20% selected car (driver), 40.16% selected car (passenger), 57.09% selected walk, 20.87% selected bike, 5.51% selected carpool, 21.65% selected taxi/shuttle.

Question 2 asked about barriers experiences with respect to transportation in the City. Of the 204 responses to this question (50 respondents skipped the question), the majority of individuals highlighted the lack of options, cost/affordability, and safety/comfort as barriers.

Question 3 asked about respondents' primary purpose for taking transit. Of the 246 responses to this question (eight respondents skipped the question), work/school was rated highest, followed by shopping, appointments, leisure/recreation activities, and visiting family and friends.

Question 4 asked about destinations respondents would like to access by transit. Individuals were permitted to select more than one option. Of the 251 responses to this question (three respondents skipped the question), the West End Commercial Area was rated the highest (63.34%), followed by the hospital (55.38%), Southport (28.29%), schools (18.73%) and Poplar Bluff Industrial Park (9.16%). Sixty respondents selected other (23.9%), with destinations including downtown, Stride Place/Island Park, churches, destinations in McMillan Industrial Park, and Keshkeemaquah Gaming Centre identified.

Question 5 asked about the times respondents would use transit. Of the 241 responses to this question (13 respondents skipped the question), the morning was identified as a priority, followed by the end of day (work/school). The noon hour, afternoon and evenings had similar priorities, after the first two. Overnight was not identified by many as a time they would access transit.



Question 6 asked about features that would entice the respondents to use transit. Of the 250 responses to this question (four respondents skipped the question), reliable service was selected by 81.6% of people, short wait time was selected by 67.6% of people, short travel time was selected by 36.4% of people and app-based or online booking was selected by 30% of people. Comments related to this question reiterated that convenience, safety/comfort, and affordability would also be considerations.

Question 7 asked people to define a fair approach to the City's transit system on a sliding scale between 1 to 100, with 1 being "Equal Cost for Everyone", 50 being "Subsidized for Particular Rider Groups such as seniors and students" and 100 being "Fully Subsidized". Of the 249 responses to this question (five respondents skipped the question), the average rating was 47, meaning that respondents generally wanted a balance between equal costs for everyone and fully subsidized, meaning they prefer the system to be subsidized for particular rider groups.

Question 8 asked people to identify an affordable rate per trip, from \$0.00 to \$10.00. Of the 252 responses to this question (two respondents skipped the question), 13% of respondents felt that fares should be set over \$5, over half or 54% of respondents felt that fares should be set in the range between \$5 to \$2.50 and the remaining 33% felt fares should be less than \$2.50.

#### 4.1.4 PHASE 1 ENGAGEMENT: KEY TAKEAWAYS

Key points discussed during Phase 1 engagement included the following:

- **Ease of Use** – it is important that customers can easily understand how to access the system;
- **Reliable Service** – it is important that service is dependable;
- **Accessibility** – the need for a mobility option for people who do not otherwise have access to a vehicle; transportation to employment areas was identified as a barrier to employment for urban Indigenous; and
- **Affordability** – on average respondents felt that fares should be between \$2.50 and \$5.00 and that pass systems for multiple trips and subsidized rates for certain user groups should be explored.

A key destinations map was prepared as part of the background analysis and used as part of Phase 1 engagement events to confirm and prioritize key destinations. The key destinations map is included as Figure 4.1.

The following key destinations were identified as priorities:

- West End Commercial Area (Walmart, grocery stores, restaurants, hotels);
- Medical Centre (hospital and clinic);
- Southport;
- Schools, particularly the high school;
- Employment Areas, such as Poplar Bluff Industrial Park, McMillan Industrial Park and downtown; and
- Amenity Areas, such as The Island and sports fields.

A full summary of Phase 1 engagement events and results are available in the separate Public Engagement Report.



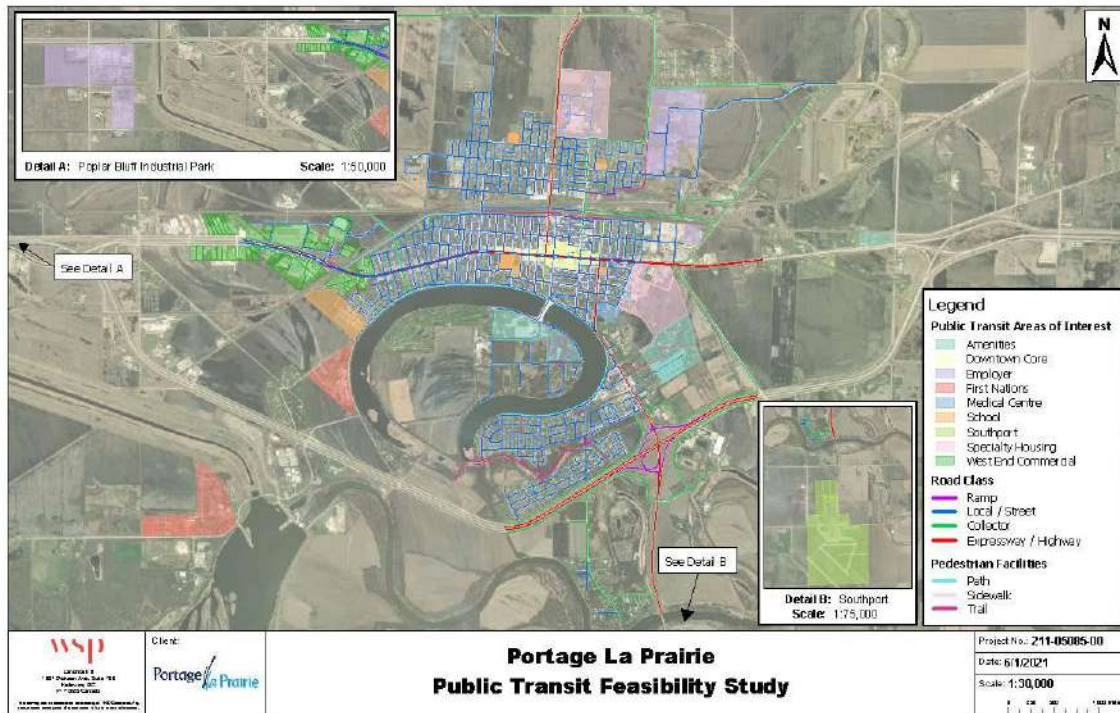


Figure 4.1: Key Destinations for Transit Coverage

## 4.2. PHASE 2 ENGAGEMENT

The second phase of engagement focused on presenting the transit options, how they were developed and obtaining feedback from stakeholders and the public on each option. Feedback was gathered through an Online Webinar and was available to both key stakeholders and the general public. Phase 2 engagement consisted of an Online Webinar on September 14, 2021 with 14 people in attendance. A video recording of the presentation and a PDF of select slides was also posted on the City's website after the Online Webinar.

Attendees were asked to rank the three transit options presented (Fully On-Demand, Hybrid Fixed and On-Demand and Fixed Routes) against each other using the perspective of each of four personas used in Phase 1 as part of an empathy exercise in understanding transit needs from different perspectives (Family of Five, Seniors, Newcomer, and Students). A final question asked participants to rank the best transit options for them.

Overall, the Hybrid Fixed and On-Demand option was preferred by attendees, followed by Fully On-Demand option then the Fixed Routes option.



Below is a summary of the comments and discussion surrounding each option:

→ Option 1: Fully On-Demand

- The comments provided generally centered around a concern for the logistics technologies perceived to be required for on-demand service (needing to book in advance, new technologies to understand).
- Attendees were concerned about long wait times, being late due to other peoples stops or schedules and not being able to access the service if you were not tech savvy or did not have data on your phone.
- People that are experiencing poverty do not have access to cell phones and credit cards, which are perceived as required to use an on-demand system.

→ Option 2: Hybrid Fixed and On-Demand

- The comments provided were generally specific to the fixed route component of the hybrid model providing responses that mentioned the limitations of a designated route, expressing interest for wanting more than one stop and mentioning access to locations not directly on the main route.
- Attendees noted people may be confused by the hybrid model and there were comments regarding cost and operation times.
- It is possible that attendees did not fully understand this option as they mentioned their desire to have options in routes provided which with the hybrid model could be achieved.

→ Option 3: Fixed Routes

- The comments provided were generally focused on the routes provided and the geographic location they covered.
- It was noted that the routes are limited, would service specific areas and specific demographics and not all areas.
- With its fixed nature, this option could require walking to the route.
- Clear, reliable schedules was mentioned as important for avoiding potential issues with fixed route service by attendees.

Further information regarding feedback received pertaining to each option is detailed in Section 6.6 of this report. A full summary of the Phase 2 engagement event and results is available in the separate Public Engagement Report.

While the final engagement event was meant to target both stakeholders and the general public and was communicated in the same manner as the Phase 1 events, there was lower attendance than expected. This creates limitations of representation with respect to certain marginalized groups. However, the information and feedback collected in Phase 2 still generates helpful insight and can substantiate details already recorded by the engagement team. Further engagement may be worthwhile to allow for a more robust understanding of transit options specific to Portage la Prairie. The online survey in Phase 1 had a high response rate, so that could be an effective means to solicit additional feedback on the transit options. Comments from the project team and steering committee following the engagement noted that in person engagement events may have been more successful in gathering feedback, particularly on the options preferences in Phase 2. There was a recognition that the virtual engagement platform may not be reaching the key groups that may benefit from a public transit system in the City.



#### 4.2.1 ADDITIONAL STAKEHOLDER CALLS TO TAXI AND SHUTTLE BUSINESSES

After Phase 1 and Phase 2 of the Stakeholder and Public Engagement Strategy were completed, the City requested additional stakeholder meetings with local taxi and shuttle businesses. The intent of the calls was to explore options and level of interest in partnership for the delivery of the fully on-demand transit option. The existing taxi and shuttle businesses in the City currently operate as an on-demand service. There is an opportunity to partner with taxi and shuttle businesses in the delivery of a public on-demand transit system. In October 2021, all taxi and shuttle businesses on the stakeholder list were contacted and invited to participate in these one-on-one stakeholder calls.

In order to gain a better understanding of existing taxi and shuttle businesses in the City, a phone script and list of questions was prepared to help with identifying partnership opportunities in the delivery of a public transit service in the City. The questions were as follows:

- Can you describe your vehicle or fleet? Do you provide any accessible vehicles?
- How many drivers do you have?
- What is the extent of your service? Where do you most commonly service? Where would you not service? Why?
- Do you currently pool rides (multiple riders per ride) or do you offer single rides (one person/group per ride)?
- What are your hours of operation?
- What do you charge for a fare? Is this standardized fare or does the fare change? What payment options do you use (cash, credit card, passes, etc.)
- Does a potential taxi/shuttle partnership with the City of Portage la Prairie interest you at all? Can I list your name and company for follow-up?

**Table 4.1** identifies the stakeholder calls to taxi and shuttle businesses in the City that were made. Ten businesses were contacted by phone over October 21 to 25, 2021. Six phone interviews were completed, with five expressing interest in a potential partnership with the City in delivery of an on-demand public transit system.



**Table 4.1: Summary of Additional Stakeholder Calls to Taxi and Shuttle Businesses**

COMPANY CONTACTED	DATE(S)	EXPRESSION OF INTEREST
Kasper's Shuttle	October 21, 2021	Not interested
Tulip Taxi / City Taxi / Online Shuttle / Skyways	October 21, 2021	Interested
Portage Shuttle & Limousine Service	October 21, 2021	Interested
JK Taxi	October 25, 2021	Moved
Arrow Taxi (Ideal Warehousing Ltd.)	October 22, 2021	Not Interested
A-One Shuttle	October 21, 2021	Unable to Contact
My Ride	October 21, 2021	Requested Questions be Emailed
Diamond Taxi & Shuttle Services	October 22, 2021	Interested
Nick Shuttle Services	October 21, 2021	Interested
DMP Shuttle	October 22, 2021	Interested

#### 4.2.2 WHAT WE HEARD: ADDITIONAL STAKEHOLDER CALLS TO TAXI AND SHUTTLE BUSINESSES

Overall, the additional stakeholder calls with local taxi and shuttle businesses indicated that there is currently capacity and interest for partnership with the City of Portage la Prairie in the delivery of a fully on-demand public transit service. Key takeaways from the additional stakeholder calls were:

- All of the businesses that were interviewed charge a flat-rate fee of five dollars for anywhere within city limits and ten dollars for return. Prices for destinations outside of the city range from fifteen dollars for Dakota Tipi First Nation, Poplar Bluff Industrial Park and SouthPort to one hundred dollars or more to the City of Winnipeg. The main form of payment is either cash or e-transfer.
- Some companies are already using various ride share mobile apps. However, it was noted customers are hesitant to use the mobile application, often citing privacy concerns.
- There are no accessible vehicles among the companies interested in a partnership with the City.
- Most drivers pooled rides whenever possible but are no longer allowed to due to COVID-19 restrictions. There was also mention of safety concerns that can arise from pooling passengers.
- Safety concerns were noted regarding violent events that take place during trips. Regular customers, on scheduled trips such as to and from work or grocery shopping are considered safe while causal customers can present some risk.

Based on the stakeholder calls with local taxi and shuttle businesses there is opportunity for the City to explore the opportunity to partner with these existing businesses in the delivery of an on-demand public transit system.



## 5. TRAVEL NEEDS ASSESSMENT

The travel needs assessment was completed to develop a technical foundation for the study. The purpose of this was to provide an estimate of transit demand and ridership levels and indicate approximate size of the transit system. This information informs the estimate of number of transit vehicles and size of transit vehicles recommended for launch of transit service in Portage la Prairie. It also provides evidence of the key destinations and trip generators in and around the City to confirm priority coverage areas for transit.

### 5.1. ESTABLISHING MODE SHARE ESTIMATES

We reviewed other communities of similar size to understand the range of transit mode shares the City of Portage la Prairie might expect, and to establish low, medium and high transit mode shares to apply to the travel demand assessed via StreetLight. This information is based on Census Canada Journey to Work Data from 2016, and should be taken in context (summarized in **Table 5.1**). The issue with using this data to inform potential transit mode shares in Portage la Prairie is that transit use tends to be higher in commute trips than in other types of trips. Applying these mode shares globally to all trip types is likely to be an over estimate of daily transit use.

**Table 5.1: Transit Mode Share (Source: 2016 Census Canada)**

Municipality	Province	Population	Transit Commute Share
Portage La Prairie	MB	13304	0.3%
Selkirk	MB	10278	2.2%
Winkler	MB	12591	1.2%
Nelson	BC	10572	1.4%
Williams Lake	BC	10753	5.6%
Powell River	BC	13157	2.7%
Whitecourt	AB	10204	1.5%
Lacombe	AB	13057	0.7%
Pembroke	ON	13882	0.2%

The average transit commute mode share in this group of communities is 1.8% and the median is 1.4%. Several of the communities see less than 1% of their workforce use transit to travel to work. Based on this sample of communities the following transit mode shares will be applied to develop transit ridership scenario estimates:

- Low Demand: 1%
- Medium Demand: 1.8%
- High Demand: 3%



## 5.2. STREETLIGHT DATA ANALYSIS

StreetLight Data is an industrial leading technology company that utilizes Big Data machine learning technology and transportation knowledge to help decision makers and practitioners shape future transportation systems. The StreetLight online data platform – StreetLight InSight, was used in assessing the travel demand within the study area. The platform gives users access to the StreetLight’s comprehensive mobility metrics to help answer transportation related questions. Multiple travel demand analyses are available within StreetLight InSight which include Zone Activity analysis, Origin-Destination analysis, Origin-Destination through Middle Filters analysis, etc. For our analysis, Zone Activity and Origin-Destination analyses are used.

Zone Activity analyses produce the total number of trips that originate or end in a zone. This is useful in determining the total amount of traffic activity generated in an area. Origin-Destination analyses on the other hand produce the total number of trips that occur between zones. The limit of an Origin-Destination analysis in StreetLight is that only trips originating in or destined for the defined zones are included. Any trips that start or end in areas outside of the zone boundaries will not appear in the analysis results. This is why it is useful to use the Zone Activity analysis and Origin-Destination analysis together: to determine whether the Origin-Destination analysis captures a significant amount of the total Zone Activity.

In order to conduct the analyses on StreetLight InSight, 21 zones were created to represent the major study area, shown in Figure 5.1 below. Some of these zones were determined as key destinations through various stakeholder and public consultations; others were created to cover the entirety of the City’s residential areas which are also considered the major trip origins. Nine key destinations are listed below.

- Downtown
- West End Commercial Site
- Dakota Tipi First Nation
- Long Plain First Nation
- Hospital and Clinic
- McMillan Industrial Park
- Poplar Bluff Industrial Park
- Southport
- The Island



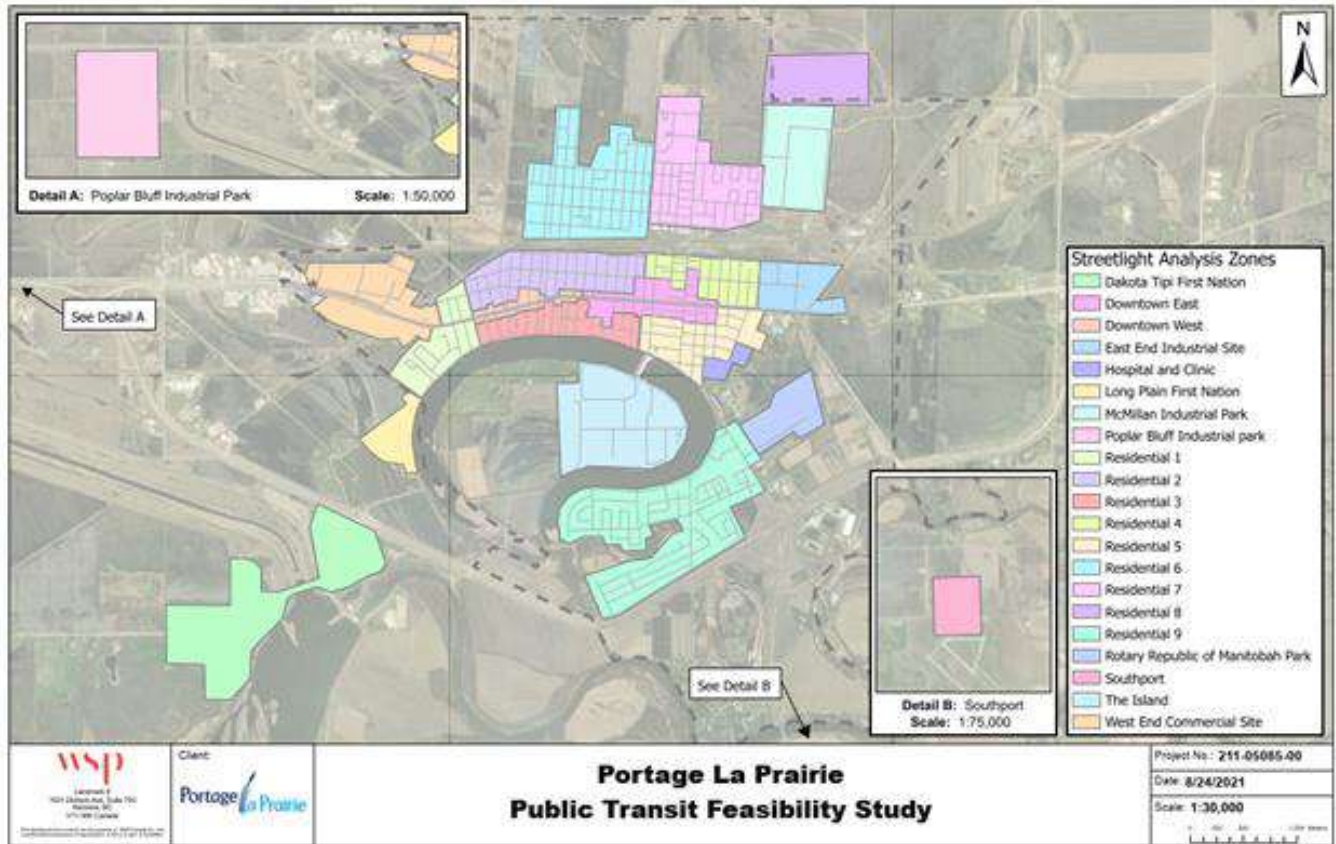


Figure 5.1: StreetLight Analysis Zones

The following assumptions were made when conducting the analyses using StreetLight InSight:

- Due to the data license limitations, it was important to limit the number of zones queried. To balance granularity of the analysis with a focus on high-priority destinations, 21 zones were created. These zones are believed to be the representation of the travel pattern for the entire City.
- “All vehicles” was selected as the output mode of travel in the analyses to represent the demand for all trips. This is an imperfect assumption as it would not capture travel of residents who do not have regular access to an automobile. However, it is a suitable proxy to understand travel demand patterns at a high level, and to then apply a mode share estimate for transit users.
- 2019 traffic data was selected as the baseline to avoid any COVID effect to travel demand and patterns.
- March, April, September and October were selected to represent the average demand, which are then projected to the entire year of 2019. These months typically represent more stable or average travel patterns and avoid major vacations during winter and summer breaks.



The Origin-Destination analysis within the 21 zones was conducted and Figure 5.2 below shows the comparison of hourly time distribution patterns for the average daily traffic between weekdays (Monday to Friday) and weekends (Saturday to Sunday). It should be noted that trips that stay within the same zone are excluded from the transit analysis as they are unlikely transit candidates. Based on this comparison, the majority of travel occurs in Portage la Prairie between 6 a.m. and 10 p.m. on weekdays and weekends. This time range is analyzed as the potential transit service operating period, but the operating period will be refined and narrowed later in this report to a more realistic service span.



Figure 5.2: Hourly Time Distribution Patterns

A Zone Activity analysis was conducted to understand the percentage of trips that have been captured in the Origin-Destination analysis as the analysis of travel demand patterns is concluded based on the latter. Figure 5.3 summarizes the percentages for trips captured within origin and destination zones respectively. In both figures, Dakota Tipi First Nation, industrial areas and Southport are lower than the average. That is because trips that are originating or destined in these zones could involve other regions or communities that are not included in the 21 zones identified. The overall calculation has shown an average capture rate of 85% and 86%, for origin and destination zones respectively. With approximately 85% of trips captured in the O-D analysis, we can be reasonably confident that the results provide a reasonable picture of travel demand in the study area, especially within the City limits.



Zones	Sum of Average Daily O-D Traffic	Average Daily Origin Zone Traffic	% Captured in O-D
Dakota Tipi First Nation	174	334	52%
Downtown East	7212	7751	93%
Downtown West	2271	2301	99%
East End Industrial Site	473	587	81%
Hospital and Clinic	1138	1278	89%
Long Plain First Nation	619	767	81%
McMillan Industrial Park	588	1086	54%
Poplar Bluff Industrial park	848	2014	42%
Residential 1	1656	1807	92%
Residential 2	2337	2422	96%
Residential 3	1606	1703	94%
Residential 4	2038	2383	86%
Residential 5	2669	2961	90%
Residential 6	3809	4024	95%
Residential 7	3074	3253	94%
Residential 8	517	664	78%
Residential 9	5193	6165	84%
Rotary Republic of Manitobah Park	19	21	90%
Southport	1287	2070	62%
The Island	636	691	92%
West End Commercial Site	8037	9787	82%
<b>Grand Total</b>	<b>46201</b>	<b>54069</b>	<b>85%</b>

Zones	Sum of Average Daily O-D Traffic	Average Daily Destination Zone Traffic	% Captured in O-D
Dakota Tipi First Nation	190	403	47%
Downtown East	6640	7083	94%
Downtown West	2023	2093	97%
East End Industrial Site	482	561	86%
Hospital and Clinic	1125	1294	87%
Long Plain First Nation	626	785	80%
McMillan Industrial Park	523	1013	52%
Poplar Bluff Industrial park	836	1915	44%
Residential 1	1600	1709	94%
Residential 2	2195	2285	96%
Residential 3	1501	1580	95%
Residential 4	1857	2104	88%
Residential 5	2163	2367	92%
Residential 6	4108	4360	94%
Residential 7	3124	3273	95%
Residential 8	560	686	82%
Residential 9	5302	6224	85%
Rotary Republic of Manitobah Park	25	31	81%
Southport	1511	2451	62%
The Island	894	1001	89%
West End Commercial Site	8916	10728	83%
<b>Grand Total</b>	<b>46201</b>	<b>53941</b>	<b>86%</b>

Figure 5.3: Percentage of total trips captured in the O-D Analysis

We exported and reviewed O-D analysis matrices for different time periods throughout the day for both weekdays (Monday to Friday) and weekends (Saturday and Sunday) in order to identify a typical travel pattern. The following day types and time periods were analyzed:

- Weekday AM Peak (6 a.m. – 10 a.m.);
- Weekday and Weekend Mid-Day (10 a.m. – 3 p.m.);



- Weekday PM Peak (3 p.m. – 7 p.m.); and
- Weekday and Weekend All Day (6 a.m. – 10 p.m.);

Figure 5.4 shows an example O-D matrix for weekday traffic during the preliminary transit service operating period from 6 a.m. to 10 p.m. This matrix is directly exported from StreetLight InSight into Excel. Trip origins are shown in the left column, and trip destinations are shown in the top row. Each cell represents the number of trips that originate in its row heading, and are destined for its column heading. For example, there are 333 trips originating in Downtown West, destined for Downtown East. Trips originating and destined within the same zone are shown in the matrix diagonal, which are all zero in this case. These trips are excluded from the analysis as they are unlikely candidates for transit trips and more likely to be converted to walking or cycling trips due to the short travel distances within zones.

The color scale indicates the level of traffic activity. The figure reveals that Downtown East has the highest traffic zone activity for both origin trips and destination trips. Among the various zones interacting with Downtown East, Residential 9 and West End Commercial Site are the two major trip origins and destinations. This pattern is very similar to other weekday matrices for different time periods.

The weekend O-D matrix during the preliminary transit service operating period from 6 a.m. to 10 p.m. resulted in a very similar but slightly different pattern. The zone with the highest traffic zone activity on the weekend is the West End Commercial Site .

Weekday Daily Vehicle Trips 6AM - 10PM		Destinations																			Total Origin Trips		
Origins		Dakota Tipi First Nation	Downtown East	Downtown West	East End Industrial Site	Hospital and Clinic	Long Plain First Nation	McMillan Industrial Park	Poplar Bluff Industrial park	Residential 1	Residential 2	Residential 3	Residential 4	Residential 5	Residential 6	Residential 7	Residential 8	Residential 9	Rotary Republic of Manitobah Park	Southport		The Island	West End Commercial Site
Dakota Tipi First Nation	0	36	8	0	2	6	0	5	0	10	2	4	8	20	8	0	10	0	0	0	0	26	145
Downtown East	23	0	331	71	195	94	62	57	268	327	330	214	326	799	472	160	992	0	162	153	1564	6600	
Downtown West	4	333	0	14	47	49	24	27	101	76	28	81	86	182	155	56	293	0	35	26	561	2178	
East End Industrial Site	0	65	15	0	6	1	6	6	10	28	15	17	26	58	33	3	52	0	22	12	76	451	
Hospital and Clinic	2	206	64	4	0	6	0	4	16	56	26	58	83	90	107	8	153	0	8	26	191	1108	
Long Plain First Nation	4	69	42	3	9	0	0	4	26	16	12	29	15	94	102	3	28	0	2	0	135	593	
McMillan Industrial Park	0	60	26	15	3	0	0	2	11	26	9	23	18	75	32	8	113	0	0	5	132	558	
Poplar Bluff Industrial park	2	69	28	16	4	9	5	0	42	8	66	23	24	45	80	0	37	0	10	2	173	643	
Residential 1	4	250	98	9	22	36	1	44	0	83	51	51	65	133	93	12	203	1	74	16	265	1511	
Residential 2	16	270	55	17	68	27	56	21	130	0	34	136	67	207	206	20	94	0	30	19	653	2126	
Residential 3	10	363	19	6	27	9	13	62	34	35	0	77	65	180	89	4	211	0	47	46	224	1521	
Residential 4	4	220	104	19	80	26	24	29	31	108	51	0	122	202	154	29	226	0	60	25	374	1888	
Residential 5	10	326	97	22	98	10	9	26	75	93	98	101	0	213	92	28	483	1	79	63	484	2408	
Residential 6	27	736	157	62	109	83	57	15	111	131	181	181	166	0	180	16	217	3	55	82	739	3308	
Residential 7	16	454	109	36	133	103	51	119	117	180	66	144	91	213	0	38	198	1	105	52	565	2791	
Residential 8	2	204	62	3	8	0	2	0	6	4	13	27	21	16	20	0	32	3	17	4	57	501	
Residential 9	11	1094	321	65	183	15	69	28	228	117	142	121	381	207	192	29	0	9	194	204	825	4435	
Rotary Republic of Manitobah Park	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	9	0	0	1	1	14	
Southport	0	146	19	22	13	2	0	14	47	33	78	51	30	22	91	14	142	0	0	5	148	877	
The Island	2	68	24	1	4	0	1	0	9	21	22	19	23	57	29	7	160	1	13	0	101	562	
West End Commercial Site	22	1075	383	65	103	129	54	158	248	575	198	349	383	768	660	59	848	1	124	104	0	6306	
<b>Total Destination Trips</b>	<b>159</b>	<b>6044</b>	<b>1962</b>	<b>450</b>	<b>1114</b>	<b>605</b>	<b>434</b>	<b>621</b>	<b>1510</b>	<b>1928</b>	<b>1422</b>	<b>1707</b>	<b>2000</b>	<b>3582</b>	<b>2795</b>	<b>494</b>	<b>4501</b>	<b>20</b>	<b>1037</b>	<b>845</b>	<b>7294</b>		

Figure 5.4: Example O-D Matrix for Weekday All Day Traffic

The key takeaway in reviewing travel demand patterns from the O-D analysis is the strong demand for the Downtown East and West End Commercial Zones, and the strong connection between these two zones. This information informs preliminary transit routing.



In order to determine the level of transit ridership the City might expect within the \ study area, the hourly transit ridership matrices were developed based on the vehicle trip O-D matrices. There is a total of three steps.

- 1 The first step is to determine the hourly vehicle trips matrix by dividing the total trips in each cell by the number of hours in analysis period.
- 2 The second step is to apply a person trip factor of 1.2 to convert the vehicle trips to person trips.
- 3 The last step is to apply a Transit Mode Share factor to the number of person trips in each cell of the matrix to project the Low (1%), Medium (1.8%), and High (3%) transit demand as mentioned in the previous section.

Table 5.2 shows an example of the results of this analysis for the weekday all day scenario (6 a.m. to 10 p.m). period. The numbers summarized in Table 5.2 cannot be directly multiplied to achieve the results of 10, 24 and 53 transit trips per hour. This is because in the trip matrix, each cell is calculated individually and, in many cells, when the transit mode share and person trip factor is applied, the number of trips in the cell is reduced to a fraction of a trip. We have applied a rounding rule that only trip fractions greater than 0.5 are rounded to the nearest whole number and included in the total sum of trips. This is illustrated in Figure 5.5, below, which shows the transit trips matrix for the Weekday, 6 a.m. to 10 p.m. low demand scenario. In this scenario, only the cells highlighted in red are greater than 0.5. They are each rounded and then summed together to achieve an estimate of 10 transit trips.

The analysis was completed for both all day and peak periods for weekdays and weekends. The all day low, medium and high demand transit ridership matrices for both weekdays and weekends available in **Appendix D**.

**Table 5.2: Weekday 6AM to 10PM Estimated Average Hourly Transit Trips**

WEEKDAY 6AM – 10 PM (16 hours)			
	Low Demand	Medium Demand	High Demand
Average Vehicle Trips per Hour	2533		
Person Trip Factor	1.2		
Transit Mode Share	1%	1.8%	3%
Average Hourly Transit Trips (excludes trip fractions)	10	24	53



Average Hourly Person Trips	Dakota Trail First Nation	Downtown East	Downtown West	East End Industrial Site	Hospital and Clinic	Long Plain First Nation	McMillan Industrial Park	Poplar Bluff Industrial park	Residential 1	Residential 2	Residential 3	Residential 4	Residential 5	Residential 6	Residential 7	Residential 8	Residential 9	Rotary Republic of Manitoba Park	Southport	The Island	West End Commercial Site	
Dakota Trail First Nation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Downtown East	0.0	0.0	0.2	0.1	0.1	0.1	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.6	0.4	0.1	0.7	0.0	0.1	0.1	1.2	0.0
Downtown West	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.4
East End Industrial Site	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Hospital and Clinic	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1
Long Plain First Nation	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
McMillan Industrial Park	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
Poplar Bluff Industrial park	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Residential 1	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.2	0.0	0.1	0.0	0.0	0.2
Residential 2	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.2	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.5
Residential 3	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.2
Residential 4	0.0	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.2	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.3
Residential 5	0.0	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.2	0.1	0.0	0.4	0.0	0.1	0.0	0.0	0.4
Residential 6	0.0	0.6	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.2	0.0	0.0	0.1	0.0	0.6
Residential 7	0.0	0.3	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.4
Residential 8	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Residential 9	0.0	0.8	0.2	0.0	0.1	0.0	0.1	0.0	0.2	0.1	0.1	0.1	0.3	0.2	0.1	0.0	0.0	0.0	0.1	0.2	0.0	0.6
Rotary Republic of Manitoba Park	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Southport	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1
The Island	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
West End Commercial Site	0.0	0.8	0.3	0.0	0.1	0.1	0.0	0.1	0.2	0.4	0.1	0.3	0.3	0.6	0.5	0.0	0.6	0.0	0.1	0.1	0.0	0.0

Figure 5.5 : Weekday 6am-10pm; Low Demand

### 5.3. RESULTS

The following table summarizes the estimated hourly total study area transit ridership for the Low, Medium, and High Transit demand scenarios. Results are shown for peak hours and all day to illustrate the change in transit capacity that may be required in the peak periods. The results in this table are carried forward to the following sections to inform the type of transit service that aligns best with each demand scenario.

Table 5.3: Summary of Estimated Study Area Transit Ridership

ESTIMATED TRANSIT TRIPS PER HOUR	LOW DEMAND	MEDIUM DEMAND	HIGH DEMAND
Weekday Peak Hours (3PM – 7PM)	19	46	98
Weekday All Day (6AM– 10PM)	10	24	53
Weekend Peak Hours (10AM – 3PM)	12	27	61
Weekend All Day (6AM – 10PM)	6	17	34



## 6. TRANSIT SERVICE OPTIONS

Three transit options are provided in this section, however each option is not necessarily discrete and it is possible that the City could adopt a combination of the options depending on time of day or day of week. The options are established on the basis of accommodating different levels of travel demand, and different levels of transit coverage, and with the City's goals for providing public transit in mind. The City could consider these options as a progression of the system, starting with Option 1 (fully on-demand), and after a pilot testing period and more data collection, potentially moving into Option 2 (hybrid fixed-route and on-demand) or Option 3 (conventional fixed-route). Or, these options could each be scaled-up within their service design by adding more fleet vehicles and operators to the system.

Ridesharing partnerships were considered at the beginning of the study for completeness, however the limitations around scalability of this model were identified through the jurisdictional scan phase. As well, the ridesharing model in Canada is used in an extremely large service area, which would be difficult to cost-effectively serve with an on-demand transit fleet, given the inability of a small number of buses to travel a large service area in a reasonable time. Portage la Prairie's potential transit service area is much smaller and much more conducive to a small on-demand fleet. As such, the ridesharing model was not carried forward as a core transit option for further analysis in this study.

In general, a taxi or ridesharing partnership could function very similarly to an on-demand transit system, operated by publicly hired drivers and with publicly purchased fleet. However, several factors would need to be addressed and standardized across taxi and shuttle operators in Portage la Prairie, to align with the standards of a public transit service. Some examples are:

- Centralized or consolidated ride booking portal: a single and easy-to-use interface is important for the legibility of a publicly funded or subsidized system.
- Expectations for reliability: the reliability of the existing taxi and shuttle system is a concern, and enforcing standards around fulfilling trips and meeting wait time and arrival time targets is key.
- Consistent fare structure: customers must know what to expect for fares and fare subsidies and it must be consistent across all operating partners.
- Other standards and expectations to establish to maintain customer comfort could include vehicle cleanliness, provision of car seats and booster seats for young children, and provision of fully accessible vehicles for those with mobility challenges.

Whether part of the core public transit offering or not, taxi and shuttle services still have a role in cities with on-demand and fixed-route transit. They serve individuals outside of the captive market that can afford taxis, they allow for a private mode of transportation, can transport people to different areas outside of the city, and possibly operate as a supplemental transit service outside transit operating hours.

The City's transit goals are reiterated in the table below, along with the primary transit planning lever to achieve the goal, and a description of the transit planning application. Some of the goals are linked directly to transit service design, which is connected to the options in this section. However, other goals will be met through other transit planning mechanisms such as customer support, fare-setting, and fleet vehicle specifications. These considerations are detailed in **Section 7**, as they may apply to any of the service design options.



**Table 6.1: Application of Portage la Prairie Transit System Goals**

TRANSIT SYSTEM GOAL	PRIMARY TRANSIT PLANNING LEVERS	TRANSIT PLANNING APPLICATION
Improve access to opportunities and activities for those with limited travel options.	Transit Service Design	Maximizing transit coverage provides access to as many people and opportunities as possible
Be affordable to the users, accessible by wheelchair and other mobility aids, and barrier-free.	Transit Fare  Customer Support  Fleet Vehicle Specification	Transit fare is affordable and aligned with target user groups  Customers have multiple options for accessing system information, booking rides (if applicable) and fare payment. Both digital and analog options are available.  Fleet vehicles are accessible and accommodate mobility aids
Realize environmental benefits.	Fleet Vehicle Specification  Transit Service Design	Zero emission fleet vehicles  When ridership is known and increasing, service design can align with high ridership destinations and encourage mode shift to transit
Work for as many people and destinations as possible, and be developed through partnerships and engagement with other organizations.	Transit Service Design  Transit Service Span	Priority destinations are covered and connected by transit service.  Transit service span aligns with key destination operating hours.
Be flexible and adaptable as community needs change and as new information is obtained about local transit use	Transit Service Design	A flexible service design for the system launch or pilot phase allows for data collection and monitoring.

## 6.1. DEVELOPMENT OF OPTIONS

Transit service options were developed starting from the jurisdictional scan findings that fully on-demand, hybrid on-demand and fixed-route, and conventional fixed-route are the most applicable options for Portage la Prairie. Public engagement confirmed the focus on these three options, while informing priority



destinations for the transit system to cover and connect. The travel needs assessment was the third lens, which provided estimates of the amount of transit ridership that might be generated, to confirm how the three service types would align with different ridership scenarios.

While each service option has different benefits beyond the different ridership levels it can accommodate with the same number of transit vehicles, the travel needs assessment was used as a starting point to confirm the feasibility of each service design.

The following assumptions and constraints were considered in aligning service options with potential ridership.

A two- to three-vehicle transit system is an appropriate scale to launch or pilot service in Portage la Prairie, and a two-vehicle system is assumed as a starting point.

On-Demand transit systems in a limited service area like Portage la Prairie (roughly 25 square kilometers) can accommodate approximately eight to 10 passengers per vehicle per hour.

At two transit vehicles, an on-demand system can accommodate up to 20 passengers per hour. After that, transit service levels would be expected to deteriorate without adding more vehicles to the system or adding a fixed-route where demand is concentrated. While this threshold is useful for analysis it is not necessarily a hard and fixed line, therefore, some flexibility is assumed in the emerging transit options below.

Transit operators require breaks and access to washroom facilities throughout the days. In later phases of analysis the City will consider appropriate locations from which to stage transit service, and identify potential businesses to partner with to allow washroom access for operators at key stops such as the West End Commercial area and Downtown.

The table below demonstrates the alignment between the travel demand scenarios and transit service options for a two-vehicle system.

**Table 6.2: Alignment of Transit Ridership and Service Options**

ESTIMATED SYSTEM-WIDE TRANSIT TRIPS PER HOUR			
Travel Demand Scenario	Low Demand	Medium Demand	High Demand
Weekday Peak Hours (3PM – 7PM)	19	46	98
Weekday Off-Peak (6AM – 2PM, 7PM – 10PM)	10	24	53
Weekend Peak Hours (10AM – 3PM)	12	27	61
Weekend Off-Peak (8AM – 10AM, 3PM – 8PM)	6	17	34



EMERGING TRANSIT SERVICE OPTION			
Weekday Peak Hours (3PM – 7PM)	On-Demand	Hybrid	Fixed Routes
Weekday Off-Peak (6AM – 2PM, 7PM – 10PM)	On-Demand	Hybrid or On-Demand	Fixed Routes
Weekend Peak Hours (10AM – 3PM)	On-Demand	Hybrid	Fixed Routes
Weekend Off-Peak (8AM – 10AM, 3PM – 8PM)	On-Demand	On-Demand	Fixed Routes or Hybrid

## 6.2. SERVICE SPAN

The travel needs assessment showed that the bulk of travel in Portage la Prairie happens between 6 a.m. to 10 p.m. on weekdays and 8 a.m. to 8 p.m. on weekends. While it is important to align transit service with the time period that people wish to travel, it is also important to balance the amount of service offered with costs of providing service. Transit service spans vary across different communities, as they strive to balance the costs and benefits of offering transit service according to their community goals.

In Portage la Prairie, the following principles, based on input received through public engagement, can be used to prioritize the span of transit service.

- Work and school trips are most important.
- Alignment with services at West End Commercial area, Hospital, Schools and Poplar Bluff Industrial Park is key.

Due to the importance placed on work and school trips, weekday transit service should be the top priority, with service hours in alignment with school start and end, and to accommodate key daytime work hours. Weekend service would be the next priority, prioritizing Saturday service over Sunday service, as more businesses and amenities tend to be open on Saturdays.

At minimum, an initial opening-day or pilot transit service span could be:

- Weekdays: 7 a.m. to 7 p.m. (12 hours)
- Saturdays: 9 a.m. to 5 p.m. (eight hours)
- Sundays and Holidays: no service

This service span amounts to approximately 3,600 annual transit service hours.

After service is launched and there is opportunity to collect sufficient data and customer feedback, service hours may be adjusted as budget and actual transit demand permit.



## 6.3. ASSUMPTIONS ABOUT ACCESSING TRANSIT

With all of the following transit options there are some key assumptions around how customers will access transit, which are listed below in an effort to ensure the transit system is specified to meet the City's goals around access.

- A call centre or dedicated staffed phone number will be available to field customer questions and concerns, and to book rides in an on-demand system for people without smart phones or access to cellular data.
- Fare payment options will be as inclusive as possible, including but not limited to: on-board cash payment, monthly transit passes, monthly transit passes for vulnerable populations or target demographics, and credit card payment.
- Accessible transit vehicles, which can accommodate wheelchairs, strollers and other mobility aids will be critical. This is discussed more in Section 7, which includes consideration for different vehicle types.

## 6.4. ON-DEMAND SERVICE

In the following options, on-demand transit service is assumed to have these characteristics:

- On-demand transit service is facilitated through digital on-demand ride booking and dispatching software, which is available through several different vendors.
- A core coverage zone of approximately 20 square km includes the City, Long Plain First Nation and Dakota Tipi First Nation. This coverage zone includes most of the key destinations identified through public engagement, and both the Long Plain First Nation Lands adjacent to the City, and Dakota Tipi First Nation just south of Highway 1.
- Secondary coverage zones could cover major employers at key shift change times, identified in the list below. Pending the appetite for accommodating these varying shift times, adjustments to the overall service span could be made to operate from 6 a.m. to 8 p.m. on weekdays (which amounts to approximately 500 additional service hours per year), or a custom trip or service could be added to the schedule to provide “shift change” service to key destinations within the secondary coverage zones.
  - Simplot - 8:00 a.m. and 8:00 p.m.
  - Roquette - 7:00 a.m. and 7:00 p.m., 8:00 a.m. to 4:30 p.m.
  - Nutripea - 7:00 a.m. and 7:00 p.m.
  - McCain - 6:30 a.m. to 6:30 p.m. with some employees starting at 7:30 a.m.
- For standard customers within the core coverage zone, stops are fixed using a combination of tangible stop signs and virtual stops delineated in the on-demand transit app. Door-to-door service is not provided for standard customers. Incorporating tangible bus stop signs can help to accommodate those passengers who prefer analog ride booking or have limited access to the virtual booking platform.



- For customers requiring a higher level of customer care or customers with mobility restrictions, there is the option to include door-to-door service and integrate paratransit into the system. This is typically accomplished through defining a certain customer or passholder type within the on-demand transit app, which allows the paratransit customers to book door-to-door trips.
- In the secondary coverage zones, stops would be fixed and limited to dropping off and picking up at the priority or partner businesses. Each on-demand transit vendor will have detailed recommendations about how to accomplish this in their software.
- With on-demand transit service, quality is generally measured by wait times, travel times, the number of pooled rides, and the number of rides that go unfulfilled (or missed trips). The City should aim for wait times and travel times of approximately 20 minutes or less, which would be considered competitive with the alternative of fixed-route service. The goal would be to achieve a high percentage of pooled rides (where there are multiple customers in the transit vehicle at the same time) and zero to a very small number of unfulfilled trips annually.

## 6.5. FIXED-ROUTE DEVELOPMENT

The fixed-routes shown in the following options are conceptual and it is our expectation that the City will conduct more analysis and revision of these routes prior to implementation. In general, the aim of these routes is to cover the key high-demand travel patterns seen in the travel needs assessment, while providing some coverage of residential areas with priority customer groups. To clarify, these routes are only conceptual, and are developed to test the premise of a fixed-route transit system in Portage la Prairie. Should the City implement fixed transit routes in the future, it is the expectation that more detailed planning will occur.

The existing transportation system and travel needs assessment were used as considerations in the fixed-route development. The design process includes three components: General route plan/origins and destinations; stop locations; and travel time. The following considerations and assumptions were made in the design of the preliminary fixed-route options and categorized by the three design components:

### Route Planning Considerations:

- Origin-destination data from the Streetlight analysis to maximize ridership and provide access to destination centres.
- Equity and accessibility for serving the Dakota Tipi First Nation.
- Access to the west end commercial area to provide access to essential items.
- Provide service to the multi-family housing units in the northwest part of the city.
- Avoid at-grade rail crossings where possible to create a reliable schedule.
- Create a route that is within the 20- to 40-minute range of travel time to allow for service twice in an hour or hour and a half with one transit vehicle.

### Stop Locations Considerations:

- Stop locations are tentative and for high-level planning. The number of transit stops allows for preliminary calculations of travel time for each route option.
- Stops were placed within a 10-minute walking radius of each other using the TravelTime tool.



### Travel Time Assumptions:

- Terminal time is four minutes. This can be adjusted based on anticipated delay due to railway crossings and amount required for rest.
- Assuming two people board and two alight at each stop.
- Boarding and alighting assumptions from the Transportation Research Board<sup>2</sup>:
  - Departing through front door is 1.85 seconds per passenger;
  - Boarding with coin fare for a conservative estimate is three seconds per passenger;
  - Door open/close time is 2.5 seconds; and
  - Total dwell time of 12.2 seconds per transit stop.

Google Maps was used to determine the operating travel time of the proposed bus routes.

## 6.6. TRANSIT SERVICE OPTION 1

Option 1 (**Figure 6.1**) is a fully on demand transit service, with two or more transit vehicles in operation during peak times. When the transit system is in service, customers in the core coverage zone could book an on-demand transit trip to and from any stops within the zone. Customers who are employed at destinations within the Secondary coverage zones could book an on-demand transit trip to their workplace at key shift change times. Each on-demand transit technology vendor will have a recommendation about how to best accomplish this and facilitate ride pooling, while maintaining transit capacity in the core coverage zone.

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<sup>2</sup> [http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp\\_webdoc\\_6-b.pdf](http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_webdoc_6-b.pdf)



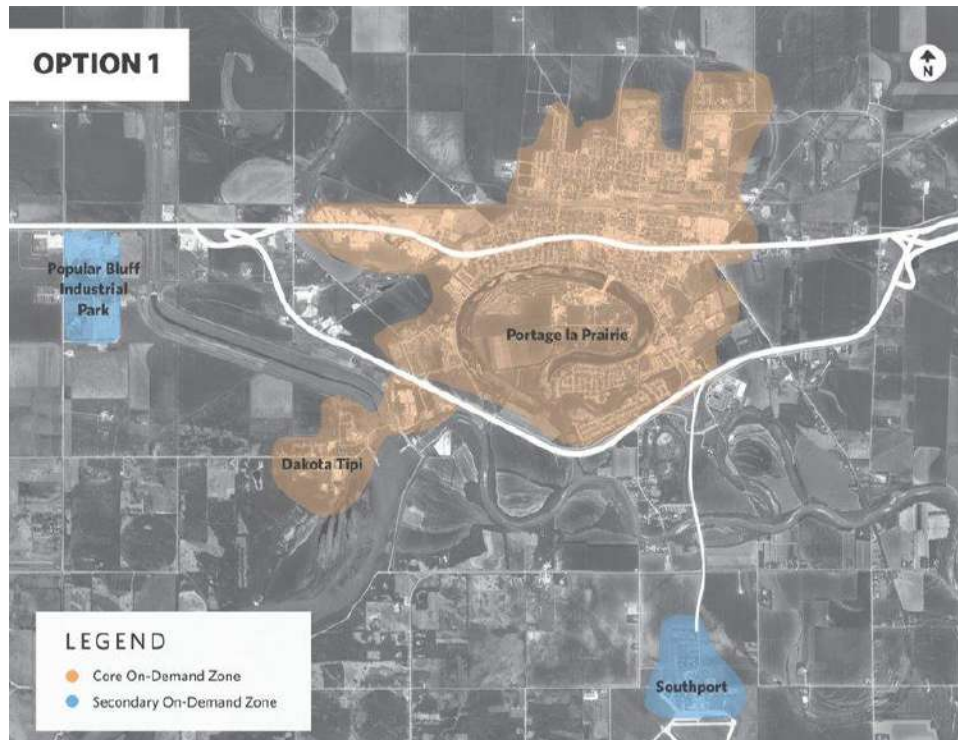


Figure 6.1: Option 1 – On Demand Transit Service

### 6.6.1 WHAT WE HEARD ABOUT OPTION 1

- The comments provided generally centered around a concern for the logistics technologies perceived to be required for on-demand service (needing to book in advance, new technologies to understand).
- Concerns about long wait times, being late due to other people’s stops or schedules and not being able to access the service if you were not tech savvy or did not have data on your phone.
- People that are experiencing poverty do not have access to cell phones and credit cards, which are perceived as required to use an on-demand system.

## 6.7. TRANSIT SERVICE OPTION 2

Option 2 is a hybrid of on-demand and fixed-route transit service, with two or more transit vehicles in operation during peak times. The on-demand portion is assumed to be the same as in Option 1, allowing customers in the core coverage zone to book an on-demand transit trip to and from any stops within the zone, and customers employed at destinations within the Secondary coverage zones could book an on-demand transit trip to their workplace at key shift change times.

The conceptual fixed-route in this option is designed to carry passengers between the north residential area, downtown and west end commercial area, which were the major trip patterns determined through the travel needs assessment. In a hybrid option, the fixed-route could operate only during peak periods on weekdays and as demand for the on-demand system grows. Customers could access this fixed-route without pre-booking a trip in the on-demand booking platform.



This conceptual fixed-route has 12 stops and is estimated to take approximately 30 minutes to complete, which would allow the City to operate service twice an hour in the peak periods. During the midday and off-peak times, service could be reduced to hourly, which would allow the transit operators adequate time for breaks.

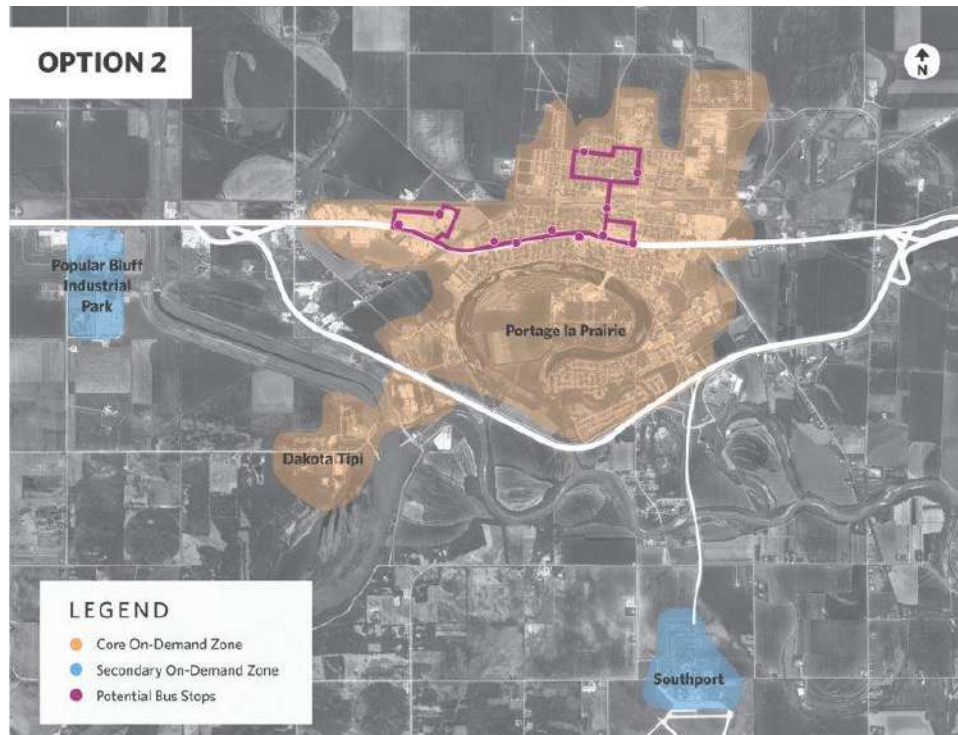


Figure 6.2: Option 2 – Hybrid Transit Service

### 6.7.1 WHAT WE HEARD ABOUT OPTION 2

- The comments provided were generally specific to the fixed route component of the hybrid model providing responses that mentioned the limitations of a designated route, expressing interest for wanting more than one stop and mentioning access to locations not directly on the main route.
- It was noted that people may be confused by the hybrid model and that there were comments regarding cost and operation times.
- It is possible that attendees did not fully understand this option as they mentioned their desire to have options in routes provided which with the hybrid model could be achieved.

## 6.8. TRANSIT SERVICE OPTION 3

Option 3 is a fixed-route transit system with two or more transit vehicles in operation at all times. In this conceptual option it includes two different routes, which each have travel times of approximately 30 minutes. Alternatively, the City could consider a single route that covers the key destinations and operates with a travel time closer to 60 minutes.



The conceptual routes in this option are designed to carry passengers between the north residential area, downtown and west end commercial area, as well as to connect Dakota Tipi First Nation and Long Plain First Nation residents to downtown. As with traditional fixed-route systems, customers could access these routes by consulting the transit schedule and waiting at a bus stop to board the system.

The purple route is the same as described above in Option 2. It has 12 stops and is estimated to take approximately 30 minutes to complete, which would allow the City to operate service twice an hour in the peak periods. The blue route has seven stops and is also estimated to take 30 minutes to complete, allowing for service twice an hour in the peak periods. During the midday and off-peak times, service on both routes could be reduced, which would allow the transit operators adequate time for breaks.

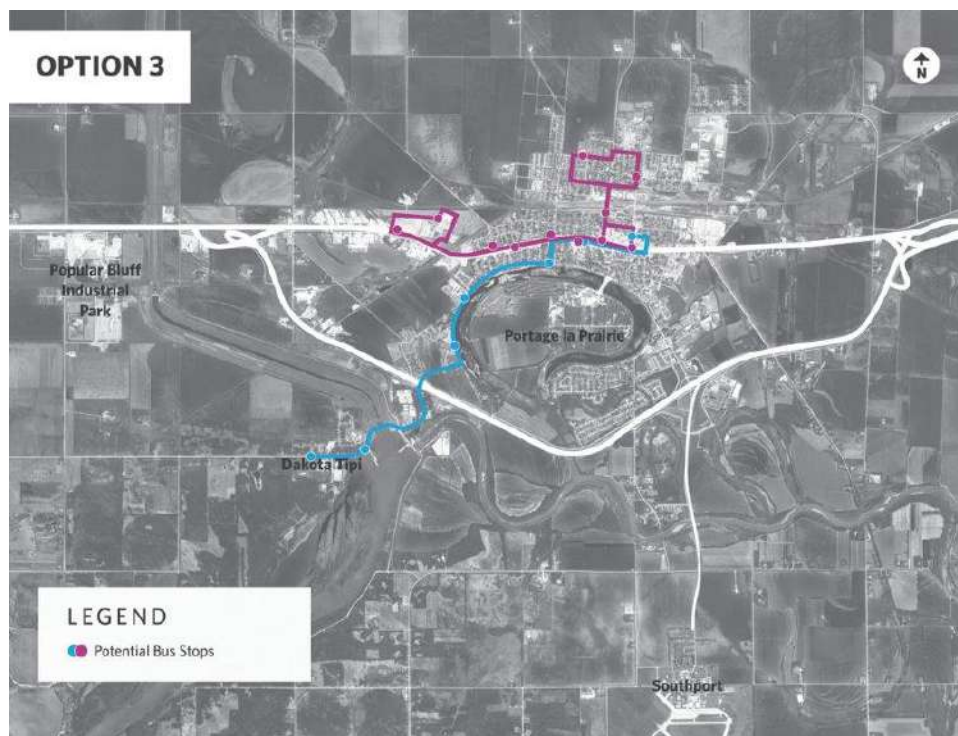


Figure 6.3: Option 3 – Fixed Route Transit Service

### 6.8.1 WHAT WE HEARD ABOUT OPTION 3

- The feedback received was generally focused on the routes provided and the geographic location they covered.
- It was noted that the routes are limited, would service specific areas and specific demographics and not all areas. With its fixed nature, this option could require walking to the route.
- Clear, reliable schedules was mentioned as important for avoiding potential issues with fixed route service by attendees.



## 6.9. EVALUATION OF OPTIONS

A qualitative evaluation of each transit option is summarized below, and tied directly to the goals for Portage la Prairie's transit system outlined at the beginning of this section. Passenger capacity is also evaluated, as it is one of the bases for developing the options, as per the travel needs assessment.

**Table 6.3: Evaluation of Transit Options Based on Goals for Transit in Portage la Prairie**

Goal	Definition of Goal	Option 1: On-Demand	Option 2: Hybrid Fixed-Route and On-Demand	Option 3: Fixed Routes
<b>Passenger Capacity</b>	The number of peak and daily riders that can be accommodated on the system.	Low	Medium-High	High
<b>Accessibility</b>	Improve access to opportunities and activities for those with limited travel options.	<ul style="list-style-type: none"> <li>- Residents without smart phones or credit cards can access via call in centres and pay with cash or pass.</li> <li>- Risk that residents without access to technology may face barriers to access.</li> </ul>	<ul style="list-style-type: none"> <li>- Residents without smart phones or credit cards can access via call in centres and pay with cash or pass.</li> <li>- Risk that residents without access to technology may face barriers to accessing on-demand system.</li> <li>- Fixed route may be more intuitive for residents with limited access to technology.</li> </ul>	<ul style="list-style-type: none"> <li>- Fixed routes may be more intuitive for residents with limited access to technology.</li> </ul>
<b>Sustainability</b>	Realize environmental benefits through mode shift and alternative fuel technology.	<ul style="list-style-type: none"> <li>- Low mode shift; priority on mobility for people who do not have access to an automobile</li> <li>- Alternative fuel technology possible.</li> </ul>	<ul style="list-style-type: none"> <li>- Potential for modest mode shift; also provides mobility for people who do not have access to an automobile.</li> <li>- Alternative fuel technology possible.</li> </ul>	<ul style="list-style-type: none"> <li>- Potential for modest mode shift.</li> <li>- Limited mobility for people who are not travelling near the transit stops.</li> <li>- Alternative fuel technology possible.</li> </ul>



Goal	Definition of Goal	Option 1: On-Demand	Option 2: Hybrid Fixed-Route and On-Demand	Option 3: Fixed Routes
<b>Partnerships &amp; Coverage</b>	Work for as many people and destinations as possible, and be developed through partnerships and engagement with other organizations.	<ul style="list-style-type: none"> <li>- Transit coverage can include the entire community, nearby First Nations and key employment areas.</li> </ul>	<ul style="list-style-type: none"> <li>- Transit coverage is the same as On-demand, but with fixed-route providing service in higher demand corridor.</li> </ul>	<ul style="list-style-type: none"> <li>- Limited transit coverage.</li> <li>- Fixed routes focus on higher ridership or higher priority corridors.</li> </ul>
<b>Flexibility</b>	The transit system is flexible and can adapt to changing demand, serve different times of day, or serve different destinations.	<ul style="list-style-type: none"> <li>- Very flexible. Service can be adjusted with minimal effort, as needed.</li> <li>- Data are collected about every trip to inform service changes.</li> <li>- When demand is exceeded, wait times and travel times increase.</li> <li>- Best candidate for piloting service or implementing new service.</li> </ul>	<ul style="list-style-type: none"> <li>- Most flexible for situations when on-demand cannot support the amount of ridership.</li> <li>- Data are collected about on-demand and potentially fixed-route trips to inform system changes.</li> <li>- Balances coverage of on-demand with the reliability of fixed-route on key corridors.</li> </ul>	<ul style="list-style-type: none"> <li>- Least flexible. Changes to service require significant planning, scheduling communication, and possibly infrastructure.</li> <li>- Data collection requires additional effort and is unlikely to capture all trips.</li> <li>- May be more reliable than on-demand service in peak periods.</li> </ul>

Based on this evaluation, the benefits of launching with a fully on-demand transit system (Option 1) in Portage la Prairie appear to outweigh the risks, which can be mitigated through communication and customer support infrastructure.

From an implementation planning and service evolution perspective launching with a fully on demand system allows the City to collect a more robust set of data with which to plan the evolution of the system into Option 2. The benefits of a hybrid on-demand and fixed-route system are clear, and a community preference for Option 2 was affirmed through public engagement, albeit with limited attendees. If the City were to launch Option 1 as the first wave of transit service, it could quite efficiently transition to Option 2 after a few years of data collection and fine-tuning of the on-demand system. This transitioned approach is less risky than launching Option 2 on day one, with a limited understanding of transit user behaviour in the community.



## 7. FARE AND FLEET CONSIDERATIONS

The following considerations are important to any transit system and apply to any of the transit service options described in the previous section. Each of these considerations has an impact on the City's goal that transit be affordable to the user, accessible by wheelchair and other mobility aids, and barrier-free.

### 7.1. TRANSIT FARE

Setting transit fare can be a delicate balance. If a fare is set too low, revenue potential is diminished and it is difficult to raise fares significantly without negative public perception. If fares are too high, however, people may be unwilling to use the transit system and it may be too expensive for those who need it the most.

Feedback from the first round of public engagement indicated that the majority of respondents would prefer transit fares in the range of \$2.50 - \$5.00. Information obtained through the jurisdictional scan and experience in other communities of similar size to Portage la Prairie indicates that \$2.50 is a very reasonable starting point, while anything over \$3.00 is representative of a larger city system.

Given the City's goals of affordability and accessibility, starting with a fare of \$2.50 for the core transit system (core on-demand coverage zone or trips on the main fixed-routes) is recommended.

For trips made to the secondary on-demand coverage zone, it is recommended the City consider a higher fare (\$5.00, for example) given that the businesses in these zones are outside City limits. Should the businesses agree to partner on or support transit service to their sites, then there could be an option for them to sponsor or subsidize fares for their employees.

### 7.2. FLEET SIZE

We have assumed a fleet size of two vehicles in developing the transit service options excluding spares. At this fleet size, one spare would be sufficient and so the City would require three vehicles to launch service. Each of the options requires at least two vehicles, however it is possible to scale-up each option with greater than two vehicles. For example, if the City adopts a fully on demand transit system as a starting point, it may add more transit vehicles over time to increase the capacity of the system, or to reduce customer wait times and travel times.

### 7.3. VEHICLE SIZE




The type of vehicle chosen for the system will depend on a number of factors:

- The overall expected demand at peak times and the type of scenario chosen.
- The approach to implementation: since there are inherent uncertainties to the popularity of this service prior to launch, procuring vehicles from the used market or vehicles that could be easily resold might be preferable for the first few years of operation. That said, there could be some challenges with availability if electric vehicles are required (see section 7.4).



- The availability of vehicles in the market when the system is launched and the ability for these vehicles to be serviced locally (e.g., through a heavy vehicle maintenance garage, etc.). Due to the small number of vehicles required, it is preferable to procure vehicles that can be regularly serviced locally (e.g., vehicles that are similar to heavy trucks could be preferable).
- The annual service hours expected. Vehicles running most of the day everyday of the year require greater robustness and reliability than if vehicles only operate during limited hours of the day. In juxtaposition to a personal automobile which is typically used for 1-2 hours per day on average, a vehicle operating 16 hours per day needs more reliability and additional servicing.

Three types of vehicle sizes are considered in the table below. For the on-demand service, a combination of sedans or minivans (all or a few could be equipped for wheelchair access) is the most suitable for expected demand options. Minibuses are recommended for fixed route options due to their size and availability. “Transit grade” buses are unlikely to be suitable for Portage La Prairie at launch due to their high capacity.

	<b>SEDAN OR MINIVAN</b>	<b>MINIBUS “CUTAWAY BUS”</b>	<b>“TRANSIT GRADE” BUS</b>
<i>Photo</i>			
<i>Typical Capacity</i>	3 to 8 passengers depending on model	14 to 20 passengers	20 to 35 passengers (less than 6-9 m length)
<i>Universal accessibility</i>	Minivans can often have lifts installed, but reduces the total capacity	Some medium height vehicles available with ramps or lifts	Most models are low floor
<i>Servicing and maintenance</i>	These can be serviced easily in most car repair shops	Diesel vehicles can be serviced by most truck repair shops for regular maintenance (usually manufactured with truck frames)	Requires specialized servicing, not necessarily available locally
<i>Typical service life</i>	3 to 5 years	4 to 7 years Electric: similar	9 to 12 years Electric: similar



	<b>SEDAN OR MINIVAN</b>	<b>MINIBUS “CUTAWAY BUS”</b>	<b>“TRANSIT GRADE” BUS</b>
<i>Availability</i>	Can be procured in a short timeframe, although some time required if specialized equipment is required.	Diesel vehicles can usually be procured more readily, longer times can be expected with electric buses.  Used vehicle market is variable, although many used diesel vehicles are often at end of service life. Very few electric vehicles on used market.	Longer procurement times typically required for new vehicles (6-12 months or more)  Used vehicles depends on the market (variable). 10+ year-old vehicles can often be purchased at very low-cost, although maintenance costs are higher. Very few electric vehicles on used market.
<i>Cost (new)<sup>3</sup></i>	\$30,000 or more  +\$50k for electric	\$150,000 to \$250,000 or more  +\$100k for electric	\$200,000 to \$400,000  +\$250k for electric
<i>Suitability</i>	Only suitable for on-demand applications due to low capacity, but greater ability to adjust service over time	Suitable for fixed route options. All identified similar services used similar vehicles.	Not suitable at launch due to high cost and larger sizes. Could be considered when demand warrants vehicles with higher capacity.

## 7.4. GARAGE AND MAINTENANCE CAPACITY

Regardless of the fleet product chosen to operate the service, space to store the vehicles must be considered for times when the vehicles are not in service. Similarly, consideration must be given to the need for maintenance, cleaning and servicing of the vehicles.

- A comprehensive cost-benefit analysis is recommended to determine the best approach to providing these functionalities, either through in-house procurement or construction of space, or through outsourcing of a service contract to a third party. Contracting method for this scope should align with other analysis to assess the most suitable overall contracting approach for the transit service.
- Facility requirements for storage and maintenance of the fleet will change based on the specific fleet products chosen. Requirements of the facility will be different for large or small vehicles, and for electric and diesel vehicles.

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<sup>3</sup> Electric versions of these vehicles are typically more expensive, although these often come with higher subsidies.



- Costs for infrastructure support to a transit fleet can be roughly approximated but will depend significantly on the durability and scope requirements of the infrastructure. For gasoline/diesel vehicles the cost could be assumed to equal the value of the vehicles. For electric buses, supporting infrastructure costs will be somewhat higher to account for enhanced power services and charging devices.

## 7.5. FLEET ELECTRIFICATION

In the event that electric fleet products are chosen to provide transit service for Portage la Prairie, a number of vehicle specific considerations will need to be integrated into an implementation plan and business case.

- Due to the need for buses to spend time charging, there will likely need to be a larger fleet of vehicles provided than if service is delivered solely with diesel or gasoline vehicles. The size of the fleet will be guided by the service span and schedule to determine when and how buses will have the opportunity to charge. A risk assessment should be completed to understand the likelihood that a vehicle will not be available for service and how impactful that eventuality is to Portage la Prairie.
- Heating and cooling loads of an electric vehicle have a significant impact on the overall range of the vehicle. Many electric transit vehicles are equipped with diesel heaters to allow on board battery capacity to be dedicated to vehicle range.
- Electric buses must be stored and charged indoors in areas where extreme cold events are likely.
- Electric vehicles can be specified with various types of charging connectors and charging power ratings. For smaller vehicles likely to be used for transit service within Portage la Prairie, a manually plugged in vehicle is most likely to be preferred. The power rating of the charger would be sized to suit the amount of time available for buses to charge, and the available power on the proposed storage site. Power requirements could range from 20kW per charger up to 150kW.
- Electric vehicles are likely to introduce maintenance processes that may not be within the typical skillset of a heavy-duty mechanic. Specialised training and tooling may be required depending on the vehicle selected, and the level of maintenance/warranty support requested of the vehicle manufacturer. Prior to selecting and specifying a fleet product for the Portage la Prairie transit service, understanding should be developed around the maintenance scope that will be completed 'in house', and the scope that will need to be provided by the equipment manufacturer or another party.
- In addition to the influence that the selected service approach will have on the fleet size, the power requirements for the maintenance facility will depend on how many chargers need to charge concurrently. If sufficient vehicle downtime exists to allow only one charger to work at any given time, then a reduced power service, and less expensive electrical distribution system could be designed. For a fleet of approximately three vehicles, it is expected that a minimum of two chargers would be required.



## 7.6. SERVICE DELIVERY MODEL

Transit service can be delivered in a number of ways. The three delivery models most relevant to the City of Portage la Prairie are described below.

### **Municipal**

In a municipally led transit system the City would be responsible for all components of the transit system including administration, operation and procurement of capital. An advantage of this model is that the City would have full oversight and accountability over the system. If the City chooses to pilot a transit system rather than fully invest in long-term service, this model may be a disadvantage due to the considerable start up costs and investment in organizational capacity for a shorter-term pilot.

### **Contracted Service Provider**

Delivering transit service with a contractor typically involves a third-party assuming responsibility for the operational pieces of a transit system, but sometimes this includes responsibility for the capital and some of the administrative pieces as well. Under this model, it is recommended that the municipality purchase their own transit vehicles to leverage capital grant funding streams to reduce the overall cost of the transit service contract. In structuring contracts with external operators, it is prudent to account for the types of costs that a third-party operator would consider as risks (such as vehicle ownership and fuel costs), and consider how to transfer these risks to the municipality to avoid overpaying in contract fees.

### **Local Non-Profit or Volunteer Groups**

Similar to the above, this service model would involve a third-party operator that is a non-profit organization and is sometimes used in small transit systems or custom transit systems. Under this model the operation of the transit system would be contracted to a non-profit organization, while capital costs and administrative oversight would be provided by the municipality.



## 8. COST ESTIMATES

There are three main costs to consider in setting up a transit system: Administrative and Start-up Costs , Capital Costs and Operating Costs. These cost categories are described in further detail below.

**Start-up costs:** Startup costs include software for on-demand transit, hardware for on-demand transit, communications and marketing for a new transit system, and staff or personnel to administer the system.

**Capital Costs:** The major capital costs in a transit system are the vehicles, charging or refuelling infrastructure, garage and maintenance facilities, and any stop or station infrastructure.

**Operating and Ongoing Administrative Costs:** The main component of transit operating cost is the vehicle drivers. Fuel and maintenance are the other key operating costs to consider. This also includes staff or personnel to administer the system and on-demand software subscription fees.

In addition to considering costs, transit systems have limited opportunities for revenue, which will contribute to reducing the net system cost. Revenue can come from a number of sources such as fares and passes, advertising and sponsorships. For the following estimate of costs, only fare revenue is considered.

There is significant variability involved in costing a transit system; some variables that affect costs include: the level of permanence or duration of system operation, total number of transit service hours, vehicle ownership arrangement, vehicle size, and vehicle propulsion technology. With that said, a high-level cost for on-demand transit service (Option 1) is presented in Table 8.1 below based on the following assumptions:

- The preferred service for launching transit in Portage la Prairie is Option 1, a fully on-demand system with up to two vehicles in operation;
- The annual transit operating hours for the transit system are 3,600, which could be up to 3,600 hours per vehicle;
- The “cut-away bus” is used to establish transit vehicle costs, as this vehicle type has the potential to accommodate ridership growth;
- For a two vehicle plus one spare system, two electric chargers are sufficient;
- Bus stop signs are assumed for key stop locations in busy areas or at key destinations so that the on-demand system is more legible for users without access to smartphones. These stop locations include key nodes in the west end commercial area such as Walmart, the mall, downtown, schools and the hospital;
- The cost of a bus storage facility is unknown and may include purchase of land. There is not enough information available to estimate the cost at this time, however a rule of thumb is that for every dollar spent on fleet, a dollar is spent on storage facilities;
- A marketing and communication campaign is required prior to launching service. This is especially important when launching on-demand transit, to educate customers about how to use the service;
- A transit coordinator position is required to manage the on-demand transit service, field customer questions and complaints, and plan changes to the transit system;



- Vehicle operator wages and benefits would be approximately \$30 / service hour;
- Fuel, maintenance and insurance annual costs are estimated based on information provided by the City of Selkirk for 2019; and,
- A conservative revenue estimate is assumed based on the low-demand ridership forecast from the travel needs assessment, using an annual average of 10 passengers per hour (this is a weighted average of average weekday and weekend potential ridership) and a fare of \$2.50. This estimate does not account for fare price variability in different fare products (e.g., monthly passes or low-income passes). Other revenue streams such as advertising and sponsorships are not included as these are difficult to estimate.

**Table 8.1: On-Demand Transit High-Level Costs**

	BASIC ON-DEMAND OPTION	ELECTRIFICATION ADDITIONAL COST	QUANTITY
<b>One-Time Start-up Costs</b>			
Transit Communication and Marketing Campaign	\$150,000		
On-Demand Software Setup	\$10,000 per vehicle		2
On-Demand Driver Tablets	\$600 per vehicle		2
<b>Subtotal Start-up Costs</b>	<b>\$171,000</b>		
<b>Capital Costs</b>			
Transit Vehicles (Minibuses)	\$200,000 per vehicle	\$100,000 per vehicle	3
Electric Vehicle Chargers (Level 3)		\$50,000 per charger	2
Bus Stop Signs for Key Stops	\$1000 per sign		20
Storage Facility	TBD	TBD	
<b>Subtotal Capital Costs</b>	<b>\$620,000</b>	<b>\$400,000</b>	
<b>Annual Administrative Costs</b>			
Transit Coordinator (0.5-0.75 FTE)	\$50,000 per year		
On-Demand Software Subscription	\$12,000 per year		
<b>Subtotal Administrative Costs</b>	<b>\$62,000</b>		
<b>Annual Operating Costs</b>			
Vehicle Operator Wage	\$108,000 per year per vehicle		2



	BASIC ON-DEMAND OPTION	ELECTRIFICATION ADDITIONAL COST	QUANTITY
<b>Fuel</b>	\$40,000 per year	Expected to be less than fuel cost	
<b>Maintenance</b>	\$45,000 per year		
<b>Insurance</b>	\$8,000 per year		
<b>Subtotal Operating Costs</b>	<b>\$309,000</b>		
<b>Annual Fare Revenue</b>			
<b>Total Transit System Hours</b>	<b>3,600</b>		
<b>Average Passengers per System Hour</b>	<b>10</b>		
<b>Single Trip Fare</b>	<b>\$2.50</b>		
<b>Estimated Fare Revenue</b>	<b>\$90,000</b>		

For the basic on-demand transit option, a summary of total estimated costs is shown in Table 8.2. Should the City choose to pursue the electric vehicle option, an additional \$400,000 or more in capital cost is anticipated. Note that the capital costs would typically be depreciated over the lifecycle of the asset.

**Table 8.2: On-Demand Transit High-Level Net Annual Cost**

Total Start-up Costs including Capital (excluding Storage Facility)	<b>\$791,000</b>
Total Annual Ongoing Costs (Operating + Administration)	<b>\$371,000</b>
Estimated Fare Revenue	<b>\$90,000</b>
Net Annual Cost	<b>\$281,000</b>

## 8.1. COST SHARING AND GRANT CONSIDERATIONS

The City of Selkirk’s fixed-route transit system was reviewed to consider potential cost sharing scenarios that may be likely for Portage la Prairie. Selkirk Transit has 33% of its expenses recovered by revenue while the remaining 67% of operating costs is divided between the City (35%) and the Province (32%).

The Small Communities Transportation Fund (SCTF) is used to support transportation in rural communities within Manitoba. The Province may provide 50% and more than \$50,000 in funding for new public transit systems where none currently exist. The most recent SCTF program guidelines and application form require a *Manitoba Municipalities On-line* account to access. The Mobility Disadvantaged Transportation Program Regional Incentive Grant provides provincial funding to transit services for people with mobility challenges.



A 2013 study by the Canadian Urban Transit Association (CUTA) showed the breakdown of cost-sharing for each province based on their 2011 capital and operating transit budgets. This study provides a historic reference of funding sources. Relevant findings from the study are:

- The capital funding sources for Manitoba were 70% municipal, 14% provincial, 11% other contributions (e.g., dedicated taxes, fundraising, and donations), 5% federal funding. Nationally, the capital funding is 68% provincial, 15% municipal, 14% federal, and 3% other contributions. The highest proportion of municipal funding for capital projects is Manitoba, the Atlantic provinces with 70%, the area with the least municipal funding contribution to capital projects is British Columbia with 13%. Most of the funding for British Columbia's capital projects comes from federal funding (76%);
- The operating funding sources in Manitoba is 46% passenger fares, 31% municipal, 22% provincial, and 1% other revenue. The area with the most municipal contribution is the Territories with 72%, the least was British Columbia with 8%. Most of the funding for British Columbia's operational funding comes from other contributions (e.g., dedicated taxes and fundraising) with 46%.; and
- For municipal funding per capita in 2011, Manitoba is around average compared to the other provinces/areas. Additionally, capital funding was provided to Winnipeg, Brandon, and Selkirk for purchasing new transit buses for conventional service.

While the CUTA report context is useful for a historical benchmark, it is important to note that the federal government in 2021 has significantly different priorities than the federal government in 2011. As such, there is a considerable amount of capital funding available from the federal level to support transit initiatives, and particularly zero emission transit systems. Existing and future anticipated funding sources are discussed in Section 9.2 Next Steps.



## 9. RECOMMENDATIONS AND NEXT STEPS

### 9.1. RECOMMENDATIONS

If the City is undertaking transit service as a pilot project rather than committing to the launch of a transit system, it is recommended to start as simple as possible and re-evaluate after the pilot period is over.

A simple system would mean limiting up-front capital investment through the purchase of smaller vehicles (minivans) and likely not committing to electrification. A transit pilot should remain in operation for at least two years to allow customers to adapt to the service and for new travel behaviours to be established.

If the City intends to operate transit for longer than a pilot period, then it is more beneficial to consider larger vehicles (minibuses or cut-away buses) and electrification as there is more potential for the system to expand and to payback the investment in electrification.

In either of these scenarios, we recommend that the City launch its transit system with fully on-demand transit service (Option 1) in order to provide transit coverage to as many people and destinations as possible on day one. This approach allows the City to collect a robust set of data through operating the service to better understand transit travel patterns and eventually move into a hybrid of on-demand and fixed-route transit service (Option 2) when ridership levels justify this type of service increase.

The fixed routes shown in Service Options 2 and 3 in this report are conceptual and not intended as routing recommendations. If the City is pursuing a fixed-route transit option in the future, we recommend conducting more detailed analysis of routing and re-engaging with the community about the specific route alignments, stops and frequency.

### 9.2. NEXT STEPS

This report has aimed to illustrate the many decision points required for the City prior to launching transit service, and these include specifics like vehicle selection, operating model and whether to pursue electric vehicles. There are also some more general next steps for Portage la Prairie, pending Council's interest in further pursuing transit service, would involve exploring on-demand transit service in more detail to develop specifications. These next steps could include:

- Continue discussions with potential partners in public transit to confirm shared goals and an understanding of shared accountability, and work toward a partnership terms of reference. The City may consider a framework for including other entities in public transit provision, which contains multiple categories such as partners, supporters and stakeholders. Typically, partnerships with or support from other entities will strengthen the case for public transit grant funding. For example, there are near-term grant funding opportunities in which a priority will be placed on funding public transit partnerships with indigenous communities. Based on the one-on-one stakeholder interviews we conducted throughout this study and the City's goals for public transit, the entities most likely to be interested in continuing discussions about partnership or support on public transit are:



- Long Plain First Nation
- Dakota Tipi First Nation
- Portage Handi-Van
- A handful of Taxi and Shuttle operators
- Southport
- Businesses in Poplar Bluff Industrial Park as they are located outside of the City (primarily Simplot and Roquette – Simplot already operates a shuttle from the City of Winnipeg and Roquette is looking at partnering with them).
- Businesses in McMillan Industrial Park (these could be covered by the on-demand service or focused on for a partnership).
- If enough interest is garnered from existing transportation providers such as the taxi and shuttle operators, and Portage Handi-Van, the City could attempt to establish and negotiate agreements with these operators to provide a partnered public transportation service as a pilot or an interim measure. Some service expectations to consider in this process are:
  - Centralized or consolidated ride booking portal: a single and easy-to-use interface is important for the legibility of a publicly funded or subsidized system.
  - Expectations for reliability: the reliability of the existing taxi and shuttle system is a concern, and enforcing standards around maintaining regular operating hours, fulfilling trips and meeting wait time and arrival time targets is key.
  - Consistent fare structure: customers must know what to expect for fares and fare subsidies and it must be consistent across all operating partners. The City would consider subsidizing fares such that customers pay approximately \$2.50 per trip, as per the public engagement feedback received in this study.
  - Other standards and expectations to establish to maintain customer comfort could include vehicle cleanliness, provision of car seats and booster seats for young children, and provision of fully accessible vehicles for those with mobility challenges.
- Outreach to on-demand transit technology vendors to understand the nuances of each and their approach to aligning their software offering with Portage la Prairie's system goals.
- Establish a tentative budget for transit service.
- Issue a request for proposal or information for on-demand transit software and potentially third-party operators, should the City choose to outsource transit operation.

### 9.2.1 GRANT FUNDING OPPORTUNITIES

Other next steps include applying for potential grant sources for both general transit and electric / zero emission vehicle (ZEV) purposes. Funding sources span from all levels of government and non-governmental organizations. The sources below include both active and inactive funds that may be renewed in future years.



### 9.2.1.1 CAPITAL INVESTMENTS/TRANSIT FUNDING

#### FEDERATION OF CANADIAN MUNICIPALITIES

The Green Municipal Fund Capital Project: Transportation Networks and Commuting Options grant accepts ongoing applications for Canadian municipalities. This fund is for capital transportation projects to reduce the number of vehicles on the road, vehicle kilometres traveled, or travel time for people and goods. The funding is available for regular loans and high-ranking loans. The regular loans and grants receive low-interest loans of up to \$5 million and a grant worth up to 15% of the loan that can cover up to 80% of eligible project costs. The high-ranking project loan is the same as regular loans with a loan limit up to \$10 million. The link to the application is: <https://www.fcm.ca/en/funding/gmf/capital-project-transportation-networks-commuting-options>.

The Green Municipal Fund Pilot Project: Transportation Networks and Commuting Options grant accepts ongoing applications for Canadian municipalities. This fund is for pilot projects with the objective to reduce vehicles on the road, vehicle kilometres traveled, or travel time for people and goods. This also includes modal shift projects for public transit, walking, and cycling. The grant covers up to 50% of eligible costs to a maximum of \$500,000. The link to the application is: <https://fcm.ca/en/funding/gmf/pilot-project-transportation-networks-commuting-options>.

#### GOVERNMENT OF CANADA

The federal government provides grants and loans to municipalities to provide transportation funding including capital projects and transit-specific programs. The funds listed below include currently available funding and other sources that have closed applications for the year but may be available in future years.

The Rural Transit Solutions Fund is a two-stream fund for rural, remote, and Indigenous communities to implement transit to provide access to employment, school, and social activities. The Planning Stream applications are currently being accepted (deadline of **October 7, 2021**) and the Capital Stream will support projects from the Planning Stream. The Planning Stream provides up to \$50,000 for planning tasks including public engagement, surveys, and assessments of routes. The Capital Stream provides up to \$3 million for conventional transit and up to \$5 million for zero-emission transit solutions. The link to the website to apply for funding is <https://www.infrastructure.gc.ca/rural-trans-rural/index-eng.html>.

The Investing in Canada Infrastructure Plan (ICIP) is an initiative that shares cost with the province and municipalities for capital and maintenance infrastructure projects. The application period has closed but may be open in future years. Applications for a transit system in Portage la Prairie may be submitted in the future under the Public Transit and Green categories. The cost share agreement for the ICIP is for the Canadian Government to fund 40% of municipal projects. For public transit, Canada will provide up to 40% for new public transit construction projects. For projects under the Rural and Northern Communities stream, Canada will invest up to 50% municipal and not-for-profit projects. Due to the cost share agreement, the municipality must apply to the province to submit an application to the ICIP. The link to the Government of Manitoba website to apply for funding is <https://www.manitoba.ca/fpir/strainfrasec/investing/>

In previous years, the federal government recently had the Canada Healthy Communities Initiative. It provided funding to improve mobility options for people in their communities with an emphasis on walking, biking, and transit. The link to the program is <https://www.infrastructure.gc.ca/chci-iccs/index-eng.html>.



In previous years, Transport Canada has provided funding for many transportation infrastructure and research projects. Funding opportunities through Transport Canada can be found at <https://tc.canada.ca/en/programs/funding-programs>.

## GOVERNMENT OF MANITOBA

The province previously had a Small Communities Transportation Fund to support transit projects, active transportation, and Intelligent Transport Systems in small communities. The link to the previous fund available in 2018 is <https://www.gov.mb.ca/mr/bldgcomm/print,sctf.html>.

### 9.2.1.2 ELECTRIFICATION OF TRANSIT / ZEV FUNDING

#### ZERO EMISSION TRANSIT FUND (GOVERNMENT OF CANADA)

The fund supports public transit plans for the electrification of 5000 zero emission busses as well as supporting infrastructure. The program is currently accepting applications and the link to apply is <https://www.infrastructure.gc.ca/zero-emissions-trans-zero-emissions/index-eng.html>.

#### ZERO EMISSION VEHICLE INFRASTRUCTURE PROGRAM (NATURAL RESOURCES CANADA)

This program is to support electric vehicle charging infrastructure for public-use and the private sector. This may be used to fund the charging infrastructure for a fleet of electric busses. The next round of submissions will be launched in December 2021 and due in March 2022. The link for more information and applications is <https://www.nrcan.gc.ca/energy-efficiency/transportation-alternative-fuels/zero-emission-vehicle-infrastructure-program/21876>.



# APPENDIX

# A

TRANSPORTATION  
NETWORK REVIEW  
MEMO



## MEMO

**TO:** City of Portage la Prairie  
**FROM:** WSP Canada Inc.  
**SUBJECT:** Transportation Network Review for Feasibility Study of Public Transit  
**DATE:** October 7, 2021

---

## 1. INTRODUCTION

The purpose of this memo is to provide an overview of the existing transportation network in Portage la Prairie as part of the review of background conditions for the Feasibility Study of Public Transit in the City of Portage la Prairie. The following is an outline of the memo and content of each section:

- Existing vehicular road network including the road classifications, signalized intersections, average daily traffic volumes, truck routes, and truck weight limits,
- Active transportation network including existing facilities and crossings control, and
- Rail network including railway tracks, grade separated crossings, and at-grade crossings.

## 2. EXISTING VEHICULAR ROAD NETWORK

### ROAD NETWORK

The existing road network in Portage la Prairie consists of facilities that include local streets, collector roads, and provincial highways. Local streets are intended to provide access from individual properties to collector streets. Collector streets are intended to move traffic between local streets and arterials or highways. The provincial highway network and highway ramps function as arterial roads within the City of Portage la Prairie and provide through traffic as well as access to commercial areas.

Saskatchewan Avenue functions as the main east-west thoroughfare through the city and is designated as Provincial Trunk Highway (PTH) 1A, serving as an alternate route for PTH 1, the TransCanada Highway, which bypasses the city to the south. 8<sup>th</sup> Street West, Tupper Street North and 3<sup>rd</sup> Street East serve as important north-south routes through the city, with crossings of the CN Rivers and CP Carberry Subdivisions, linking the north and south sides of the city.

There are 12 traffic signals within the city with 11 on Saskatchewan Avenue and one on PR 240. **Figure 2.1** shows the existing road network including local streets, collector roads, provincial highways, and traffic signals.

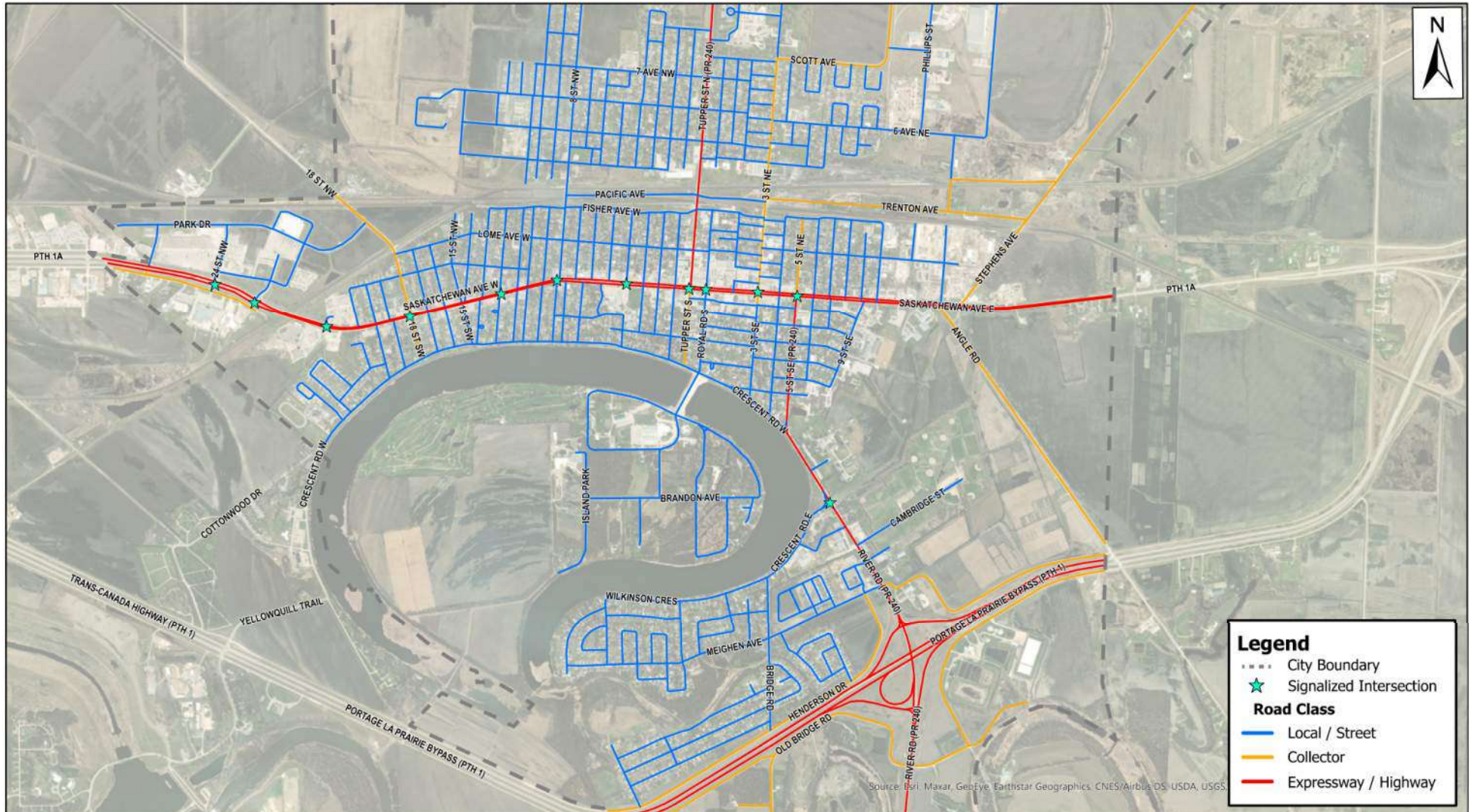


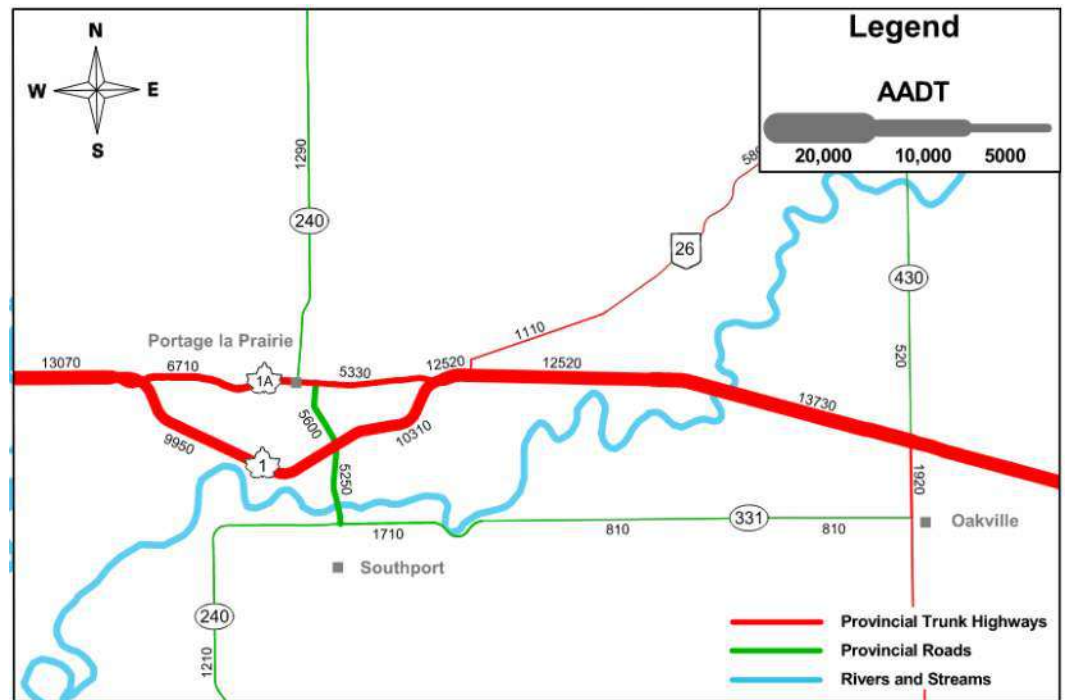
Figure 2.1: Existing Road Network Facilities and Signalized Intersections

The speed limits in Portage la Prairie are defined by the City of Portage la Prairie Traffic By-law No. 20-8705 (Schedule G and Schedule G-1) last updated in June 2020. The speed limit within Portage la Prairie is 50 km/h except for:

- Seven reduced speed school zones with a limit of 30 km/h for all times at Ecole Arthur Meighen School, Ecole Crescentview School, Fort la Reine School, La Verendrye School, North Memorial School, Portage Collegiate Institute, and Yellowquill School.
- Reduced to 30 km/h on various streets within Island Park.
- Saskatchewan Avenue near the western and eastern city limits (increased to 60 km/h and 70 km/h, respectively).
- Collector roads Scott Avenue / MacDonald Street and Old Bridge Road increased to 60 km/h.
- Collector roads such as Stephens Avenue, Angle Road, Henderson Drive, and PTH 1 Service Roads increased to 70 km/h.
- PR 240 with increased speed limit ranging between 70 km/h to 90 km/h.

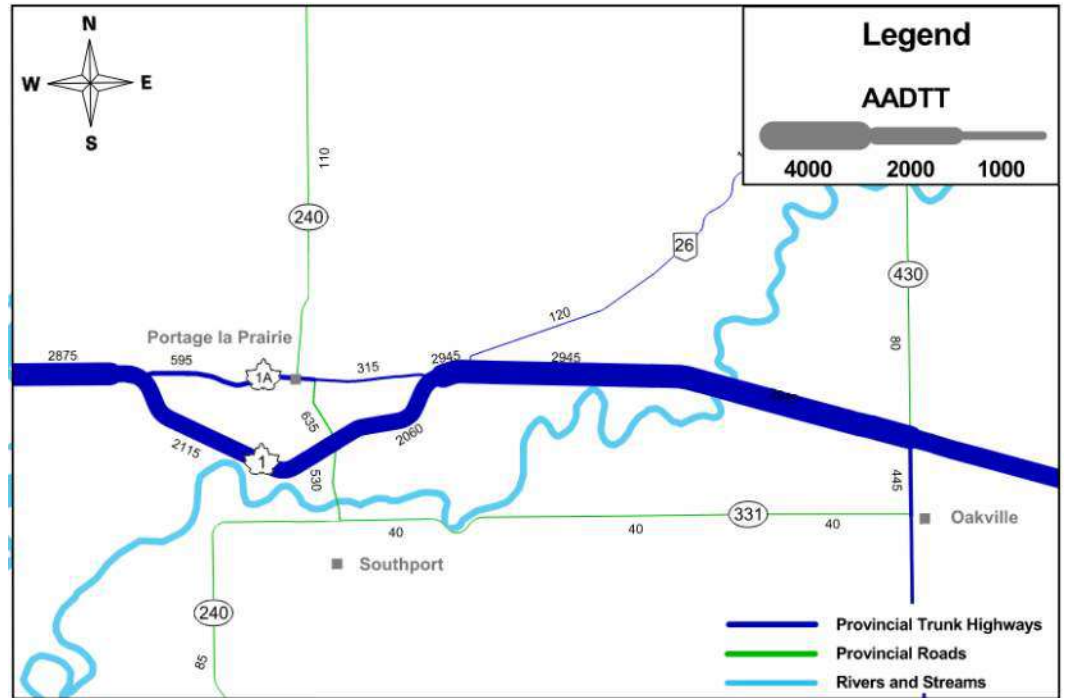
### AVERAGE DAILY TRAFFIC VOLUMES

Traffic data is available for vehicles and trucks from the 2019 Manitoba Highway Traffic Information System (MHTIS) annual average daily traffic (AADT) flow map and the 2013 MHTIS annual average daily truck traffic (AADTT). Traffic is shown on the provincial highway network for PTH 1A (Saskatchewan Avenue) and PR 240 (River Road / Crescent Road / 5<sup>th</sup> Street SE / Tupper Avenue). **Figure 2.2** and **Figure 2.3** show the AADT and AADTT in the surrounding area of Portage la Prairie.



**ENLARGEMENT OF PORTAGE LA PRAIRIE  
(NOT TO SCALE)**

Figure 2.2: 2019 Annual Average Daily Traffic (source: MHTIS 2019)



**ENLARGEMENT OF PORTAGE LA PRAIRIE  
(NOT TO SCALE)**

*Figure 2.3: 2013 Annual Average Daily Truck Traffic (source: MHTIS 2013)*

**TRUCK ROUTES AND WEIGHT LIMITS**

The truck routes within the city are defined by the City of Portage la Prairie Traffic By-law 20-8705 last updated in June 2020. The truck route map is shown below in **Figure 2.4**.



Figure 2.4: Truck Route Map (source: City of Portage la Prairie By-law 20-8705 Schedule C-1)

Figure 2.5 shows the truck weight limits in and around the City of Portage la Prairie. The Truck Weight Limits are obtained from the Truck Weight Limit Map from Manitoba Infrastructure’s website (<https://www.gov.mb.ca/mit/mcd/resources/twlm.html>). The PTH 1 bypass around the city is a 63,500 kg RTAC route, Saskatchewan Avenue through the city is a Class A1 highway (56,500 kg gross vehicle weight limit), and PR 240 through the city is a Class B1 highway (47,630 kg gross vehicle weight limit).

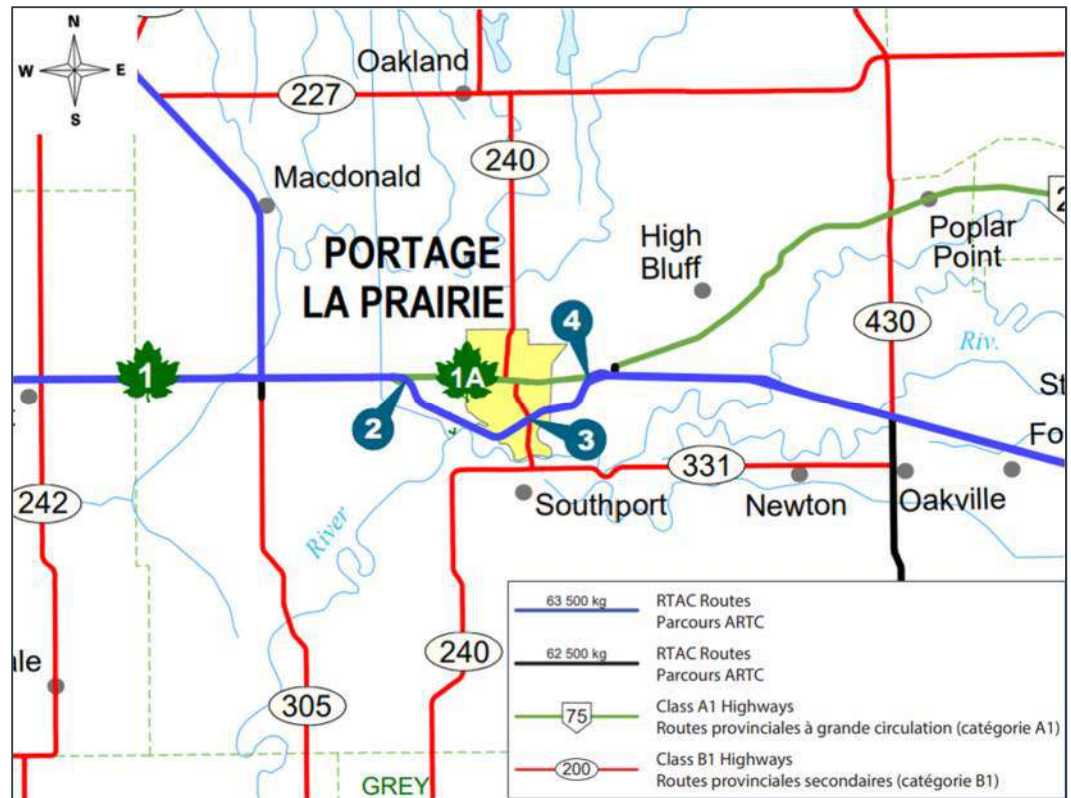
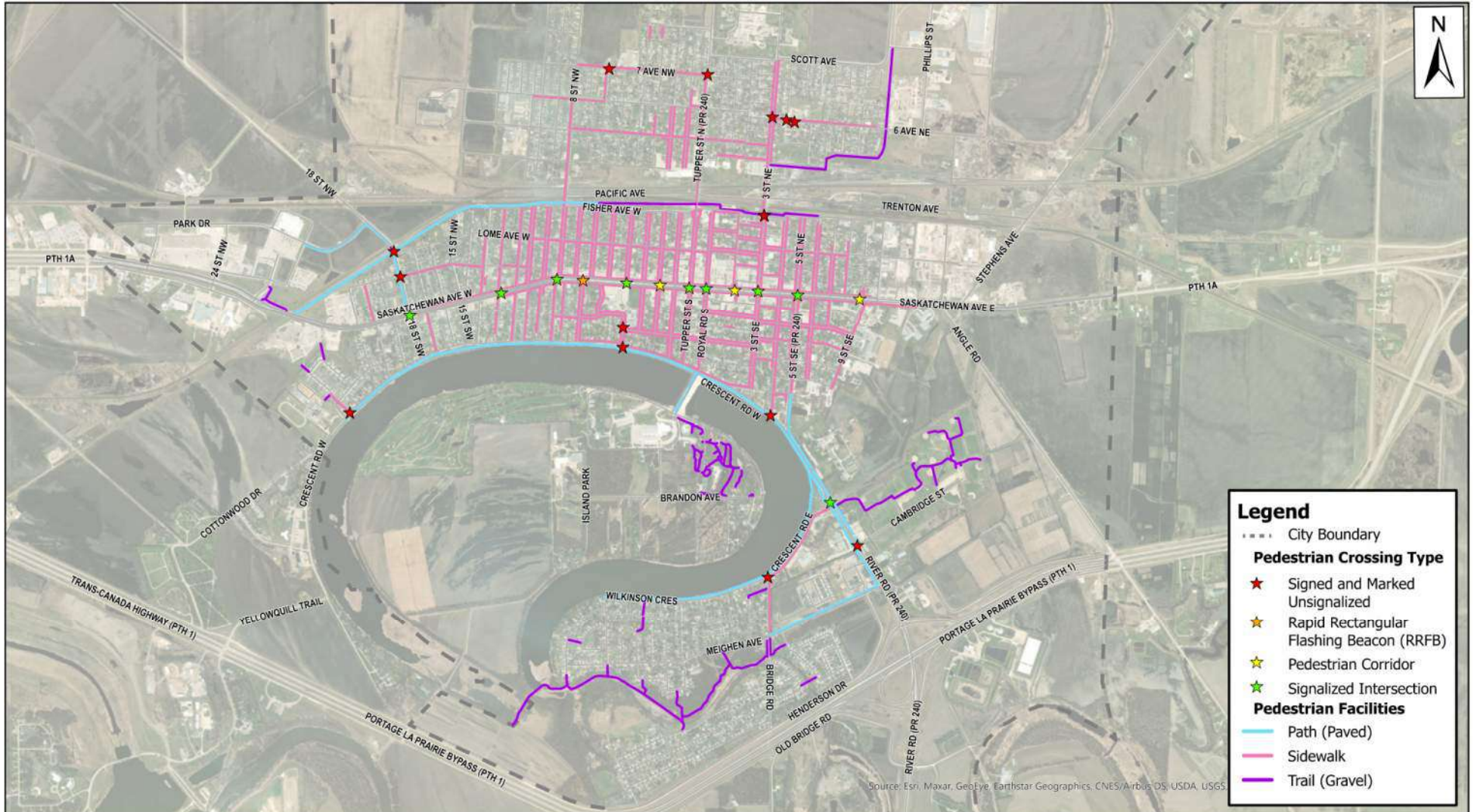


Figure 2.5: Truck Weight Limits (source: Manitoba Infrastructure)

### 3. ACTIVE TRANSPORTATION NETWORK

The existing active transportation network consists of facilities that include sidewalks, pathways, and trails. Sidewalks are narrow, paved, facilities intended for pedestrian use only; pathways are wider than sidewalks, paved, and intended to be shared by both pedestrians and cyclists; trails are gravel pathways intended to be shared by both pedestrians and cyclists. There are 19 marked pedestrian crossings within the study area. Of those 19, one is a Rapid Rectangular Flashing Beacon (RRFB) crossing at Saskatchewan Avenue West and 7<sup>th</sup> Street SW, three are overhead pedestrian corridors on Saskatchewan Avenue (2<sup>nd</sup> Street W, 2<sup>nd</sup> Street NE, and 9<sup>th</sup> Street NE), and 15 are ground mounted signed pedestrian crossings on local or collector streets. **Figure 3.1** shows the active transportation facilities and pedestrian crossings in the study area.



**wsp**  
 Landmark 6  
 1631 Dickson Ave, Suite 700  
 Kelowna, BC  
 V1Y 0B5 Canada

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Client:

## Portage la Prairie Public Transit Feasibility Study

### Existing Pedestrian Network

Project No.: 211-05085-00  
 Date: 10/7/2021  
 Scale: 1:20,000

Figure 3.1: Active Transportation Facilities



#### 4. RAIL NETWORK

Railways owned by Canadian National (CN) and Canadian Pacific (CP) run through the City of Portage la Prairie. The rail crossings consist of two grade separated crossings on Tupper Street N and 17 at-grade crossings. The tracks and crossings are shown below in **Figure 4.1**.

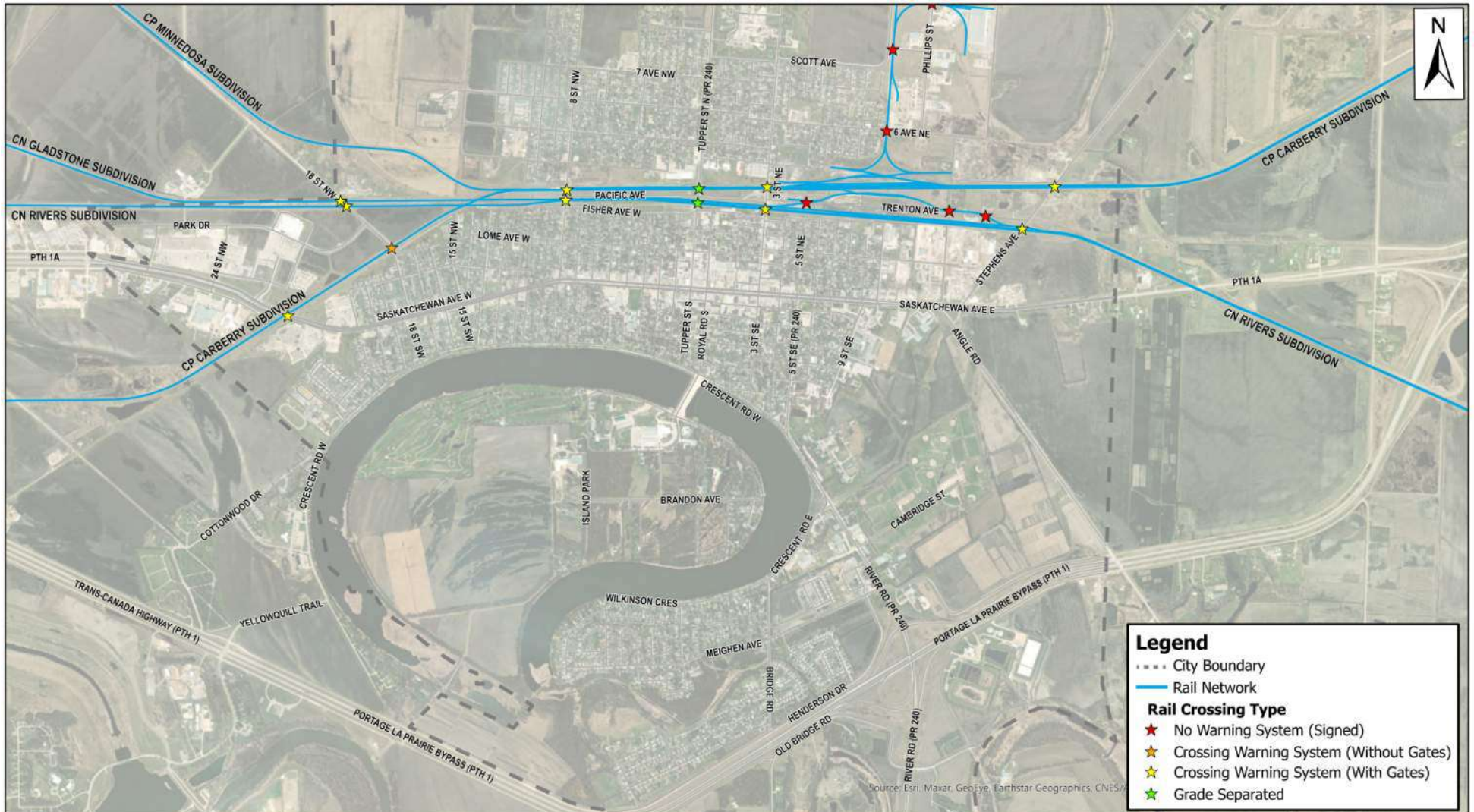


Figure 4.1: Rail Network and Crossings

# APPENDIX

## B

### PORTAGE LA PRAIRIE TRANSIT FEASIBILITY – PRACTICE REVIEW



## MEMO

**TO:** Jocelyn Lequier-Jobin, Director of Operations  
**FROM:** Erin Toop, Senior Transportation Engineer  
**SUBJECT:** Portage la Prairie Transit Feasibility – Practice Review  
**DATE:** June 7, 2021

## INTRODUCTION

As an early step in assessing the feasibility of various public transit service models in Portage la Prairie, a new mobility practice review was proposed to consider emerging transit service models and potential alternative vehicle propulsion technologies.

This memo includes a brief review of select Canadian communities which are implementing alternative transit services, the benefits and risks of different system and vehicle types, a comparison of electric bus versus diesel bus costs, and a summary of the different costs included in implementing a transit system, based on the WSP team's experience on past projects.

## JURISDICTIONAL SCAN

Seven (7) jurisdictions were shortlisted for further research – Powell River (BC), Cochrane (AB), Airdrie (AB), Medicine Hat (AB), Innisfil (ON), Belleville (ON), and Stratford (ON). These municipalities were chosen based on similarities in regional context to Portage la Prairie, as well as to provide understanding of a variety of innovative on-demand transit service models that may be feasible for Portage la Prairie. Relevant themes and key takeaways are provided, and more information about each transit system is highlighted in **Appendix A. Table 1** outlines the municipal transit systems reviewed in this memo. Information about net operating costs and net operating costs per capita are also provided in the table for context, however this information should not be used for direct comparisons without considering the unique context of each community and transit system.

For most systems this information in Table 1 represents only the conventional transit system, not the additional on-demand service. The results show that net operating cost per capita can range from as low as \$22 in Cochrane, which is fully on-demand, to as high as \$88 for conventional transit service in Powell River, where the conventional system provides regional coverage and serves a larger population.

Table 1 Summary of Municipalities Reviewed

Municipality	Previous Transit Model	Current Transit Model	Net Operating Cost (2019)	Net Op. Cost per Capita (2019)
<b>Powell River, BC</b>	Conventional Transit	Hybrid Pilot with introduction of On-Demand Service (2021)	\$1,062,000 (conventional only)	\$88
<b>Cochrane, AB</b>	No Transit Service	Fully On-Demand (2019)	\$629,000 (budgeted)	\$22
<b>Airdrie, AB</b>	Hybrid Conventional and On-Demand (2017-2019)	Conventional Transit (2019)	\$1,563,000 (conventional)	\$22
<b>Medicine Hat, AB</b>	Conventional Transit	Hybrid Pilot (2020)	\$5,058,000 (conventional only)	\$81
<b>Belleville, ON</b>	Conventional Transit	Hybrid (2018)	\$3,044,000 (conventional only)	\$60
<b>Innisfil, ON</b>	No Transit Service	Fully On-Demand (2017)	\$846,000	\$24
<b>Stratford, ON</b>	Conventional Transit	Hybrid (2020)	\$2,338,000 (conventional)	\$71

With a population of 12,949 (*Statistics Canada, 2016*) Portage la Prairie is one of the smaller municipalities reviewed, as seen in **Figure 1**. A review of demographics shows that 20% of Portage la Prairie’s population are seniors and this will be an important consideration for ensuring technology is adoptable by all residents, and in considering specialized transit or door-to-door transit service in the City.

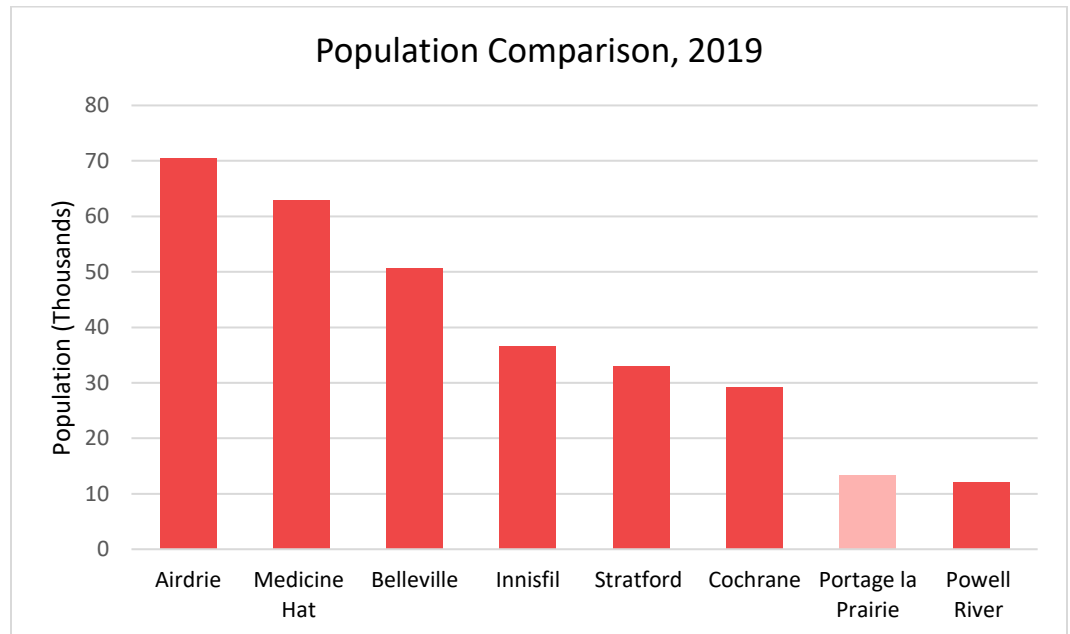


Figure 1 – Population of Municipalities Reviewed (CUTA, 2019)

A comparison of transit service areas in each community shows that the City of Portage la Prairie is a smaller footprint than other communities, at approximately 10 km<sup>2</sup>. While the transit service area in Portage la Prairie is yet to be determined, and likely to include some destinations within the Rural Municipality, this is a helpful indicator to show that transit coverage may be less of a challenge in Portage la Prairie, relatively speaking. Municipal transit service areas for all communities reviewed are illustrated in **Figure 2**. This metric is a consideration when designing the transit service model. The transit service area of most communities reviewed is approximately 30 km<sup>2</sup>, with most of the development footprint being lower-density residential complemented by a variety of commercial areas. As shown below, Innisfil has the largest service area with residents widespread across rural areas, and the municipality’s ride-sharing transit model, described in Appendix A, is tailored to address this context.

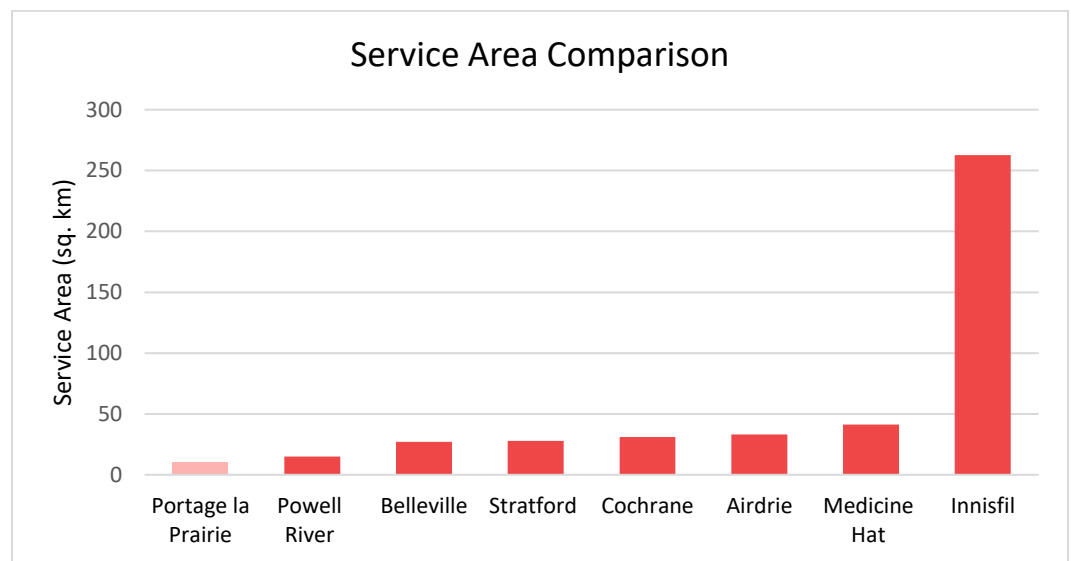


Figure 2 – Transit Service Area of Municipalities Reviewed

## JURISDICTIONAL SCAN TAKEAWAYS

On-demand transit has been introduced across an array of jurisdictions varying in scale and geographic area. The service hours and area depend on the specific context of the jurisdiction. Although on-demand transit is introduced for different reasons, all jurisdictions indicated cost-savings as a key objective. Other considerations include the selection of the service provider and integration with user-friendly software. Overall, most jurisdictions have experienced success with on-demand service and value the flexibility to increase or decrease service based on fluctuations in demand.

Key considerations for Portage la Prairie include:

## SERVICE MODEL

Service models range between fully on-demand and hybrid on-demand and fixed-route systems. The model applied varies based on ridership profiles, geographic area and origins-destinations. In most cases on-demand services are deployed to meet demand of non-commute trips. On-demand also replaced fixed-routes where the trip time can be reduced significantly by removing a transfer. Although all jurisdictions interviewed indicated flexibility with on-demand services, the ridesharing transit model in Innisfil, ON was found to provide the greatest flexibility.

The ridesharing transit model meets the needs of residents in a low-density town with an extremely large service area. For highly dispersed destinations and travel patterns, this service model is flexible and adaptable as operational costs change with the number of trips taken. However, the downside of the ridesharing model is the potential to succeed or grow into cost-failure, where it becomes unsustainable to subsidize an ever-increasing number of rides.

A theme from the communities interviewed is the intent to scale-up existing on-demand routes with higher ridership to fixed-routes, thereby achieving a hybrid on-demand and conventional system. An intentionally hybrid on-demand and conventional system appears to be the most cost-sustainable for adapting to both ridership growth and decline.

## DESIGNATED STOP MODEL

In most of the jurisdictions reviewed, designated stop models were the most common compared to door-to-door. This designated stop model is compatible with scaling up and down between fixed-route and on-demand service, as described in the previous section, as the bus-stop infrastructure used can remain in place regardless of the type of transit service operating. The designated stop systems allow the software to more efficiently create routes for users travelling in the same direction. This model can also be used to track frequently used routes, and has potential for informing future fixed route service, if appropriate.

## OPERATING COST AND UTILIZATION

Many jurisdictions either replaced fixed-route transit with on-demand, or added on-demand service as a complement to fixed-route during off-peak hours, or in geographic areas with low ridership, to form a hybrid system as a strategy to improve cost-recovery. The ridership targets for on-demand service cited by different municipalities ranged from 4 to 6 passengers per hour. Stratford, ON, reported significant fuel cost-savings with the change from fixed-route to on-demand when compared to conventional transit. Medicine Hat found cost-savings by converting five underutilized fixed routes to an on-demand service requiring only three buses. Medicine Hat has found that on-demand service is allowing them to retain coverage transit service at a 25% cost reduction. As each service is deployed uniquely, a specific cost-recovery ratio indicator has not been identified to transition from fixed-route to on-demand. Labour-cost-savings after switching to on-demand service are also notable, due to contracting with private service providers instead of operating the service with municipal or in-house staff.

## SERVICE PROVIDER

During the review of municipal transit services, the importance in selecting an experienced service provider and integration between the provider and the software was revealed. Airdrie's service shortcomings in 2018/2019, while partnered with a private operator, was likely a result of being early adopters and that more on-demand application options exist in today's market. This is confirmed in researching Cochrane who is currently partnered with the same operator and is satisfied with the service and software app. In some cases a partnership between the on-demand transit service and software providers has shown increased efficiency and responsiveness when changes are made to the system. The importance of a user-friendly app that could produce easily accessible data was also a theme that emerged in the review.



## SPECIALIZED TRANSIT

The incorporation of existing specialized transit services, for users with mobility impairments, into on-demand services, was noted in both Airdrie and Powell River. As both municipalities had existing accessible door-to-door service, the on-demand model provided a similar option for all users, regardless of their mobility needs. The opportunity to merge specialized transit with on-demand transit service for all customers was considered by Medicine Hat, to leverage excess capacity in the specialized transit system when there is lower utilization by its customer base. This approach can remain viable at large scale and is also used by larger transit agencies, such as Oakville, ON. Many regular users of the door-to-door transit service were residents with mobility restrictions.

## COMMUNICATION AND MARKETING

A recurring theme in several transit systems is the importance of investing in communication and marketing of a new on-demand transit system to all residents and potential users. Awareness of stakeholder needs will inform several aspects of the transit system such as software, transit model, service hours, etc. As the implementation of on-demand transit is still new across the country, and each community and system is unique, the population would benefit from informational material or workshops. The availability of such information can affect ridership and the success on-demand transit. There are also opportunities to tailor promotional programs to specific or target demographics such as students, commuters, or seniors.

On-demand transit models allow for an iterative approach during implementation and operation. Data are continuously collected through the on-demand software and can be used to inform service hours, designated stop locations (unless a door-to-door model is utilized), and eventually a fixed-route service if deemed appropriate.

## VEHICLE COSTS AND PROPULSION TECHNOLOGY

The key alternative vehicle technology to consider in Portage la Prairie is battery electric buses (BEBs). A summary of some key capital costs to consider with BEBs are highlighted in **Table 2** below, and a comparison to average diesel bus costs. Note that these statistics are a blend of WSPs experience and results provided in the literature.

*Table 2 Vehicle Cost Comparison*

ITEM	BEB COST (CAD)	DIESEL COST (CAD)
Bus (40')	\$1,000,000 - \$1,200,000	\$500,000 - \$600,000
Shuttle (30')	\$500,000 - \$750,000	\$200,000 - \$400,000

*Source: Electrifying Transit, A Guidebook for Implementing Battery Electric Buses (April 2021)*

As shown in the above table, the vehicle costs for BEBs are still higher than for diesel buses, however it is anticipated that the costs for BEBs will continue to converge with diesel. Another capital cost to consider, associated with different propulsion technologies is the refuelling equipment. This would include electric bus charging infrastructure, and diesel refuelling stations.

While some elements of BEB operation are less expensive than diesel buses (fueling and maintenance, for example) the major cost of any transit operation is the driver, and this does not vary by propulsion technology. In most cases, BEB operation is still more expensive than diesel



buses given the battery range limitations of BEBs and that multiple BEBs may be required to operate the same service completed by one diesel bus.

An evaluation of electric and diesel buses will be completed as part of the later stages of this transit feasibility project, when more information about the transit service options is available to better estimate costs.

## **TRANSIT SYSTEM COSTS**

There are three main types of costs to consider in setting up a transit system, from scratch.

### **START UP AND ADMINISTRATIVE COSTS**

Startup and administrative costs include software for on-demand transit, hardware for on-demand transit, communications and marketing for a new transit system, and staff or personnel to administer the system. Some of these costs like the software and staff or personnel time would be ongoing for the duration of the transit system operation, while marketing and communications would be more significant in the first year.

### **CAPITAL COSTS**

The major capital costs in a transit system are the vehicles, charging or refuelling infrastructure, garage and maintenance facilities, and any stop or station infrastructure.

### **OPERATING COSTS**

Operating costs may vary significantly in Portage la Prairie depending on several factors, with a major consideration being whether the City operates its own service or contracts the service to a private operator. When a municipality operates its own transit service, operating costs would be expected to range from \$80 to \$120 per service hour.

Based on information provided by Pacific Western Transportation (PWT), costs to operate transit service on behalf of municipalities typically ranges from \$40 per service hour to \$90 per service hour. This range depends on the following factors:

- Who owns the equipment,
- Who maintains the equipment,
- Number of vehicles,
- Number of service hours, and
- Contract duration.



## SUMMARY OF FINDINGS

A summary of the relative costs and factors associated with the different transit system types and vehicle propulsion technologies is shown in **Table 3**, below. This is a very high-level and qualitative analysis, and each evaluation depends on several variables which could be refined further and incorporated into a multiple account evaluation when transit service options are developed for Portage la Prairie. In the meantime, this is intended to inform initial discussions with City Council on the trade-offs of different service models and propulsion technologies.

*Table 3 Summary of Systems and Vehicle Propulsion*

	TRANSIT SYSTEM				VEHICLE PROPULSION TECHNOLOGY	
	Fixed-Route	Hybrid Fixed and On-Demand	On-Demand	TNC Partnership	Diesel Bus	Battery Electric Bus
<b>Relative Cost</b>	\$\$\$	\$\$	\$\$	\$\$\$	\$	\$\$\$
<b>Flexibility / Adaptability</b>	Low	High	Medium-High	Medium	High	Medium
<b>Scalability</b>	Medium	High	Medium	Low		

Sincerely,

Erin Toop  
Senior Transportation Engineer

/BN/ak

# **APPENDIX A**

# **SYSTEM**

# **SUMMARIES**

## POWELL RIVER, BC



**Regional Context:** Coastal City surrounded by undeveloped land, accessible by ferry to nearby islands

**Type of Service:** Conventional, Hybrid (2021)

**Technology:** Spare Labs Inc.

**Service Area:** ~15km<sup>2</sup> (On-Demand)

**Service Hours:**

All Days | 11:00 to 18:30

**Annual Revenue Hours (Conventional):** 12,055

**Fleet Size:** 5 Standard Buses, 1 On-Demand (Zunga) Bus

**Target Markets:** Youth and Seniors, Residents with mobility issues

Table 1 Financial Summary of Conventional System (CUTA, 2019)

Total Operating Expenses	\$1,317,780
Net Operating Cost	\$1,061,869 (Municipal: \$446,598, Provincial: \$615,271)
Total Operating Revenue	\$255,911

Note: Financial Summary included in Table 0-1 reflects only conventional transit data.

Table 2 Summary On-Demand Costs

Software Cost	Not Available – grant funded directly to Spare Labs Inc.
Bus Lease	\$2,400 per month (1 bus)
Driver Operating Cost	\$6,272 per month
Fuel Operating Cost	Not Available
Funding Sources	Built In Canada Innovation Program through the Federal Government funded the platform and the bus; City provided drivers for the pilot.

## SUMMARY OF TRANSIT SYSTEM

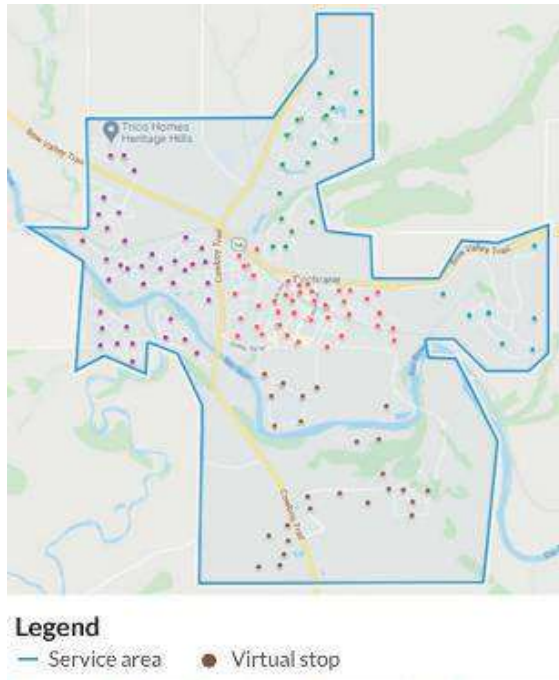
Powell River utilizes a local and regional transit system operated by BC Transit. The on-demand pilot service, Zunga Bus, began operating in February 2021 and will continue until December 2021. The service was initiated by the municipality as BC transit buses were consistently observed with low ridership and complaints had been received from the public regarding the long transit travel time required to complete a trip because of mandatory transfers. After initial discussions with BC Transit the municipality determined to partner with other service providers to expedite the service. Spare Labs Inc. approached Powell River to pilot the on-demand service with a grant they had received from the Federal Government that covered the software and bus.

The on-demand service operates simultaneously with conventional transit. This pilot project includes one Zunga Bus vehicle and serves Westview, the urban centre of the region, as part of phase one. In later phases, wheelchair accessibility will be included in the service. This system incorporates HandyDART, a paratransit system, with conventional transit service, and especially appeals to those with mobility issues.

The Zunga Bus service creates routes in real-time based on passenger input. The software processes requests instantly to design the most efficient route possible for all passengers. Designated stops are utilized in higher density areas while door-to-door service is also available in residential areas within municipal boundaries. The service is in still in the early implementation phase and as a result, ridership is still growing. Powell River has set a target of between 5-6 rides per hour. Powell River has received positive public feedback to date and has had no technical issues with the software. After the completion of the pilot project, the on-demand technology will be evaluated and considered for future planning of transit services in the municipality.

Key lessons learned include the need to budget appropriately for marketing to communicate how the service operates and educate the public on how to use it. In early discussions with BC Transit, it was indicated that there may be the opportunity to reallocate service hours to on-demand service hours as the service matures, and the viability has been confirmed.

## COCHRANE, AB



**Regional Context:** Low-density town surrounded by rural land, 30 minutes outside of Calgary

**Type of Service:** Fully On-Demand Transit (2019)

**Technology:** RideCo Inc.

**Service Area:** 31.1 km<sup>2</sup>

**Service Hours:**

Weekdays | 6:00 to 20:00

Weekends | 9:00 to 15:00

**Annual Revenue Hours:** Not Available

**Fleet Size:** 8 x 21-seat accessible buses

**Target Market:** Residents, youth and seniors

Table 3 Financial Summary of On-Demand System (Cochrane Budget 2021-2023)

Total Operating Expenses	\$996,287
Net Operating Cost	\$629,051
Total Operating Revenue	\$367,236

## SUMMARY OF TRANSIT SYSTEM

Cochrane is a growing municipality with no history of public transportation, aside from transporting commuters to and from Calgary for work purposes through a private sector coach service. Cochrane's five-year pilot project, Cochrane On-demand Local Transit (COLT) is one of the few fully on-demand transit systems, utilizing 145 unique stops within the City's boundaries. Service can be booked from minutes in advance to one week in advance. The service was funded through the provincial GreenTrip program with most of the funding being allocated towards setting up the service through the purchase of buses and construction of a transit hub. The Town of Cochrane owns and maintains their transit vehicles.

A free-to-use trial period was implemented from October 7 to December 31, 2019 and resulted in approximately 180 passengers per day. After the free-to-use period, ridership decreased slightly, however the system remained flexible and vehicles were added or reduced as needed.

The Town has had a good experience with Southland/PW Transit using RideCo. The Town selected this provider because of the packaged software and operator services. Southland/PW Transit is a private operator and as a result the cost for labour is much lower (no union) and they have strong safety policies.

The Town of Cochrane is planning to implement fixed routes by moving an on-demand vehicle to a fixed route during peak periods, based on data they have collected to date illustrating the most popular routes. As well, regional routes have been proposed to connect to Calgary and potentially to Banff.

It is notable that after one year of service, COLT came in under budget, with additional revenue of \$39,990 beyond what was expected. A key factor to success indicated by the Town was the widespread communication and marketing that occurred over a period of 1 year in advance of the service initiation.

## AIRDRIE, AB



**Regional Context:** City surrounded by rural land, 30 minutes outside of Calgary

**Type of Service:** Hybrid (2017-2019)

**Technology:** TransLoc App operated by Cowboy Taxi, then moved to PWTransit with no app

**Service Area:** 33.1 km<sup>2</sup>

**Conventional Service Hours:**

Weekdays | 5:00 to 23:11

Saturdays | 7:15 to 23:11

Sundays | 8:15 to 23:11

**Dynamic Service Hours:**

Same as Conventional, to facilitate transfers to fixed route service

**Annual Revenue Hours:** 31,415

**Fleet Size:** 6 Small Community Shuttles , 6 Standard 40ft Buses, 5 Articulated Buses

**Target Market:** All residents, ParaTransit

Table 4 Financial Summary of Conventional System (CUTA, 2019)

Total Operating Expenses	\$3,461,411
Net Operating Cost	\$1,563,004
Total Operating Revenue	\$1,898,407

## SUMMARY OF TRANSIT SYSTEM

Airdrie implemented a dynamic transit system in 2017 as part of a larger network redesign as recommended in their Transit Master Plan. Initially, the dynamic transit service was sourced from a local taxi provider using the TransLoc App, which was in early stages of development. On-demand service was available to book from 5:00 am to midnight. This schedule aimed to allow commuters to access the fixed route transit, which began at 5:30 am. The dynamic transit system consisted of several on-demand zones where commuters could book rides to designated transfer points, at which they could access the fixed route service. Door-to-door service was incorporated for users with mobility challenges.

Due to an unexpected change in the taxi company's operation, Airdrie was forced to quickly react and its fixed-route transit operator took over the on-demand service under very short notice. In the operator change, they also went analog and removed the app from the operation.

Airdrie terminated the dynamic transit system in late 2019 due to increasing costs. Initially operating costs were \$7-8 per trip and escalated to \$35 per trip. Ultimately, operating costs per hour were approximately \$107, though regional transit service was a large revenue source and offset the costs of the dynamic system. Before termination, ridership decreased from 50 trips per day to around 7 trips per day, with paratransit users being the main customer.

In discussions with Airdrie, they indicated that the challenges they experienced were likely a result of being early adopters. At the time the service was initiated there were a limited number of service providers and limited experience. Airdrie did indicate that there may be the opportunity to reintroduce on-demand transit in the future as more knowledge is gained on the program. A lesson learned was to test on-demand transit technology for both general operation and user experience.

## MEDICINE HAT, AB



**Regional Context:** City surrounded by rural land, no nearby urban centres

**Type of Service:** Hybrid (2020)

**Technology:** Spare Labs Inc.

**Service Area:** 41.4 km<sup>2</sup>

**Conventional Service Hours:**

Monday to Saturday | 6:45 to 22:45

Sunday | 8:15 to 19:15

**On-Demand Service Hours:**

Weekdays | 18:45 to 22:45

Sunday | 8:15 to 19:15 (Starting May 9, 2021)

**Annual Revenue Hours:** 53,000 (conventional only)

**Fleet Size:** 16 Standard Buses

**Target Market:** Low-income, students and seniors

Table 5 Financial Summary of Conventional System (CUTA, 2019)

Total Operating Expenses	\$5,975,775
Net Operating Cost	\$5,058,050
Total Operating Revenue	\$907,725

## SUMMARY OF TRANSIT SYSTEM

Medicine Hat historically operated a conventional transit system only and has recently implemented an evening on-demand transit system, MHTnow, in response to COVID ridership reduction. MHTnow launched in September, 2020. Initially, the area of lowest ridership was chosen to launch the on-demand evening service. Since then, the service area has expanded twice, in November 2020 and January 2021, and currently serves the City's north and central neighbourhoods. MHTnow also connects to the downtown transit terminal. On May 9, 2021, MHTnow expanded service hours to cover Sundays due to the success of on-demand transit.

While expanding service, MHTnow remains flexible to ridership and has increased and decreased the number of vehicles in operation to suit demand. Currently, MHTnow is operating two fewer buses than were required to run the previous fixed-route service. They estimate that on-demand transit has allowed them to retain coverage transit service at a 25% cost reduction compared to fixed-route.

The on-demand service provides a more frequent and fast evening service than previously offered with the conventional system, with an average wait time of less than 10 minutes and an average trip time of less than 10 minutes. Their ridership target for on-demand service is 4 passengers per vehicle per hour. When ridership

approaches 8 passengers per vehicle per hour, the City intends to review the on-demand destination data to determine a fixed-route alternative.

MHT now utilizes the conventional transit fleet vehicles, which are wheelchair accessible. Along with the existing fixed route bus stops, new virtual unsigned stops have been conveniently set to access new neighbourhoods while being located along main routes and secondary streets that are accessible by the existing fleet.

In discussion with Medicine Hat, a few notable issues were raised. Utilizing virtual stops without signage has been challenging as users often are not aware of the unsigned stop locations. As well, 50% of users do not book trips via the mobile app due to limited access to technology. These individuals either book their trip over the phone or are observed to walk onto the vehicle and arrange their trips directly through the driver. As the iterative program progresses and when ridership returns to pre-pandemic volumes, Medicine Hat may consider utilizing on-demand routing data to inform new fixed route services. Another key issue they raised is to develop a plan to transition between on-demand and fixed routes when ridership grows.

## BELLEVILLE, ON



**Regional Context:** City surrounded by rural land, 1 hour away from Kingston, ON

**Type of Service:** Hybrid (2018)

**Technology:** Pantonium

**Service Area:** ~27 km<sup>2</sup>

**Conventional Service Hours:**

Weekdays | 4:45 to 00:00

Saturday | 5:15 to 00:00

Sunday | 7:00 to 00:00

**On-Demand Service Hours:**

Weekdays | 21:30 to 00:00

Saturday | 19:00 to 00:00

Sunday | 18:30 to 00:00

**Revenue Hours:** 56,942

**Fleet Size:** 16 Standard Bus, 3 Accessible

**Target Market:** Youth and young adults, low-income individuals

Table 6 Financial Summary

Total Operating Expenses	\$4,996,410
Net Operating Cost	\$3,044,198
Total Operating Revenue	\$1,952,212

## SUMMARY OF TRANSIT SYSTEM

Belleville is the first municipality to launch an on-demand transit system in Canada. In September 2018, the on-demand service began by replacing the fixed route night bus service using existing vehicles, existing stops, and existing drivers. Dynamic routing was utilized to plan routes based on rider pick-up and drop-off locations. For the most part, service hours have remained relatively constant since 2018, with on-demand service operating during evenings and night times only.

The original fixed night bus service route varied significantly from the areas that residents were travelling using the on-demand service. Ridership has steadily increased since the implementation of on-demand. However, users share opposing views regarding the on-demand service vs. fixed route service. Some prefer the predictability of the fixed route, though travel times may be longer, they are able to better plan arrival times. Recently, two new fixed route night bus services have been implemented, likely based on on-demand routing data.

## INNISFIL, ON



**Regional Context:** Low-density rural town near an urban centre, one hour away from Toronto, ON

**Type of Service:** Fully On-Demand (2017)

**Technology:** Uber

**Service Area:** 262.7 km<sup>2</sup>

**Service Hours:** 24/7

**Annual Revenue Hours:** N/A

**Fleet Size:** Driver owned vehicles

**Target Market:** All residents

Table 7 Financial Summary

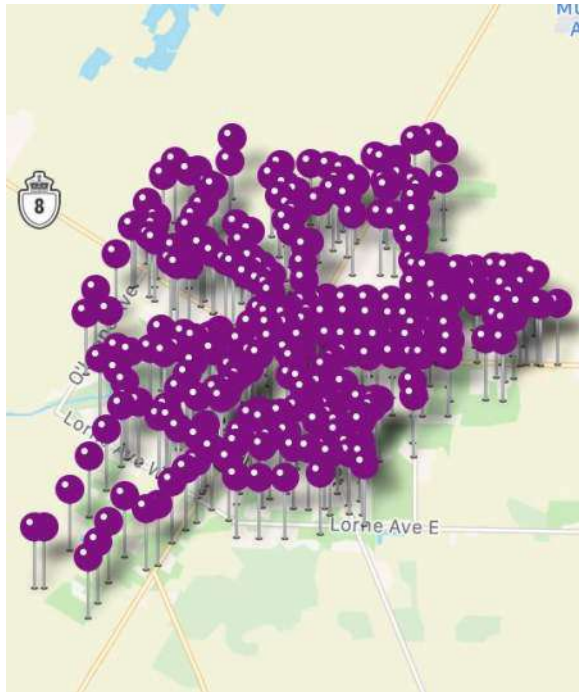
Total Operating Expenses	Varies due to per trip subsidy
Net Operating Cost	\$846,000 (2019)
Total Operating Revenue	N/A

## SUMMARY OF TRANSIT SYSTEM

After no history of public transit, Innisfil partnered with Uber in 2017 to implement a shared ride transit system, Innisfil Transit, providing door-to-door rides, as well as transportation to and from fixed locations at a flat rate. This is the first ridesharing-transit partnership of its kind in Canada. Similar to uberPOOL, Innisfil Transit matches riders with other commuters travelling in the same direction. Flexible job opportunities have also been provided to residents as thousands of drivers have provided service to fellow residents through Innisfil Transit. This is the only transit service model in Canada that exclusively employs a transportation network company to provide door-to-door transportation service.

Users can travel to designated destinations with a flat rate while also having the option of travelling anywhere within Innisfil boundaries with a \$4 discount off Uber's standard ride fare. Several programs have been implemented to ensure accessibility of transit for all residents. These include Fair Transit for low-income households and wheelchair accessible rides. Due to the program's success, Innisfil Transit has limited residents to 30 to 50 rides per month to stay within the Town's budget. It is notable that operating costs have decreased during the pandemic due to the per trip subsidy model.

## STRATFORD, ON



**Regional Context:** City surrounded by rural land, 40 minutes away from larger urban centres

**Type of Service:** Hybrid (2020)

**Technology:** Pantonium

**Service Area:** 27.8 km<sup>2</sup>

**Conventional Service Hours:**

Weekdays | 6:00 to 22:00

**On-Demand Service Hours:**

Saturdays | 6:00 to 20:00

Sundays | 10:00 to 17:30

**Annual Revenue Hours:** 39,444

**Fleet Size:** 13 Standard Buses

**Target Market:** All residents

Table 8 Financial Summary (CUTA, 2019)

Total Operating Expenses	\$3,156,488
Net Operating Cost	\$2,338,261
Total Operating Revenue	\$818,227

Table 9 Summary On-Demand Costs

Software Cost	Vendor hosts all data; No charge to setup software. Four (4) annual licenses purchased at \$15,000.00 ea; total of \$60,000.00 annually (this covers software, apps, driver apps and dispatch function and 24/7 support, upgrades)
Hardware Cost	8 tablets at \$800 each; total of \$6,400
Bus Lease	No additional costs. Utilized fixed route buses used on week days for weekend service.
Driver Operating Cost	\$5,984 per month; \$1140 on Saturdays and \$356 on Sundays.
Fuel Operating Cost	Costs are not available but daily fuel cost savings from fixed route service to on demand transit was \$613.62 on Saturdays and \$75.87 for Sundays

Funding Sources	<p>Phase 1 Sunday service-initiated July 2020 was capital project funded through Investing in Canada Infrastructure Program (ICIP). Funding allocated from 3 levels of government (federal/provincial/municipal) with each paying a percentage to cover capital costs.</p> <p>Phase 2 Saturday service-initiated February 2021 was funded through Provincial Gas Tax. Phase 3 of the Safe Restart Agreement (SRA) through the Ministry of Transportation Ontario may also be applied to this program which allows coverage of up to 50% for micro/macro transit.</p>
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**SUMMARY OF TRANSIT SYSTEM**

The City of Stratford provides conventional transit managed by the municipal department and included conventional transit, parallel transit (for users with mobility issues), and EasyRide for senior citizens.

Sunday only on-demand transit service launched on July 5, 2020. The service was initiated after observing low ridership on fixed-routes and recognizing high operational costs. Stratford’s on-demand system consists of over one hundred (100) designated pick-up and drop-off points across the city that can be booked ASAP or in advance.

On February 6, 2021, Stratford expanded on-demand service hours to include Saturdays. Service expansion was motivated not only to provide more efficient and reliable service, but also to reduce operational costs of the conventional transit system. A minimum of six (6) buses are dispatched during peak periods to meet customer demand for both conventional operation days and on-demand days. Currently, weekend service has been completely replaced by on-demand transit and has been successful since the launch. Stratford has experienced significant fuel and labour savings by switching from fixed-route to on-demand service.

# APPENDIX

# C



ESTIMATED  
TRANSIT TRIP  
MATRICES



