



DILLON
CONSULTING

STRATHCONA COUNTY TRANSIT

Transit Master Plan Update

DRAFT Working Paper #2: Policy Framework and Strategic
Directions

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1.0 Introduction

1.1 Study Purpose and Objectives

Dillon Consulting Limited was retained by Strathcona County Transit to conduct an update of the 2012 Transit Master Plan (TMP).

The purpose of this study is to develop a plan that will provide direction to the County on the delivery of transit service over a five to ten year period. This includes local transit services, Mobility Bus services, inter-municipal commuter services to Edmonton, and rural service. The plan includes:

- a comprehensive engagement strategy of both transit customers and residents that do not take transit;
- a review of existing conditions in relation to transit services and ridership, current policies in place, planned growth and improvements and other pertinent information;
- an understanding of the mobility needs of Strathcona County residents;
- a policy framework defined through a vision, mission and goals and service standards; and
- strategic directions and plans for all types of transit services.

The Study is split into three separate working papers.

Working Paper #1: Existing Conditions Report: Presents a review of the municipal context and transit system, system performance and key issues and opportunities to be addressed. A summary of key resident comments that participated in the first round of public engagement is also included.

Working Paper # 2: Policy Framework and Strategic Directions: Present the draft role of transit, vision, mission, goals and objectives that guide the development of future strategic directions. The service standards provide more specific guidance on how the transit system should be designed and how performance should be measured. Strategic directions are then provided which outline high level recommendations that Strathcona County Transit should consider over the next 10-years. ***This is the subject of this working paper.***

Working Paper #3: Phasing and Implementation Plan: Upon completion of the second round of public engagement, the policy framework and strategic directions will be revised and a more detailed phasing and implementation plan will be developed. ***This is the subject of a future working paper.***

1.2 Working Paper #2 - Outline

In order for a Transit Master Plan to be truly successful, it needs to be built on a sound policy framework that outlines the purpose of the transit system and provides guidance on how to plan, design, operate and maintain all of the components of the system. The purpose of this document is to review the

previous Transit Master Plan policy framework, discuss the success of the various policy framework elements, consider the community's recent input on the policy framework elements, and recommend an updated policy framework for the new Transit Master Plan. In order to accomplish this, the document is organized into the following sections, each representing a key component of the policy framework:

- **The Role of Strathcona County Transit** – This section will develop appropriate roles for Strathcona County Transit based on consideration of the roles described in the previous Transit Master Plan, the strategic directions outlined for transit in the County's Integrated Transportation Master Plan, and comments from the community about what they see as the key roles for the transit system;
- **Vision Statement** – The vision statement provided in the previous Transit Master Plan will be reviewed and, if appropriate, an updated statement that better reflects the transit system's roles will be proposed in this section;
- **Mission Statement** – As with the vision statement section, this section will reflect on the current mission statement and, if necessary, propose an updated mission statement that is more appropriate for the transit systems purpose in the community;
- **Goals and Objectives** – This section will discuss proposed transit system goals and objectives that are necessary to support the system's mission, vision and roles; and
- **Service Standards** – A comprehensive set of transit service standards and guidelines that support the other elements of the policy framework described in the previous sections and guide the planning and operation of current and future services will be proposed in this section.

The policies and standards of the preceding sections inform the setting of strategic directions. These are the concrete actions that are recommended to be taken over the course of the Transit Master Plan.

2.0 The Role of Strathcona County Transit

2.1 Roles According to the County Integrated Transportation Master Plan

The primary purpose of the transit service in Strathcona County is summarized in the community's Integrated Transportation Master Plan (ITMP). This document states that transit currently provides service for travel within the County's Urban Service Area and for trips between the Urban Service Area and key destinations in the City of Edmonton. It notes that these services are mainly designed for people making trips for work or school.

In the future, the ITMP suggests that transit service could also connect the larger hamlets and rural areas to the Urban Service Area, and that services could be designed to serve a greater variety of trips purposes such as medical visits, recreation or shopping. The plan also notes the potential for transit to shape land use and a desire to improve modal share.

To meet these needs, the ITMP provides five strategic directions:

1. Make transit an attractive, competitive alternative to the low-occupancy motor vehicle for commuter and local trips;
2. Optimize transit linkages between Edmonton and the Sherwood Park Urban Service Area and any future growth area(s) through infrastructure, information, and service design;
3. Improve transit service for local trips within the Sherwood Park Urban Service Area, and capitalize on integration with land use planning to support high-quality local transit service in future urban growth area(s);
4. Assess the need for transit connectivity to the growth hamlets possibly through development of small-scale mobility hubs;
5. Assess the feasibility of high-speed transit between Strathcona County and Edmonton, then plan for any identified high-speed transit solutions accordingly.

Each of the above strategic directions is, in turn, supported by appropriate strategic actions:

1. Implement the Transit Master Plan;
2. Support future transit service levels with appropriate investments in roads, transit vehicles and facilities, and pedestrian and bicycle connections:
 - a. Invest in transit services that will increase ridership;
 - b. Encourage the use of monthly and annual passes;
 - c. Invest in transit customer information systems;
 - d. Invest in accessible services and facilities;
 - e. Enhance connections with active transportation (e.g. bicycle racks on buses, sidewalk connections at bus stops, bicycle lockers/parking at transit centres);

3. Incorporate transit priority within Strathcona County and support integrated transit priority initiatives elsewhere in the Edmonton Metropolitan Region;
4. Consider economic levers to shift demand from driving to transit:
 - a. Charge for parking or introduce a tax on parking spaces, especially in areas that are well served by transit;
 - b. Consider (in the longer term) road tolls, increased car registration fees, and increased gas taxes for Strathcona County within the framework of the Edmonton Metropolitan Region as a whole;
5. Encourage ridership with transit-friendly land use planning.

2.2 Roles According to the Previous Transit Master Plan

The previous Transit Master Plan used an internal visioning workshop and vision-related questions from a community survey to assist in identifying appropriate roles for the transit system. The Plan described three main roles for Strathcona County Transit in the community:

1. **Social** – Transit plays a crucial role in helping Strathcona County to be an inclusive, accessible, connected and healthy community. Transit connects people to a variety of opportunities such as employment, shopping, recreation, and medical destinations. It is especially important for residents and visitors that do not have access to a car such as youth, seniors, persons with disabilities, and persons with low incomes. Without transit access, these groups would be at risk of becoming isolated or choosing to live in other municipalities where better transit exists.
2. **Economic** – Transit plays an important role in the economic vitality of Strathcona County. Transit is a critical link for regional and local labour mobility and for connecting workers with employers. Because transit is largely funded by taxpayers, it is very important that services are planned and provided in an efficient and cost-effective manner.
3. **Environmental** – Transit plays an important role in helping to preserve the environment by attracting new riders and thereby reducing the number of cars on the road. Fewer cars help to reduce greenhouse gases and other polluting emissions.

2.3 Roles According to the Community

The first phase of community engagement for the update of the Transit Master Plan was held during February and March of 2018 and included meetings with the mayor, councillors, and County staff; a focus group of transit stakeholders; public open houses; and an online survey. These activities resulted in a broad range of discussions and ideas for all aspects of the transit service. Those related to the policy framework of Strathcona County Transit and the roles of the service included:

- A social role making Strathcona County accessible to all residents regardless of age or ability to drive a vehicle;

- An environmental role in reducing emissions and congestion;
- An equity role in providing an affordable means of transportation for all residents regardless of means;
- An urban development role in support of a more urban and walkable community in the future, and the growth of urban expansion areas;
- An economic role in providing access to employment opportunities;
- A regional service role connecting the Urban Service Area with key destinations in Edmonton and, potentially, other locations such as Fort Saskatchewan;
- A local service role within the Urban Service Area (and future urban growth areas) to easily connect residents to local shopping, recreation, employment, and medical destinations; and
- A rural community service role to ensure that residents in the rural portions of the county are offered basic mobility.

2.4 Proposed Roles

It is clear that none of the Integrated Transportation Master Plan, the previous Transit Master Plan, or the recent community engagement activities provide by themselves a comprehensive statement of roles for Strathcona County Transit. Rather, they need to be brought together to develop an appropriate set of roles that provides the starting point for development of the policy framework. In addition, the organization's role should look beyond the past planning framework and recognize that the roles of transit systems throughout the world are changing – many are becoming broad mobility coordinators for their community through leadership in building partnerships with new mobility providers and approaches.

The following role statement is proposed.

The primary purpose of Strathcona County Transit is to meet the mobility needs of the residents and businesses in the community. It provides service that supports:

- ***Equity – Available and affordable for all residents regardless of their age, ability, or means;***
- ***Economic Opportunity – Provides access to employment and education within the community and regionally;***
- ***Environmental Sustainability – Provides a convenient alternative to driving that reduces emissions and congestion.***

To achieve this, Strathcona County Transit's role is to provide the following types of services:

- Local Transit Service – A mixture of accessible conventional and on-demand services within the existing Sherwood Park Urban Service Area and future Planned Areas and Greenfield Areas;

- Inter-municipal Transit Service – High capacity and accessible transit services connecting the current and future Urban Service Area with key destinations in Edmonton or other areas of the Edmonton Metropolitan Region;
- Rural Transit Service – A mixture of accessible conventional and on-demand services linking rural settlements in the County with each other and the current and future Urban Service Area;
- Implementing partnerships with other mobility providers and identifying approaches that enhance mobility for residents; and
- Programs that influence greater use of sustainable mobility approaches.

3.0 Vision and Mission

3.1 Vision Statement

A vision statement for an organization should be a clear and concise statement of the desired future that the entity provides to the community it services. Every action that is taken by the organization should then reflect the vision. The vision statement from the previous Transit Master Plan states:

As a recognized leader in the transit industry, Strathcona County Transit takes pride in providing excellent service to the community while enhancing quality of life and promoting sustainability.

This statement is good in that it speaks to excellent service, quality of life and sustainability, all desirable qualities for a preferred future. However, it does not address the full purpose and roles discussed in the previous section as directly as it might. The following updated vision statement is proposed:

Provide access opportunities for all residents and businesses in the community through the provision of sustainable mobility services.

3.2 Mission Statement

The mission statement of an organization builds on the broad vision statement by succinctly describing how it achieves the vision. The mission statement from the previous Transit Master Plan stated:

Strathcona County Transit provides local, inter-municipal and specialized public transit services for the community that are Customer-focused, Accessible, Reliable, Efficient and Safe (CARES).

This is an excellent statement that describes what the organization does and the values that it adheres to while delivering the service. These values describe what is important to the organization in terms of how it approaches its customers, its operations, and its employees. Specific value statements include:

- **Customer-focused** – The experience of the customer drives decision making. When considering how to proceed with any decision, the experience that the customer will have as a result of that decision will always be top of mind;
- **Accessible** – The services, following universal design principles, will be available to everyone in the community regardless of their age, ability or means to the greatest extent possible;
- **Reliable** – Customers have access to real-time bus information which allows them to conveniently plan their trip. Customers that do not use real-time data can still rely on the transit service to operate according to the schedule and manner advertised, and planning and operational decisions will be made with this requirement in mind;

- **Efficient** – The equipment used and services provided will be planned and operated in a manner that recognizes the public financial contributions of customers and the community;
- **Safe** – No equipment or service will be operated or project undertaken if it will knowingly compromise the health or safety of customers or employees.

It is appropriate to maintain a mission statement that continues the focus on the CARES values described above. Slightly modified to reflect the broader mobility focus described in the roles and the vision statement, the proposed mission statement is:

Strathcona County Transit provides sustainable mobility services for the community that are Customer-focused, Accessible, Reliable, Efficient and Safe (CARES).

4.0 Goals and Objectives

Having established the roles for Strathcona County Transit and identified appropriate vision and mission statements to guide activity in the future, the next step is to establish a set of goals and corresponding objectives that will guide the activities of the organization. **Table 1** lists goals organized into the primary purposes of equity, economic opportunity and environmental sustainability, and indicates objectives for each goal that collectively address all of the roles and reflect the CARES values.

Table 1 – Proposed Goals and Objectives

	Goal	Objective
Equity	1. Ensure a safe and healthy workplace, environment and service for all customers, employees and others	<ul style="list-style-type: none"> a) Work to maintain and improve the safety of all vehicles and facilities used by customers b) Work to promote a workplace culture that will increase the enjoyment and reduce stress of customers using the Strathcona County Transit service c) Work to maintain and improve the health, well-being and safety of all workplaces used by employees d) Work to maintain and improve the safety of all road users
	2. Ensure that transit services are available, accessible and affordable for all residents regardless of age, ability, or means	<ul style="list-style-type: none"> a) Provide transit facilities, vehicles and services that adhere to the principles of universal design to maximize accessibility for customers b) Provide Mobility Bus Services for those who need an accommodation c) Offer an equivalent service for persons with disabilities by advancing the accessibility of its fleet and facilities and making service levels and fares equivalent for Mobility Bus and conventional bus services d) Set fares that are equitable and affordable for all customers, including youth, seniors, persons with disabilities and persons with low incomes e) Enhance the proximity and span of service for all members of the community.
	3. Provide services that can meet the needs of residents and customers	<ul style="list-style-type: none"> a) Provide local transit service within the Urban Service Area, including the future Planned Areas and Greenfield Areas b) Provide inter-municipal transit service connecting the Urban Service Area with key destinations in Edmonton or other areas of the Edmonton Metropolitan Region

	Goal	Objective
		<ul style="list-style-type: none"> c) Provide rural transit service linking key rural settlements in the County with the Urban Service Area based on demand and the ability to provide a reasonable service utilization which meets approved service standards d) Provide information about services that is easy to use and accessible
Economic Opportunity	4. Ensure access to employment and education within the community and regionally	<ul style="list-style-type: none"> a) Provide transit service to major employment areas and educational institutions within the Urban Service Area, in Edmonton, and elsewhere in the Edmonton Metropolitan Region
	5. Ensure an appropriate balance between the amount of service offered and financial resources	<ul style="list-style-type: none"> a) Balance user fees with tax support b) Maintain appropriate service standards to ensure most effective use of resources
	6. Maximize the efficient use of resources	<ul style="list-style-type: none"> a) Provide transit priority measures and bus rapid transit approaches to improve speed, reliability and the customer experience b) Employ proven technology to improve service control, provide information and improve the customer experience c) Develop partnerships and provide connectivity with other mobility providers and modes in order to expand mobility choice and potential ridership d) Provide and support demand management strategies and programs that can influence and encourage greater use of sustainable mobility approaches e) Critically examine and assess opportunities to introduce technological advancements that will help enhance the customer-experience (access to information, fare payment, etc.), improve operations and/or reduce Strathcona County Transit's environmental footprint f) Plan and operate service that makes the most effective use of system resources g) Stress innovation and the creation of partnerships in the planning, delivery and funding of services
	7. Reinforce the County's distinct identity	<ul style="list-style-type: none"> a) Provide a consistent brand for all transit services and programs b) Promote a positive image of Strathcona County Transit in the community as the preferred transportation mode and an integral part of quality of life

	Goal	Objective
Environmental Sustainability	8. Provide an alternative to reliance on personal automobiles	<ul style="list-style-type: none"> a) Provide services that can attract new users away from their cars b) Provide services that can enable a car-free lifestyle c) Provide a reliable and dependable service that provides customers with a sense of trust that they will arrive at their destination as planned d) Strive to deliver a service that minimizes end-to-end travel times by implementing transit priority features on key corridors, minimizing route deviations and reducing transfer time e) Continue to improve seamless inter-municipal travel opportunities between local services and inter-municipal services
	9. Adopt transit supportive measures throughout the County	<ul style="list-style-type: none"> a) Encourage transit-oriented development that is compact, mixed-use, and walkable b) Respond to development, growth pressures and changing demographics in a proactive and innovative manner, recognizing that transit is an integral part of urban development and environmental sustainability c) Provide and support demand management strategies and programs that can influence and encourage greater use of sustainable mobility approaches
	10. Maximize transit's environmental performance	<ul style="list-style-type: none"> a) Minimize pollution from transit operations b) Maximize energy conservation of all transit facilities c) Minimize environmental footprint through green procurement and business operations

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5.0 Service Standards

Service Standards provide for a consistent and fair evaluation of both existing and proposed services, and establish a framework for guiding decisions on how to best serve customers' diverse travel needs within prevailing budgetary and resource limits. The standards discussed in this document are intended to provide guidelines governing the planning and design of the overall service strategy for a growing Strathcona County Transit system that are linked to the Vision, Mission and Goals and Objectives of the system. Definitions and details of the standards and how they are used in decision making are also identified. The priorities that the service standards establish reflect the values of the community and provide for a consistent and fair evaluation of both existing and proposed services.

Because markets, customer expectations, and Strathcona County Transit's resources change over time, service standards are evolutionary by nature. Strathcona County Transit must be responsive to these changes in order to retain current customers and achieve and sustain ridership growth. Balancing customer expectations and budget constraints is a difficult challenge. Existing services must be monitored and modified continually to match service levels to demand and respond to opportunities for new or improved services. The dynamic nature of new urban developments and changing travel markets in Strathcona County Transit's service area requires constant review of new service strategies, service expansion, or service re-alignment options. Strathcona County Transit must be able to rationally evaluate service changes and make adjustments to service within the constraints of budget and equipment availability, in order to provide the highest quality service in the most efficient manner possible, using established Service Standards as a guide.

These Service Standards should be reviewed and updated, as necessary, in conjunction with a five-year strategic review of the system to ensure that the established criteria are still relevant to Strathcona County Transit's operating environment, customer needs and expectations and reflect current transit industry trends.

The following Service Standards document was updated as part of the Transit Master Plan Update (2019-2028). It is based on a review of current performance and future goals and directions and input provided by Strathcona County Transit staff.

5.1 Transit Service Area

Service standards will be applicable to transit services provided in the Strathcona County Urban Service Area, as defined in the Municipal Development Plan Bylaw 20-2017.

Service may be provided outside of the Urban Service Area in the following circumstances:

- to downtown Edmonton;
- to major destinations in Edmonton or connections to Edmonton Transit Services (ETS), if warranted;
- to other significant employment areas within Strathcona County, if warranted;
- to other significant areas in the Edmonton Metropolitan Region outside of Strathcona County, if warranted; and
- to rural portions of Strathcona County in the Rural Service Area as defined in the Municipal Development Plan Bylaw 20-2017, if warranted.

These services outside the existing and future Urban Service Area will only be provided if warranted by demand as defined in the Introduction of Service to New Areas standard (**Section 5.4.6**) or Service Utilization Standard (**Section 5.4.4**). Service standards describing this are included in the following sections.

5.2 Service Types

Standards are defined for different types of routes and services that Strathcona County Transit may operate, now or in the future, as part of their overall family of services. These route and service types include:

Inter-municipal Routes

These connect the Urban Service Area with high demand destinations in Edmonton or other areas of the Edmonton Metropolitan Region with direct non-stop or limited-stop service, and are focused on commuters and people attending major post-secondary institutions.

Local Routes

These fixed-routes provide service within the Urban Service Area, connecting communities with each other, with local activity centres, and with transit terminals where transfers to and from Inter-municipal Routes can be made.

Dynamic Transit Services

These shared-ride demand-responsive services provide flexible routing and scheduling in the Urban Service Area or Rural Service Area during periods of the day and/or areas of the County where it is difficult to justify the operation of a Local Route or if it is deemed a better alternative to fixed-route service. Dynamic Transit Services provide stop-to-stop or curb-to-curb services that connect areas of the community that do not have a Local Route, as a supplement to a Local Route, or provide connections to major transit focal points to facilitate transfers to other fixed-routes for longer-distance trips. These typically use dedicated or non-dedicated small/medium-sized vehicles (including buses, taxis, vans or sedans) operating in shared-ride mode (according to customer needs). To access the

service, the customer must call a dispatch office or use their mobile phone to request a trip in advance of the trip pick-up time.

Special Services

These are routes or services that are operated at specific times or on specific days and accommodate high numbers of customers making the same trip (examples include special school services to or from a high school and supplementing local routes, or special event services).

Rural Services

These are fixed-route or Dynamic Transit Services connecting one or more rural communities in the Rural Service Area to the Urban Service Area.

Mobility Bus Services

These are shared-ride, accessible, door-to-door demand-responsive services designed for Strathcona County residents with disabilities who are unable to use any of the other Family of Services noted above and meet specific eligibility criteria.

5.3 Service Design Standards

Service Design Standards set out specific criteria for route design and service levels, including system proximity, route directness, service frequencies, and span of service.

5.3.1 Eligibility

Table 2 identifies the eligibility criteria that apply to each type of service provided by Strathcona County Transit.

LINK TO GOALS AND OBJECTIVES
EQUITY: Provide services that can meet the needs of residents and customers

Table 2 – Strathcona County Transit Eligibility Criteria

Type of Service	Eligibility Criteria
Inter-municipal Service	No restrictions (open to all residents, employees and visitors of Strathcona County)
Local Routes	
Dynamic Transit Services	
Special Services	
Rural Services	
Mobility Bus Services	Persons who can demonstrate that because of a disability they are not able to use conventional bus services for some or all of their trips, are 18 years of age or older and are a resident of Strathcona County



For Mobility Bus Services, the eligibility criteria are further defined by specifying the type of disabilities that are considered and the various levels of eligibility. Disabilities that may prevent a resident from using the conventional transit service (defined as Inter-municipal Routes, Local Routes, Rural Services, Dynamic Transit Services and Special Services) include:

- **Visual** – Residents who are legally blind and have unsuccessfully travel-trained on conventional transit services.
- **Sensory** – Residents experiencing sensory motor area conditions (e.g. Parkinson’s disease) that impact their physical ability to use conventional public transit.
- **Cognitive** – Residents with cognitive disabilities who are unable to take conventional transit.
- **Physical** – Residents who have a physical disability that prevents them from:
 - walking / rolling 175 metres,
 - standing or waiting 15 minutes for a bus, or
 - accessing a bus stop due to environmental barriers such as inclement weather or physical barriers such as non-accessible bus stops or streets connecting to bus stops.

Three levels of eligibility exist for Mobility Bus service. Levels of eligibility are provided to ensure that Mobility Bus resources are allocated to individuals based on need, encouraging the use of accessible conventional transit services when appropriate.

1. **Unconditional** – A resident with a disability that prevents them from using conventional transit at all times.
2. **Temporary** – A resident with a temporary disability (e.g. recovering from surgery) that prevents them from using conventional transit for all or part of their trip.
3. **Conditional** – A resident with a disability for which environmental or physical barriers limit their ability to use conventional public transit (e.g., "in winter only," "in dark conditions only" or "for certain trips that do not have accessible bus stops").

5.3.2 Hours of Service

The span of service is defined for each service area instead of by service type. By defining span of service by each service area, Strathcona County Transit has the ability to use any of its service offerings to deliver the service, based on both the effectiveness of the service and the accessibility of the service.

Minimum span of service targets are applicable to the Inter-municipal Routes, Local Routes, Dynamic Transit Services and Mobility Bus Services.

Strathcona County Transit will provide service on all days of the year except designated statutory holidays. Service will generally operate during the following periods illustrated in **Table 3**. It should be

LINK TO GOALS AND OBJECTIVES
EQUITY: Provide services that can meet the needs of residents and customers

noted that these represent minimum service hours and service can be operated beyond these hours if they meet minimum Service Utilization targets (**Section 5.4.4**).

Table 3 – Minimum Hours of Service

Service Area	Weekdays	Saturdays	Sundays and Holidays
Urban Service Area	6:00 am – 12:00 am	7:00 am – 12:00 am	8:00 am – 8:00 pm
Inter-municipal (to Edmonton)	6:00 am – 12:00 am	7:30 am – 12:00 am	8:30 am – 8:00 pm
Rural Service Area and other destinations within the Edmonton Metropolitan Area	Based on minimum service utilization targets being met	Based on minimum service utilization targets being met	Based on minimum service utilization targets being met

Note: minimum service hours reflected above represent the first or last departure time of the vehicle

For Special Services within the Urban Service Area, minimum span of service criteria do not apply. Service performance standards will determine the service level.

5.3.3 Headway (Frequency of Service)

Table 4 illustrates the maximum headway that will be operated for both Inter-municipal Routes and Local Routes. More frequent service can be operated if the appropriate Service Utilization standards can be met (see **Section 5.4.5**). Service levels are not recommended to go above the maximum headway referenced in **Table 4** below.

LINK TO GOALS AND OBJECTIVES
ENVIRONMENTAL SUSTAINABILITY: Provide an alternative to reliance on personal automobiles

If a Local Route operating at the maximum headway falls below the minimum Service Utilization target (see **Section 5.4.5**), the route should be modified or removed from service only if the Proximity to Service standard is maintained (see **Section 5.3.6**). Consideration will also be made to converting to the route to a Dynamic Transit Service. If both options are not feasible and do not result in an improved service and/or Service Utilization level, the maximum headway should be maintained and other efforts will be undertaken by Strathcona County Transit to increase ridership.

Special Services and Rural Services will all be planned and maintained based on forecast or observed demand – operating times and headways (service frequencies) will be organized accordingly.

Headways (service frequency) do not apply for Mobility Bus Services and Dynamic Transit Services. Instead, the availability of service is measured by the Trip Booking Window (**Section 5.3.4**) and Trip Denials/Missed Trips (**Section 5.4.1**).

Table 4 – Maximum Headway

Operating Period	Service Period	Inter-municipal Service	Local Routes
Weekday AM Peak	6:00 am – 9:00 am	30 minutes	30 minutes
Weekday Midday	9:00 am – 3:00 pm	60 minutes	60 minutes
Weekday PM Peak	3:00 pm – 7:00 pm	30 minutes	30 minutes
Weekday Evening	7:00 pm – Midnight	60 minutes	60 minutes
Saturday Morning	7:00 am – 9:00 am	60 minutes	60 minutes
Saturday Midday	9:00 am – 6:00 pm	60 minutes	60 minutes
Saturday Evening	6:00 pm – Midnight	60 minutes	60 minutes
Sunday/Holiday Morning	7:00 am – 11:00 am	60 minutes	60 minutes
Sunday/Holiday Midday	11:00 am – 6:00 pm	60 minutes	60 minutes
Sunday/Holiday Evening	6:00 pm – Midnight	60 minutes	60 minutes

5.3.4 Trip Booking Window

For Mobility Bus Services and Dynamic Transit Services, customers must book a trip ahead of their desired pick-up time. Notice (booking window) is required to mobilize and optimize the vehicle to deliver the trip and accommodate similar shared-ride trips that may be requested at the same time.

Mobility Bus Services will typically have a longer booking window due to the door-to-door service offering, which requires more time for each vehicle to complete a passenger trip. Booking windows for Dynamic Transit Services are typically shorter as services can accommodate more ridesharing when services connect to fixed-route stops.

The following minimum booking windows will be planned for each service:

Table 5 – Booking Window Policies

Service Type	Maximum Booking Window	Minimum Booking Window
Mobility Bus Services	One week prior to trip request (with the exception of subscription trips)	One business day prior to trip request (same day trips accommodated based on availability)
Dynamic Transit Services	One week prior to trip request	Recommended 30 minutes prior to trip request (on-demand service accommodated based on availability)

LINK TO GOALS AND OBJECTIVES

ENVIRONMENTAL SUSTAINABILITY: Provide an alternative to reliance on personal automobiles

EQUITY: Ensure that transit services are available, accessible and affordable for residents regardless of age, ability, or means

5.3.5 Travel Time (Directness of Service)

Travel Time (Directness of Service) is a measure of service quality. The design of routes and services should minimize the amount of time a customer needs to be in a vehicle compared to the direct path between an origin and destination pair.

LINK TO GOALS AND OBJECTIVES
ENVIRONMENTAL SUSTAINABILITY: Provide an alternative to reliance on personal automobiles

Fixed-route services such as Inter-municipal Routes and Local Routes are measured based on how much a route deviates from the most direct road path between the start and end points of a route. The measure indicates a desire to limit additional travel time and distance resulting from route deviations and indirect or circuitous route design. It is measured as the ratio of the length of the proposed route (with deviation) to the length of the route along the most direct road path:

$$\frac{\text{Travel Time of Proposed Route with Deviation}}{\text{Travel Time of Route Corridor without Deviation}} = \text{Travel Time Factor}$$

e.g. $\frac{30 \text{ min}}{25 \text{ min}} = 1.2$

Deviations on Inter-municipal Routes should be avoided, with the route directness measure within a range of 1.0 to 1.1. Minor deviations are permitted to service a major terminal or trip generator; to connect to another route for the purposes of accommodating a major transfer movement; match travel demands or to use a transportation corridor that will reduce travel time.

The configuration of Local Routes should be designed to provide as direct a service as possible between two points or communities, with deviations to serve local areas and major destinations as warranted by demand or to achieve Proximity to Service standards (**Section 5.3.6**). The route directness standard for Local Routes should be used as a guideline, with a target range of 1.2 to 1.5. A higher deviation is permitted due to the more circuitous design of the local roadway network which makes it difficult to maintain a close proximity to residential areas without deviating from the direct path. One way loops are permitted at the extremities of the routes to allow for turn-around; to service a major terminal or trip generator; to connect to another route for the purposes of accommodating a major transfer movement; to provide necessary coverage to achieve Proximity of Service standard (**Section 5.3.6**) and/or match travel demands. As a guideline, Local Routes should be designed such that the maximum travel time around a one-way loop at the extremity should not exceed 10 minutes. Where Local Routes cannot meet this minimum design standard, consideration should also be made to introduce Dynamic Transit Services.

Special Services are expected to be more circuitous in order to provide service to area residences, terminals and schools. While the route directness value should always be maximized, no specific route directness standard for Special Services is recommended.

Rural Services may operate as fixed-route or Dynamic Transit Service. Since the service area is fairly large with low densities and long travel distances required, no service standard will be applied. In general, Strathcona County Transit will strive to design routes as direct as possible, while meeting minimum Service Utilization targets (**Section 5.4.2**).

Mobility Bus and Dynamic Transit Services are based on the average in-vehicle travel time of a person travelling with other customers compared to the time it would take for the same passenger to travel alone on the same vehicle. This provides a balance between increasing service productivity (vehicle occupancy) versus service quality (travel time).

For Dynamic Transit Services, trips are generally direct unless a ride is shared with another passenger. The standard places a maximum target on the amount of time a passenger is in a vehicle for a shared-ride service relative to the direct travel time if the person was travelling in the vehicle alone. As a general guideline, a passenger sharing a ride with more than one customers should not be in a vehicle 1.25 to 1.5 times longer than the travel time of the passenger travelling alone between their origin and destination.

For Mobility Bus Services, trips are generally longer due to the 'door-to-door' level of service provided and the need for the operator to ensure the passenger is escorted to and from the front of the door of their origin and destination. This results in longer trips for the operator for each passenger trip. As a result, there is an expectation that travel times may be longer. As a general guideline, a passenger sharing a ride with more than one passenger should not be in a vehicle 1.5 to 1.6 times longer than the travel time of the passenger travelling alone between their origin and destination.

Table 6 provides standards for in-vehicle travel time.

Table 6 – Travel Time (Directness or Service) Factor

Service Type	
Inter-municipal Route	1.0 – 1.1 Route Directness Factor
Local Routes	1.2 – 1.5 Route Directness Factor
Special Services	Not Applicable
Rural Services	Not Applicable
Dynamic Transit Service	Trips no more than 1.25 to 1.5 times longer than the time required for a passenger to travel alone in the vehicle.
Mobility Bus Service	Trips no more than 1.5 to 1.6 times longer than the time required for a passenger to travel alone in the vehicle.

5.3.6 Proximity to Service

The Proximity to Service standard is meant to address the accessibility of transit by targeting a maximum walking distance that a customer will have to travel to reach a transit stop. Strathcona County Transit will attempt to operate routes throughout the Urban Service Area, where economically and operationally feasible, so that this standard is met.

LINK TO GOALS AND OBJECTIVES
EQUITY: Provide services that can meet the needs of residents and customers

For Local Routes and Dynamic Transit Services, the maximum walking distance to the closest transit stop within the Urban Service Area will be:

- 400 metres for at least 90% of residences and/or businesses;
- 800 metres for at least 90% of industrial areas.

For significant medium and high density residential developments, major activity centres, and large seniors' residences, the maximum walking distance to a bus stop will be 250 metres.

The Proximity to Service Standard is important to maintain equity in the system, providing residents, students and employees within the Urban Service Area access to mobility. This standard should be maintained even if the performance of an existing route or service does not meet minimum Service Utilization standards (see Section 5.4.4).

Inter-municipal Routes generally provide limited stop service between the transit terminals and their ultimate destinations. The placement of stops on these routes should be based on areas where there is higher ridership demand. Therefore, the Proximity of Service standard does not apply.

Special Services will use the established bus stops within the Urban Service Area. Any additional necessary stops needed for these services will be considered by applying the same general walking distance guidelines described for local routes.

Rural Services will use appropriate established bus stops within the Urban Service Area. If new stops are required in a rural hamlet, they will be located centrally within the community. If multiple stops are required in the rural hamlet, the 400 metre walking distance guideline described for Local Routes will be applied within the hamlet. Given the large geographic area and low density of most rural areas, no maximum walking distance guideline will be applied in farm and estate home areas.

For Mobility Bus Service, door-to-door service will be available to 100% of the Urban Service Area and Rural Service Area for registered customers. For trips within the Rural Service Area, certain trip eligibility may apply.

5.3.7 Bus Stops

Bus stops should be located to maximize convenience for customers and support the service coverage standard, according to the following guidelines:

- At intersections, transfer points, and key facilities and destinations in order to reasonably minimize walking distance;
- Not less than 200 metres apart within the Urban Service Area, but averaging at least 300 metres apart along the length of a route;
- At locations that consider traffic and street conditions and, where possible, are close to signalized intersections, or pedestrian crosswalks;
- At the far side of the intersection where there is reasonable room to accommodate the stop.

LINK TO GOALS AND OBJECTIVES

EQUITY: Provide services that can meet the needs of residents and customers

ECONOMIC OPPORTUNITY: Maximize the efficient use of resources

Bus bays will only be supported when there is a scheduled time point, a transfer point, or extremely busy stop location that may result in a bus stopping for an extended time at a bus stop. On streets where on-street parking creates a bus bay, designs that extend the sidewalk/passenger waiting area to the travel lane and eliminate the bus bay will be supported.

A bus stop zone must be a minimum of 35 metres in length – 12 metres for a stopped bus plus 11 metres for the bus to pull into the zone and 12 metres for the bus to pull out of the zone.

Amenities at bus stops such as benches and passenger shelters will be located where they make the most sense, with the following used as guiding criteria:

- All terminals and transfer points;
- Busy passenger boarding locations;
- Unique exposure to inclement weather; and
- Close to senior's residences, hospitals, and other institutional facilities.

5.3.8 Accessibility

All transit buses used to operate Inter-municipal Routes, Local Routes, Specialized Transit Services and Special Services will be low floor, wheelchair accessible vehicles with automated stop announcements in visual and audible formats in order to

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EQUITY: Provide services that can meet the needs of residents and customers

accommodate all customers who may wish to use them¹. Dynamic Transit Services and Rural Services may use other types of smaller non-accessible vehicles as long as an accessible vehicle can be reasonably made available upon request during the service span of service and service area. Only mobility aids that are appropriately sized and can safely fit on transit buses and Dynamic Transit Service vehicles will be accommodated.

All transit terminals and other transit facilities will be barrier free and adhere to the principles of universal design.

New or reconverted bus stops and bus stop amenities and shelters will adhere to the universal design. They will be linked to accessible pedestrian access points.

Snow clearing at accessible bus stops and facilities will be a priority.

5.4 Performance Standards

Performance measures are used primarily to set desired and achievable goals for the performance of Strathcona County Transit and permit evaluation and feedback on how well these goals are met. The following section provides guidance on overall performance of the system in terms of the effectiveness of the service provided and the customer experience. This includes specific criteria for measuring trip denials/missed trips, passenger comfort, service utilization, service reliability and guidelines for service expansion.

5.4.1 Trip Denial / Missed Trips

Trip denials /missed trips occur when a passenger is unable to board a Strathcona County Transit vehicle at the requested or scheduled pick-up time.

Missed trips occur when a passenger is waiting at a bus stop for a scheduled service and the vehicle cannot accommodate their trip due to:

- significant delays (vehicle is operating significantly behind schedule, resulting in the vehicle missing a scheduled trip); or

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EQUITY: Provide services that can meet the needs of residents and customers

¹ Automated stop announcements in visual and audible formats are being implemented as an element of the Smart Bus project to enhance accessibility for persons with vision, hearing and cognition loss.

- incidents or unplanned maintenance (vehicle is pulled from service due to an incident or unplanned maintenance, with no back-up vehicle available to accommodate the scheduled trip).

On Mobility Bus and Dynamic Transit Services, trip denials occur if the passenger's trip request made within the recommended Booking Window (**Section 5.3.4**) cannot be accommodated. This is typically due to a lack of available vehicles during each operating period or limited ability to share rides made during a similar period.

On Inter-municipal Routes, Local Routes and other fixed-route services, trips can also be denied if overcrowding occurs (buses that have reached peak occupancy on the vehicle and cannot accommodate additional customers waiting at the stop). **Table 7** illustrates the recommended performance standard for missed trips and trip denials.

Table 7 – Trip Denials / Missed Trip Performance Standards

Service Type	Maximum Standard
Inter-municipal Service	Less than 1% of daily transit riders reported being denied a trip due to overcrowding
Local Routes	
Special Services	Less than 1% of daily vehicles arriving at the scheduled timing point more than 15 minutes late
Rural Services	
Dynamic Transit Service	Less than 1 percent of trips booked within permitted booking window reported that they cannot be accommodated up to half hour before or after the time requested
Mobility Bus Service	Less than 2 percent of trips booked within permitted booking window reported that they cannot be accommodated up to one hour before or after the time requested

When missed trips and trip denials consistently exceed the maximum standards in **Table 7**, Strathcona County will identify opportunities to make better use of existing resources (e.g. increased ridesharing) or add system resources to the service. If a trip is denied due to overcrowding on a bus, customers will be required to wait at the bus stop for the next bus. This incurs an unexpected delay to a customer's trip. If the delay incurred due to crowding is more than 15 minutes on a regular basis with multiple customers, corrective action should be considered (e.g. the dispatch of "overload" services during targeted periods).

5.4.2 Customer Comfort / Vehicle Occupancy

The customer comfort / vehicle occupancy standard monitors crowding on vehicles and the number of customers that are unable to board buses at a stop due to overcrowding. This standard is used to guide the planning of service frequency over and above the minimum described in the previous section. If it is observed that acceptable customer comfort guidelines are exceeded, corrective actions can include adding trips to the schedule in the form of a frequency improvement or overloads and/or restructuring the service to distribute demand among several routes. **Table 8** illustrates the seated and standing capacity of conventional transit vehicles in the system.

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ENVIRONMENTAL SUSTAINABILITY: Provide an alternative to reliance on personal automobiles

Table 8 – Vehicle Capacity on Conventional Transit Vehicles

Bus Type	Seated Capacity	110% of Seated Capacity	125% of Seated Capacity	150% of Seated Capacity
Double-Decker	80	88	Not Permitted ¹	Not Permitted ¹
Standard (12 metre)	38	42	47	57

1. Standing on the upper level of a double decker bus is not permitted – routes operating double decker buses shall not be planned to exceed 110% of seated capacity

Vehicle occupancy will be measured at the busiest point on the route during the busiest hour of the time period being analyzed.

In order to maximize customer comfort, the level of service for Inter-municipal Routes will be designed to not exceed 110% of seated capacity on double decker buses and 125% of seated capacity on standard buses in all time periods. Overload vehicles can also be used to ensure that this standard is met.

Local Routes will be designed to not exceed 150% of seated capacity during peak periods.

For off-peak periods, it is appropriate to strive to provide a seat for all customers in consideration of generally less frequent service. A threshold of 100% of seated capacity is appropriate on all services during weekday off peak and weekends.

Special Services will be designed to not exceed 150% of seated capacity on standard buses or 110% of seated capacity on double decker buses during all periods.

Dynamic Transit Services and Mobility Bus Services use smaller buses, vans or even cars to carry customers, and these vehicles are not typically designed to carry standing customers. It will be assumed that no standing customers will be permitted during the design of these services.

Rural services may use a variety of vehicles, depending on the nature of the service. If using the buses described in the above table, then it will be assumed that these routes will follow the 110% maximum capacity standard. If smaller vehicles are used, then no standing customers will be permitted.

Vehicle occupancy standards for each service type are summarized in **Table 9** below.

Table 9 – Maximum Vehicle Occupancy Standards

Service Type	Weekday AM and PM Peak Periods	All Other Periods
Inter-municipal Routes	110% of seated capacity (double-decker bus) 125% of seated capacity (standard transit bus)	100% of seated capacity
Local Routes	150% of seated capacity	100% of seated capacity
Special Services	110% of seated capacity (double-decker bus) 150% of seated capacity (standard transit bus)	110% of seated capacity (double-decker bus) 150% of seated capacity (standard transit bus)
Rural Services	110% of seated capacity (double-decker or standard transit bus) 100% of seated capacity (smaller transit vehicle)	100% of seated capacity
Dynamic Transit Service	100% of seated capacity	100% of seated capacity
Mobility Bus Service	100% of seated capacity	100% of seated capacity

5.4.3 Service Reliability

Strathcona County Transit is in the process of installing Smart Bus technology including providing customers with real-time bus information, which allows them to conveniently plan their trip and monitor the location of their vehicle in real-time using their computers or mobile phones. The application of real-time data will reduce the reliance of static paper or online schedules, decreasing the uncertainty that customers experience when waiting for their bus to arrive. While this will increase the quality of the customer experience, there will still be the need for buses to operate on schedule, particularly for customers that do not use real-time data (e.g. may not have access to a mobile phone). The access of real-time data will allow Strathcona County Transit to better track the on-time performance of each route and make periodic adjustments to the schedule to match ongoing realities (e.g., if a bus is constantly running late). This will help maintain the Service Reliability standard noted below.

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ENVIRONMENTAL SUSTAINABILITY: Provide an alternative to reliance on personal automobiles

Based on the above, all Strathcona County Transit services will be expected to adhere to the following service reliability performance standards for on-time performance upon the deployment of Smart Bus technology. This is identified in **Table 10** below:

Table 10 – On-time Performance Standards

Service Type	Standard
Inter-municipal Routes, Local Routes, Rural Services, Dynamic Transit Services and Special Services	Depart from timed/scheduled stops 0 minutes early to 3 minutes late, 90% of the time
Mobility Bus Services	Arrive based on a pick-up window of 15 minutes before to 15 minutes after scheduled pick up time, 90% of the time
All Route and Service Types	Maintain accurate real-time automatic vehicle location (AVL) data of all vehicles in revenue service, to be on-line and accessible by customers 99% of the time

5.4.4 Service Utilization

Service Utilization is a measurement of the effectiveness of the application of the system's resources against established criteria. **Table 11** summarizes the minimum number of customer boardings per revenue vehicle hour that need to be achieved, unless the route or service is required to meet the service Proximity to Service standard (**Section 5.3.6**).

LINK TO GOALS AND OBJECTIVES
ECONOMIC OPPORTUNITY:
 Maximize the efficient use of resources

Table 11 – Minimum Service Utilization Levels (Customer Boardings per Revenue Vehicle Hour)

Service Type	Weekdays (start to 7:00pm)	Weekday Evenings (after 7:00pm)	Weekend (all-day)
Inter-municipal Routes*	25	20	20
Local Routes	12	8	8
Special Services	25	20	20
Rural Services	10	7	7
Dynamic Transit Services			
<i>Non-dedicated service</i>	<i>0 – 10 (max)</i>	<i>1-10 (max)</i>	<i>1-10 (max)</i>
<i>Dedicated service</i>	<i>4 - 6</i>	<i>3 - 4</i>	<i>3 - 4</i>
Mobility Bus Services	2.5	1.5	1.5

**Note: The commuter nature of Inter-municipal Routes results in utilization on buses being significantly higher in the peak direction than the reverse peak direction. The lower utilization target accounts for this demand (each revenue hour bus travels can complete a return trip in approximately one hour).*

For Dynamic Transit Services, the minimum utilization target will be dependent on the service model implemented. There are two types of Dynamic Transit Services that will be considered:

1. **Service provided by non-dedicated vehicles:** These services are typically operated by a Taxi Operator or a Transportation Network Company (TNC) and charge a per kilometre rate for each trip delivered. The benefit of this service model is that if there is no trip requested, no operating expense is incurred. Therefore, there is no minimum service utilization service target for this type of service². However, as ridership increases, operating costs also increase proportionally to the growth in demand. This is due to the smaller capacity vehicles (e.g. sedans) typically used which limits shared rides, and the cost per trip model (compared to the fixed hourly cost model with higher capacity vehicles used in the existing fixed-route service). As demand grows, the cost of service will eventually exceed the hourly cost of the existing fixed-route model. Based on a preliminary estimate of potential per-trip costs to provide non-dedicated Dynamic Transit Services, a maximum of 10 customer boardings per revenue vehicle hour is estimated to be a trigger to move back to a fixed-route service model³.

2. **Service provided by dedicated vehicles:** These services are typically operated using smaller capacity transit buses (similar to a Mobility Bus) based on a fixed hourly cost. A mobile app is used to allow customers to request their ride and to optimize the number of customer boardings per revenue vehicle hour. The service is typically implemented in low demand areas where the introduction of Dynamic Transit Services result in a reduction in fixed-route vehicles covering the same service area. This results in a lower cost per trip. The minimum utilization target is therefore dependent on the service design and the ability for a single Dynamic Transit Service vehicle to cover a larger service area than a fixed-route service. Minimum targets noted in **Table 11** reflect this concept and should be used as a starting point to service design. There is no maximum number of customer boardings per revenue vehicle hour in this model, but rather a trigger to increase the number of vehicles in service. This is dependent on the ability of the vehicle to accommodate trip requests while meeting the Trip Denial / Missed Trips standard (**Section 5.4.1**).

For Mobility Bus Services, minimum utilization levels identified in **Table 11** represent a target for vehicle occupancy in an effort to promote shared-rides while balancing the Travel Time (Directness of Service) standard (**Section 5.3.5**). Since Mobility Bus is considered a core service within the entire Urban and Rural Service Area, the minimum utilization target identified above should be considered an aspirational guideline, with no corrective measures required if the target is not achieved. Strathcona County Transit can still take actions to achieve this target, including the planned implementation of a scheduling software system in 2019, as long as those actions do not preclude Mobility Bus from performing its core function.

² This applies to the Urban Service Area where travel distances are relatively short. Minimum standards for the Rural Service Area where trips would be much longer are dependent on the cost per trip negotiated with the provider.

³ Note: This trigger should be revisited if a non-dedicated Dynamic Transit Service is implemented and a per trip rate is negotiated.

5.4.5 Modifications to Existing Services

Modifications to existing routes and services will be guided by the following considerations:

- Frequency improvements or use of vehicle overloads will be considered when the Customer Comfort / Vehicle Occupancy standard (**Section 5.4.2**) is being consistently exceeded for more than 15% of the busiest service hours, or when the Service Utilization standard (**Section 5.4.4**) for Inter-municipal Routes, Local Routes, Special Services and Rural Services is being consistently exceeded by more than 50% of each average performance for each service type;
- Earlier start and later finish times will be considered if analysis forecasts that the minimum Service Utilization standard (**Section 5.4.4**) for the new service can be achieved and maintained during the new service period after one year of operation;
- Service reductions, restructuring or adoption of new service typologies (e.g. introduction of Dynamic Transit Services) will be considered when the Service Utilization Standard (**Section 5.4.4**) is not being achieved on a consistent basis.
- Service improvements on Mobility Bus and Dynamic Transit Services will be considered when Trip Denial / Missed Trips standard (**Section 5.4.1**) is not being achieved on a consistent basis.

LINK TO GOALS AND OBJECTIVES

ECONOMIC OPPORTUNITY:
Maximize the efficient use of resources

ENVIRONMENTAL SUSTAINABILITY: Provide an alternative to reliance on personal automobiles

5.4.6 Introduction of Service to New Areas

For new developments within the Urban Service Area, transit service will be introduced as soon as the road network can accommodate appropriate service and there are at least 500 residences or jobs in the area. The following progressive growth of transit service can be anticipated:

- Dynamic Transit Service operating only during weekday peak periods introduced initially;
- Dynamic Transit Service operating in other time periods introduced when there are enough residents or jobs to forecast support of the minimum Service Utilization standard (see **Section 5.4.4**);
- Convert Dynamic Transit Service to a Local Route if the minimum service utilization standard is forecast to be supported over the long-term.

LINK TO GOALS AND OBJECTIVES

EQUITY: Provide services that can meet the needs of residents and customers

ECONOMIC OPPORTUNITY:
Maximize the efficient use of resources

Services introduced in new areas not previously served by transit should be guaranteed for a minimum 12 months of operation to ensure adequate time for travel patterns to adjust and for year round

ridership patterns to be assessed. At the end of the 12 months, the service must meet the minimum performance thresholds required for the type of service introduced.

Within this trial period, interim targets are set to ensure that a service which is clearly not capable of meeting the ultimate targets is identified as early as possible. Monitoring should be performed at 3, 6 and 9 month intervals to ensure that the new service is trending towards the appropriate standard.

Targets for these interim periods are:

- 3 months: 25 percent of the minimum target;
- 6 months: 50 percent of the minimum target; and
- 9 months: 75 percent of the minimum target.

If the performance at the end of each period has not reached at least 75 percent of the target value, the route or service should be re-examined to identify potential changes to improve its performance. If the same standard is not met in the next period, the identified changes should be implemented.

5.4.7 System-Wide Operational Measures of Success

The following system-wide performance measures are recommended for tracking Strathcona County Transit's ongoing success. Existing performance measures as well as targets to be achieved over a five-year and 10-year horizon of this plan are identified in **Table 12** below.

Table 12 – System-Wide Operational Measures of Success Targets

Performance Measure	Description	Conventional Service			Mobility Bus		
		Existing	5-Year Target	10-Year Target	Existing	5-Year Target	10-Year Target
Ridership per Capita	Average annual transit trips taken by each resident in the Strathcona County Transit service area	22.9	23.5	25.0	N/A	N/A	N/A
Effectiveness of Service	Number of customer boardings per hour of service operated	14.2	14.3	14.5	1.4	1.6	1.8
Service Availability	Number of revenue vehicle hours per resident (conventional) or active registrant (Mobility Bus)	1.6	1.6	1.7	29.2	41.6	41.6
Financial Performance*	The proportion of the system operating cost that is recovered from passenger revenue (R/C ratio)	30%	33%	34%	10%	8%	8%

**Note: Financial Performance on Mobility Bus decreases due to adjustment in annual cost and reduction in average fare due to fare parity*

6.0 Strategic Directions

Strathcona County Transit's Vision is to:

Provide access opportunities for all residents and businesses in the community through the provision of sustainable mobility services.

This Vision Statement reflects the changing nature of public transit - it is no longer solely focused on providing conventional and specialized bus transit services. Rather, it considers a broader purpose where the transit system is at the centre of planning and/or coordinating a broad range of sustainable mobility services in the community. These include conventional and specialized transit services as well as, potentially, car sharing services, ride sharing services, carpool coordination, active transportation integration, travel demand management, and other emerging approaches.

The focus of Strathcona County Transit's efforts, then, is to provide integrated sustainable mobility services and options while making the most effective use of resources. This is based on the concept of Integrated Urban Mobility, defined by the Canadian Urban Transit Association (CUTA) as:
The ability for people to move easily from place to place according to their own needs.

In doing so, *Integrated Urban Mobility is a people-focused goal that:*

- *Starts with public transport service connected to all modes of transport including walking, cycling, auto and alternatives to transportation;*
- *Enables door-to-door and seamless mobility throughout an urban area;*
- *Is designed for all segments of population.*

While the primary focus for Strathcona County Transit is always going to be the provision of its conventional and specialized transit services, its role will expand to:

- provide greater emphasis on the needs of all potential customers as they seek out ways to take advantage of the best aspects of each service in order to provide better, more integrated mobility options in the community;
- identify and be open to the potential offered by partnerships with other types of services such as taxis, other types of ride sharing, car sharing, and carpooling, and how these can work with transit services to improve mobility;
- fully integrate with active transportation initiatives in the community;
- actively coordinate a wide range of travel demand management programs that encourage sustainable mobility; and

- be ready for emerging and transformative technologies, such as connected and automated vehicles, which will allow the transit system to incorporate the most useful and promising mobility approaches and ideas for the benefit of the community.

In order to accomplish this, a number of strategic directions were developed. These reflect the Vision described above as well as the need to accommodate a growing population, further enhance what is working well, address issues noted through the community engagement process, and address a shifting mindset in mobility, how people travel and the technology available to facilitate new approaches to shared, accessible and sustainable mobility. These strategic directions are organized into four themes, as follows:

- A. Mobility Management
- B. Mobility in the Urban Service Area
- C. Mobility for Inter-Municipal Travel
- D. Mobility in the Rural Service Area

6.1 Theme A: Mobility Management

The Canadian Urban Transit Association defines Mobility Management as the:

Coordination and optimization of all modes of transportation to enable ease of travel in urban areas.

This means acknowledging all the ways that people can travel in a community and all of the different ways that these modes can be operated, and bringing them together for the benefit of the customer. For Strathcona County Transit, investing in Mobility Management means thinking beyond the primary role of providing public transit service and becoming the sustainable mobility integrator for the community. It means better integrating conventional and specialized transit services, considering how to use or partner with other service approaches or providers for new or improved service, and understanding the needs of all customers in order to provide better service.

There are a number of strategic directions developed that will help move towards this objective. Some are quick wins while others will require more time and are recommended in the long-term (between five to ten years).

6.1.1 Strategic Directions

6.1.1.1 Strategic Direction #A1: Explore the Introduction of Dynamic Transit Services

A number of transit systems across Europe and North America are rethinking how transit services are delivered. Customers are demanding greater customization of their mobility options; seeking more adaptable and flexible services that adjust to when they want to travel in real-time, without relying on a published schedule. Similarly, municipalities continue to seek solutions to reduce costs and improve

productivity of services. Fixed-route transit solutions do not always meet these two goals, particularly in evening and weekend periods when ridership demand is lower, and low demand areas characterized by low density neighbourhoods, employment areas designed around the private automobile and large tracts of open or greenfield space. This combination of factors makes it difficult to provide fixed-route service cost-effectively and in a manner that meets rising customer expectations.

To address these circumstances, a new Dynamic Transit Service model is recommended to be assessed. Dynamic Transit Services are shared-ride demand-responsive services that use smaller vehicles and mobile app technology to provide mobility to customers. The service model is considered a significant improvement to the previously used Dial-A-Bus service, primarily due to the use of a mobile app, which allows customers to plan, book, track and pay for their ride in real-time. This increases the convenience and reliability of the service over the previous Dial-A-Bus service. The mobile app is also used to help optimize trips, increasing the number of shared rides that can be accommodated without sacrificing service quality.

To better understand how customers would use the service, the following trip process is illustrated below:

Customer Trip Requests and Scheduling

- Customer trip requests are made and scheduled through a mobile app that links to Strathcona County Transit's real-time automatic vehicle location system. A customer provides the location of their origin and destination and desired pick-up time. The next available pick-up time (or several options) is provided to the customer, including anticipated arrival time. The customer chooses the most suitable option and the trip is scheduled. This can be completed within five minutes to one hour of the desired pick-up time. The more notice provided, the higher the probability of a customer getting their preferred pick-up time.
- If a customer does not have a mobile phone or access to the mobile app, a phone number is available to allow customers to book the trip directly with the Strathcona County Transit Customer Service Centre.
- The mobile app will optimize the vehicle by calculating the most direct route, balanced with the need to fill-up vehicle capacity. Strathcona County Transit would need to decide on the right balance between shorter travel times and the need to fill-up the capacity of the vehicle (which may add travel time to a customer's trip).
- Once the trip is booked, the mobile app will allow the customers to track the location of their vehicle in real-time.

Travel on Dynamic Transit

- Dynamic Transit Service would replace one or more fixed-route services during a specified period and geographic area. A marked vehicle would arrive at a marked or virtual communal stop. The vehicle would typically be a smaller sedan, minivan or accessible Mobility Bus vehicle.

- Transit dispatchers and customers are able to track their vehicle in real-time through the use of the mobile app (which has GPS/AVL technology).
- Dynamic Transit Service is a shared-ride service, and customers may need to share a ride with other customers.
- The trip does not follow a predefined fixed-route. The operator will take customers in the vehicle to their destination as directly as possible, picking-up and dropping off customers that are in close proximity. A maximum travel time is identified through the Travel Time (Directness of Service) Service Standard (see **Section 5.3.5**) and programmed into the mobile app to enhance the customer experience.

Fare Payment

- Fares are integrated between Dynamic Transit Service and fixed-route services. A customer making a local trip pays a Local Route fare and there is no increased cost to the customer for using Dynamic Transit Services.
- Integration with the Regional Smart Fare system would need to take place, ensuring both technologies work together.
- There is the potential to introduce future dynamic pricing models if customers request a higher level of service. For example, customers that would prefer a pick-up or drop-off at the curb of their home instead of at a communal pick-up point could do so by paying a higher fare.

Operations

- Dynamic Transit Service trips may be completed by a Mobility Bus accessible vehicle, third party ridesharing services, community based transportation services, taxis, or combination of the above.
- There is a potential to contract all or part of the service to a local taxi operator and/or a rideshare service (e.g. Uber). When this occurs, a fixed price per trip is recommended to be negotiated with the service provider as part of a service contract. Customers will pay the driver a standard transit fare (or provide a transfer) and the County will reimburse the operator for the difference.

Advantages of Dynamic Transit Services

There are several advantages to exploring the implementation of Dynamic Transit Services:

- **Cost Effective:** Dynamic Transit Services are typically planned in areas where there is low ridership in a larger geographic area. This allows the transit agency to reduce the number of resources required to provide service.
- **Improved Coverage:** Dynamic Transit Service offers a significant advantage in terms of coverage area. Since the vehicle is not tied to a fixed-route, this increases the number of residents within a five-minute walk of a Dynamic Transit stop.

- **Early Introduction of Service:** Dynamic Transit Service allows for early introduction of transit service in newly developing areas without committing significant resources to provide mobility for new residents.

When to Use Dynamic Transit Services

Dynamic Transit Services do not entirely replace the need for fixed-route services. Fixed-route transit services require customers to make travel decisions based on pre-set transit routes and schedules. This model is effective when:

- residents are in close proximity to a service;
- the route provides relatively direct service with minimal deviations that increase travel times;
- higher frequencies are provided to increase the flexibility of the service; and
- there is a high demand for service between similar origins and destinations, which requires a high capacity vehicle to service.

The fixed-route model does not work when the land use and demand cannot support this high level of service and demand.

Dynamic Transit Service is effective when it operates in low-demand areas and operating periods or when being used as a premium service. As ridership grows, a trigger point may be reached where it is more cost-effective to reintroduce a fixed-route service.

Dynamic Transit Services are not effective on high ridership routes that operate on major corridors or between major origin and destination pairs (such as downtown Edmonton or a secondary school in Sherwood Park). In these instances, a high-capacity and frequent fixed-route vehicle is better suited to cost-effectively meet the needs of customers.

Type of Operating Models to Consider

The Dynamic Transit Service pilot would be operated using either a dedicated service model (operators are paid an hourly wage) or non-dedicated service model (operators are only paid for each trip delivered). Dedicated service models can either use existing Strathcona County Transit operators and vehicles, or can be contracted to a third-party contractor. The non-dedicated service model is almost exclusively contracted out to a third-party contractor.

The choice of which model of operation will depend on the operational, financial, and legal considerations of Strathcona County Transit. The primary characteristics of each model are described in **Table 13** below.

Table 13 – Comparison of Dynamic Transit Service Operating Models

Dedicated Service Model	Non-Dedicated Service Model
Fixed hourly cost to ensure availability of vehicles in low-demand areas/periods	Cost per trip delivered (highly variable depending on ridership)
More cost effective as ridership increases (focus becomes on increasing vehicle occupancy)	More cost effective in low ridership periods/areas
Potential to use existing fleet or have contractor use their own fleet	Vehicles owned and operated by independent contractors
Can use existing Mobility Bus vehicles and/or sedans and minivans	Typically uses customer sedans and/or minivans
More control by Strathcona County Transit over the service provided (Strathcona County Transit can budget for specified operating hours. Fluctuations in demand change vehicle occupancy and not number of vehicles).	Less control by Strathcona County Transit over the service provided. Increases in demand typically result in more vehicles being put on the road, which can increase budgets.

Both service models will need to be reviewed in more detail by Strathcona County Transit for each context, understanding the cost and benefit.

Recommendations:

- Further explore the use of Dynamic Transit Services as a replacement of certain fixed-route services in the Urban Service Area. This should include a review of both dedicated and non-dedicated service models.
- Focus fixed-route services in areas that will attract a higher customer demand, connecting major origins, destinations and transfer points. These are most suitable for Inter-municipal Routes which carry large volumes of customers as well as Local Routes which operate primarily on arterial corridors and connect higher volumes of customers.
- Develop a Dynamic Transit Service model for low demand areas and operating periods, allowing customers to use a mobile app to book a shared-ride demand-responsive service to connect to the fixed-route service.
- Reinvest any service hour savings from this new model to improve service frequency and increase hours and days of service that transit operates.

6.1.1.2

Strategic Direction #A2: Explore Partnerships with Other Mobility Providers

People are becoming more multi-modal in how they travel. They may cycle to a local event, drive to a get groceries and take transit to work. Younger generations are not acquiring personal vehicles and driver's licences to the extent that previous generations did. While auto travel is likely to continue to dominate in Strathcona County, there are opportunities for the County to partner with other mobility providers to ensure residents are fully aware of the range of travel options that are available to them for various trip needs. Ride sharing or carpooling is now easier with technology matching those looking for rides with those having seats to fill. Car shares and bike shares are now common in urban settings. Taxis

and the new Transportation Network Companies (TNCs) are adapting and offer citizens an alternative to owning a second car for many trips.

Strathcona County Transit needs to continue to evolve and see themselves as not only an operator of transit services, but as a manager of sustainable mobility services.

Recommendations:

- Expand the role of a senior member of the Strathcona County Transit administration and management team to include the exploration of partnership approaches with other mobility service providers.
- Explore partnerships with other mobility providers, such as ride, car and bike share programs, to identify opportunities to increase the range of mobility offerings, in both the Urban and Rural Service Areas.
- Promote sustainable mobility services through awareness and education campaigns to inform residents of alternatives to driving alone in private vehicles.

6.1.1.3 Strategic Direction #A3: Partnerships with Community Agencies

Some community agencies currently provide transportation as part of their service offering in the community. These forms of transportation tend to operate in a shared-ride format and support sustainable mobility. The Robin Hood Association continues to be a valued community partner in providing mobility for many of its clients. The CHOICE Program (Comprehensive Home Option for Integrated Care of the Elderly) includes transportation as part of the overall service. Seniors centres often access vehicles to take residents to events and activities. An example from Orange County in California was adopted by DATS in Edmonton. It involved donating a retiring paratransit vehicle to a community agency to assist it in providing more of its own trips for its clients. It offered the agency more travel options and freed up space on DATS to meet the needs of individuals not linked to a program.

Recommendations:

- As a manager of ‘sustainable mobility services’, engage community agencies that deliver transportation as part of their programming to assess potential partnerships to continue and potentially expand mobility options across the community.

6.1.1.4 Strategic Direction #A4: Travel Training

Some orientation and training is often the only thing that prevents a person with a disability from accessing conventional public transit services. Travel training programs are designed to ensure that lack of awareness, training and familiarity with conventional transit is not a barrier to accessing transit services. Various transit agencies have adopted different approaches to delivering travel training. York Region Transit offers a training centre where trainees can learn about transit and practice how to ride the service in mocked up buses and stops. OC Transpo in Ottawa works with community agencies on a

‘train the trainer’ approach, leveraging the expertise of groups that provide life skills training. Others employ one or more staff to deliver orientation and training, and some contract with firms to deliver one on one travel training, when required. Another way used to extend limited resources is to hire a summer student or two to deliver a travel training program when the weather is nice.

Recommendations:

- Building on the ‘take the bus’ program being launched through the Customer Experience area, develop and implement a travel training program that ensures that the lack of awareness, training and familiarity with conventional transit is not a barrier to accessing transit services.

6.1.1.5

Strategic Direction #A5: Manage Parking Demand through Transportation Demand Management Strategies

Currently, the park-and-ride lots at both Bethel Transit Terminal and Ordze Transit Centre reach capacity on a regular basis, particularly during the post-secondary school year from September to April, when the parking lots can be full by 9:00am. There are currently 200 stalls of free parking at the Ordze Transit Centre and 1,100 free stalls and 100 paid “Advantage Parking” stalls at the Bethel Transit Terminal. Advantage Parking users pay \$35 per month for a reserved parking stall on weekdays from 5:00am to 6:00pm.

Building additional parking at either transit terminal is cost-prohibitive as it would likely require structured parking which typically costs about \$40,000 per stall. Transportation Demand Management (TDM) strategies can be used to incentivize more customers to take local transit to the terminals rather than driving. The local transit service is already well set-up to connect with the commuter service at both transit terminals. The most logical TDM strategy is to change all the parking stalls to paid parking. The existing rate (\$35 per month) will likely be sufficient to encourage some users to take local transit to the terminals and reduce pressure on the parking lots (as local transit is free when connecting to an Inter-municipal Route). The parking rates can be raised if they are insufficient to promote behavioural change.

A strategy that involves paid parking at the transit terminals should consider the effects on rural residents of Strathcona County who do not have access to local transit. This could take the form of providing parking passes at no charge or at a reduced rate to rural residents, or reserving a portion of the lot for rural residents only to help ensure they can count on a parking spot being available at the transit terminals when they plan a trip.

Recommendations:

- Explore further the technology and cost required to implement paid parking at both Bethel Transit Terminal and Ordze Transit Centre. This should be weighed against the potential revenue generated from each parking area and the ability to provide a free space for residents that live in the Rural Service Area.

6.1.1.6

Strategic Direction #A6: Continue to improve Eligibility based on a Family of Services Approach

The goal of Mobility Bus registration process is to accurately determine who is functionally able to ride conventional transit, and who is not. With a fully low-floor conventional bus fleet, persons with mild to moderate disabilities may be able to access the fixed-route service some or all of the time, especially if travel training is available to assist individuals. The CUTA Canadian Code of Practice on Determining Eligibility for Specialized Transit (2013) offers guidance on implementing eligibility and registration processes that assess the abilities of individuals seeking the accommodation offered through Mobility Bus. The existing Mobility Bus eligibility criteria continues to be appropriate as follows:

Persons who can demonstrate that because of a disability they are not able to use conventional bus services for some or all of their trips, are 18 years of age or older and are a resident of Strathcona County

Paper-based applications with medical verification do not provide sufficient information on the functional abilities of applicants and are being replaced with a more detailed process including an in-person component. With more accurate ways of assessing functional abilities, trip by trip eligibility is now possible especially with technologies that let individuals assess the accessibility of the conventional services including the path of travel at the beginning and end of a trip. Strathcona County Transit should continue to use three types of eligibility, that is, unconditional, temporary and conditional and refine conditions more fully as the service becomes more accessible and integrated.

In the medium to long-term, once a new specialized transit scheduling software is operational to allow staff to better manage trip by trip eligibility, Strathcona County Transit should also consider adopting a formal “Family of Services” approach to service delivery, integrated with travel training on Inter-municipal Routes and Local Routes.

When a customer is approved and registered as a Mobility Bus client, they are assigned a Mobility Bus status based on an abilities assessment which identifies the Strathcona County Transit services the customer is able to use. When booking a trip, Mobility Bus customer service staff aim to determine how services can be delivered most efficiently using the entire Family of Services. As a result, Mobility Bus customers may use a combination of Mobility Bus origin-to-destination services and accessible conventional fixed-route services to complete their trip (primarily for long-distance trips such as Inter-municipal Routes). This approach helps reduce duplication of transit services and promotes independence, inclusion, integration, and self-sufficiency to the customer.

For inter-municipal trips, this will involve coordination with Edmonton Transit Services (ETS), to ensure that the Mobility Bus registrant has a suitable connection when they arrive in Edmonton should they require another accessible vehicle to complete their trip (whether through their specialized transit service (DATS) or an accessible and direct ETS conventional service). There are currently a number of

direct ETS fixed-route connections to Misericordia Hospital from downtown Edmonton, and this would be a good first step to pilot this type of concept.

Recommendations:

- Update the application process to gather more detailed information on the functional limitations of applicants, including an in-person component, when appropriate. Review the CUTA *Canadian Code of Practice on Determining Eligibility for Specialized Transit* to adopt approaches that meet local needs.
- Re-certify existing registrants on a three year cycle to maintain accurate and up-to-date information.
- Implement photo identification as part of the updated registration process to support ease of identifying registrants, to support 'attendants ride free' on conventional transit and further advancing service integration.
- Once a specialized transit scheduling software system is in place, explore the concept of a Family of Services approach.

6.1.1.7 Strategic Direction #A7: Equity of Attendants

Strathcona County Transit implemented fare parity across comparable conventional bus and Mobility Bus services in July 2018. Currently, persons riding on Mobility Bus who require an attendant are able to bring the attendant for free. This is not the case on conventional transit.

It is the prevailing practice across transit agencies in Canada and deemed to be an effective strategy to encourage paratransit registrants to use the conventional transit service. A trip on paratransit is typically ten times more costly to provide than on conventional transit. Therefore, any loss of revenue from fares is offset by reduced demand on paratransit.

Recommendations:

- Implement an 'attendants ride free' on conventional bus service to encourage Mobility Bus registrants to ride the fixed-route service.

6.1.1.8 Strategic Direction #A8: Integration of Mobility Bus and Dynamic Transit Service

A key strategic direction will be to better integrate Mobility Bus trips with Dynamic Transit Service trips. If the County elects to use its own fleet to deliver Dynamic Transit Services, it is recommended that the Mobility Bus logo be removed from all its Mobility Bus vehicles, replaced with a Strathcona County Transit logo. This will allow the same vehicle to be used to provide both Mobility Bus and Dynamic Transit Services. The goal is to provide more flexibility in utilizing the right vehicle for the right type of trip, irrespective of whether a customer is registered for Mobility Bus. This strategy helps support the integration of customers on vehicles that were traditionally reserved for Mobility Bus customers and will allow for more efficient scheduling and increase the available capacity to all Strathcona County Transit customers.

Under the integrated service model, a vehicle used to provide Mobility Bus service can also be used to provide Dynamic Transit Service, simultaneously where possible. Similarly, a vehicle used to provide a Dynamic Transit Service will also be able to pick up Mobility Bus customers, simultaneously where possible. This means that the services would be “comingled”, and Mobility Bus and Dynamic Transit Service customers may share vehicles if this provides greater efficiency in the delivery of their trips. The decision to integrate trips will be based on the ability to utilize existing in-vehicle capacity and provide a better level of service to customers.

It should be noted that Mobility Bus will continue to operate as a core service for registered customers. While there are several areas where Dynamic Transit Services and Mobility Bus services could be integrated, Dynamic Transit Services do not operate in all areas of the County and during all time periods. Providing a core Mobility Bus service will still need to be of significant importance to the County.

Recommendations:

- Explore the concept of comingling Mobility Bus services with Dynamic Transit Services. A prerequisite of this approach is demand-response software in place to support the functions required by customers and staff.

6.1.1.9

Strategic Direction #A9: Work with Technology Providers to Develop Integrated Scheduling and Mobile App for Demand-Responsive Services

Paratransit trip scheduling software, also known as ‘demand-response’, is now being used in new and innovative ways. Mobility Bus is beginning to roll out this software to assist staff in scheduling a growing number of trips on its service. Demand-response software is an invaluable tool on the day of service, to manage incidents such as a vehicle breakdown or customer illness. The staff, using their technology tools, can quickly find other vehicles in the area that can take upcoming trips or transfer existing riders to get them to their destinations. This software has the ability to track vehicles in real-time and let customers know that their ride is on the way just before it arrives. Online apps can allow riders to book trips in real-time similar to tools used by ride hailing service providers like Uber and Lyft and now being implemented by some transit agencies and communities that do not lend themselves to fixed-route transit.

Recommendations:

- Implement the specialized transit scheduling software system for Mobility Bus as soon as possible to provide technology tools to assist staff to efficiently and effectively manage a growing number of trips as well as offering customers more ways to book and track trips.
- Assess the potential of using specialized transit scheduling software system for Dynamic Transit Services throughout the Urban Service Area. Requirements would include the ability to book trips online through smart devices, track rides in real-time, communicate pick-up locations to

persons booking trips, accept electronic fare payments aligned with the Regional Smart Fare project, to mention a few.

6.2 Theme B: Mobility in the Urban Service Area

Strathcona County Transit is an important component of mobility in the Urban Service Area. It is an essential service for many residents who rely on transit to provide access to employment, education, and services. This includes students (especially those attending Archbishop Jordan High School and post-secondary institutions), seniors, low income residents, one-car families, persons with disabilities that cannot drive, and other residents who are unable to drive or choose not to drive.

The challenge that Strathcona County Transit faces is that the land use and roadway network it operates on is not always conducive to effective fixed-route transit operations. Fixed-route transit performs best when providing direct two-way service on arterial and collector roadways with good pedestrian connections to higher density, mixed-use development. This route design helps reduce travel times in both directions of travel while maximizing ridership potential.

Most of the existing housing in Strathcona County is single detached (70.2% in the Urban Service Area) located on local streets. Pedestrian connections to fixed-routes can be difficult, particularly when routes travel along arterial corridors with long fences with poor connectivity to the adjacent residential neighbourhoods.

Recognizing this challenge, Strathcona County Transit deviates a number of its routes into local neighbourhoods to be within closer proximity to potential customers. The challenge with this approach is that routes become more circuitous, increasing travel time for all customers. This is a double-edged sword for transit: stay on the arterial road network and buses are too far removed from people; access the local neighbourhoods and bus trips are longer and more indirect, making transit an unattractive option.

As a result of these challenges with the built form and behavioural choices, many Local Routes in the Urban Service Area have poor productivity, particularly on evenings and weekends when travel demand is lower. During peak periods, some routes do well, while others experience weak ridership even at those times.

Local Routes are also designed around providing connections to Bethel Transit Terminal and Ordze Transit Centre. This is helpful for customers transferring to Inter-municipal Routes into Edmonton, but is not always conducive to local travel, as many trips require a transfer and often some backtracking. Despite the local transit connections, most Inter-municipal service customers prefer to drive to one of the transit terminals and the park-and-ride lots are regularly full at both Bethel Transit Terminal and Ordze Transit Centre throughout the school year.

For local transit to improve, a new model is required which:

- adjusts land use in growing areas of Strathcona, reflecting a transit supportive design that is more conducive to operating two-way direct fixed-route transit on the arterial roadway network;
- rethinks how transit operates in existing low-density areas to make better use of system resources and improve service quality for customers; and
- rethinks how transit operates during off-peak periods to make better use of system resources and improve service quality for customers.

To address these challenges and make better use of existing resources, the following strategic directions are recommended.

6.2.1 Strategic Directions

6.2.1.1 Strategic Direction #B1: Rethink Evening and Weekend Service

Currently, productivity on the local evening and weekend routes is quite low, often below 6 customer boardings per revenue vehicle hour. Customers are also poorly served by the hourly frequency during these off-peak hours. This results in a service that is neither cost-effective nor convenient. Evening and weekend service needs to be revamped, and it is recommended that this be done by piloting a Dynamic Transit Service during these times. A detailed explanation of Dynamic Transit Services can be found under Mobility Management Strategic Direction #A1: Explore the Introduction of Dynamic Transit Services.

This pilot project would consist of the following:

- Dynamic Transit Service would replace the existing evening and weekend fixed-route service and would operate during the same time periods: Monday to Friday from 7:15pm to 12:15am; Saturday from 6:15am to 12:15am; and Sunday from 7:15am to 8:15pm.
- Dynamic Transit Services would operate within the existing Urban Service Area.
- Connections between Dynamic Transit Services and Inter-municipal Routes should be seamless. A service policy should be identified to have a maximum waiting time of 5 minutes when transferring between a Dynamic Transit Service and an Inter-municipal Route.
- Dynamic Transit Services are a shared-ride service, and customers may need to share a ride with other customers. Routing will vary and depend on the number of customers needing to share a vehicle and where they need to travel.

The implementation of this service model in the weekday evenings and weekends provides the following benefits:

- reduced travel time for a number of transit customers (as Dynamic Transit Services can be more direct than the longer fixed-routes in place during the evenings and weekends);
- one-seat service anywhere within the Urban Service Area (transfers between local fixed-routes are no longer applicable), and one transfer if connecting to/from an Inter-municipal Route;
- real-time booking and tracking of vehicle, reducing the uncertainty of potential missed trips of the existing hourly service;
- flexibility in scheduling Inter-municipal Routes (frequency of Inter-municipal routes can be improved without adding significant resources to the local service, as Dynamic Transit Services do not operate on a fixed schedule);
- use of smaller vehicles to provide service can reduce the perception of ‘empty buses’ operating during low demand periods); and
- potential to reduce operating costs in both dedicated service model (hourly cost of service is typically less expensive due to use of smaller Mobility Bus vehicles or sedans and minivans) and the non-dedicated service model (as Strathcona County Transit would only pay for each trip completed).

Recommendations:

- Assess options to implement either a dedicated or non-dedicated Dynamic Transit Service model and select a preferred strategy during the weekday evening and weekend periods.
- Pilot a Dynamic Transit Service on weekday evenings and all-day weekends for a full year to evaluate its effectiveness.
- Assess effectiveness of Dynamic Transit Service at the completion of the pilot based on productivity (utilization), ridership and customer satisfaction.

6.2.1.2

Strategic Direction #B2: Introduce Dynamic Transit Service Options to Bethel Transit Terminal and Other Key Local Destinations

If the initial pilot to replace fixed-route local service on weekday evenings and weekends with a Dynamic Transit Service is successful, a second phase should be piloted during weekday peak periods. This would involve eliminating all the ‘A’ and ‘B’ peak hour routes that currently operate in the area south of Baseline Road and replacing them with a Dynamic Transit Service focused on service to and from Bethel Transit Terminal. Route 433A north of Baseline Road would remain as a fixed-route service.

The five ‘A’ and ‘B’ peak hour routes that operate south of Baseline Road all have relatively low ridership, of which many do not meet minimum Service Utilization targets (see **Section 5.4.4**). It is estimated that the combined ridership of the five fixed-route buses could be accommodated with seven to nine dedicated Dynamic Transit Service vehicles (or more vehicles if a non-dedicated model is selected).

The Dynamic Transit Services would follow the same schedule as the existing five peak hour routes, connecting to the Bethel Transit Terminal at the same times as the existing routes. This would prevent any duplication with existing Local Routes and allow Strathcona County Transit to monitor to effectiveness of this service model compared to the fixed Local Route service. Customers that use the mobile app would be provided a list of arrival times to the terminal every 30 minutes (connected to an Inter-municipal Route departure time) and a list of departure times from the terminal every 30 minutes (connected to the arrival time of an Inter-municipal Route).

The removal of the peak only routes would result in a reduction to 30 minute headway during peak periods. However, this would be supplemented by Dynamic Transit Services, which would provide more flexible service to complement the fixed-route service (maintaining a 15 minute peak headway for residents connecting to Bethel Transit Terminal). Customers would have more options available to them and could take either fixed-route or a Dynamic Transit Service. The remaining fixed Local Routes would still connect with each other and the Inter-municipal Routes at both transit terminals every half hour. With this second pilot, Strathcona County Transit should also consider identifying other key destinations that the Dynamic Transit Service could connect to.

Adding the Ordze Transit Centre as an additional stop would also provide a more direct connection with the Bethel Transit Terminal (which currently takes approximately 30 minutes to travel between the two terminals). A Dynamic Transit Service that connected these two terminals would reduce travel time to approximately 12 to 15 minutes. This would primarily benefit customers that park their vehicle at the Ordze Transit Centre, but choose to take an Inter-municipal Route home that terminates at the Bethel Transit Terminal (as Inter-municipal Routes out of the Bethel Transit Terminal operates more frequently and for longer hours). This will provide more flexibility to customers using the Ordze Transit Centre.

Another key destination could include the Community Centre in Centre on the Park. This is a local destination in Sherwood Park which is experiencing intensification. Finding opportunities to connect to local destinations without a transfer would enhance the customer experience on transit.

It should be noted that adding more destinations to the Dynamic Transit Service model may result in a higher requirement for vehicles. The opportunity to share rides and increase the vehicle occupancy on a Dynamic Transit Service increases if there are limited destinations that everyone is going to (e.g. all customers going to/from the Bethel Transit Terminal every half hour). As the number of destinations that are added to this service increase (e.g. Ordze Transit Centre and the Community Centre), trip requests are more dispersed, reducing the ability to share rides without increasing the number of vehicles in service.

For this reason, the model should be tested only using two or three fixed destinations or connection points. This can be done through a mobile app provider, who can estimate vehicle requirements

required to meet customer demands. The goal is to provide a service that will require a similar to slightly higher operating cost at an improved level of service for customers.

Recommendations:

- Eliminate Routes 451A, 451B, 443A, 443B and 441A, and replace with a one-year Dynamic Transit Service pilot. Dynamic Transit Services would connect to the Bethel Transit Terminal at the same scheduled frequency as the existing routes that were replaced.
- Explore opportunities to expand the service to other key destinations, including the Ordze Transit Centre and the Community Centre. The goal will be to improve the options available to customers without significantly increase the number of vehicles required during the pilot to extend the service.
- Assess effectiveness of Dynamic Transit Service at the completion of the pilot based on productivity, ridership and customer satisfaction.

6.2.1.3

Strategic Direction #B3: Review Local Service in Sherwood Park

At the successful completion of the Dynamic Transit Service peak period pilot (Strategic Direction #B2), potential to expand this service offering should be explored to other neighbourhoods, destinations and during the during the midday. At this point, the structure of the Local Routes should be revisited to better service local destinations within Sherwood Park instead of transfer opportunities to Bethel Transit Terminal and Ordze Transit Centre (which would be the focus of Dynamic Transit Services).

Currently, travel to most destinations in the Urban Service Area other than the transit terminals requires a transfer to a second route. This makes transit cumbersome and circuitous for local trips. Key destinations should be identified, including Centre in the Park, shopping centres, recreational facilities, schools, and Strathcona Community Hospital. Local Routes should be redesigned to provide service to multiple destinations and allow more residents to access key destinations without requiring a transfer at a transit terminal. This can be accomplished by creating some “crosstown routes” that connect different quadrants of Sherwood Park directly.

In conducting this more detailed assessment, the role of Dynamic Transit Services should also be considered in other key areas of Sherwood Park should the two pilot projects (Strategic Direction #B1 and #B2) be successful in attracting higher ridership (at a reasonable productivity).

Dynamic Transit Services are typically not as cost effective as fixed-route services when there is high ridership demand. Fixed-route vehicles generally have a larger capacity to accommodate more customers than Dynamic Transit Services, which can reduce operating costs when there are a number of individuals that reside or are destined along the transit route.

As ridership grows on a Dynamic Transit Service, more vehicles are required to meet customer demands due to the smaller vehicle capacity and higher level of service provided (reduced transfers and travel

times, and improved proximity to service and flexibility). This may result in a situation where the Dynamic Transit Service model is more costly to operate than the fixed-Local Route model.

This situation should not exclude the consideration of expanding the Dynamic Transit Service model in high demand areas or periods. If the results from the two pilots show a significant growth in ridership when the Dynamic Transit Service models were introduced, consideration should be made to expand this service, even if it results in higher operating and capital costs.

The cost of this service model and its associated ridership growth should be compared against the cost of remaining at the status quo. The Integrated Transportation Master Plan has identified a significant increase in transit mode share in order to offset roadway investment that would result from a higher number of private automobiles on the road. There are also a number of other benefits to reducing automobile travel such as greenhouse gas emission reduction, economic development and quality of life that need to be taken into consideration.

The existing Bethel Transit Terminal and Ordze Transit Centre are also at capacity during the post-secondary school year. Parking at the Community Centre is also at capacity on a number of occasions. Population growth will place additional strain on these facilities unless options are developed to reduce parking demand. The cost to build a parking structure is approximately \$40,000 per parking space, which should be weighed against the increase in capital and operating cost of improving transit (and therefore reducing parking demand) in the Urban Service Area.

Recommendations:

- Upon successful completion of the Dynamic Transit Service pilot, Strathcona County Transit should revisit the structure of some Local Routes to provide more direct connections to key local destinations. This should include Centre in the Park, shopping centres, secondary schools and Strathcona Community Hospital.
- Consideration should also be made to expanding the Dynamic Transit Service concept to service more local destinations.
- Any future updates to the Integrated Transportation Master Plan should identify the cost of not proceeding with a transit mode share increase and compare against the cost of providing the necessary transit services in place to reach the mode share target.

6.2.1.4 Strategic Direction #B4: Expand Service to Cambrian

Cambrian is the area located north of Highway 16 between Range Road 231 (Clover Bar Road) and Highway 21. Large-scale neighbourhood development is expected to begin in Cambrian in 2021 and continue until 2037, with a projected built out population of more than 13,000. This works out to a population increase of almost 1,000 new residents per year. The pace of development may be slower at first, then accelerate after Sherwood Park reaches its full buildout, expected to be around 2024.

As Cambrian is located immediately across Highway 16 from existing development in Sherwood Park, it will form part of the Urban Service Area and will require local transit service. Determining when to implement transit service in new communities is a balancing act: too soon and buses travel around empty on a patchwork of unconnected roads; too late and transit misses out on being a viable option while new residents are forming their travel habits.

Once the area begins to develop (e.g. population reaches 500 to 1,000 residents), Dynamic Transit Services should be introduced early to ensure new residents have a sustainable transportation option available to them. This will help improve the productivity of transit over a fixed-route design. This should be put in place until such time as ridership forecasts suggest minimum Utilization Standard target for a Local Route can be achieved (see **Section 5.4.4**). A logical connection to Sherwood Park would be to provide a service to either Emerald Drive and/or the Bethel Transit Terminal.

Once ridership on Dynamic Transit Service to Cambrian reaches the triggers outlined in the Modification of Existing Services Standard (see **Section 5.4.5**), consideration should be made to replace it with a fixed-route service. This would likely happen once the population of Cambrian has surpassed the 1,200 to 1,800 population mark. The route could connect to Sherwood Park at Clover Bar Road, then along Emerald Drive and Sherwood Drive to Bethel Transit Terminal. This would connect residents of Cambrian to Strathcona Community Hospital, Emerald Hills Shopping Centre, Archbishop Jordan Catholic High School, and commuter service to Edmonton from Bethel Transit Terminal. Other Local Routes or Dynamic Transit Services should also be put in place to meet the Proximity to Service target noted in the Service Standards (see **Section 5.3.6**).

Recommendations:

- Introduce a Dynamic Transit Service to Cambrian Crossing early in the development, with connections to Emerald Drive and the Bethel Transit Terminal.
- Consider replacing Dynamic Transit Service with a Local Route once ridership exceeds the minimum Service Utilization targets for a Local Route noted in the Service Standards (see **Section 5.4.4**).
- Continue to expand Local Route or Dynamic Transit Services in Cambrian in accordance with the Service Standards noted in **Section 0**.

6.2.1.5

Strategic Direction #B5: Expand Service for Mobility Bus Registrants

Since the last Transit Master Plan in 2012, Mobility Bus has made considerable progress toward offering a comparable level of transit service for persons with disabilities that are unable to access conventional fixed-route bus services. Service area coverage exceeds that of conventional bus in accessing most hospitals and health destinations in Edmonton as well as offering trips for social and medical purposes for eligible persons living in the rural portions of Strathcona County on weekdays. The introduction of fare parity for Mobility Bus customers within the Urban Service Area and Inter-municipally in July 2018, further advanced the goal of offering 'equivalent' service across the system. 'Equivalent' services refers

to offering persons with disabilities a comparable service to that available to persons using the fixed-route bus service.

With continued growth and aging of the population in the County, demand is expected to grow for this important service. With fare parity and an aging population, annual rides on Mobility Bus are projected to increase from approximately 21,000 trips today to between 45,000 and 55,000 trips by 2028. Much of this growth has been a result of the introduction of fare parity, however, a growing and aging population will also add to the Mobility Bus demand.

To maintain the existing level of service to persons with disabilities unable to use the conventional system, capital and operating budgets will need to grow as the population ages and grows.

Recommendations:

- Expand service on Mobility Bus to meet the growth in demand arising from a growing and aging population. This includes increasing the fleet and staffing required to meet demand within the Service Standards.
- Access taxis / non dedicated service providers for at least 10 percent of trips to support efficient use of the dedicated resources (staff and fleet). Using taxis for out-of-the-way, early morning and late night trips offers a means to deploy the dedicated Mobility Bus service when the majority of demand exists as well as minimizing trip denials. Taxis delivering trips are also an important means to maintain quality customer service when incidents happen and a timely response is needed.
- Implement a 'family of services' approach to increase the travel options available to Mobility Bus registrants who can access conventional transit for part of some trips or for certain destinations. This approach to integrated service delivery is linked to an improved eligibility process.
- Review the life cycle of Mobility Bus fleet to maximize the length of service that this fleet can deliver to the community. Industry prevailing practice is seven to 10 years.

6.2.1.6

Strategic Direction #B6: Improve Accessibility of Services

Improving the accessibility of conventional transit is a key strategy to enable as many people with mild to moderate mobility limitations to experience the freedom and flexibility of transit services. The conventional bus fleet is now fully accessible and automated stop announcements in audio and visual formats are being implemented as part of the Smart Bus project rollout. More work is needed to create a more universally accessible service and community. The pedestrian environment, especially the path of travel to and from accessible stops to key destinations is critical to support as many people as possible to use the conventional service. With an aging and growing diverse population, more and more jurisdictions are adhering to principles of universal design to maximize the accessibility for as many people as possible.

Recommendations:

- Develop an overarching policy that outlines the County’s commitment to an accessible transit service.
- Develop short and long-term plans identifying improvements to policies, procedures, information, training, infrastructure, etc., to achieve a more fully accessible transit service. These plans would identify priority areas for improvement that could be submitted for funding consideration in the operating and capital budget cycles.
- Consult key stakeholders as part of this process to gather their input on priorities to improve accessibility.

6.3 Theme C: Mobility for Inter-municipal Travel

Strathcona County Transit offers three types of inter-municipal services between Sherwood Park and Edmonton:

- Daily Inter-municipal Routes between Sherwood Park and Edmonton;
- Daily Mobility Bus service for registered clients between Sherwood Park and Edmonton; and
- Weekday Mobility Bus service for registered clients between the Rural Service Area and Edmonton.

The six-route Inter-municipal Routes connect Sherwood Park’s two transit terminals to the City of Edmonton. The points of interest in Edmonton include downtown Edmonton, MacEwan University, University of Alberta’s (UofA) main campus, University of Alberta’s Campus Saint-Jean, the Northern Alberta Institute of Technology (NAIT), and the Bonnie Doon shopping centre. The service is performing at a high level, with approximately 5,000 average daily boardings on all six routes combined. Accessible double-decker buses are used to deliver services, which are often full in the peak direction.

A number of issues were both observed and raised through the community engagement process regarding service productivity on Mobility Bus, the need for improved service to key destinations and during evenings / weekends and potential implementation of rapid transit services. These issues and opportunities are identified below, with key strategic directions identified to address each.

6.3.1 Strategic Directions

6.3.1.1 Strategic Direction #C1: Identify Integration Opportunities with Edmonton Transit Service (ETS)

Edmonton Transit Services (ETS) provides a number of Light Rail Transit (LRT) lines through the community, with direct connections to downtown. LRT provides higher capacity service with full or partial service operating in its own right-of-way.

There is some duplication that occurs with Strathcona County Transit Inter-municipal Routes and existing and planned ETS LRT corridors. The potential to connect and short-turn some of the existing Strathcona County Transit Inter-municipal Routes was explored on both the existing Capital LRT Line

(either Coliseum Station or Belvedere Station) as well as the future Valley LRT Line at Bonnie Doon Station (expected completion 2020).

Providing these connections would have the potential of reducing the length of the Strathcona County Transit Inter-municipal Routes, allowing revenue vehicle hours that were saved to be reinvested back into the system. However, this type of modification would also result in the need to transfer between two services on two separate systems, potentially increasing travel time and reducing the quality of service.

Table 14 illustrates the potential implications of connecting and terminating Strathcona County Transit Inter-municipal Routes at one of the ETS LRT lines.

Table 14 – Implications of LRT Connections

	Capital Line LRT	Valley Line LRT
Potential Daily Revenue Vehicle Hour Savings	0-5	5-7
Commuter Travel Time Added	4-15 min	3-18 min

Terminating a Strathcona County Transit Inter-municipal Route at one of the above identified LRT stations (instead of providing a direct downtown connection) would generally save Strathcona County Transit 0-7 daily service hours per route, which could be invested back into the system and be used to improve frequency of service or expand hours of operation.

However, for both the existing and future potential LRT line connections, the following disadvantages could be expected:

- travel time increases for riders (primarily due to the need to transfer);
- increased fare for riders (customers would have to pay both a Strathcona County Transit and an ETS fare);
- increase in transfers (with certain customers potentially required to make three transfers to complete their trip); and
- overloading the LRT route, which may result in ETS charging the County for the service.

The addition of an additional transfer was felt to be a deterrent to ridership, which would likely not be offset by an increase in service frequency (reinvested back into the route from service hours saved by terminating the route at an LRT station). Additionally, for the Capital Line connection, customers may have a negative travel time perception because the Strathcona County Transit service would take them north only to connect to an LRT station, before heading back south on the Capital Line.

Together, these disadvantages could be expected to deter riders from using Inter-municipal Routes provided by Strathcona County Transit.

Recommendations:

- Continue to operate services directly to downtown Edmonton and other key destinations in Edmonton currently serviced by the Inter-municipal Routes.
- Connections to the Valley Line LRT and the Capital Line LRT continue to be made where feasible to promote connectivity between the two systems and accommodate customers that are not originating or destined downtown. Consideration be made to terminating routes at an ETS LRT station only when:
 - Fare integration is in place with ETS, avoiding customers from paying another fare;
 - Service hours saved can be reinvested back into the Inter-municipal Route to increase the frequency of service to every 15 minutes or greater (to reduce transfer time);
 - An agreement is made with ETS that does not involve a transfer cost paid to ETS to accommodate an increase in service levels that would result from adding Strathcona County Transit customers on to the LRT service.

6.3.1.2 Strategic Direction #C2: Improve Evening Connections to University of Alberta (UofA)

Two existing Inter-municipal Routes service the UofA main campus and the UofA Campus Hospital. While neither of these routes offer evening and weekend service in the summer months, Route 414 does service the campus in the evenings and on weekends during the fall and winter semesters, with the last bus departing the UofA campus at 9:45pm, while the last class ends at 10:00pm.

There are a number of students that attend classes in the evenings and summer period, as well as employees that work at the UofA Hospital. The closest Inter-municipal Route during these periods is in the downtown (Route 411, which provides hourly service from the Bethel Transit Terminal from 7:00pm to 11:45pm). While there is an ETS LRT service that connects the UofA campus to the downtown (where customers could connect to the Route 411 bus), this adds travel time to customers, can result in a long waiting time at the transfer location (as Route 411 only operates hourly) and would require customers that do not have a U-Pass to pay an additional fare.

The existing ridership on both Route 411 and 414 is within an acceptable Utilization Service Standard, and it is anticipated that extending the service hours by one or two runs during the Fall/Winter period would maintain a ridership level that is within a minimum threshold for service.

The potential to increase the frequency of service was also assessed to better align with UofA class times and improve flexibility of departure times by students and employees. While Route 414 is the most productive route in the system during the weekday evening periods, the combined ridership on both routes does not warrant adding a third bus to the service that would be required to move to a 30 minute headway.

Instead, it is recommended that Strathcona County Transit focus on providing better connections to UofA until approximately 11:00pm during both the Fall/Winter and Summer periods. Two options were explored to achieve this objective.

Option A: Offset the Two Evening Routes and Extend Route 414 Service to UofA by One or Two Hours

For this option, Routes 411 and 414 would be offset by 30 minutes so that there is one evening service leaving Edmonton every 30 minutes rather than every hour. This is possible with the introduction of evening Dynamic Transit Services, as local connections can be made to the Inter-municipal Routes every 30 minutes without a significant increase in Local transit service hours.

Offsetting the service would mean Route 414 would arrive at the UofA campus 15 minutes past the hour instead of 45 minutes past the hour. This better aligns with a 10:00pm class end time, with a bus departing the campus at approximately 10:15pm.

Students and employees could also choose to take the LRT to the downtown and transfer onto Route 411 if the offset Route 414 times do not align with their schedule. This would provide some customers who choose to use ETS as part of their trip with a 30 minutes service.

The service would require an increase in 1-2 daily hours of service in the Winter and 4 to 5 daily hours in the Summer period (depending on the end of service).

Option B: Combine Routes 414 and 411 and Expand Service

For this option, Route 414 would be eliminated in the evenings and Route 411 would be modified to follow the Groat Road-Waterdale Hill loop to service UofA before heading into downtown and then back to the Bethel Transit Terminal. The addition of the UofA loop would bring the total return trip travel time of Route 411 to approximately 75 minutes and would require the use of a single-level 40ft accessible bus (due to the 3.2m height clearance of the High Level Bridge).

Customers from UofA would experience approximately 10-15 minutes of increased travel time (when compared to taking Route 414), but riders boarding in downtown would not see any difference to their return trip travel time since they would be picked up right before the bus heads back to the Bethel Transit Terminal. The frequency of this modified route would be increased to every 35-40 minutes to improve alignment with the evening UofA schedule. This would also increase the level of service for customers destined and departing from the downtown.

If Route 411 was modified in this way and the frequency was increased to every 35-40 minutes, an increase of 3 to 5 daily service hours would be expected during the Fall/Winter period and 7 to 12 service hours during the Summer period.

Recommendations:

- Further assess options to extend evening service to the UofA campus to better align with the last class end time of 10:00pm during the Fall/Winter period.
- Further assess options to extend evening service to the UofA campus during the summer period.
- Solutions should minimize the number of revenue vehicle hours added to the system to ensure service productivity targets continue to be met.

6.3.1.3 Strategic Direction #C3: Improve Weekend Service

Presently, Route 411 is the only Inter-municipal Route that operates on weekends. Route 411 provides hourly service on Saturdays and Sundays all year round. The service is well used, with a daily average of approximately 25 customer boardings per revenue vehicle hour on Saturdays and 22 customer boardings per revenue vehicle hour on Sundays.

As the ridership on Route 411 continues to grow along with the population of Strathcona, an increase in frequency may be warranted for the Route 411 weekend service.

Recommendations:

- Continue to monitor the population growth and weekend ridership on Route 411.
- Consider increasing frequency of the Route 411 weekend service as the maximum Service Utilization thresholds (see **Section 5.4.4**), as outlined in the Service Standards are reached for the different weekend time periods. Consideration should be made to improving service levels on Saturdays during the daytime period first to test the market. This should only take place if the weekend Dynamic Transit Service model has passed the pilot and made into a permanent service.

6.3.1.4 Strategic Direction #C4: Improve Connections to NAIT

Inter-municipal Service to/from the Northern Alberta Institute of Technology (NAIT) is provided by extending Route 413 from MacEwan University by four weekday AM trips and three weekday PM return trips commence from the Northern Alberta Institute of Technology (NAIT). Outside of these periods, students and employees at NAIT can connect to the Metro Line LRT and take a short trip between downtown (Route 413 terminus) and NAIT. With a U-Pass, NAIT students can make this transfer without paying an extra fare.

With the recent introduction of a U-Pass for NAIT students, NAIT ridership is growing and there is a desire by students to improve the level of service to NAIT. This could include increasing the number of trips to NAIT or providing a semi-express service, reducing the overall travel time between Sherwood Park and the post-secondary institution.

It should be noted that the cost of any service improvements to NAIT would not be offset by customer revenue as the majority of new rides would be NAIT students who carry a U-Pass. With a fairly frequent

LRT service already in place, any service improvements need to minimize significant operating or capital cost increases until such time as a U-Pass rate is renegotiated or other revenue opportunities are identified to reflect the higher costs of providing the service.

Two options are presented below which Strathcona County Transit could consider to improve service levels without significantly increasing operating costs.

Option A: Extend four Additional Trips from Route 413 to NAIT in the AM and PM

This option would involve increasing the number of Route 413 extensions to NAIT by 3-4 trips in the AM peak period and service from NAIT by 1-2 trips in the PM peak period. Route 413 is a peak direction route which goes out of service at MacEwan University or NAIT in the AM peak and goes into service at these locations in the PM peak (operating in non-revenue service to/from Sherwood Park on the Yellowhead Highway).

The travel time between MacEwan University and NAIT is approximately 10 minutes. The deadhead time to/from Sherwood Park is also about 5 minutes shorter than if the service were to go to/from MacEwan. This suggests that each Route 413 trip that is extended to NAIT would add approximately 5 minutes in travel time. This would add limited revenue vehicle hours (approximately 30 to 60 minutes daily) and would not impact the schedule of Route 413.

Option B: Provide Four Direct Semi-express Trips to NAIT on Yellowhead Highway

This option would create a new semi-express route to NAIT using the Yellowhead Highway rather than on Baseline Road (which the existing route currently takes). The semi-express route would save approximately 15 minutes in travel time to/from NAIT. Two AM peak services to NAIT and two PM peak services from NAIT are suggested, aligned with class schedules.

Since the semi-express route would travel via Yellowhead Highway, it could also stop at the Belvedere LRT station on the Capital Line, providing an opportunity to pick up City of Edmonton commuters going to Sherwood Park. While this would add some revenue, the revenue would be minimal.

To offset some of the capital costs, Strathcona County Transit could choose to eliminate the extended service to NAIT on Route 413. Students travelling to/from NAIT outside of peak times would still be able to use a combination of the regular Route 413 and the Metro Line LRT. This would only reduce service hours (and therefore operating costs) by approximately 30 to 60 minutes per day.

This option is expected to add approximately four additional daily vehicle hours and would require the need for one or two additional daily peak buses.

Recommendations:

- Explore low cost options to improve the level of service to NAIT during the Fall/Winter period.
- The introduction of service options that significantly increase operating costs or require another peak vehicle(s) should only be in place if significant ridership growth to NAIT warrants a higher level of service and/or additional revenue opportunities are identified to offset operating costs.

6.3.1.5**Strategic Direction #C5: Expand Service to Grow Ridership**

Inter-municipal Routes are the backbone of the Strathcona County Transit system. The service represents 82% of the ridership in the system, yet only uses approximately 37% of the revenue vehicle hours in the system. System ridership on Inter-municipal Routes has seen as steady growth in ridership over the past 10 years while service within the Urban Service Area has remained fairly stable. With continued population growth and a desire to increase transit mode share, investment in Inter-municipal Routes will be a key component of the 10-year strategic plan.

Currently, Strathcona County Transit provides approximately 0.43 Inter-municipal Route revenue vehicle hours per capita (both Urban and Rural Service Areas). This level of service should be increased by 10 to 15% as population continues to grow. Increasing this level of investment per capita will provide the additional resources that will help the County reach the ridership growth targets noted in the Integrated Transportation Master Plan. Confirmation of the level of investment necessary required to reach the transit mode share targets should be confirmed in any update to the Integrated Transportation Master Plan.

The investment should be focused on two areas:

- expanding service to new developments and population centres; and
- increasing level of service at the existing terminals to encourage ridership growth.

Expansion to New Areas

Expansion of service will be focused on Cambrian Crossing; a planned brownfield development just north of Sherwood Park. As previously mentioned, this community is expected to begin construction in 2021 and be built out in 2037, with a population of more than 13,000 people at buildout. Once developed, Cambrian Crossing will be part of Strathcona County's Urban Service Area.

A Local Route should be introduced to Cambrian when the population reaches a certain threshold (approximately 1,200 to 1,800) based on achieving the Service Standard minimum utilization trigger of 10 weekday customer boardings/revenue vehicle hour. The introduction of an Inter-municipal Route should be in place when the population reaches approximately 2,500 to 3,000 (based on a minimum of 20 weekday customer boardings/revenue vehicle hours for an Inter-municipal Route).

It is recommended that transit service expansion be prioritized in the following order as the County's (and particularly the Urban Service Areas) population grows:

- **Phase 1 – Local Route connection between Cambrian Crossing to Emerald Drive.** The route would connect the planned transit transfer point at the north-end of Cambrian Crossing to either a transfer point on Emerald Drive (near a number of major retail services) or interline with an existing Local Route to provide direct one-seat Local Route service to Bethel Transit Terminal. Customers can connect directly to an Inter-municipal Route from this location.
- **Phase 2 – Inter-municipal Route between Cambrian Crossing and Bethel Transit Terminal.** As population continues to grow, a new Inter-municipal Route or an extension of an existing Inter-Municipal Route directly to Cambrian Crossing is recommended. This will reduce the travel time for Cambrian Crossing residents and minimize demand for parking at the Bethel Transit Terminal. Having the route go through Bethel Transit Terminal will increase the amount of service for residents in Sherwood Park (particularly if the frequency is offset from existing services) and improve the efficiency of operations (e.g. potentially provide Dynamic Transit Services to link between Bethel Transit Terminal and Cambrian Crossing during the off-peak if there is not enough demand to warrant a full extension to Cambrian. The service would also operate on Baseline Road, which would provide additional vehicles on this corridor and help build the case for future transit priority and Bus Rapid Transit.
- **Phase 3 – Express Cambrian Crossing Inter-municipal Route.** As ridership continues to grow, an express service to Cambrian which by-passes the Bethel Transit Terminal during AM and PM peak periods is recommended. The route could either use the Yellowhead Highway with a stop at the Belvedere LRT Station and/or NAIT before heading downtown, or use Baseline Road (if transit priority or a Bus Rapid Transit (BRT) corridor is in place). This would operate during the peak periods, with off-peak service continuing to stop at the Bethel Transit Terminal to increase ridership.

The Bremner Area is also a planned greenfield development, to be located northeast of Sherwood Park. Like Cambrian Crossing, Bremner will become part of the County's Urban Service Area. This development will be both larger and more long-term than Cambrian Crossing - construction is planned to commence in 2023, but the development will only be built out by 2061, with a buildout population of more than 80,000 people. It has been assumed that development will proceed slowly during the first few years. Bremner (upon buildout) will be large enough to include its own transit terminal and park-and-ride lot. When this is built, a number of new Inter-municipal Routes should be provided from this terminal with direct connections to Edmonton via the Yellowhead Highway (instead of going through the Bethel Transit Terminal). Before this terminal is complete, a similar phasing plan as described for Cambrian should be put in place to provide transit service into the community early. The need for a park-and-ride facility at this location is anticipated to occur outside of the 10-year strategic plan timeframe.

Service level improvements

Weekday AM and PM peak period productivity on a number of Inter-municipal Routes is already above the trigger that would suggest a service level improvement could be accommodated. Many routes are also at or nearing capacity, resulting in Strathcona County Transit adding a number of overload routes. This suggests that there is room to increase peak service, particularly on Route 411.

The challenge with increasing frequency on the existing service is that it needs to be matched with an equal improvement in the Local Route structure in the Urban Service Area. Fixed-route service in the Urban Service Area are designed to match the primary headways of Inter-municipal Routes. If headways were increased on an Inter-municipal Route (e.g. from 15 minutes to 10 minutes in the peaks or 60 minutes to 30 minutes in the off-peak), there would also need to be a corresponding investment in the Urban Service Area, matching these headways on a number of Local Routes to maintain connections. This becomes a challenge since the productivity level on Local Routes are typically lower than Inter-municipal Routes.

Strathcona County Transit accounts for this by providing overload trips onto Inter-municipal Routes, which adds another vehicle to the scheduled service to reduce crowding. While this adds capacity to the system and is an effective strategy, it does not add to travel time options (frequency).

A shift to Dynamic Transit Services in the Urban Service Area as described in Theme B (Mobility in the Urban Service Area) will help to provide new opportunities to increase Inter-municipal Route headways as these routes are no longer dependent on matching a fixed-schedule of Local Routes in the Urban Service Area. This will allow Strathcona County Transit to more freely invest in frequency improvements that are not dependant on the Local Route service schedule.

Based on this assumption, peak period frequency improvements should be considered on Route 411 by 2020/2021 (once weekday Dynamic Transit Service is in place). Other service improvements should be based on the Utilization Service Standard targets (see **Section 5.4.4**) and the Customer Comfort / Vehicle Occupancy Service Standard triggers (see **Section 5.4.2**) being met.

Recommendations:

- Continue to invest in Inter-municipal Routes, gradually increasing the Inter-municipal Route revenue vehicle hours per capita as population grows. The amount of service growth should be confirmed in an update of the Integrated Transportation Master Plan, and tied to a transit mode share target.
- Explore options to connect to Cambrian Crossing, starting with a Local Route and Inter-municipal Route connection to Bethel Transit Terminal; then adding a peak period Express Inter-municipal Route directly to Edmonton. This should be based on minimum Utilization of Service Standard being met (see **Section 5.4.4**).

- Identify options to increase weekday peak period service on Route 411 to operate every 10 minutes once a Dynamic Transit Service options are in place in the Urban Service Area. This will provide a more frequent Inter-municipal service and attract new ridership.

6.3.1.6

Strategic Direction #C6: Integration with Mobility Bus

Mobility Bus offers eligible residents door-to-door service between any address in the County and most hospitals in the Edmonton Capital Region. Mobility Bus vehicles that travel to Edmonton have limited productivity, often carrying one customer for a long-distance trip. This limits the ability for the resource to be used for other customer requests in the Urban Service Area or Rural Service Area. Since Inter-municipal Routes are fully accessible, finding strategies to improve integration between the two services would help improve productivity on the Mobility Bus and increase travel options for registered Mobility Bus customers.

A family of services approach involves working with Mobility Bus registrants to assess travel options to get where they need to go. Sometimes that involves a door-to-door trip and sometimes it involves a combination of Mobility Bus and the fixed-route Inter-municipal service. A Mobility Bus to Inter-municipal Route service involves connecting individuals to either Bethel Transit Terminal or Ordze Transit Centre in order to complete a portion of their trip on the conventional bus. This type of service has the potential to increase the independence of riders to reach more destinations and focus Mobility Bus trips on those with the least options.

Recommendations:

- Assess current trips of Mobility Bus customers to determine if opportunities exist for connections onto the fixed Inter-municipal Routes. This would involve identifying transfer points that are appropriate for persons with reduced mobility, as well as working with individuals to inform them of alternate ways to travel to a destination.
- As paratransit software is implemented, include as much as possible, the ability to deliver integrated trips in the technology platform.

6.3.1.7

Strategic Direction #C7: Identify Opportunities to Expand Service to Other Destinations in Edmonton

Inter-municipal Routes provide service to a number of destinations in Edmonton, including downtown Edmonton, MacEwan University, University of Alberta's (UofA) main campus, University of Alberta's Campus Saint-Jean, the Northern Alberta Institute of Technology (NAIT), and the Bonnie Doon shopping centre.

Inter-municipal Route expansion to other key destinations in Edmonton was reviewed and is not recommended at this time. Inter-municipal Routes already provide service to major academic institutions (UofA, NAIT, MacEwan University) and major employment hub (downtown) in Edmonton that account for the majority of demand. Other key destinations of interest such as the Edmonton

International Airport would not have consistent daily demand or are located further west of Downtown Edmonton (e.g. West Edmonton Mall) and would result in additional duplication of the ETS network, which provides frequent connections to a number of these locations. Instead of investing revenue vehicle hours and peak vehicle requirements to extend to other locations, focus should be on improving the level of service to existing destinations.

Mobility Bus service to Edmonton outside of the fixed-route service area is provided only for medical trips, to a number of hospitals and a few medical centres in the Metro Edmonton Area. The exceptions include Misericordia Community Hospital in West Edmonton, Alberta Hospital Edmonton in North Edmonton and the Fort Saskatchewan Hospital. A number of hospitals provide specialized medical services and procedures that are not available in every hospital. Recently, some requests have been made to expand service to all hospitals and potentially other destinations in Edmonton. Since many Mobility Bus registrants require door-to-door service, providing service to these hospitals should be considered.

Recommendations:

- Inter-municipal Routes should continue to be provided to the same destinations that are serviced today. No expansion to other destinations in Edmonton that require a significant expansion to the route structure are recommended at this time.
- Assess demand for trips to hospitals not currently served by Mobility Bus and alternative ways to deliver these trips, if sufficient demand exists. For example, the Misericordia is well served by several Edmonton Transit routes with a fully accessible path of travel from 87 Avenue to a nearby entrance. Accessing the reciprocal agreement with DATS may be another way to offer these trips should demand warrant adding this service.

6.3.1.8

Strategic Direction #C8: Protecting for Transit Priority and Rapid Transit

Transit Priority or Rapid Transit are typically warranted on corridors with high peak hour transit bus volumes and ridership. The purpose is to improve reliability and travel time on corridors that experience congestion.

All Inter-municipal Routes currently travel on either Baseline Road (from Bethel Transit Terminal) or on Sherwood Park Freeway (from Ordze Transit Centre). The City of Edmonton's 2017 Transit Strategy identifies Sherwood Park Freeway as a planned transit priority corridor, while the 2015 Edmonton Capital Region Plan identifies:

- Sherwood Park Freeway as a planned transit priority corridor;
- Yellowhead Highway as proposed transit priority corridor by 2044; and
- Baseline Road as a future regional LRT corridor by 2044.

A dedicated transit priority lane could be considered at 1,000 customers/peak hour (considering that a lane capacity of a major arterial or highway is between 1,000 to 1,200 vehicles/hour). However, certain Transit Priority measures could be considered at a slightly lower volume of approximately 750 customers/peak hour.

Baseline Road is currently the Sherwood Park-to-Edmonton corridor with the largest hourly ridership. Ridership is anticipated to grow on this corridor over the next 10-years based on:

- population growth within Sherwood Park;
- service improvements on existing peak period services (e.g. potential frequency improvement on Route 411); and
- the addition of service from Cambrian Crossing and potentially from Bremner (as these areas begin to develop).

Based on the results of the analysis, transit priority measures should be considered along Baseline Road between 2022 and 2024, however, a dedicated transit-only lane will likely not be warranted within the 10-year time period of this strategic plan.

Recommendations:

- Initiate a study on the Baseline Road corridor to gather data on areas of delay and assess various locations where transit priority measures could be introduced.
- Protect the corridor for a future dedicated transit-only lane.

6.4 Theme D: Mobility in the Rural Service Area

Planning and delivery of public transportation in rural areas is often challenging. Rural areas tend to be large in area but low in density, resulting in very widely dispersed population, employment and services. Because of these characteristics, trips made by rural residents (often to the nearest urban centres to access services) are also significantly longer than the average length of trip in urban areas to access the same services. Coupled with low ridership demand (thus resulting in limited revenue opportunities), these characteristics make it difficult to provide a transit service model with reasonable frequency and availability that is reasonably priced.

Despite these challenges, there is still a need to provide mobility in rural areas. While most residents move to rural areas have access to a personal vehicle, many youth, seniors and residents with lower household incomes may not have access to a vehicle to access places of employment, education, medical appointments or services. Addressing the need is difficult and not one that can be simply solved by adding resources. Providing a fixed-route transit service to the Rural Service Area of the County would likely build ridership, but the amount invested would result in very high cost per customer trip delivered and may put a strain on municipal funding sources.

Currently, weekday Mobility Bus Services are provided in the Rural Service Area for medical and social trips. Trips are not provided for other trip purposes or for residents, employees or visitors that are not eligible for Mobility Bus. There has been some requests to improve mobility options for all residents in the Rural Service Area, recognizing that the service would need to be cost effective.

The following strategic directions are recommended to address the need for mobility in rural areas.

6.4.1 Strategic Directions

6.4.1.1 Strategic Direction #D1: Addressing the Needs of Rural Mobility Bus Registrants

Mobility Bus provides service in the Rural Service Area to residents who meet eligibility requirements weekdays, Monday to Friday: 6:00am to 10:00pm for medical and social trips. There is no service on weekends or on holidays. Through the Mobility Bus program, rural residents of Strathcona County receive more transit service than rural residents anywhere else in the greater Edmonton region. Eligible rural residents can use Mobility Bus to travel within Sherwood Park and between Sherwood Park and specified destinations in Edmonton for any reason except work or school. Rural residents also pay higher fares for this service which is more costly to provide. As the County reviews its services to citizens, and as there is a greater focus on aging in place and supporting choices in where people live, options for increased transit services for persons living in rural areas of the County should be considered.

Recommendations:

- Assess the demand for Mobility Bus trips in the Rural Service Area on weekends and alternative ways of delivering these trips, if sufficient demand exists.

6.4.1.2 Strategic Direction #2: Expanding Service to Ardrossan

The Hamlet of Ardrossan is expected to grow from approximately 500 residents in 2018 (based on the results of the 2018 Strathcona County census) to 6,000 by 2046.

With a much higher population focused in a hamlet area, Ardrossan is anticipated to have the population and density to support a fixed-route transit service connecting residents to Sherwood Park. This could be provided using an accessible minibus or full-sized bus (depending on demand), with service terminating at the Bethel Transit Terminal to facilitate connections to Inter-municipal Route services. Within Ardrossan, opportunities should be sought to connect the service to a small park and ride lot with space to accommodate 25 to 75 parking spaces. The service should also provide a local collector service to a number of residential neighbourhoods (as either a fixed or dynamic flex route). The service would take approximately one hour to complete a round trip, and therefore would operate at a one hour headway initially, with potential to improve peak headways to 30 minutes as ridership grows.

Strathcona County Transit's Service Standards require minimum Service Utilization target of 10 weekday customer boardings per revenue vehicle hour of rural service to initiate a Rural Service (see **Section 5.4.6**). These triggers would not be met based on the existing population of Ardrossan, and introduction of a Rural Service to Ardrossan should only be considered when the future population and potential ridership in Ardrossan is large enough to meet the Service Utilization triggers. Service Standards provide a guideline for when Rural Services are warranted in the Rural Service Area.

Applying these thresholds, the following service plan is recommended for Ardrossan:

1. Consider implementation of a **local fixed-route peak service** for Ardrossan when the population of the hamlet reaches between 2,400 and 2,800 people (based on a minimum of 10 peak period customer boardings/revenue vehicle hour).
2. Consider implementation of a **local fixed-route midday service** for Ardrossan when the population of the hamlet is between 5,500 and 6,000 people.

Recommendations:

- Monitor pace of population growth in Ardrossan.
- Design and implement an hourly peak/off-peak service when ridership forecasts suggests that minimum productivity targets will be met.
- Monitor service once implemented and adjust *based on customer comments and performance*.

6.4.1.3

Strategic Direction #D3: Expanding Demand Responsive Services to All Rural Residents

The opportunity to expand public transit service to the entire Rural Service Area was also explored. Given the challenges of providing a fixed-route service in a large rural area, a dedicated Dynamic Transit Service model was assessed (using existing Mobility Bus vehicles, and/or with a potential partnership with the taxi industry or a Transportation Network Company).

Operating Models

The use of a dedicated service model in a large rural area is recommended over a non-dedicated model for the following reasons:

- **Availability of Drivers:** It can be difficult to attract non-dedicated drivers to rural areas, particularly when it is located further from an urban centre (Sherwood Park). Many TNC drivers are only paid for the portion of the trip that they are in revenue service. This can result in the driver refusing to take a trip request that involves a significant non-revenue travel to reach the customer, particularly when the trip is short. Companies such as Uber and Lyft have not had success extending their service to rural areas that are located far from an urban centre. If the service were to be contracted to a taxi industry, the typical practice is to also charge for the non-revenue vehicle time for the vehicle to pick-up the customer. This adds to the cost of service. In

a dedicated Dynamic Transit Service model, a fixed number of vehicles are placed in the system to accommodate the anticipated ridership, with drivers paid hourly for the service. If there are fluctuations in demand, a certain number of non-dedicated vehicles can be hired, but the base service is based on hourly-paid drivers, ensuring the availability of vehicles during the scheduled hours of service.

- **Ability to Share Rides:** In very low density areas with significant undeveloped lands, the ability to share rides in a non-dedicated model is difficult. The model for many TNCs that provide non-dedicated service is to reliability have a vehicle available within 5 to 10 minutes of a customer's trip request. This high level of service makes it difficult to coordinate shared rides in low density areas. As a result, the majority of trips are made with a single customer. As demand grows, the model adds supply (drivers), which increases the cost of the service. In a dedicated Dynamic Transit Service model, the supply is fixed and there are more controls available to increase vehicle occupancy over frequency (e.g. customer may be requested to book a trip at least one hour in advance). This helps reduce cost and increase the ability to share rides.

Potential Markets

There are two markets for service that were assessed for rural service:

- Non-discretionary trips (e.g. work and school trips) that are regularly scheduled and typically occur five days a week, during the AM and PM peak hours; and
- Discretionary trips (e.g. medical appointments, shopping, recreation and social activities) that typically don't have a defined regularly occurring schedule, providing individuals with more flexibility about when they want to travel.

Planning service for non-discretionary trips is focused on the AM and PM peak periods (6:00am to 9:00am and 3:00pm to 7:00pm) and requires a greater availability of vehicles to ensure reliability of the service (that a customer can consistently book a trip five days a week and rely on it to get to and from places of employment and education on-time).

Discretionary trips are more flexible and can typically be planned in the midday period (9:00am to 4:00pm). During this period, receiving your preferred departure or arrival time is not as important as travel times (outside of medical) are more flexible. This suggests that less vehicles are required to provide a service.

Service Scenarios

Two service scenarios were assessed for the provision of public transportation service in the Rural Service Area of the County:

Option A: All-day Dedicated Dynamic Transit Service. This option was designed to accommodate both daily commuter trips as well as off-peak discretionary trips. It was assumed that the service would

operate from 6:00am to 9:00pm, five days a week, with additional vehicles capacity in the peak period to improve the reliability of the service.

Option B: Midday Only Dedicated Dynamic Transit Service. This option was designed to primarily meet the needs of discretionary trips that occur between 9:00am and 4:00pm.

For both options, a combination of in-house Mobility Bus vehicles and third-party sedans and minivans would be used for the fleet and that up to three customer boardings per revenue vehicle hour could be accommodated. It was also assumed that school-age students did not need to be accounted in the ridership forecasts as they would be serviced with yellow school buses in the Rural Service Area. Based on this assessment, the approximate annual operating cost of Option A is between \$3 and \$3.5 million. If only midday service were provided as described in Option B, the annual operating cost would be between \$0.75 and \$1 million.

Recommendations:

- County further assess the cost versus benefit of providing a rural Dynamic Transit Service against other cost and benefit of other service recommendations. This should be completed after the successful completion of the Dynamic Transit Service evening and weekend pilot in the Urban Service Area.