

**Regina Downtown Transportation Study**

# Directions for Transit in Downtown Regina

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Prepared for City of Regina  
by IBI Group

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# 1 Introduction

The *Regina Downtown Transportation Study* (DTS) was established to review and analyze existing and future transportation patterns and set strategies, actions, and policies for multi-modal transportation in downtown Regina. Over the course of the study, the role of transit in meeting downtown transportation needs and its fit with other aspects of downtown life emerged as a major theme.

This report, *Directions for Transit in Downtown Regina*, summarizes the transit-related aspects of the Regina Downtown Transportation Study and provides greater detail on the analysis of issues that emerged during the course of the study. Components of this report include:

- An overview of the transit context in downtown Regina;
- The review of issues identified related to transit;
- The identification and assessment of transit network options downtown;
- The assessment of the feasibility of a downtown transit shuttle, as directed by City Council; and,
- Recommendations for immediate, short-, and long-term policies and actions related to transit.

The assessment of the feasibility for a downtown transit shuttle service is in response to a motion approved by City Council on July 29, 2013:

WHEREAS, the recent Transit Route Review and the Downtown Transportation Study (DTS), which is nearing completion, both recommend the continued use of 11th Avenue as the central transit location in the downtown; and

WHEREAS, 11th Avenue also experiences high demand for traffic, parking and pedestrians, resulting in adjacent businesses expressing concerns about traffic congestion, parking, the location of transit shelters, security, sidewalk space and littering; and

WHEREAS, neither the Transit Route Review nor the DTS considered limiting full-size buses to the arterial roads at the boundaries of the downtown and using a smaller, zero-fare shuttle service inside those boundaries.

THEREFORE BE IT RESOLVED, that the Administration be directed to expand the scope of the DTS to include a review of the feasibility of restricting full-size buses to Saskatchewan Drive, Albert Street, Broad Street and Victoria Avenue, along with the provision of a free-fare, smaller bus shuttle service within the area defined by those roads

BE IT FURTHER RESOLVED that recommendations related to the above form part of the DTS report to City Council in November of 2013.

Section 5 of this report focuses on addressing this motion.

## 2 Context



*Streetcar Service on 11<sup>th</sup> Avenue, looking west at Hamilton (source: Regina Leader-Post)*

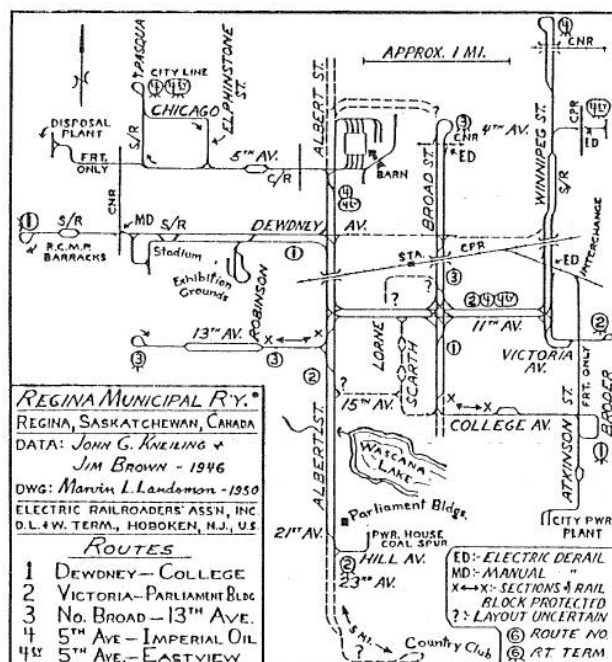
### History

For much of its history, transit has played a significant role in the development and growth of downtown Regina and the surrounding neighbourhoods, enabling expansion and growth in the pre-war and pre-automobile era of urban development. The introduction of streetcar service in the city in 1911 allowed the city to expand beyond its boundaries while providing transportation to the commerce, retail, and cultural hubs downtown.

Through this period of rapid growth, much of the city was built around new streetcar lines with a compact built form, pedestrian-oriented streets, and main-street retail on corridors such as Albert Street, Broad Street, Dewdney Avenue, and 13<sup>th</sup> Avenue. And similar to the transit system today, the system was oriented around downtown and the city's main street – 11<sup>th</sup> Avenue.

Ridership on transit boomed in the era before automobile travel became commonplace, peaking after the Second World War with over 17.5-million passengers in 1946 (compared to approximately 6-million passengers annually today). During this era, transit was the only way to get around other than by foot or bike.

In 1950, the streetcar network was abandoned and replaced by trolley buses and diesel buses. The post-war era of automobile-oriented growth changed the role of transit throughout the city, as new neighbourhoods built at the periphery of the city were less dense and more difficult to serve by transit. Transit ridership fell during this period, but downtown Regina remained an anchor in the transit system as the centre of employment, services, and shopping in the city.



Track map of Regina's streetcar network prior to decommissioning in 1950. Routes were focused on downtown and follow many of the "main street" corridors that still exist today.

In recent decades, changing retail patterns have shifted non-commuter travel demand to large format centres in the city's east, northwest, and southwest corners. Despite this, Cornwall Centre and the surrounding area have retained substantial share in the city's retail market; this is a unique feature in a mid-sized Canadian city such as Regina. Employment continues to play a strong role in Regina's downtown; however, the vast majority of workers now live in the city's suburban neighbourhoods where transit faces challenges to provide competitive service. As a result, while ridership is growing, the proportion of morning peak period trips by transit remains at 4% citywide and at 6% to and from downtown.

## Today

Downtown Regina continues to play a crucial role in Regina Transit's network and remains the most important destination for its customers. Carrying approximately 6-million passengers per year, or approximately 27,000 trips per day. Over 30% of daily trips either originate from or are bound to the downtown. Because of this, downtown is, from a customer convenience and service efficiency standpoint, the most suitable location to facilitate transfers between different routes.

In 2009, Regina Transit completed its Transit Investment Plan. This plan sets the direction for changes to the transit network in the city to respond to changing travel patterns and customer preferences. The recommended network included more direct and time-competitive routes and reduced waits on busier routes.

In July 2013, Regina Transit implemented substantial changes to its system as part of the implementation of its Transit Investment Plan. These changes increased the directness of routes to reduce travel times and also introduced express routes on Albert Street (Route 40) and Victoria Avenue (Route 50). Service frequencies also changed on many routes at peak times, with busier routes moving from a 20-minute to a 15-minute schedule and less-busy routes moving from a 20-minute to a 30-minute schedule. The net impact was a reduction in bus volumes in the busiest hour in the downtown by approximately 17%. The system changes also created provided greater opportunities for transfers at nodes at centres outside of downtown.

Currently, 14 of the system's 20 routes travel through downtown Regina. Of these, all travel on through 11<sup>th</sup> Avenue, with the exception of the recently introduced Route 40, which provides express service on Albert Street. The east-to-west routing through downtown is required to maintain cross-town service between key origins and destinations, for example from the northwest to the University of Regina, which reduces the need for transfers.

## Future

The Downtown Neighbourhood Plan identified transit as being crucial for the future of downtown. Increased transit service and usage were highlighted as important elements to support employment, residential, retail, and cultural growth and activity.

Continued improvements to the Regina Transit network are planned as part of the implementation of the Transit Investment Plan the city's upcoming Transportation Master Plan. More routes will feed into express and cross-town routes outside of downtown at major transit nodes located in activity and retail centres such as Northgate, Southland Mall, Superstore (both locations), and Golden Mile. While this may reduce the number of transfers, downtown will remain as a major destination for transit customers. Express routes on Albert Street and Victoria Avenue will play a greater role and also allow for transit riders to bypass downtown without transferring.

As Regina's downtown grows – more new office towers and residential buildings are being added over the next decade – transit will need to be attractive, competitive, and convenient to help absorb the increase in travel demand. Transit growth potential is also greatest for trips to and from the city centre with its high concentration of employment and limited supply and the cost of parking. In the future, transit and downtown will have an increasingly interdependent relationship, despite challenges today.

## Transit's Importance to Downtown

- **Transit has the highest potential to accommodate travel demand growth in downtown Regina from new office towers, residential buildings, and retail growth.** Existing road networks are constrained, especially on routes accessing downtown, including Albert Street, Broad Street, Saskatchewan Drive, and Victoria Avenue. Widening or expanding vehicular capacity of these corridors is not possible.
- **Increasing person-carrying capacity of corridors accessing the downtown is essential.** This means shifting more people from single-occupant vehicles to modes that provide more effective use of road capacity. This includes transit but also ridesharing, cycling, and walking. More people travelling downtown in modes other than car will also reduce demand on constrained parking supply, ensuring that parking is available to the people who need it.
- **A strong transit system is part of a progressive and competitive civic image.** Cities across Canada have embraced transit to help address mobility challenges and congestion, particularly to and within city centres and downtowns.



## 3 Issues Identified

### 3.1 Roadway Network Constraints

There are several constraints within downtown Regina that limits routing options, particularly for east-west routing. Most routes provide require travel through the downtown in order to reach their destinations, reducing the need for transfers for many trips by providing direct, cross-town service.

Of the four east-west corridors through the heart of downtown Regina, all have constraints:

- **Saskatchewan Drive** is a major artery for trips accessing, but primarily bypassing, the downtown. The corridor is heavily congested during peak periods with a high proportion of truck traffic. In addition, vehicular accesses into parkades and adjacent buildings limits space for transit stops, particularly in the eastbound direction. Finally, there are significant challenges in the pedestrian environment on Saskatchewan Drive due to heavy traffic, limited pedestrian amenity, and inactive ground levels of buildings.
- **11<sup>th</sup> Avenue** is the downtown's main street, with a mix of retail, employment, and other uses. It is also the only street that provides a continuous east-west connection through the downtown core. As a result, there are many needs to be met on 11<sup>th</sup> Avenue, including vehicular travel, transit routing, loading and deliveries, heavy pedestrian demand, and building access.
- **12<sup>th</sup> Avenue** was previously a major through street in downtown for eastbound traffic prior to two-way conversion of 11<sup>th</sup> and 12<sup>th</sup> Avenues. City Square plaza was constructed on 12<sup>th</sup> Avenue between Lorne Street and Scarth Street and currently does not allow for through traffic.
- **Victoria Avenue** is the southern limit of the downtown core, and like Saskatchewan Drive, serves as a key corridor for accessing and bypassing downtown. Traffic volumes are not as high as on Saskatchewan Drive; however, congestion is still observed during peak periods. Victoria Avenue also serves as the city's ceremonial boulevard and several major civic and historic properties are located on it, including City Hall, the Court House, Hotel Saskatchewan, and Victoria Park. Victoria Avenue is also located furthest from the main destinations of downtown centred on 11<sup>th</sup> Avenue and Hamilton Street.

These constraints create limitations to where transit can be routed through downtown Regina. North-south corridors, other than Albert Street and Broad Street, also present challenges due to heavy vehicle volumes and existing congestion. One-way operation of the north-south streets within downtown limits routing options and preserving on-street parking on these corridors is important for local business. Any routing utilizing north-south streets within downtown would still require the use of an east-west corridor (to fit within the existing network structure) and would therefore introduce additional turning movements by buses at busy intersections.

## 3.2 11<sup>th</sup> Avenue Issues

### **Traffic Congestion**

The existing routing of buses onto 11<sup>th</sup> Avenue is perceived and observed to create congestion on the street, particularly during busy periods that overlap with transit layovers at Cornwall Centre. Illegally stopped or parked vehicles during the peak periods aggravates congestion issues on 11<sup>th</sup> Avenue, as buses are required to enter general traffic lanes. However, outside of peak periods, vehicular volumes on 11<sup>th</sup> Avenue are lower and buses have little impact on traffic or on congestion.

### **Site and Alley Access**

Affected property owners on 11th Avenue also raised access concerns where transit stops and stopped buses are temporarily impacting site entrances and alleys. Examples include the entry to the parking garage of the Bank of Montreal building and the alley to Cornwall Centre between Scarth Street and Hamilton Street. Some of these issues were directly related to the location of temporary bus stops prior to July 2013, when buses were not clearly designated for specific stop locations. The stacking of buses would block entrances for short periods of time.

Following the placement of the new bus stops in July 2013, a section of the north sidewalk on 11<sup>th</sup> Avenue was blocked off due to construction near the Hudson's Bay store at the west end of Cornwall Centre. This also led to buses being unable to serve their designated stops. As of November 2013, these temporary issues are resolved and transit has reminded operators to keep accesses clear.

### **Transit Stops**

Primary concerns from local business and property owners are concentrated at the location of bus stops on 11<sup>th</sup> Avenue at the transfer location near Cornwall Centre. Issues raised and observed at the stops include loitering within building entrances and lobbies, littering at bus stops, and increased congestion on sidewalks. Loitering and littering issues are issues directly related to the lack of amenities at newly designated bus stops on 11<sup>th</sup> Avenue – there are no garbage receptacles, benches, or transit shelters.

In addition, there are concerns regarding personal safety and security concerns at transit stops on 11<sup>th</sup> Avenue. However, the concerns raised, such as panhandling, public intoxication, and loitering, are observed in other areas of downtown Regina. These concerns must be dealt with on a downtown-wide scale and coordinated with social services, police, and other stakeholders.

### **Off-Street Terminal**

Designating Cornwall Centre as the transit transfer location reflected preferences of transit customers, proximity to major destinations and businesses, and constraints at other locations in downtown Regina.

An approach suggested by multiple stakeholders is for the implementation of a downtown transit terminal where transfers can be accommodated alongside improved amenities for transit customers. The key constraint for short-term implementation of a transit terminal is that there are no suitable locations currently owned by the city. However, the concept will be retained for medium- to long-term implementation following the identification of a suitable site and design.

### 3.3 Stakeholder Comments

Through the Downtown Transportation Study, the public, businesses, property owners, and other stakeholders were consulted to express their opinions, concerns, and ideas for downtown transit and transportation. Members of the public were consulted throughout Phase One of the Downtown Transportation Study and comments from transit customers were received through Regina Transit during the route review earlier this year. Most recently, a meeting was held with members of the Regina Downtown Business Improvement District (RDBID) on August 26, 2013, where business and property owners had an opportunity to express their concerns regarding transit in the downtown.

Major comments received include:

- Businesses and property owners on 11<sup>th</sup> Avenue feel strongly against the routing of transit and placement of transit stops, particularly between Cornwall Street and Hamilton Street. There were significant concerns around negative impacts of transit transfers being accommodated at this location and the resulting loitering, littering, and traffic congestion.
- Property owners in the vicinity of 12<sup>th</sup> Avenue were previously vocal when the transit transfer location was behind City Hall, including noise impacts on nearby residential buildings.
- Transit customers have responded favourably to the current transfer location on 11<sup>th</sup> Avenue at Cornwall Centre, which provided easy access to local destinations and businesses.
- Property owners along Lorne Street have also expressed their non-support of a transit layover on that street between 11<sup>th</sup> Avenue and 12<sup>th</sup> Avenue, due to similar concerns at other locations.

The routing of transit, the siting of bus stops, and the location of the transfer point are of major concerns for stakeholders. Based on the discussions and feedback received, it is evident that there will be objections to wherever transit is located. Identifying and mitigating concerns and issues is recommended.

## 4 Downtown Transit Network

This chapter provides an overview of the options assessed for the routing of buses and the location of transit transfers in downtown Regina. This work was completed in support of Regina Transit's network review process in early 2013 to provide a recommended routing of the transit network to take into account the needs of other elements of the Downtown Transportation Study.

Additional considerations that warranted a review of the downtown transit network:

- The need to identify locations for enhanced transit stops downtown, which is a funded item in transit's budget;
- Concerns regarding traffic impacts of buses on 11<sup>th</sup> Avenue, particularly with layovers at Cornwall Street;
- Accelerated deterioration of the asphalt roadway on 11<sup>th</sup> Avenue from bus operation, which requires a concrete substructure. This condition is not unique to 11<sup>th</sup> Avenue and similar issues would arise upon rerouting transit to another corridor.

Three alternatives were identified and assessed for transit networking routing:

- Maintaining two-way transit service on 11<sup>th</sup> Avenue;
- Establishing a second transit corridor through downtown Regina; and,
- Splitting transit service between Saskatchewan Drive and 11<sup>th</sup> Avenue.

## 4.1 Assessment Criteria

Seven criteria were identified to assess the network routing options, which are presented in Section 4.2. These criteria provide a holistic analysis of the various needs and considerations for transit in downtown Regina.

- **Fit with Transit System:** Any routing option must fit into Regina Transit's planned network and system. Many of the system's routes provide cross-town travel. For example, Route 7/9 enters the downtown from the southwest and continues to serve to the east end. Consequently, this route needs to travel through downtown. Most routes are structured in this way and must be accommodated in any downtown network option.
- **Travel Time:** The network options will be assessed from a travel time perspective for transit and other road users. Travel time impacts are assessed utilizing the traffic model developed as part of the Downtown Transportation Study and can provide average peak hour travel time for transit vehicles as well as general auto travel.
- **Property/Business Impacts:** Each routing option would have impacts on adjacent properties and businesses, particularly with the location of transit stops. Considerations include site access points, building entrances, and compatibility with uses.
- **Traffic Impacts:** Congestion and traffic delay are cited as key concerns in downtown Regina. Each of the transit options will be assessed, using the traffic model, to quantify travel delay impacts on the overall network.
- **On-Street Parking Impacts:** parking and in particular, on-street parking, is considered important to support business in downtown Regina. Each routing option will have impacts on the availability and placement of on-street parking.
- **Transit Customer Convenience:** increasing the convenience of transit is essential to create an attractive travel choice for trips to and from downtown. Factors to be considered include proximity to major destinations and trip generators (for example, Cornwall Centre and major office towers), ease of transfers between routes, overall travel time, and citywide connectivity of routes.
- **Operational Costs:** Changes in routing that create delays or require circuitous routing would increase travel time for transit, which would consequently increase operating costs. Options that impact schedule reliability or increase pressure on Regina Transit's constrained operating budgets are not favourable.
- **Capital Implications:** Changing transit routing could have capital impacts, such as the installation of new bus stops, resurfacing or reinforcing roadway structures, and roadway reconfiguration.

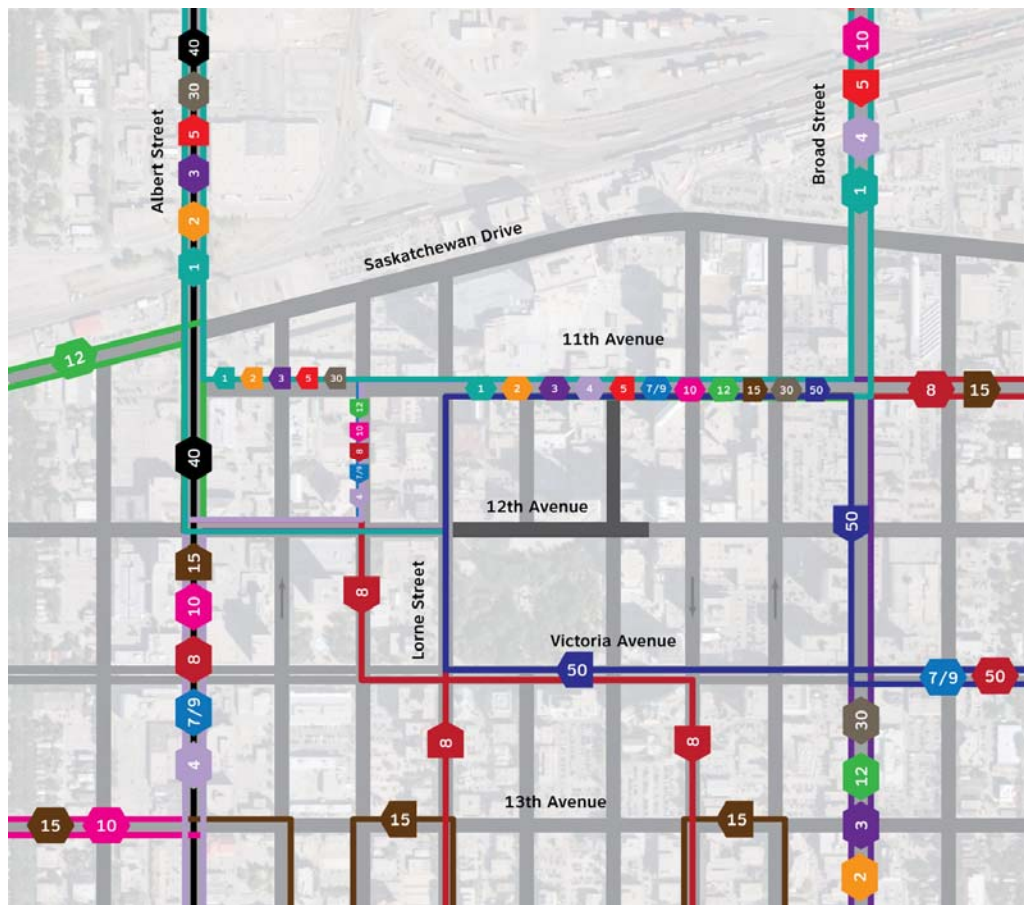
## 4.2 Routing Options

### Two-Way Routing on 11<sup>th</sup> Avenue

This routing, shown in Exhibit 4.1, would see transit vehicles operating in both directions on 11<sup>th</sup> Avenue between Lorne Street and Broad Street. This is similar to the pre-existing routing prior to the July 2013 service changes and takes into account the route changes since implemented.

All eastbound buses would travel east from Albert Street on 12<sup>th</sup> Avenue and north on Lorne Street to 11<sup>th</sup> Avenue. Westbound buses travelling north on Albert Street would continue on 11<sup>th</sup> Avenue past Smith Street.

**Exhibit 4.1: Two-Way Routing on 11th Avenue**



Two-way operation of the transit through downtown Regina on one corridor provides a simple and easy-to-understand network, particularly with the location of transfers at Cornwall Centre. This option fits well with the existing transit network. Transit stops would be located near the downtown's major trip generators, including Cornwall Centre and the office buildings centered around Scarth and Hamilton Streets. Implementation of the revised route structure in July 2013 reduced the peak hour volume of buses on 11<sup>th</sup> Avenue by 17%, improving overall traffic operations on the street.

One of the greatest challenges of this option is the location of bus stops along a corridor with extensive ground floor uses. Existing stop locations create challenges with adjacent businesses; new stop locations will likely face similar opposition and concerns. Mitigating measures, such as improved stop amenities, shelters, and monitoring are essential.

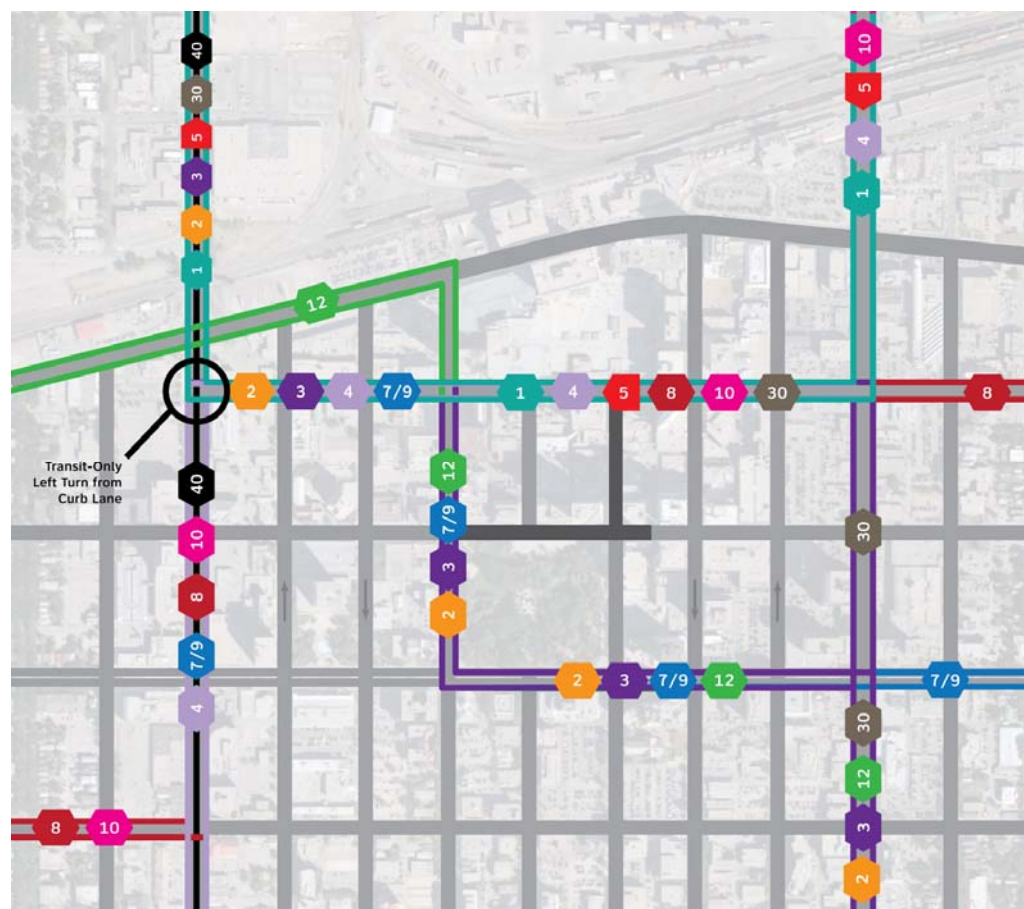
On-street parking impacts are also a concern for this option and seen as a priority for local businesses. The operation of transit on 11<sup>th</sup> Avenue includes the use of a bus-only lane during peak periods, which removes on-street parking during these times. Transit stops also limit the amount of available on-street parking. Conversely, transit is negatively impacted by on-street parking, which requires buses to pull into and out of the curb lane to service bus stops. Illegal parking during peak periods aggravate congestion issues on the street.

From an infrastructure perspective, the westbound lanes of 11<sup>th</sup> Avenue are constructed to support the running of buses with a concrete surface. This is a legacy from previous one-way operation of transit on 11<sup>th</sup> Avenue and 12<sup>th</sup> Avenue. The eastbound lanes are currently asphalt and are identified as requiring reconstruction if buses are to continue operating on 11<sup>th</sup> Avenue. However, Reconstruction and beautification of the corridor is identified in the Downtown Neighbourhood Plan and the Downtown Transportation Study as a medium term priority.

### Additional Downtown Transit Corridor

This routing option, presented in Exhibit 4.2, would split downtown transit to travel onto two corridors through downtown Regina – either via 11<sup>th</sup> Avenue or via Lorne Street and Victoria Avenue. The key outcome of this option would be a reduction in the number of buses travelling through the busiest section of 11<sup>th</sup> Avenue, between Lorne Street and Broad Street. Bus service would also be introduced to Victoria Avenue, which is not currently served by a high volume of buses.

Exhibit 4.2: New Transit Corridor on Lorne/Victoria



The key advantage to this option would be the reduction in the number of buses travelling on any one particular corridor by splitting volumes onto either 11<sup>th</sup> Avenue or Lorne Street-Victoria Avenue. Volumes on the most congested section of 11<sup>th</sup> Avenue, between Lorne Street and Broad Street, would be reduced by 50%. This would have positive effects on traffic congestion on 11<sup>th</sup> Avenue but offset by negative effects on Victoria Avenue with the introduction of bus service.

Generally, this option fits into the citywide transit network by maintaining the east-west routing of buses through downtown Regina. This option would maintain transit's proximity to destinations to 11<sup>th</sup> Avenue while improving access to the south end of downtown along Victoria Avenue. A central transfer location would also be maintained at Lorne Street and 11<sup>th</sup> Avenue with the potential of expanded transit amenities within the city-owned property on the southwest corner of the intersection. An off-street terminal was investigated for this location but the site was found to be too small.

The greatest disadvantage of this option is the increased walk for some transit customers whose routes would be diverted to Victoria Avenue. The greater coverage of transit in this option may, however, also attract new riders who would be better served.

Two-way conversion of Lorne Street would be required under this option between Victoria Avenue and Saskatchewan Drive. This may preclude recommendations in the Downtown Transportation Study to extend the Lorne Street bike lanes to 11<sup>th</sup> Avenue. The recent reconstruction of Lorne Street between 11<sup>th</sup> Avenue and 12<sup>th</sup> Avenue can accommodate two-way operation of buses.

This option would require roadway improvements on non-reconstructed sections of Victoria Avenue, Lorne Street, and 11<sup>th</sup> Avenue in the medium to long term to support the ongoing operation of transit vehicles. This may be a significant capital expenditure; however, both Victoria Avenue and 11<sup>th</sup> Avenue are identified for streetscape improvements in the Downtown Transportation Study.

Transit on Lorne Street and Victoria Avenue will likely reduce on-street parking on both streets to accommodate new bus stops and bus turning movements. Additional turning movements at the corner of 11<sup>th</sup> Avenue and Lorne Street would also trigger intersection geometry improvements.

### **Saskatchewan Drive and 11<sup>th</sup> Avenue**

This routing option, presented in Exhibit 4.3, would split downtown transit to travel eastbound on Saskatchewan Drive and westbound on 11<sup>th</sup> Avenue. This would return transit to a similar arrangement to prior to the conversion of 11<sup>th</sup> Avenue and 12<sup>th</sup> Avenue to two-way streets by operating one a one-way couplet. However, unlike previous operation, Cornwall Centre creates a challenge as a key access for transit would be maintained through private property along the Cornwall Street and Scarth Street corridors, which do not run through to Saskatchewan Drive.

This option would be advantageous in removing half of current bus volumes from 11<sup>th</sup> Avenue, but it would introduce buses onto the eastbound lanes of Saskatchewan Drive. However, many disadvantages and challenges exist in operating large volumes of buses on Saskatchewan Drive.

From a transit customer perspective, the splitting of routes by direction onto two corridors is confusing, as return trips, for example, would be on a different street from the inbound trip. This option would also universally increase walking distance for all downtown-bound transit customers, as all major destinations are located south of Saskatchewan Drive. This option would not have a central transfer location and some transfers would require transit customers to walk through Cornwall Centre, which may be a challenge when the mall is closed to the general public. The pedestrian environment along Saskatchewan Drive is also challenging due to heavy traffic volumes, inactive building frontages, and a harsh microclimate.



**Exhibit 4.3: Saskatchewan Drive/11th Avenue Routing**



The south side of Saskatchewan Drive also presents major challenges for the placement of bus stops. Space is limited as a number of parkade and building accesses and ramps are off of the south side of the street. The remaining space that could accommodate a transit stop is a one-block stretch of Saskatchewan Drive west of Hamilton Street alongside the Sears store; transit requires approximately two blocks of space to accommodate all buses.

The greatest disadvantage of this option would be the traffic and congestion issues it would introduce to Saskatchewan Drive, which is heavily congested during peak periods. Modelling shows additional delays caused to transit and general traffic from this option. Intersection improvements would be required at Saskatchewan Drive and Albert Street and at Saskatchewan Drive and Broad Street to accommodate turning movements by transit vehicles and mitigate impacts on traffic flow.

Reconstruction of the eastbound curb lane on Saskatchewan Drive to a concrete base would also be required in the medium term to accommodate transit vehicle operation.

### Options Not Explored

An option that was not explored was the return to one-way operation for transit on 11<sup>th</sup> Avenue and 12<sup>th</sup> Avenue. City Square plaza was not designed to accommodate travel by transit buses and no routing alternative was available that could utilize 12<sup>th</sup> Avenue without increasing operating costs for transit.

## 4.3 Assessment of Route Options

Exhibit 4.4 presents the summary of the traffic analysis for each of the transit routing alternatives. Each alternative was tested within the traffic model developed for downtown as part of the Downtown Transportation Study.

The analysis shows that the 11<sup>th</sup> Avenue two-way option provides the greatest benefits in terms of reducing total traffic delay during the peak period, as transit is travelling on a corridor that is primarily used for site access and not large volumes of through traffic. Alternative 3, which would introduce buses to Saskatchewan Drive, would result in the most negative impacts to traffic delay, with a 9% increase in delay compared to the 11<sup>th</sup> Avenue option. This is a result of the delay caused by stopped buses on a congested section of Saskatchewan Drive and by increasing turning movements by buses at Albert Street and Broad Street, which are heavily congested intersections.

From a transit perspective, routing some buses via Lorne Street and Victoria Avenue would create travel time benefits, resulting in the least delay and competitive travel time. However, other traffic would be negatively impacted with the addition of transit traffic on Victoria Avenue and turning movements at the Lorne Street and 11<sup>th</sup> Avenue intersection.

**Exhibit 4.4: Travel Time Performance of Transit Alternatives**

Performance Measure		Alternative 1: 11 <sup>th</sup> Avenue Two-Way	Alternative 2: New Transit Corridor via Lorne/Victoria	Alternative 3: EB Saskatchewan/ WB 11 <sup>th</sup> Avenue
Transit	Average Delay (min)	6	5	7
	Average Travel Time (min)	11	11	12
Traffic	Total Traffic Delay (hr)	470	478	511

Exhibit 4.5 provides a summary of the assessment based on transit-user impacts and reinforces the negative impacts of one-way transit operation on Saskatchewan Drive.

**Exhibit 4.5: Transit Alternatives Assessment**

Criteria	Alternative 1: 11 <sup>th</sup> Avenue Two-Way	Alternative 2: New Transit Corridor via Lorne/Victoria	Alternative 3: EB Saskatchewan/ WB 11 <sup>th</sup> Avenue
<b>Transfers Between Routes</b>	Accommodated on 11 <sup>th</sup> Avenue at Cornwall Street	Accommodated at intersection of 11 <sup>th</sup> Avenue and Lorne Street	No central location, customers must walk from Sask. Drive to 11 <sup>th</sup> Ave.
<b>Proximity to Destinations</b>	Most downtown locations well served	Increases service to south end of downtown with added service on Victoria	Increases walking distance to EB transit from south end of downtown
<b>Route/System Understandability</b>	All routes service same corridor in both directions	Routes split between two corridors, but on same corridor in both directions	All EB on Sask. Drive, all WB on 11 <sup>th</sup> avenue
<b>Ability to accommodate future growth in service</b>	May require additional priority (all-day bus lanes)	Greater capacity to handle service increases with two corridors	May require additional priority due to congestion (all-day bus lanes)

Through the assessment of the three transit routing options, the continued operation of transit on 11<sup>th</sup> Avenue in both directions is recommended.

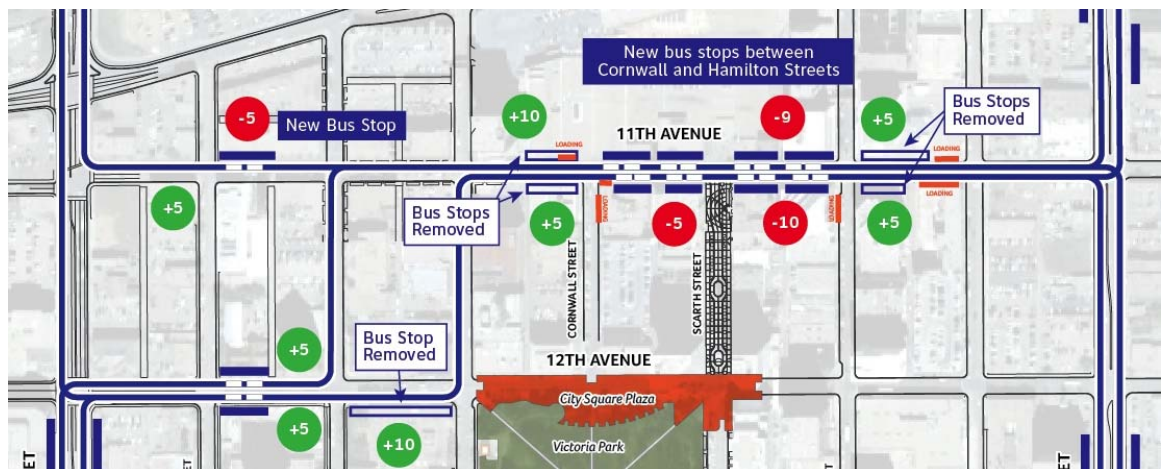
## 4.4 Transfer Location Options

### 11<sup>th</sup> Avenue Stop Consolidation

One of the concepts assessed as part of the recommended routing of transit was the consolidation of 11<sup>th</sup> Avenue bus stops to one location. Existing bus stops were located between the alleyway west of Cornwall Street and the alleyway east of Cornwall Street and east of Hamilton Street. Consolidating all bus stops on 11<sup>th</sup> Avenue to one location was proposed to reduce impacts on property owners, who had raised concerns regarding the location of the pre-existing bus stops and provide for a single location to provide enhanced shelters and bus stops.

The consolidation would also provide an opportunity for increased on-street parking along 11<sup>th</sup> Avenue. It would also reduce traffic impacts and transit travel times, as buses would only stop once on 11<sup>th</sup> Avenue.

**Exhibit 4.6 11th Avenue Stop Consolidation Concept**



While the transfer location has remained at Cornwall Centre, there is significant opposition from adjacent property owners to the new bus stop locations. The original proposal for bus stops between Cornwall Street and Hamilton Street was modified and the stops are now located from west of Cornwall Street to the alleyway east of Scarth Street.

This report and the Downtown Transportation Study recommend a number of mitigating actions to address some of the concerns raised by businesses and property owners from the transit stops. These are summarized in Section 4.5 and Section 6.

### Lorne Street On-Street Terminal

The use of Lorne Street between 11<sup>th</sup> Avenue and 12<sup>th</sup> Avenue was investigated for an on-street terminal to facilitate transfers and bus layovers. However, SaskTel, which is located on the east side of the street and property owners on the west side of the street have expressed opposition to the location of an on-street terminal at this location due to the impacts on building ventilation. It is recommended that this location be retained as part of a downtown transit terminal study to determine if the issues raised by these property owners can be confirmed and mitigated.

### Future Transit Terminal

The Downtown Transportation Study recommends that a transit terminal be established in the city centre in the medium term. Detailed study to establish needs, benefits, and location of this terminal will be required.

## 4.5 Recommendations

The following is recommended as part of the review of the downtown transit network. Items that will require additional funding above current budgeted funds are highlighted.

- Maintain two-way routing of transit on 11th Avenue, which balances traffic impacts, transit quality considerations, and overall downtown accessibility.
- Continue to monitor impacts on traffic and make adjustments to network, schedules, and operations as necessary.
- Immediately provide improved stop amenities at bus stops on 11<sup>th</sup> Avenue and throughout downtown with seating and garbage receptacles. Regina Transit plans to install new garbage receptacles during the first week of November.
- Install enhanced transit shelters at bus stops on 11<sup>th</sup> Avenue with existing funding.
- Improved and more frequent maintenance and cleaning at bus stops throughout downtown. Funding for this initiative to be identified.
- Increase security patrols on 11<sup>th</sup> Avenue during business hours, coordinated with more frequent and visible Regina Police foot patrols. Funding for this initiative to be identified.
- Expand the hours of the downtown transit information centre to serve as a safe and weather-protected waiting area. Funding for expanded hours to be identified.
- Construct a downtown transit terminal, potentially linking to development in RRI and Warehouse District. A study in the short term is necessary to determine timing and needs, assess benefits, and identify a preferred site to protect for implementation. Funding for this study, property acquisition, and implementation need to be identified.

Further recommendations are provided in Section 6 of this report.

## 5 Downtown Transit Shuttle

Regina City Council directed in its meeting of July 29, 2013 to explore the feasibility of implementing a downtown transit shuttle to replace regular transit service within the downtown core. Transfers between regular routes and the shuttle service would take place on peripheral arterial streets (Albert Street, Broad Street, Saskatchewan Drive, and Victoria Avenue), with the intent of reducing the number of buses travelling along 11<sup>th</sup> Avenue.

This section presents the findings of this feasibility study and includes:

- A review of downtown circulator services in other cities;
- The development of a downtown circulator concept for Regina; and,
- An assessment of the concept based on ridership potential, system impacts, fit with downtown, and costs.

### 5.1 Other Cities

Downtown transit shuttles, or transit circulators, are utilized in several cities across Canada and the United States to meet different objectives and have been employed with varying degrees of success. Notably, these services are rarely intended to reduce or replace existing transit services. Instead, they are seen as complementary and supplementary services to the citywide transit networks.

Three Canadian cities were included in the review of downtown circulator services:

- The Downtown Spirit bus service in downtown Winnipeg;
- Free Rides Everywhere Downtown (FRED) in downtown Halifax;
- Écolobus in the historic district in downtown Quebec City; and,

The free downtown fare zone service provided on Calgary's CTrain on 7<sup>th</sup> Avenue was not included in the analysis, as its applicability to Regina's downtown is limited. The LRT service utilizes proof-of-payment for fares with random enforcement checks on vehicles upon leaving the free zone. Providing free service on regular service routes travelling within downtown Regina is impractical with the current fare system.

#### **Winnipeg: Downtown Spirit bus**

Winnipeg Transit introduced its Downtown Spirit bus in 2007 to supplement existing transit services and to help connect key downtown destinations. Winnipeg's downtown is large, centered on a 1-kilometre radius from the main intersection of Portage and Main. As a result, walking distances are vast for trips within the downtown and the Spirit bus was designed to improve connectivity for local residents, workers, and tourists. The service is provided for free and some revenue is generated through on-board advertising oriented to downtown businesses.

Currently, three Downtown Spirit routes operate throughout the downtown. Buses on the two main routes (Route 1 and Route 2) operate every 17 to 20 minutes, but generally only run during the midday and afternoon. Route 3 provides service between the University of Winnipeg and the Exchange District at a lower frequency than the other routes. Service is provided every 35 minutes, but runs with earlier and later hours than Route 1 and 2. Service is not provided on Route 3 on Sundays.



Exhibit 5.1: Winnipeg Downtown Spirit Service



The annual cost of operating Route 1 and Route 2 is approximately \$660,000. Winnipeg's Downtown BIZ (Business Improvement Zone) does not contribute to the operation of the service; however, it does play an active role in marketing and promotion. The Downtown BIZ also plays a major role in advocating for improved transit and multi-modal access to downtown Winnipeg.

The routes connect to regular Winnipeg Transit service at several points throughout the downtown, including the key corridors of Portage Avenue, Main Street, and the Graham Street transit mall. The Downtown Spirit buses are not intended to replace transit services into and through downtown, but rather to improve access for downtown workers and residents, to discourage short auto trips within downtown (particularly during lunch hour), and to promote tourism.

The Spirit service is well utilized largely due to the high concentration of workers and residents within Winnipeg's downtown. The free service is also successful at attracting casual riders. Approximately 1,300 passengers board the Downtown Spirit buses each weekday.

#### Key Findings

- Service is successful, but is expensive
- Free service is highly attractive, particularly given the size of downtown Winnipeg
- Downtown shuttle does not replace existing services

### **Halifax: Free Rides Everywhere Downtown (FRED) Shuttle**

In 1996, the Metro Transit, in partnership with the Downtown Halifax Business Commission, introduced the “Free Rides Everywhere Downtown” shuttle, also known as the “FRED” bus, to provide a free transit between major tourist attractions. The service also provided a link to the city’s waterfront, which, at the time, did not have regular transit service.



As a tourist-oriented service, FRED operated only during the summer between July and October. Service operated every 40 minutes, which is infrequent, compared to regular service routes in downtown Halifax, which operate as frequently as every 10 minutes. Hours were also limited, provided between 10:30 a.m. to 5:00 p.m.; however, service was provided daily.

FRED did not replace existing transit services in downtown Halifax, which is well served by Metro Transit. Over 25 regular service routes serve Barrington Street, one of the downtown’s main retail streets, with buses operating very frequently during the peak periods.

Operating costs of the shuttle service were shared. Metro Transit paid for 70% of the costs, while the Downtown Halifax Business Commission contributed the remaining 30%. In its final year of service in 2010, FRED cost approximately \$75,000 to operate annually. The service was discontinued after 2010 due to a combination of factors, including the high cost to the transit commission, duplication of regular service routes (particularly after the introduction of a new route to service the cruise ship terminal), and a lack of financial support from local businesses.

#### *Key Findings*

- Service is expensive to operate, lack of a lasting funding partner
- High frequency transit works, even on a narrow retail main street
- Shuttle was proposed for specific tourist market segment that does not exist in Regina

### **Quebec City: Écolobus**

Operating since the summer of 2008, Quebec City’s Écolobus is a unique downtown circulator service that provides service throughout the historic district of Vieux-Québec. Écolobus is comprised of a fleet of 10-seat electric buses that operate every 10 to 20 minutes and connect the modern city centre to the historic district. The Écolobus route connects to the main downtown bus terminal (Terminus D’Youville) and travels through Vieux-Québec to the ferry terminal at the lower part of the old city. Primarily oriented to tourists, the Écolobus is also well used by local residents.

The service was introduced in response to concerns about walkability, traffic and congestion, and the operation of large public transit buses and tourist coaches along the winding and narrow historic streets. It was initiated as part of the Government of Canada’s Urban Transportation Showcase Program (UTSP), which funded a number of sustainable transportation programs across the country. Project costs of approximately \$8.6-million for a two-year trial operation were funded in partnership between the federal government, provincial government, and the City. Service was initially provided free of charge; however, a fare of \$2 was charged following the start-up period, when the service was made permanent.



Écolobus operates with a fleet of 8 electric buses, each vehicle with a capacity of 20 standing and seated passengers. Four buses are used to provide peak levels of service (every 10 minutes) and additional buses are required due to the limited capacity of the electric batteries, which limits operation to approximately 5 hours before recharging. A special facility to store and charge the buses was required as part of implementation.

Écolobus's introduction was in response to concerns similar to those in Regina regarding traffic and congestion impacts from full-size buses. However, unlike Regina, Vieux-Québec has unique challenges, including a complex street pattern and challenging topography. Walking from the bus terminal to the ferry terminal involves a steep hill, stairs, or the use of a funicular. There is also a larger tourist market in Québec City which relies on the service to help navigate confusing streets.

In general, the service is perceived to be a success with ridership of approximately 850 daily. At busy times, the small size of the buses creates crowding and fleet availability limits flexibility and ability to expand capacity. The use of new technologies in electric buses has also created challenges with problems with the reliability of vehicle batteries. Regardless, the city is planning to continue the service, albeit potentially with different vehicles.

#### Key Findings

- Using “state-of-the-art” technology can create challenges for service reliability
- Use of small vehicles limits flexibility, particularly when there are surges in demand
- Project made possible with substantial seed funding
- Ridership driven by urban context, walking distances, and topography



## Summary of Findings

The detailed review of three Canadian downtown circulator shuttles, as well as a general overview of other services across North America, offers important findings that are relevant when considering a similar service in downtown Regina.

- **Key features identified as part of successful downtown circulators include frequent service, free (or low-fare) service, and support through unique branding and strong marketing efforts.**
- **Downtown transit shuttles are predominantly oriented for tourist travel or business promotion, not day-to-day travel.** Most downtown shuttles are used to link major tourist attractions and city centre destinations. Schedules reflect an orientation to the casual travel market with infrequent service. In some cases, such as Winnipeg, the service is marketed for day-to-day travel due to the large geography of the city centre. While tourism in Regina is increasing, the market is too small to justify a circulator service.
- **Downtown transit shuttles supplement and complement, and do not replace, regular routes.** All downtowns face challenges in balancing the needs of transit and other modes of travel within narrow streets and congested roadways. Some cities have introduced transit shuttles to encourage use of parking lots in the periphery of city centres to reduce congestion within the core. However, with the exception of Quebec City, which has unique constraints, these services were not intended to remove transit from downtown streets. Shuttle services do not have the capacity to accommodate surges of commuter demand and the additional transfer and travel times make transit less convenient and attractive for commuters.
- **Downtown transit shuttles are most effective in large downtowns or those with barriers for walking.** The most successful services, in Winnipeg for example, operate in geographically expansive downtowns. Many transit shuttles operate infrequently; in order for shuttle services to be attractive, walking times must be similar or longer than the wait plus travel time. Topographic challenges such as steep hills or barriers to walkability can also make shuttles more attractive. Downtown Regina is small, laid out with a clear street network, and is relatively walkable. A transit shuttle would face challenges to be attractive in the current context; however, redevelopment in the Warehouse District and Regina Revitalization Initiative may generate future opportunities.

Exhibit 5.2: Size of downtown Regina, compared to case study cities



## 5.2 Potential Shuttle Service

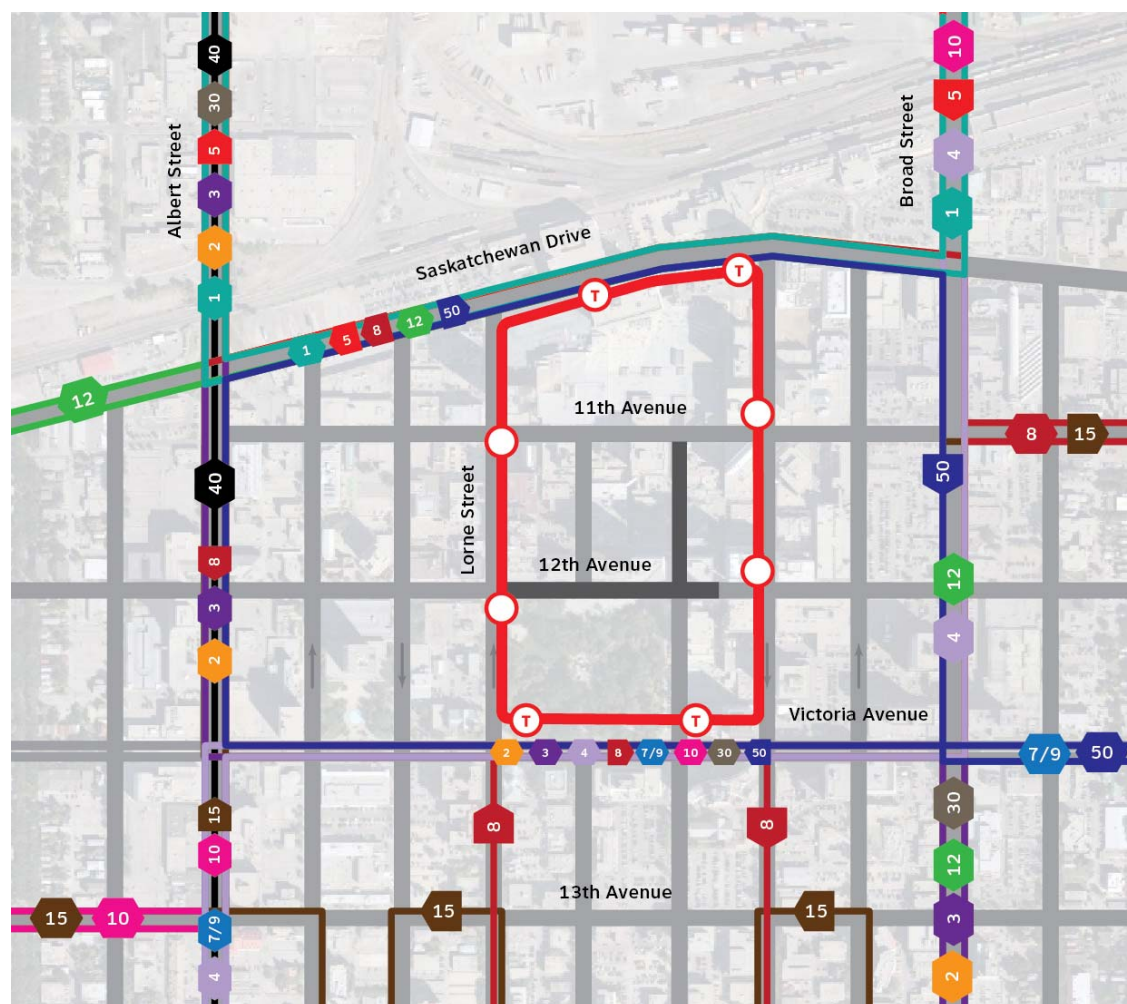
Exhibit 5.3 illustrates a potential operational approach for a shuttle service in downtown Regina. All regular service routes would be rerouted to peripheral downtown streets, including Albert Street, Saskatchewan Drive, Broad Street, and Victoria Avenue. From stops located on these streets, passengers travelling into the downtown core would be required to either walk or transfer to a free downtown shuttle service.

The proposed routing allows for transfers between all routes, except for Routes 1 and 5, on Victoria Avenue. Customers on Route 1 or 5 would have to transfer to the shuttle or walk from Saskatchewan Drive to transfer to most routes.

These changes would add a high volume of bus turning movements to congested intersections at the four corners of downtown. It would also introduce bus service to corridors that currently are not served by transit, including Victoria Avenue and Saskatchewan Drive. A higher volume of buses would impact traffic flow and congestion on these streets.

There may be an increase in the number of properties and businesses that would be impacted by the operation of a downtown shuttle due to the addition of new bus stops and associated impacts to on-street parking. New bus stops would be required on Victoria Avenue and Saskatchewan Drive and along the proposed shuttle route, illustrated in Exhibit 5.1.

**Exhibit 5.3: Downtown Transit Network with Shuttle Service**



Rerouting all buses onto Saskatchewan Drive was not considered due to two key factors:

- Space constraints, particularly on the south side of the street due to site and parkade access points, which would limit the number of buses that could use the street for a layover; and,
- Congestion on Saskatchewan Drive, which would impact reliability of transit service and travel time impacts for all other traffic.

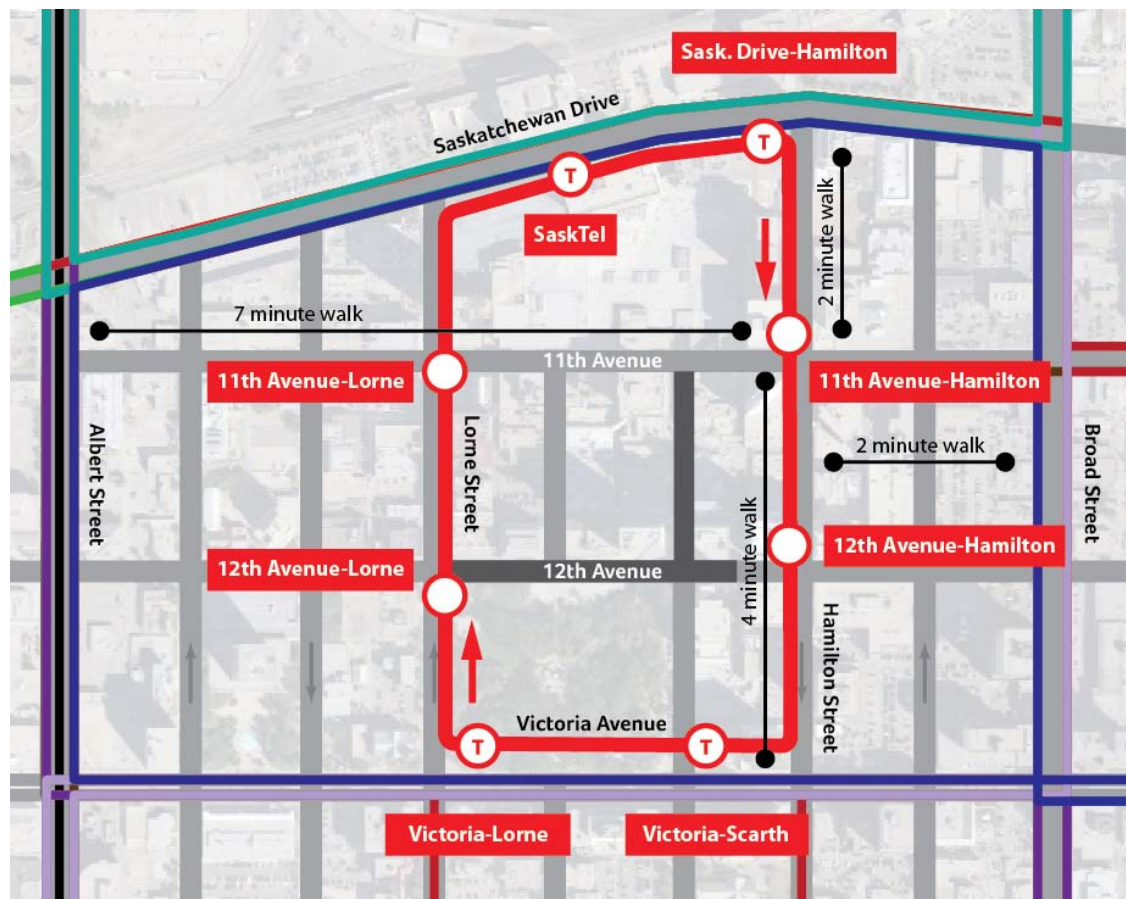
In addition, substantial improvements to walkability and the pedestrian environment on Saskatchewan Drive are required to create a transit-supportive street.

Modifications will also be required on Victoria Avenue in order to accommodate bus service, including new bus stops (which will require removal of on-street parking in several locations) and improving pedestrian infrastructure.

Exhibit 5.4 illustrates the proposed downtown shuttle service. A single route, operating in a clockwise loop, would operate via Saskatchewan Drive, Hamilton Street, Victoria Avenue, and Lorne Street. One loop would take approximately 10 minutes to complete and two buses would be required to provide five-minute service during the peak periods and weekday midday. A single bus would operate to provide 10-minute service at all other times.

Transfers to regular service routes would take place at new stops (indicated with a "T") located on Saskatchewan Drive or Victoria Avenue. New transit stops would also be required on Lorne Street and Hamilton Street for the shuttle service, as illustrated in the exhibit.

**Exhibit 5.4: Proposed Downtown Shuttle Service**





## Vehicles

One of the parameters requested for the evaluation of a shuttle service was to utilize a smaller transit vehicle. Currently, Regina Transit operates three main types of vehicles:

- **Forty-foot conventional buses** are the predominant vehicles in the fleet. Each bus carries 35 to 38 seated passengers with a maximum capacity of approximately 55 passengers per bus. By the end of 2014, all of Regina Transit's standard-sized buses will be low-floor and fully accessible with two wheelchair spaces per bus.
- **Thirty-foot conventional buses** are also operated by Regina Transit on lower volume routes. Each bus carries 30 seated passengers and are fully accessible.
- **Shuttle buses** are operated by Regina Transit and similar vehicles are outfitted for use on conventional service in several cities across Canada. These buses generally cost less than conventional buses, but have shorter expected life spans. These buses are currently operated by Regina Transit on Routes 14, 15, and 16.

One of the main objectives of the downtown transit shuttle study was to remove larger, forty-foot buses from the downtown core. Consequently, the following three vehicle options were assessed from a capital cost and operating perspective:

- thirty-foot conventional bus;
- shuttle transit vehicles outfitted for conventional service; and,
- electric vehicles, similar to Quebec City's Écolobus.

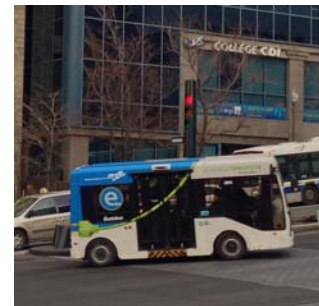
Exhibit 5.5: Downtown Shuttle Vehicle Options



30-foot bus



Shuttle bus



Electric bus

### 5.3 Capital Costs

Regina Transit's fleet is currently fully utilized during peak periods and additional vehicles and capital expenditures will be required to operate a downtown shuttle service. As a result, capital expenditures to establish a downtown shuttle service would be directed to purchase new vehicles.

Two buses are required to operate the downtown shuttle service with a 5-minute frequency during the peak periods and midday on weekdays. One bus would operate the service at a 10-minute frequency at all other times. In total, three buses would be purchased for the paratransit and standard bus options, including one additional bus to serve as a spare vehicle. For the Écolobus option, 6 buses would be required in order to facilitate switch-offs for battery recharging every 5 hours with an estimated recharge time of 8 hours

Exhibit 5.5 provides a summary of the capital and startup costs for a downtown shuttle using electric (Écolobus), paratransit, or 30-foot buses. The highest costs are associated with the electric bus, due to the cost of the technology and the need for new charging and storage facilities. The paratransit bus is the lowest capital cost option; however, the vehicles have the shortest service life span.

Other costs included for implementation and common to all options include:

- development of a detailed service plan;
- new bus stops, shelters, and amenities; and,
- marketing and promotion (\$50,000 start up and \$25,000 annually).

The start-up capital costs, in 2013 dollars, are estimated between \$65,000 and \$3,650,000.

**Exhibit 5.6: Estimated Capital Costs (2013 dollars)**

	Écolobus	Shuttle Bus	30' Standard Bus
Cost per Bus	\$450,000	\$130,000	375,000
Storage and Charging	\$675,000	Not required	Not required
Capacity	20	19	30
Propulsion	electric	diesel	diesel
Total Buses Required	6	3	3
Vehicle Life Span	8 years	4 years	12 years
<b>Capital Costs – Vehicles</b>	<b>\$3,375,000</b>	<b>\$390,000</b>	<b>\$1,125,000</b>
Detailed Service Strategy	\$50,000	\$50,000	\$50,000
New Stops/Shelters	\$175,000	\$175,000	\$175,000
Start-up Marketing and Promotion	\$50,000	\$50,000	\$50,000
<b>Total</b>	<b>\$3,650,000</b>	<b>\$665,000</b>	<b>\$1,400,000</b>

## 5.4 Operating Costs

An equally important consideration in assessing the viability of a downtown shuttle service is the ongoing operating cost of the service. The shuttle is intended to provide free service; consequently, the full cost of the service will need to be funded by either the city or through partnerships with local businesses, the Regina Downtown Business Improvement District (RDBID), and other funding partners.

Operating costs for the service were developed based on existing Regina Transit operating costs as reported to the Canadian Urban Transit Association. This data reflects the 2011 operating budget, escalated to current 2013 dollars. In 2011, the marginal operating cost for each additional hour of bus service in Regina is approximately \$72.

The use of smaller transit buses was proposed as part of the proposal of the downtown shuttle service. However, it is a common misconception that the utilization of smaller buses for lower ridership routes results in reduced transit operating costs. In general, the cost of operating a bus is predominantly comprised of the driver, so smaller buses only produce some savings from reduced fuel consumption. Conversely, operating larger vehicles on busy routes is shown to create savings, as more people are carried on fewer vehicles. Introducing new vehicle types to a fleet also creates increased maintenance costs due to the added training for mechanics and the need to stock different spare parts.

For the purposes of quantifying the fuel savings of using smaller vehicles for the downtown shuttle, a 20% reduction in the marginal operating cost is assumed and the hourly cost is \$58 per service hour. For the Écolobus option, which operates on electricity, a further reduction of 25% in operating costs is assumed and forms part of the calculation of overall costs in the next section.

Exhibit 5.7 summarizes the service periods, frequency, service hours, and incremental operating cost by service day for the downtown transit shuttle concept. Service hours do not include deadhead time, or the time required to enter and leave service from the transit garage. Service is assumed to operate every 5 minutes between 6:00 a.m. and 6:00 p.m. on weekdays and every 10 minutes at all other times. Total weekly service hours are 182 hours, or approximately 9,500 hours annually. This represents approximately 3% of Regina Transit's annual service hours in 2011 (275,000 hours).

Using the \$58/hour marginal operating cost, the annual cost of operating the downtown transit shuttle is estimated to be \$548,912 (in 2011 dollars). Assuming no fare recovery on the shuttle service, this would require a 4% increase in Regina Transit's gross operating budget or substantial subsidy or partner funding.

**Exhibit 5.7: Estimated Shuttle Service Operating Costs (for all options)**

Period	Time	Frequency	Total Buses	Total Service Hours	Incremental Operating Cost
<b>Weekday</b>					
AM Peak	6:00 am to 9:00 am	5 min	2	6	\$348
Midday	9:00 am to 3:30 pm	5 min	2	13	\$754
PM Peak	3:30 pm to 6:00 pm	5 min	2	5	\$290
Early Evening	6:00 pm to 9:30 pm	10 min	1	3.5	\$203
Late Evening	9:30 pm to Midnight	10 min	1	2.5	\$145
<b>Weekday Subtotal - Per Week</b>				150	\$8,700
<b>Saturday</b>					
Early AM	6:00 am to 9:00 am	10 min	1	3	\$174
Daytime	9:00 am to 6:00 pm	10 min	1	9	\$522
Evening	6:00 pm to Midnight	10 min	1	6	\$348
<b>Saturday Subtotal</b>				18	\$1,044
<b>Sunday</b>					
Early AM	8:00 am to Noon	10 min	1	4	\$232
Daytime	Noon to 6:00 pm	10 min	1	6	\$348
Evening	6:00 pm to 10:00 pm	10 min	1	4	\$232
<b>Sunday Subtotal</b>				14	\$812
<b>Weekly Total</b>				<b>182</b>	<b>\$10,556</b>
<b>Annual Total (2011\$)</b>				<b>9,464</b>	<b>\$548,912</b>

## 5.5 Overall Costs (2014-2025)

The implementation of the downtown transit shuttle cannot be considered as a trial project as it would create significant changes to how the transit system operates in Regina with major impacts on transit customers, physical infrastructure, and travel patterns. Consequently, consideration is necessary of the proposal's life-cycle costs over a 10-year period. This time horizon was chosen to reflect an appropriate period at which further changes to the transit network may be required due to growth or other changes. The analysis assumes that service begins operation in 2014.

All capital and operating costs in the analysis are escalated at a rate of 2.5% per annum. Totals reflect the net present value in 2014 dollars, with a discount rate of 5% applied.

The total capital costs of each option reflect the renewal of vehicles at the end of service life. For Écolobus, vehicles are replaced once in 2022. For paratransit bus, vehicles are replaced twice in 2018 and 2022. A standard bus does not require replacing during the evaluation period.

Exhibit 5.7 provides a summary of the total cost over the 2014 to 2025 period. It shows significant costs to provide a downtown shuttle service; the paratransit and standard bus options would cost approximately \$7.1-million while an electric bus system would cost approximately \$10.9-million.

**Exhibit 5.8: Total Cost 2014-2025 by Vehicle Option (2014 dollars)**

	Écolobus	Paratransit Bus	30' Standard Bus
<b>Operating Cost</b>	\$4,453,000	\$5,938,000	\$5,938,000
<b>Capital Cost</b>	\$6,012,000	\$694,000	\$732,000
<b>Startup and Annual Marketing Cost</b>	\$477,000	\$477,000	\$477,000
<b>Total</b>	\$10,942,000	\$7,108,000	\$7,147,000

### Summary

Operation of a downtown shuttle would require significant capital and operating investment. Due to limitations of the existing transit fleet, the new vehicles are required at a cost of approximately \$700,000 for diesel vehicle options and \$6.0-million for electric vehicle options. However, the greatest cost is in the operation of the service, which, at approximately \$550,000 per year, would create major budgetary pressures.



## 5.6 Assessment

### Ridership

Transfers are considered the most onerous part of a transit trip as it adds significant travel time and uncertainty. Timed transfers, such as the system utilized in Regina, reduce the uncertainty, but are still perceived as inconvenient by transferring passengers while increasing travel time for passengers who are not transferring.

A downtown transit shuttle would create an additional transfer for passengers going to downtown from either Saskatchewan Drive or Victoria Avenue. Due to the relatively short walking time into the downtown core, many customers would likely avoid the wait, transfer, and added travel time of the shuttle service and walk to their destinations. There is also substantial risk that the added overall travel time and inconvenience would discourage the use of transit altogether to downtown. Ridership loss among customers who have a car but currently *choose* to take transit is likely, as driving to and walking from a lower-cost peripheral downtown parking lot would ultimately be more attractive than transit. This may create greater parking supply issues in the downtown and consequently more congestion on downtown access routes.

Travel times for transit users travelling downtown would be negatively impacted by forcing transfers to a downtown shuttle service or a walk to their final destination. Exhibit 5.8 provides an example of how travel times for transit customers would be impacted for a trip on Route 30 from Normanview Crossing to 11<sup>th</sup> Avenue and Hamilton. The wait time as part of the transfer to the downtown shuttle is assumed to be half the planned frequency of 5 minutes, or 2.5 minutes.

**Exhibit 5.9: Change in Transit Travel Time (Normanview Crossing to 11th Avenue and Hamilton)**

	Existing	Shuttle Service	Walking
<b>In-vehicle Travel Time</b>	15 minutes	15 minutes	15 minutes
<b>Transfer Time (walk + wait)</b>	-	3.5 minutes	-
<b>Shuttle Travel Time</b>	-	5 minutes	-
<b>Walk Time</b>	-	-	4 minutes
<b>Total Travel Time</b>	15 minutes	23.5 minutes	19 minutes
<b>Change in Travel Time</b>	-	+ 8.5 minutes (+ 57%)	+ 4 minutes (+ 27%)

The transfer to the shuttle service would increase total travel time on transit for the sample trip by 8.5 minutes, while walking to the destination from Victoria Avenue would increase travel time by 4 minutes. Proportionally, these are significant increases in travel time by 57% and 27%, respectively. The change in travel time would create substantial negative impacts on the attractiveness of transit, and consequently ridership, in downtown Regina.

Currently, approximately 6,000 boardings per weekday are observed at stops downtown. Transit staff estimate approximately 35% of these trips are transferring passengers, which would generally not be impacted by the relocation of the transfer point to Saskatchewan Drive or Victoria Avenue. Of the remaining 3,900 trips that originate from the downtown core, it is projected that:

- 10% of these would utilize the shuttle service (approximately 400 boardings);
- 80% would walk (approximately 3,100); and,
- 10% would no longer take transit (approximately 400).

### **Traffic Impacts**

The rerouting of regular transit services onto the peripheral streets of downtown Regina is predicted to have negative impacts on traffic conditions, particularly on Saskatchewan Drive, which is a major arterial and through corridor for trucks and other general traffic. A traffic analysis was conducted for a downtown transit routing option that included eastbound-only operation of transit on Saskatchewan Drive. This analysis showed a significant increase in overall travel time for all travel in downtown of approximately 9%. A downtown transit shuttle would introduce transit in both directions on Saskatchewan Drive and would have greater congestion impacts.

The shuttle option and rerouting of service would also introduce significant bus volumes onto Victoria Avenue, which also operates as a major through corridor (although at a lesser magnitude than Saskatchewan Drive). Buses on this corridor, particularly with turning movements at Broad Street and Albert Street, would increase congestion and traffic flow. To accommodate the placement of new bus stops, on-street parking on Victoria Avenue, currently allowed in both directions at all times, would need to be reduced. In addition, parking and stopping restrictions would need to be utilized during peak periods to mitigate traffic impacts.

Rerouted buses on the peripheral arterials would increase turning movements at intersections operating over capacity on Albert Street and Broad Street, particularly at Saskatchewan Drive and at Victoria Avenue. Turning movements for all traffic would be negatively impacted and delayed and further exacerbate concerns about access to and from downtown.

Removing buses from 11<sup>th</sup> Avenue and the continuation of no parking, no stopping in the curb lanes during peak periods will remove one element of congestion. However, like today, there will still be other elements to impact traffic flow on 11<sup>th</sup> Avenue, including on-street parking, servicing and loading, and access to alleys. Increased congestion on Saskatchewan Drive and Victoria Avenue may induce through-traffic to utilize 11<sup>th</sup> Avenue as a bypass, negating any beneficial effects.

### **Business and Property Impacts**

Removing buses on 11<sup>th</sup> Avenue would address concerns by businesses on 11<sup>th</sup> Avenue. However, the same issues and concerns would be relocated to new corridors served by transit, including those with heavy storefront presence, such as Hamilton Street. Property owners on Saskatchewan Drive, Lorne Street, and Victoria Avenue would also have similar concerns to those on 11<sup>th</sup> Avenue. Increased traffic on Victoria Avenue in the vicinity of Victoria Park is also perceived as incompatible with civic, cultural, and recreational uses.

## 5.7 Summary of Findings

The following provides a summary of key findings:

- **Regina's downtown is geographically compact and walking times are too short for a shuttle service to be attractive** for transferring transit customers or downtown workers and residents. Compared to other cities that operate downtown shuttles, downtown Regina is substantially smaller; however, future development in as part of Regina Revitalization Initiative and in the Warehouse District may create a footprint more suitable for a shuttle service.
- **A downtown shuttle service is cost prohibitive, requiring substantial start-up capital and ongoing operational investment.** Regina Transit operational budget is constrained and does not have sufficient funding to operate the downtown shuttle service. There would be greater benefit to transit, downtown access, and traffic congestion to invest an equivalent amount into improving transit service to make it more attractive and competitive.
- **Rerouting transit service to downtown's peripheral arterials which serve as major thoroughfares for downtown and citywide travel – Saskatchewan Drive, Albert Street, Broad Street, and Victoria Avenue – would create traffic flow and congestion impacts.** Travel times and delays are projected to increase for all travellers, particularly at the downtown's key gateway intersections, which are all operating at or over capacity.
- **Transit riders to downtown would be negatively impacted with increased total travel time and less convenient access to downtown destinations.** Transit riders would be forced to transfer to the shuttle bus or walk to get to their final destinations. This is in addition to the walk that most transit customers have to get to the bus stop at their point of origin. This makes transit less attractive and creates risk for ridership loss. Less transit use downtown could lead to increased congestion and impact overall accessibility to and from downtown.
- **The issues and concerns by business and property owners on 11<sup>th</sup> Avenue are valid and must be addressed.** Moving transit, however, is not a viable solution, as it simply relocates the same issues and concerns to a new group of business and property owners. Confirming the recommended routing on 11<sup>th</sup> Avenue will provide the certainty needed to invest committed capital funds to create high quality bus stops and amenities. The uncertainty around transit routing and stop locations partially contributed to the delay in implementing these improvements.
- **There is significant risk in changing the transit network, particularly soon after the last major change to the network in July 2013, which is yielding positive results.** Transit customers have expressed preference to the current routing and the Cornwall Centre transfer location and ridership has increased.

## 5.8 Recommendations

- **A transit shuttle service is not recommended for downtown Regina at this time.** The service provides limited benefit and ridership potential, is cost prohibitive, and would have negative impacts to transit customers and traffic flow downtown. The downtown is too small to justify a special service; confining transit to the arterial roads on the peripheral arterials would lead to less attractive service and risk ridership loss.
- **Retain the idea for a shuttle service to support development in the City Centre.** As the downtown and surrounding area grows, particularly as envisioned in the Official Community Plan, a circulator transit service may be desirable to connect the downtown to the Warehouse District, Regina Revitalization Initiative, and the new stadium at Evraz Place.

The Route 15 Heritage route operates similarly to a downtown circulator geared towards local travel in the city centre with connections to key attractions, such as the Science Centre, Wascana Centre, Cathedral, and downtown. It is currently operated as a regular service route. Marketing and promotion of this route to visitors or for local travel, potentially with fare incentives, may be desirable.

## 6 Recommendations

### 6.1 Short Term Recommendations

- Maintain transit routing on 11<sup>th</sup> Avenue and continue to monitor impacts
- Immediately implement improved bus stop amenities including garbage receptacles and benches
- Expand security patrol on 11<sup>th</sup> Avenue to business hours (10:00 a.m. to 9:00 p.m.) and coordinate with Regina Police to increase visibility of foot patrols at all hours throughout downtown with a focus on 11<sup>th</sup> Avenue
- Install new enhanced transit shelters
- Review route assignments at transit stops to locate busiest routes where there is the most space and less busy routes where there are more constraints
- Expand the opening hours of the Transit Information Centre to serve as a safe and weather protected waiting area with next vehicle arrival prediction displays
- Construct a downtown transit terminal, potentially linking to development in RRI and Warehouse District. A study in the short term is necessary to determine timing and needs, assess benefits, and identify a preferred site to protect for implementation. Funding for this study, property acquisition, and implementation to be identified. Include consideration of partnerships with development proposals in the downtown and integration with Saskatchewan Transportation Commission (STC) facilities
- Assign a Regina Transit member to serve as a Downtown Transit Liaison to feed into Downtown Transportation Working Group
- Explore operational adjustments to reduce layover time at Cornwall Centre transfer point on 11<sup>th</sup> Avenue during peak periods to reduce traffic impacts
- Continued implementation of Transit Investment Plan system strategy to increase use of transfer nodes outside of downtown

### 6.2 Long-Term Recommendations

- Build transit needs into the revitalization of 11<sup>th</sup> Avenue
- Explore potential for a City Centre Circulator transit service to serve the downtown, Warehouse District, Regina Revitalization Initiative, Evrazplace, and surrounding neighbourhoods