



Route Ahead

A Strategic Plan for Transit in Calgary

Calgary Transit

Onward/ Enable public transit, walking and cycling as the preferred mobility choices for more people.

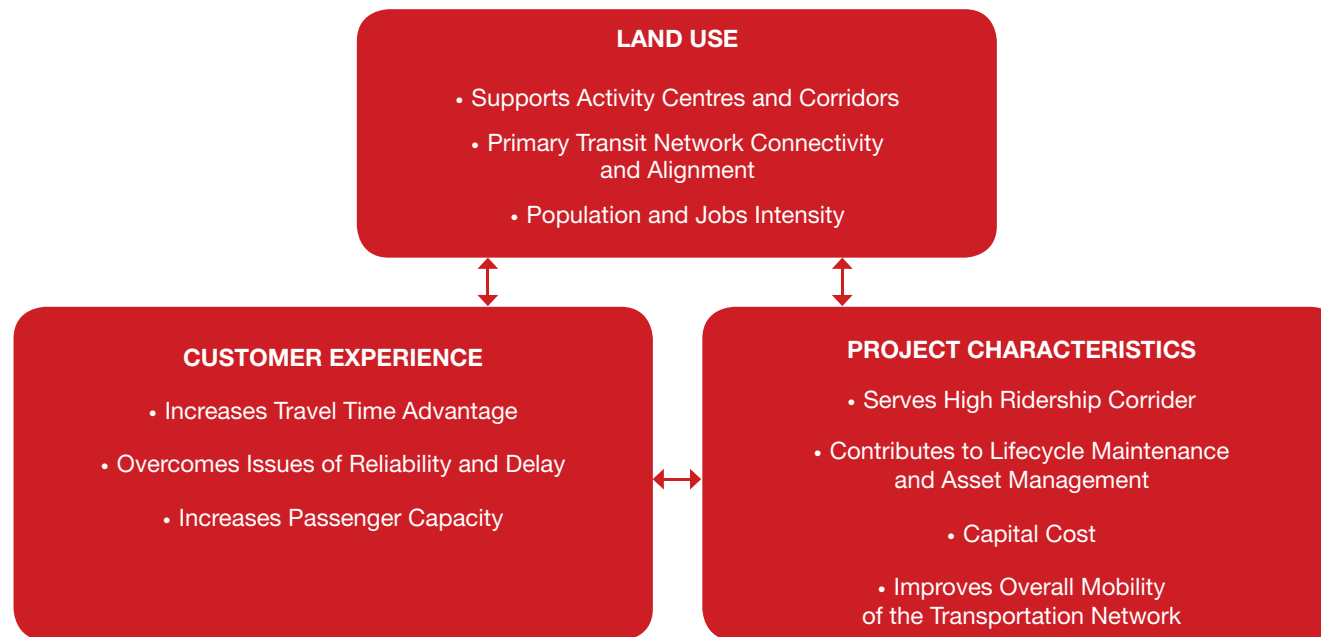
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project evaluation criteria

The evaluation criteria used in RouteAhead is based on three categories: **land use**, **customer experience** and **project characteristics**.

Each category contains a number of sub-categories that were given a value based on the relative merits of the project.



Other Considerations in Project Evaluation

The rating of projects using these criteria is one tool to assist Council and Administration determine which projects to construct and when. Many other factors should be considered when determining a detailed construction timeline

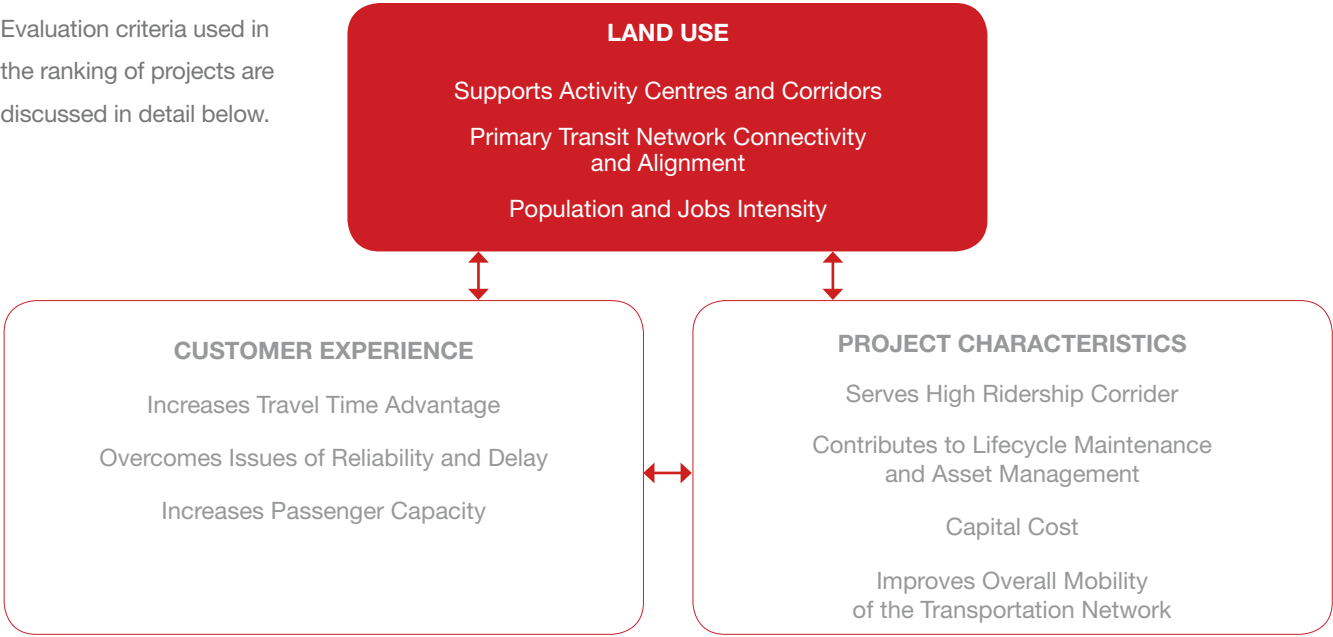
including the availability of capital and operating funds, Calgary Transit operational requirements and coordination with other business units and City departments.

Other capital programs, such as bus purchases

and building maintenance, are required to keep the system running. These will be captured as part of the Investing in Mobility plan as well as being identified in the RouteAhead plan.

Description of Evaluation Criteria

Evaluation criteria used in the ranking of projects are discussed in detail below.



Supports Activity Centres and Corridors

Each project is evaluated on how much it supports the land use goals of the CTP. The project receives a higher score if it supports a greater number of activity

centres (Centre City, major activity centre, community activity centre, industrial-employee intensive) and corridors (urban corridor, neighbourhood corridor).

Population and Jobs Intensity

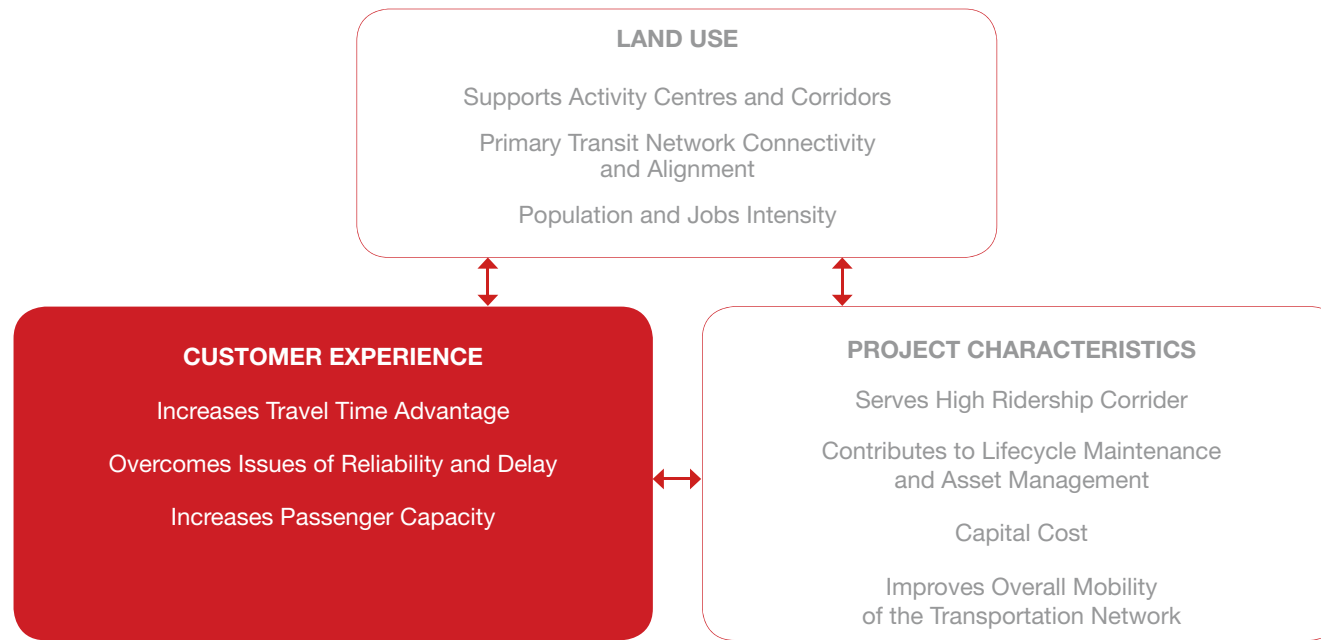
The forecast data for 2029 is used to determine the future population and jobs intensity. Geographic information systems (GIS) are used to analyze the forecasted population and jobs data in the service area of each of the projects.

Primary Transit Network (PTN) Connectivity and Alignment

Projects receive higher scores for intersecting with, and travelling along, existing and future PTN corridors. The PTN is a key feature of the CTP and will provide customers with frequent, reliable service for most of the day, seven days

a week. When complete, the PTN will provide a grid of frequent transit services. Implementing and supporting the PTN is a high priority to shape the land use and travel patterns to reach the goals of the MDP and CTP.

The sum of the jobs and population per hectare is calculated and compared with CTP targets. The 2029 time horizon was chosen because it is approximately in the middle of the 30-year RouteAhead timeframe.



Increases Travel Time Advantage

Projects that are expected to increase the travel time advantage for transit customers (such as dedicated rights-of-way including LRT and transitways) receive a higher score in this

category. Projects that run mainly in mixed traffic with private vehicles, such as BRT running on street, score lower, except for locations where on-street delays are minimal.

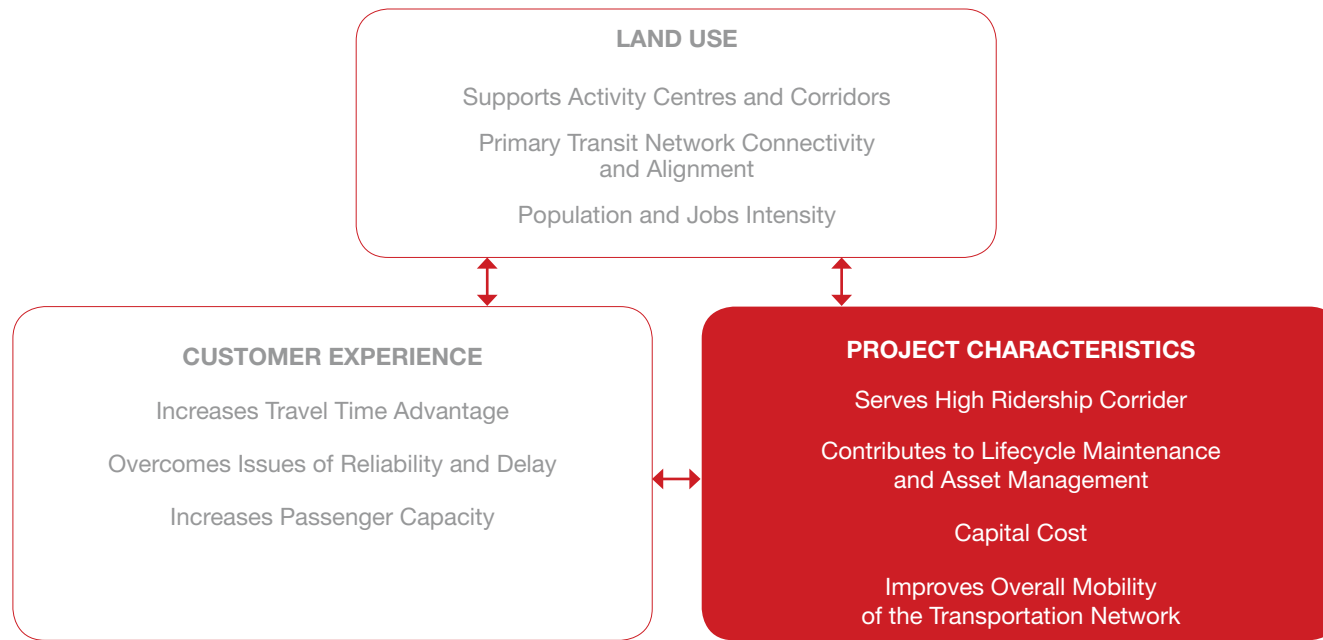
Increases Passenger Capacity

Projects that will increase passenger capacity over the existing state are scored based on the expected increase provided by the project.

Overcome Issues of Reliability and Delay

Transportation Planning provided the data to determine the scoring for this criterion. Projects that provide for a dedicated transit right-of-way or transit priority around areas

of congestion receive higher scores. A volume/capacity ratio map, identifying congestion on the network, is used to determine the location of congestion in the 2029 time horizon.



Serves High Ridership Corridor

Calgary Transit ridership data is used to determine the scoring for this criterion. Existing high ridership corridors score higher because improvements to transit service in these corridors would serve existing customers, support existing travel patterns and help alleviate capacity/

overcrowding issues. It should be noted that there is merit to improving transit service in lower ridership corridors to build future ridership and offer Calgarians more transportation choices; that benefit is captured in the customer experience criteria. This can only be

successful when transit is competitive with the automobile in terms of cost and travel time.

Contributes to Lifecycle Maintenance and Asset Management

To analyze this criterion, the assets of the Transportation Department are considered as well as the assets of Calgary Transit. Therefore, projects that include reconstructing existing road segments (e.g. 17 Avenue SE, Centre Street transitway) score higher under this criterion than projects that are primarily new construction (such as the South LRT extension).

Capital Cost

Projects with lower capital costs receive higher scores under this criterion. Based on the forecasted capital budget for the next decade it is important to rate the 'fit' of projects with the available 10-year budget. This approach is not being applied to the 30-year vision in the RouteAhead plan as alternative funding sources are being explored.

Improves Overall Mobility of the Transportation Network

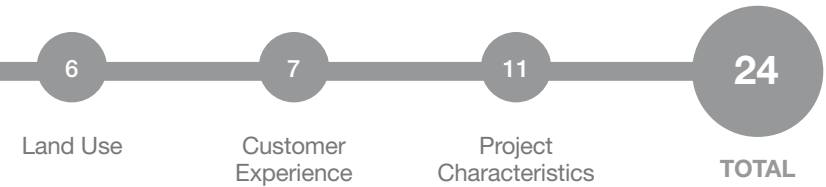
Projects that improve mobility for all modes on the overall transportation network receive higher scores under this criterion.



the rapid transit projects

Green Line: Centre Street Transitway Downtown to 24 Ave N

PROJECT EVALUATION CRITERIA



Timeline: short-term

Mode progression: construct transitway and urban boulevard

Estimated construction cost: \$60,000,000

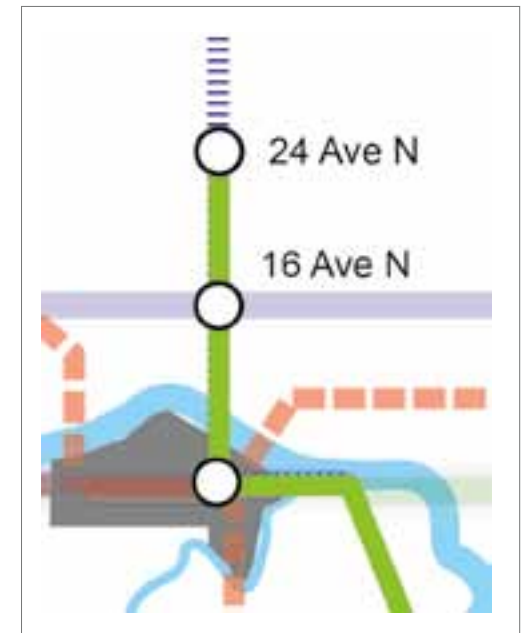
Estimated annual operating cost: \$7,100,000

Estimated annual ridership: 8,000,000

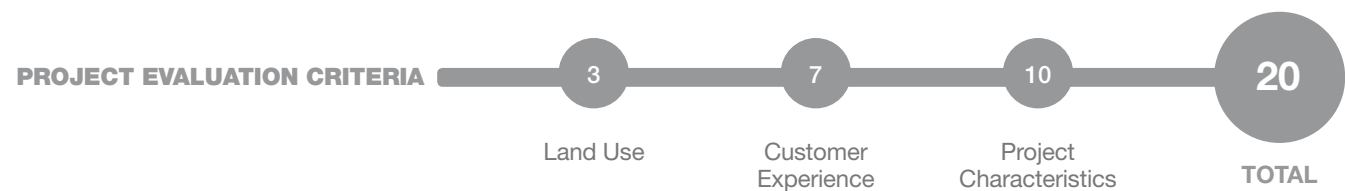
Length: 3 km

Major trip generators: downtown, Centre Street urban corridor, northern communities

Additional considerations: project ranked highly in RouteAhead evaluation, however there are a number of steps (community input, functional and detailed design, traffic impact analysis) to be completed before the transitway can be constructed.



Green Line: Centre Street Transitway 24 Ave to 78 Ave N



Timeline: short-term

Mode progression: extend transitway from 24 Avenue N

Estimated construction cost: \$75,000,000

Estimated annual operating cost: \$10,600,000

Estimated annual ridership: 6,000,000

Length: 6 km

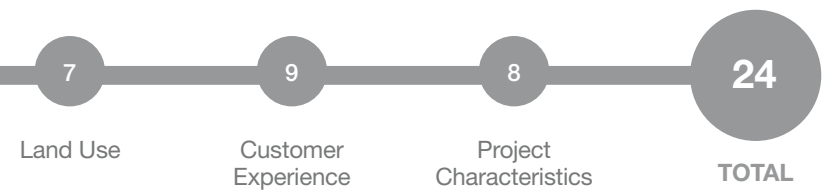
Major trip generators: Centre Street urban corridor,
northern communities

Additional considerations: project ranked highly in
RouteAhead evaluation; however there are a number of
steps (community input, functional and detailed design,
traffic impact analysis) to be completed before the transitway
can be constructed



Green Line: LRT Downtown to North Pointe

PROJECT EVALUATION CRITERIA



Timeline: long-term

Mode progression: construct transitway to 78 Avenue North, convert part of transitway to LRT, construct LRT to North Pointe

Estimated construction cost: \$2,500,000,000

Estimated annual operating cost: \$19,300,000

Estimated annual ridership: 19,000,000

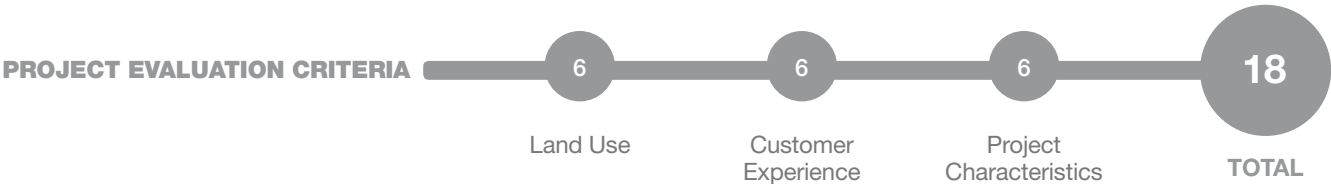
Length: 14 km

Major trip generators: downtown, northern communities, Keystone (future community)

Additional considerations: pace of development and redevelopment in north communities, mix of uses, density of population and employment, availability of capital budget



Green Line: Transitway (SETWAY)
Downtown to Douglas Glen



Timeline: short-term

Mode progression: Complete bus-only transitway from downtown to Douglas Glen

Estimated construction cost: \$667,000,000

Estimated annual operating cost: \$5,200,000

Estimated annual ridership: 4,600,000

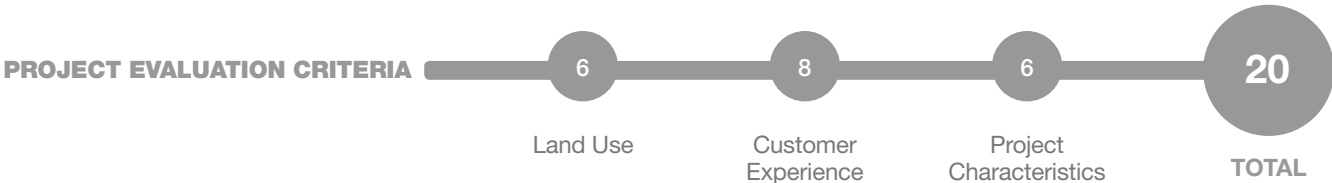
Length: 16 km

Major trip generators: downtown, Quarry Park, southeast communities and southeast industrial

Additional considerations: project is advanced in terms of design and community readiness, Council has identified this corridor as a priority for transit improvements, logical step to construct transitway in the absence of funding for full LRT



Green Line: LRT Downtown to Quarry Park



Timeline: medium-term

Mode progression: replace bus-only transitway with LRT

Estimated construction cost: \$1,650,000,000

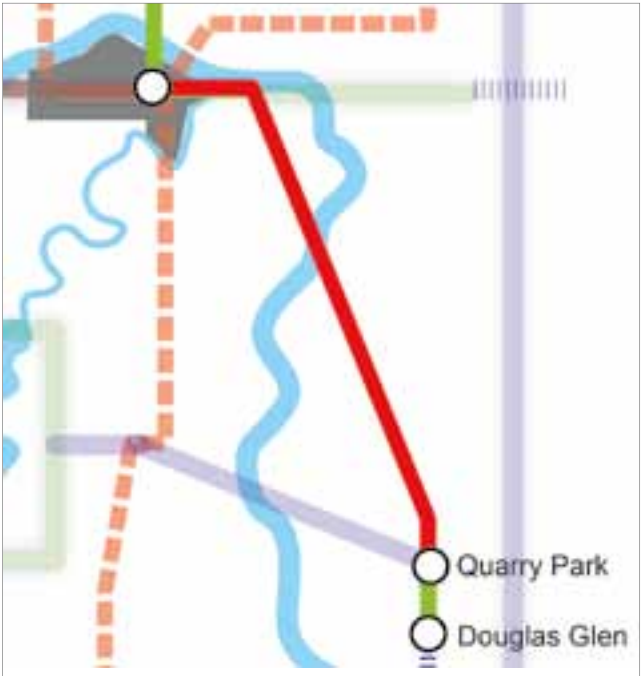
Estimated annual operating cost: \$22,500,000

Estimated annual ridership: 10,500,000

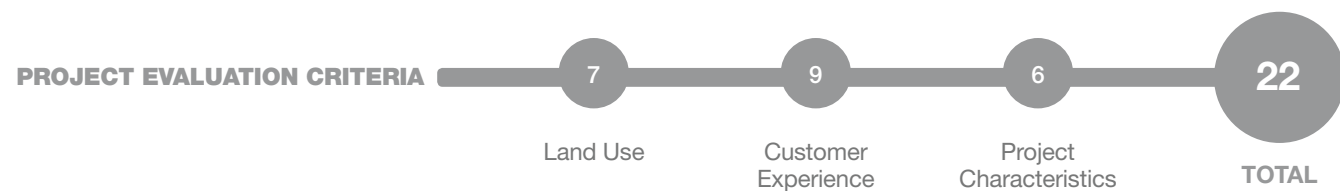
Length: 15 km

Major trip generators: downtown, Quarry Park, SE communities and SE industrial

Additional considerations: pace of development in new south communities, mix of uses, density of population and employment, availability of capital budget



Green Line: LRT Downtown to Seton



Timeline: long-term

Mode progression: construct transitway to Douglas Glen, convert transitway to LRT to Quarry Park, extend LRT to Seton

Estimated construction cost: \$1,800,000,000

Estimated annual operating cost: \$38,000,000

Estimated annual ridership: 22,000,000

Length: 26 km

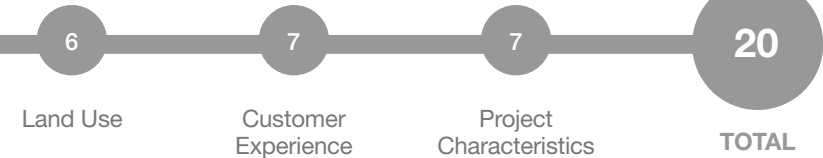
Major trip generators: downtown, Quarry Park, Seton and South Health Campus, SE industrial, SE communities

Additional considerations: pace of development in new south communities, mix of uses, density of population and employment, availability of capital budget



Southwest Transitway: Downtown to Woodbine

PROJECT EVALUATION CRITERIA



Timeline: short-term

Mode progression: existing routes, transitway constructed to southwest communities

Estimated construction cost: \$40,000,000

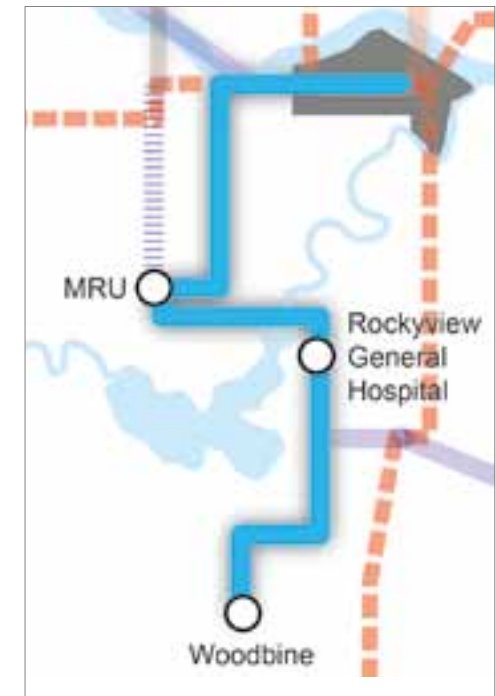
Estimated annual operating cost: \$5,400,000

Estimated annual ridership: 12,000,000

Length: 18 km

Major trip generators: downtown, Rockyview General Hospital, Mount Royal University, Lincoln Park redevelopment, Currie Barracks, southwest communities

Additional considerations: pace of development and redevelopment in corridor, availability of capital budget



North Crosstown BRT: Brentwood to Saddletowne

PROJECT EVALUATION CRITERIA

7

Land Use

6

Customer
Experience

8

Project
Characteristics

21

TOTAL

Timeline: short-term

Mode progression: existing route 19/119 connects Sunridge/Rundlehorn to University of Calgary, implement in-street BRT with transit priority

Estimated construction cost: \$50,000,000

Estimated annual operating cost: \$10,600,000

Estimated annual ridership: 14,000,000

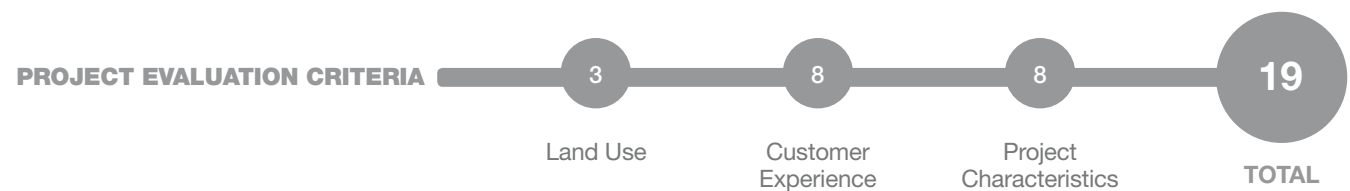
Length: 25 km

Major trip generators: University of Calgary, McMahon Stadium, Alberta Children's Hospital, Foothills Medical Centre, Southern Alberta Institute of Technology (SAIT), Jubilee Auditorium, northeast communities

Additional considerations: pace of development and redevelopment in corridor, availability of capital budget



West Campus Mobility (U of C area)



Timeline: short-term

Mode progression: Improve mobility between the Northwest LRT, U of C, Foothills Medical Centre and Alberta Children's Hospital. Review technology to meet travel demand as West Campus develops

Estimated construction cost: \$30,000,000

Estimated annual operating cost: \$2,000,000

Estimated annual ridership: 2,000,000

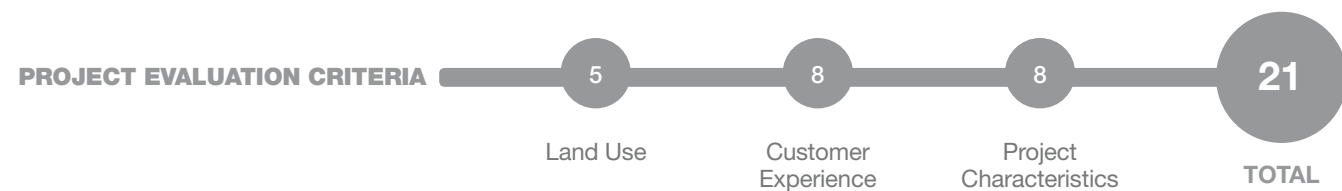
Length: 5 km

Major trip generators: University of Calgary, McMahon Stadium, Alberta Children's Hospital, Foothills Medical Centre, Market Mall

Additional considerations: pace of development and redevelopment in corridor, availability of capital budget



West Campus Mobility (connect to Westbrook)



Timeline: medium-term

Mode progression: Improve mobility between the U of C, Foothills Medical Centre and Alberta Children's Hospital. Review technology to meet travel demand as West Campus develops. Connect to Westbrook transit oriented village.

Estimated construction cost: \$60,000,000

Estimated annual operating cost: \$1,000,000

Estimated annual ridership: 4,000,000

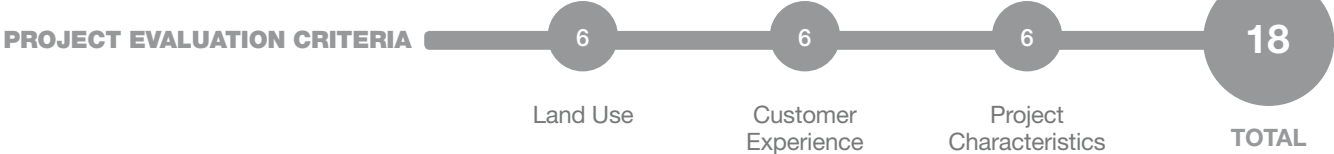
Length: 3 km

Major trip generators: University of Calgary, McMahon Stadium, Alberta Children's Hospital, Foothills Medical Centre, Market Mall, Westbrook transit oriented development

Additional considerations: pace of development and redevelopment in corridor, availability of capital budget



Southwest Crosstown BRT:
Westbrook to 52 Street E.



- Timeline:** short-term
- Mode progression:** in-street BRT with transit priority
- Estimated construction cost:** \$40,000,000
- Estimated annual operating cost:** \$5,400,000
- Estimated annual ridership:** 9,000,000
- Length:** 22 km
- Major trip generators:** Westbrook, Mount Royal University, Quarry Park, Rockyview General Hospital
- Additional considerations:** pace of development and redevelopment in corridor, availability of capital budget

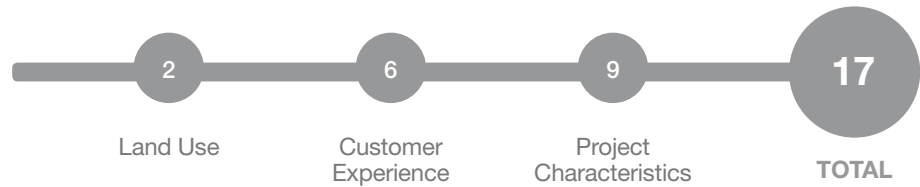


17 Ave SE Transitway

(Forest Lawn)

Timeline: short-term

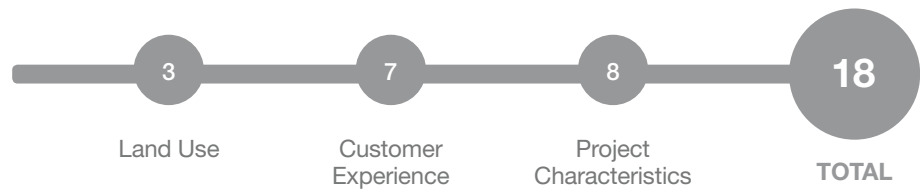
PROJECT EVALUATION CRITERIA



(Bow River-Deerfoot)

Timeline: medium-term

PROJECT EVALUATION CRITERIA



Mode progression: existing in-street BRT, phased construction of median transitway and possible conversion to rail in the future

Estimated construction cost: \$94,000,000

Estimated annual operating cost: \$5,200,000

Estimated annual ridership: 3,000,000

Length: 7 km

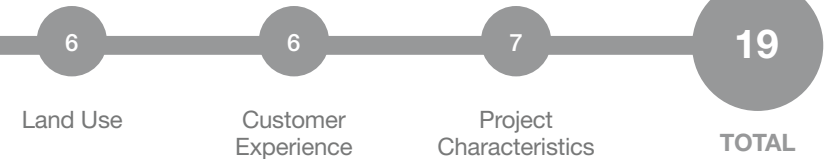
Major trip generators: downtown/Inglewood, International Avenue

Additional considerations: community involved in a thorough design process, community is ready for this project, pace of redevelopment in corridor, mix of uses, density of population and employment, availability of capital budget



52 Street East BRT: Saddletowne to Seton

PROJECT EVALUATION CRITERIA



Timeline: medium-term

Mode progression: existing service is limited, in-street BRT with transit priority

Estimated construction cost: \$38,000,000

Estimated annual operating cost: \$12,400,000

Estimated annual ridership: 16,000,000

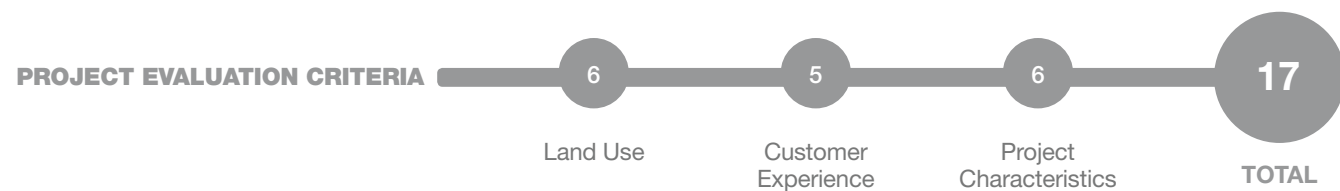
Length: 30 km

Major trip generators: South Health Campus, Seton, Southeast industrial, Northeast communities

Additional considerations: pace of development and redevelopment in corridor, availability of capital budget



Route 305 BRT: West



Timeline: medium-term

Mode progression: upgrade existing in-street BRT, implement transit priority

Estimated construction cost: \$10,000,000

Estimated annual operating cost: \$9,800,000

Estimated annual ridership: 8,000,000

Length: 13 km

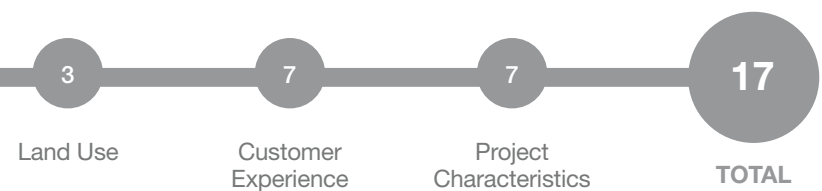
Major trip generators: downtown, Canada Olympic Park (COP)

Additional considerations: pace of development and redevelopment in corridor, availability of capital budget



South LRT Extension to 210 Avenue S

PROJECT EVALUATION CRITERIA



Timeline: medium-term

Mode progression: extend LRT from Somerset-Bridlewood to 210 Avenue South

Estimated construction cost: \$180 million

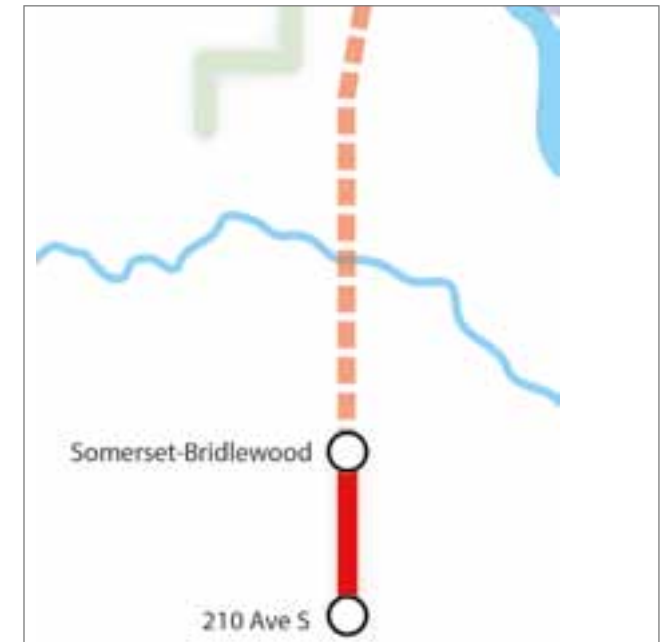
Estimated annual operating cost: \$7,000,000

Estimated annual ridership: 4,200,000

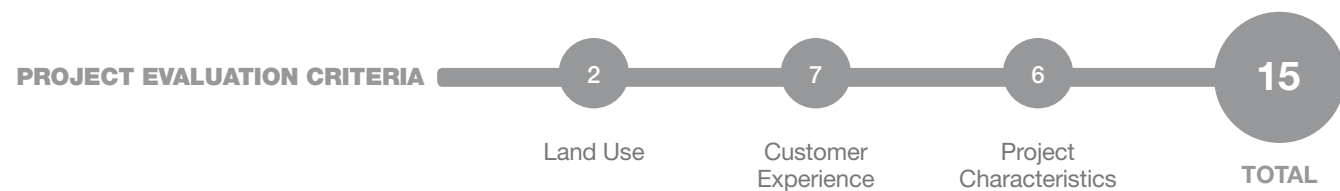
Length: 3.5 km

Major trip generators: new south communities

Additional considerations: pace of development in new south communities, logical mode progression from feeder bus network to LRT, availability of capital budget, may facilitate access to a new LRV maintenance and storage facility



Northeast LRT Extension to 128 Avenue N



Timeline: medium-term

Mode progression: extend existing LRT from Saddletowne to 128 Ave N

Estimated construction cost: \$355 million

Estimated annual operating cost: \$11,500,000

Estimated annual ridership: 4,000,000

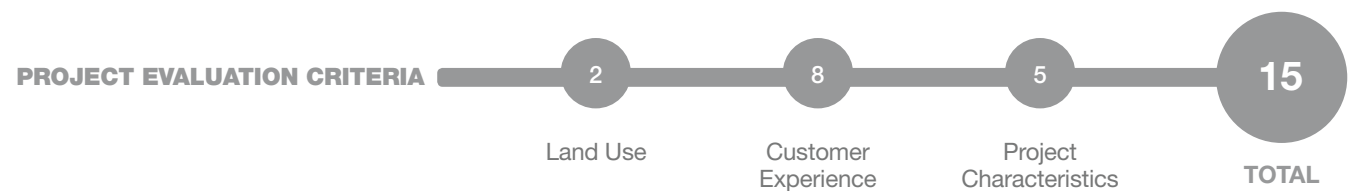
Length: 7.5 km

Major trip generators: new northeast communities, major activity centre at Country Hills Boulevard

Additional considerations: pace of development in new northeast communities, logical mode progression from feeder bus network to LRT, availability of capital budget



Airport Transit



Timeline: medium-term

Mode progression: existing bus service to Northeast LRT; review appropriate technology; construct rail connection through Airport Trail tunnel

Estimated construction cost for rail: \$175,000,000

Estimated annual operating cost for rail: \$7,700,000

Estimated annual ridership for rail: 3,500,000

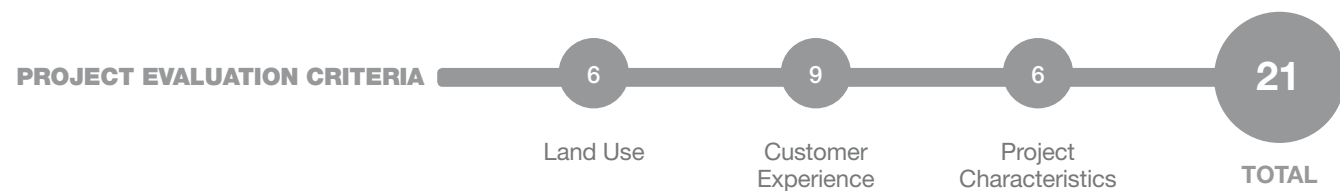
Length: 5 km

Major trip generators: Calgary International Airport (YYC) travellers and employees

Additional considerations: pace of development and redevelopment in corridor, mix of uses, density of population and employment, availability of capital budget



8 Avenue Subway



Timeline: long-term

Mode progression: existing northwest/south LRT shares 7 Avenue with northeast/west LRT; construct tunnel to separate the two routes

Estimated construction cost: \$800,000,000

Estimated annual operating cost: \$8,000,000

Estimated annual ridership: 40,000,000

Length: 2 km

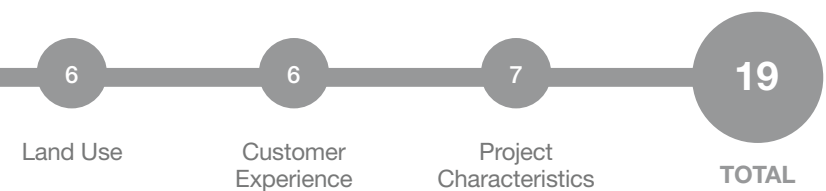
Major trip generators: downtown, commercial tie-ins to stations, future transit oriented villages along Northwest and South LRT lines

Additional considerations: transit operational improvements throughout the LRT system, availability of capital budget



Shaganappi HOV: Bowness Road to Stoney Trail

PROJECT EVALUATION CRITERIA



Timeline: long-term

Mode progression: construct high occupancy vehicle (HOV) lanes to serve growing northern communities, provide cross-town service

Estimated construction cost: \$35,000,000

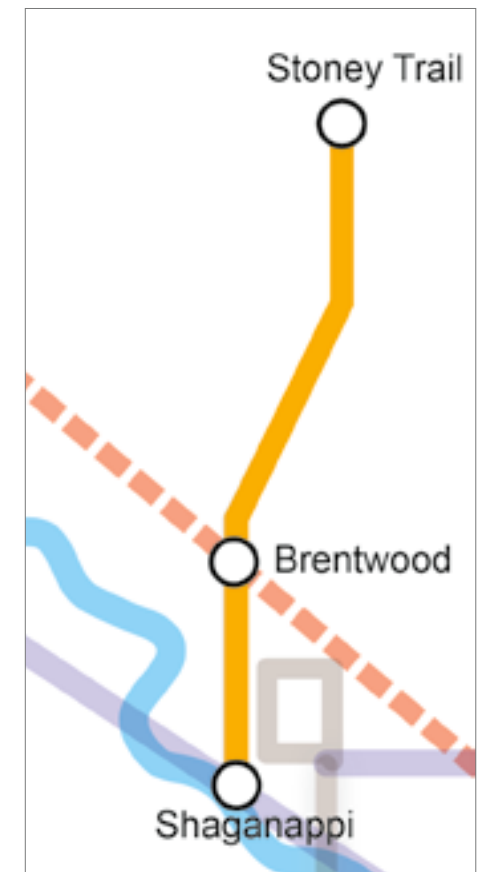
Estimated annual operating cost: \$5,400,000

Estimated annual ridership: 3,800,000

Length: 14 km

Major trip generators: University of Calgary, Market Mall, new northwest communities

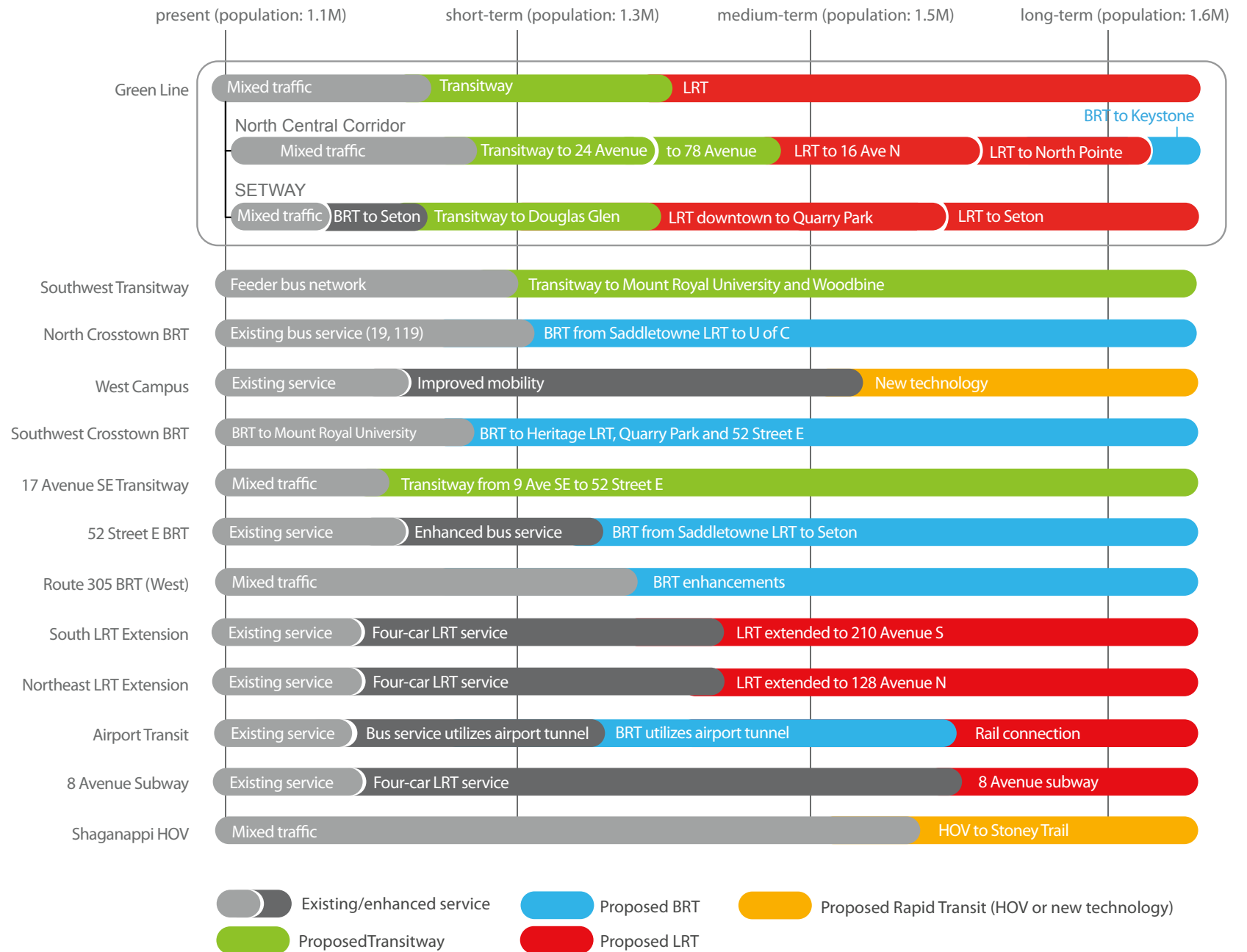
Additional considerations: pace of development and redevelopment in corridor, logical mode progression, availability of capital budget





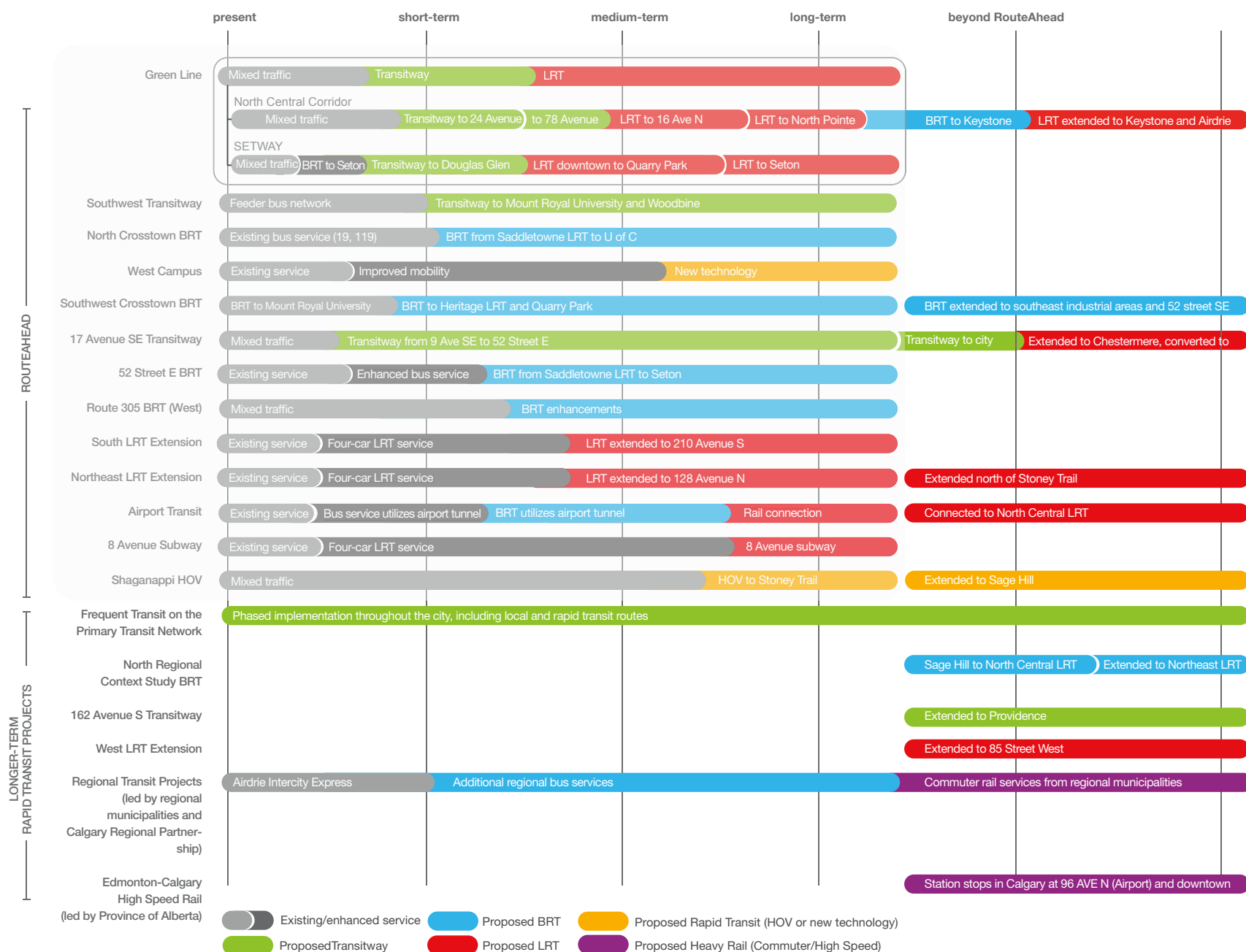
Mode Progression in Rapid Transit Corridors

The exhibit below illustrates the mode progression in several significant corridors.



Mode Progression in Rapid Transit Corridors in the Longer-term (Beyond RouteAhead)

The exhibit below illustrates the mode progression in several significant corridors beyond the timelines of RouteAhead.





special cases for transit service

There are a number of situations in Calgary with unique characteristics where the provision of transit service is not straightforward or special agreements are required for service to be initiated. These include the following:

» **Calgary International Airport:** building on the success of the Route 300 BRT Airport/City Centre and the construction of the Airport Trail tunnel, there is an opportunity to provide improved transit service to the airport.

Enhanced transit service to the airport, particularly rail based, is often viewed as a catalyst to becoming a world-class city. To improve service to the airport will require thoughtful work, coordination of

plans and special access agreements between the landowner (the Government of Canada), the tenants (Calgary Airport Authority) and The City of Calgary.

» **University of Calgary/ Alberta Children's Hospital/Foothills Medical Centre:** the construction of the hospital and further development on the West Campus of the University of Calgary has created a significant employment generator in this part of Calgary. Transit service is hampered by a road network that prevents direct routing, making this a difficult area to serve. Improving transit service to this area will require access agreements with the University of Calgary and Alberta Health Services. This area could also be suitable for the introduction of transportation technology not yet utilized in Calgary and further partnering agreements to improve transit service.

» **Regional Transit:** further work will be required as The City of Calgary continues to work with the Calgary Regional Partnership on transit issues. For example, the introduction of service by the City of Airdrie required considerable assistance and support from Calgary Transit. As the region develops and other adjacent communities consider or introduce transit service, a full range of activities from governance, transit planning, marketing, land use and policy development will continue with the Calgary Regional Partnership. This will occur in the short term given the driving factor of Provincial GreenTRIP funding to the regional municipalities.

» **Centre City:** Calgary Transit's service has largely converged on the downtown given its importance as the prime employment centre in Calgary. A number of projects are or will be ongoing in the coming years which will affect the Centre City. These include the implementation of four-car CTrain service, the introduction of the SETWAY into the downtown, a proposed tunnel under 8 Avenue for NW/South LRT service and a proposed tunnel under 2 Street W for southeast LRT service. As well, business revitalization will continue in Calgary's Beltline, the East Village and West Village. These initiatives will contribute to the need for continued transit planning and network design as Calgary Transit refines service in the Centre City.

Special cases for transit service beyond the RouteAhead timeframe:

» **Regional Transit Projects:** Calgary Transit will continue to work with the Calgary Regional Partnership and regional municipalities to integrate transit services in the city and the region. This will include providing assistance to regional partners on planning and service design, providing space at bus and LRT terminals, coordinating with future commuter rail projects and working towards fare integration.

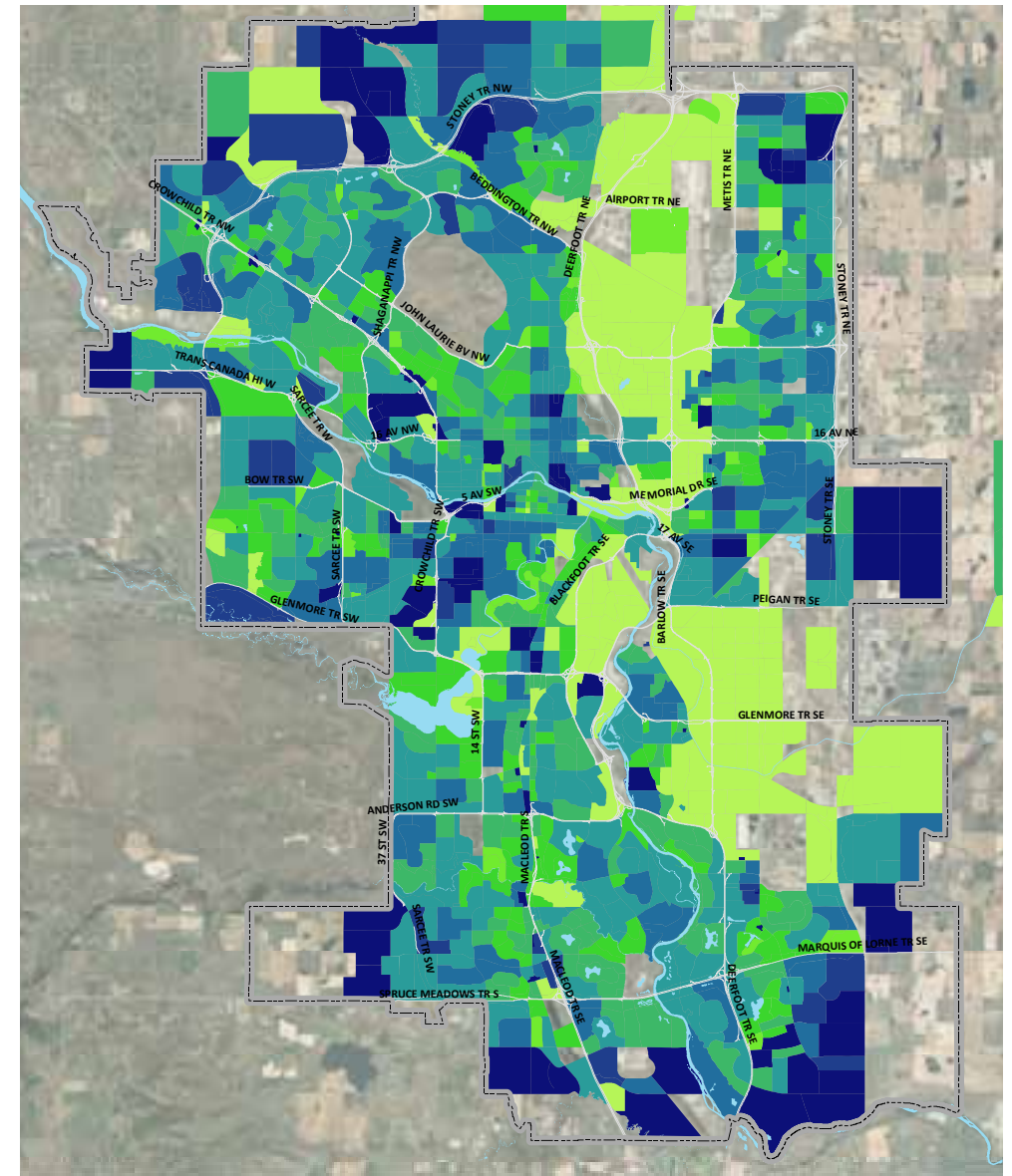
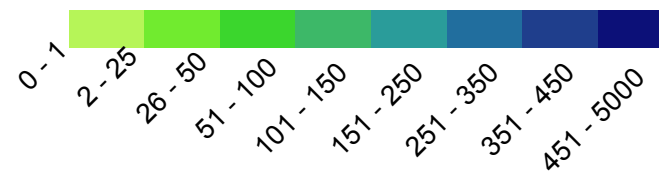
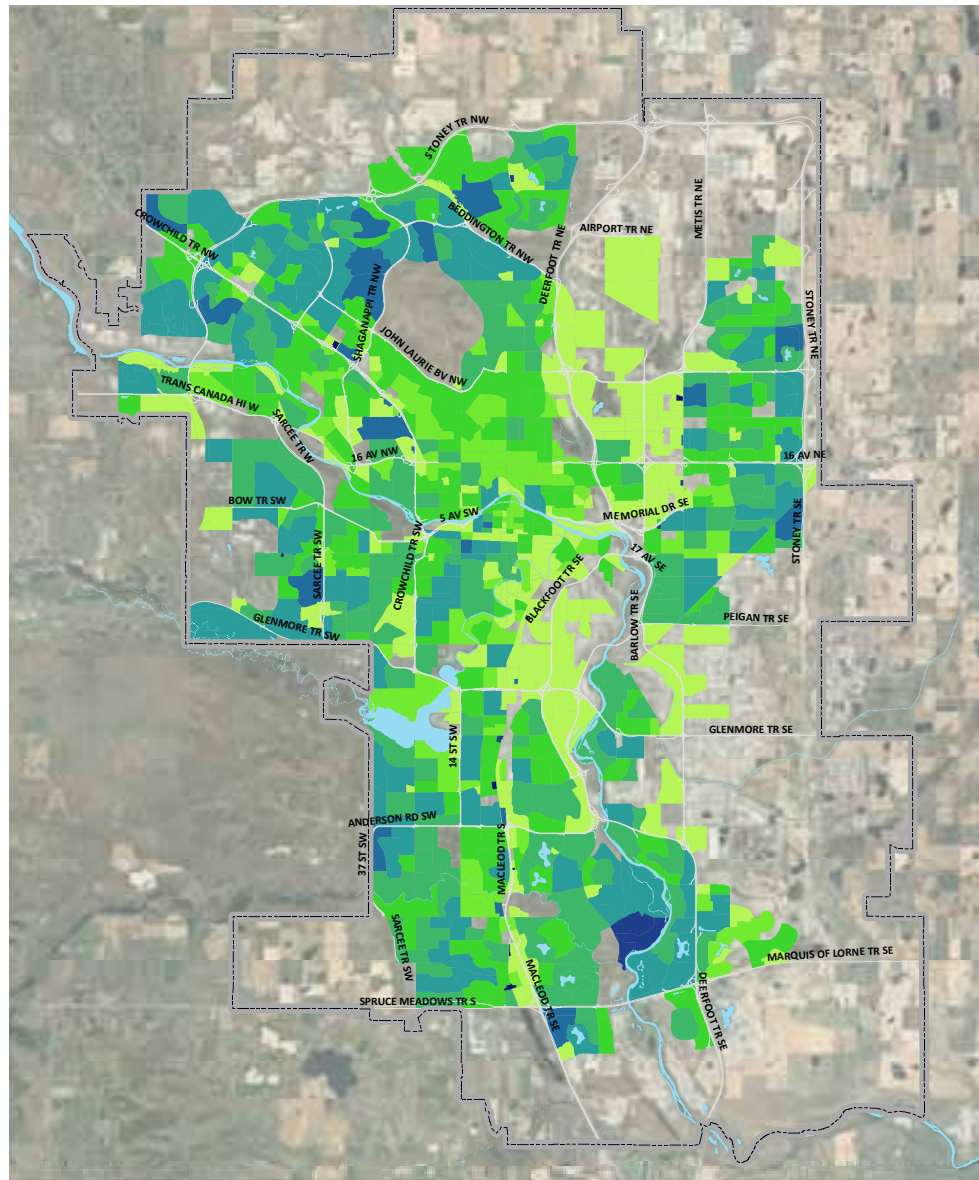
» **Edmonton to Calgary High Speed Rail:** The Province of Alberta has identified locations for future high speed rail stations in downtown Calgary and at 96 Avenue North. The City continues to plan land use and transportation services while accounting for these future station locations.

benefits to customers and communities

The following maps show the projected increase in transit usage from 2006 to 2076. Areas of blue indicate

more transit trips occurring. The rapid transit network will provide improved transit service in the city.

Transit Trips: 2006 Actual Ridership Compared to 2076 Projections



Legend represents ridership during weekday AM peak.

scaling our operations

The fleet, facilities and services that support the delivery of public transit need to be increased to match the expansion of introductory, base and

primary transit networks. In some cases, customer service improvements, such as real-time information, also require maintenance, support and replacement

in the future. This section discusses the “back end support” required for the success of the RouteAhead plan.

Maintaining Current Fleet

Calgary has experienced steady growth in transit ridership since 1994. In 2005, the rate of growth accelerated due to a booming economy. In 2008, an economic downturn caused a small contraction in overall transit ridership following a peak of 95.3 million riders. This period of high growth put immense pressure on the transit system and the amount of fleet required to meet customer demand.

A bus replacement program is in place for current Calgary Transit fleet but service increases due to increased ridership have resulted in buses and light

rail vehicles operating longer than originally planned. This is not ideal as the age of vehicles impacts the reliability of service. Older vehicles are more difficult to maintain; it can even be a challenge to find replacement parts for the oldest fleet. Regardless of age, all vehicles Calgary Transit operates are safe.

Purchasing new vehicles to replace older ones will increase the reliability of Calgary Transit service, reduce Calgary Transit's environmental footprint, improve accessibility by eliminating all high-floor buses in the fleet, and add features for customers.

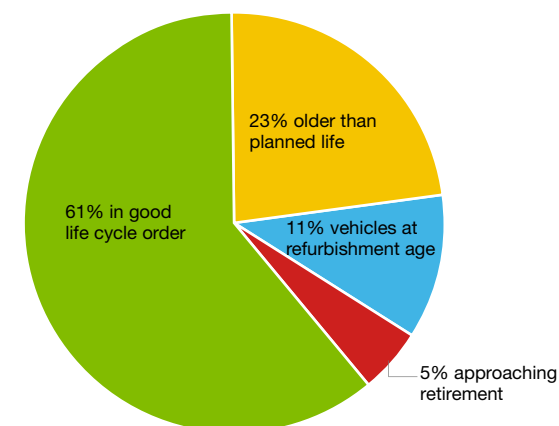
12-Metre Buses

The majority of bus service at Calgary Transit is provided using 12-metre diesel-fuelled buses. The oldest buses currently in operation, purchased in 1977, are well beyond usual retirement age and need to be replaced to improve both reliability and accessibility. The ideal replacement age of a 12-metre bus is 18 years. The chart below shows that 23 per cent of Calgary Transit buses are past retirement and five per cent are approaching retirement (retirement is planned for 2013). Of the remaining fleet, 61 per cent are in good life cycle order

which means a vehicle is at the start of its life or has undergone refurbishment (vehicles are refurbished at the midpoint of their planned life). Refurbishment includes replacing or reconditioning the engine and transmission, extensive body work and renovating the interior.

Calgary Transit is continuing to purchase new buses to replace vehicles past retirement and by 2014, all 12-metre buses at Calgary Transit will be in good life cycle order or undergoing refurbishment.

12-metre bus fleet status



Light Rail Vehicles

Calgary Transit is still operating light rail vehicles (LRVs) that began service in 1981 on the first CTrain line. These older trains break down three times as often as newer trains. The number of disruptions due to broken down trains could be reduced significantly by retiring older trains earlier and replacing them with new vehicles.

The ideal replacement age for LRVs is 30 years. The chart below shows that 13 per cent of Calgary Transit LRVs are past

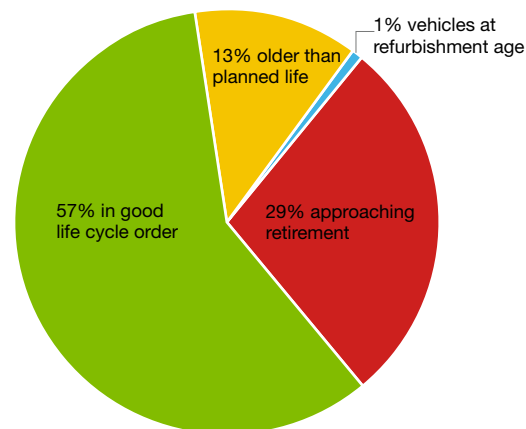
retirement and 29 per cent are approaching retirement (retirement is planned for 2015-2018).

Calgary Transit will begin purchasing LRVs to replace vehicles past retirement and vehicles approaching retirement. Initially, Calgary Transit considered refurbishing LRVs at the 30-year mark instead of retiring them but additional investigation showed that for both financial and reliability reasons, vehicles should be retired after 30 years of service.

Community Shuttle Buses and 18-Metre Buses

The community shuttle fleet and articulated (18-metre) bus fleet at Calgary Transit are all in good life cycle order now but will require replacement and/or refurbishment beginning as soon as 2016. The replacement of these vehicles is included in Investing in Mobility.

Light rail vehicle fleet status



Current Facilities

Facilities include maintenance garages, CTrain stations, sub stations that provide power to the LRT line, tunnels, and elevated structures such as bridges. All of these components need to be in a state of good repair for customers to feel safe, welcomed and for service to be reliable.

Maintenance Facilities

The condition and capacity of maintenance facilities impacts service reliability. If maintenance cannot be done effectively or in a timely manner, service reliability and fleet availability will be impacted.

Constructing new maintenance facilities and upgrading existing facilities will increase the reliability of bus and CTrain service. For example, if buses are stored indoors, customers waiting for a bus on cold winter mornings will see fewer delays due to cold start-ups and mechanical failures.

Almost all of Calgary Transit's maintenance facilities are in need of upgrading, refurbishment and/or replacement. Not only do existing facilities need upgrading, new facilities are required to address storage shortfall and maintenance demands. No additional bus garages have been constructed since 1983 when the bus fleet was less than half the current number.

Current Bus Facilities

Calgary Transit has three bus storage and maintenance facilities:

» Spring Gardens – this maintenance facility was built in 1975 and is used to store and maintain 12-metre buses. Additional storage was constructed in 2003.

» Anderson Garage – this maintenance facility was built in 1978 and is used to store and maintain both 12-metre buses and light rail vehicles.

» Victoria Park – this maintenance facility was built in 1983 and is used to store and maintain 12-metre buses, 18-metre buses and shuttle buses.

All three facilities are aging and are over capacity. The chart below shows the design capacity and the actual number of buses currently being stored and maintained at each facility.

Approximately 185 buses are currently being stored outside. In Calgary's climate, storing vehicles outside is not desirable or economical because in cold weather (below -15 degrees Celsius) buses must be left running all night to ensure that they will be available for service

the next day. Garages that are over capacity also result in less efficient operation as considerable staff time and fuel is spent shuffling vehicles within the facilities.

A building addition to the Spring Gardens bus facility is in the preliminary design stage and will increase the interior bus storage capacity at this location by 100 buses. However, this addition will not eliminate all outdoor storage and a new facility will be required within the next five years or the impact of the current

shortage of maintenance facilities will continue to escalate.

Depending on where they are located, new facilities may also reduce the amount of time transit vehicles are traveling with no passengers between the garage and the point where revenue service begins or ends (deadhead times). Currently, deadhead times for 12-metre buses account for approximately 15 per cent of Calgary Transit's 12-metre bus operating hours. This

has been increasing with the geographical growth of Calgary and could be reduced by constructing new facilities closer to route start/finish locations which are generally located in the outer suburbs.

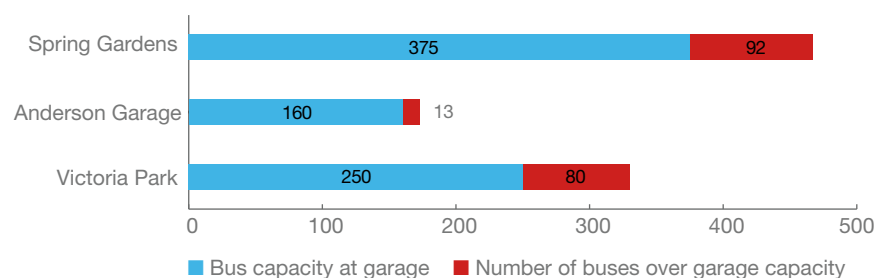
The strategic decision to move Calgary Transit's bus fleet to compressed natural gas (CNG) impacts the facilities plan. CNG fuelled buses are not compatible with current facilities. After evaluation, it was determined that a new building is less expensive than modification of existing buildings.

Current Light Rail Vehicle (LRV) Facilities

Calgary Transit has three garages that store and/or maintain LRVs:

- » Anderson Garage – this maintenance facility was built in 1978 and is used to store and maintain LRVs. It also stores and maintains 12-metre buses.
- » Haysboro – this facility was retrofitted as a temporary storage facility in 1984 and is used only to store LRVs.
- » Oliver Bowen Maintenance Facility (OBMF) – this maintenance facility was built in 2009 and is used to store and maintain LRVs.

Bus storage and maintenance facilities



The chart below shows the design capacity for each LRV facility and the actual number of LRVs currently being stored and maintained at the garage.

Currently 42 LRVs are being stored outside. LRVs must be left powered up all night in cold weather (below -15 degrees Celsius) to ensure that they will be available for service the next day.

The Oliver Bowen Maintenance Facility is currently being expanded to increase LRV storage and eliminate outside storage of existing LRVs

by the end of 2013. This expansion only addresses the storage of current LRV fleet. As the LRV fleet grows to accommodate service increases and four-car CTrain service, LRVs will have to be stored outside again.

Calgary Transit's LRV fleet has grown by 134 per cent since 1981 and maintenance capacity has only increased by 30 per cent. This has resulted in limited maintenance capacity for LRVs. A new garage will be required by 2020 to maintain and store the growing fleet of LRVs.

Service Delivery of Four-Car Trains

To begin four-car CTrain operation, 30 additional LRVs need to be purchased. The Oliver Bowen Maintenance Facility, as the newest facility built, was designed to accommodate four-car trains. However, the majority of four-car service will be required on the 201 route (Northwest and South lines), which is generally supported by Anderson Garage and Haysboro.

Four-car service delivery from Anderson Garage will be problematic. It will be extremely labour-intensive and time consuming to service and assemble

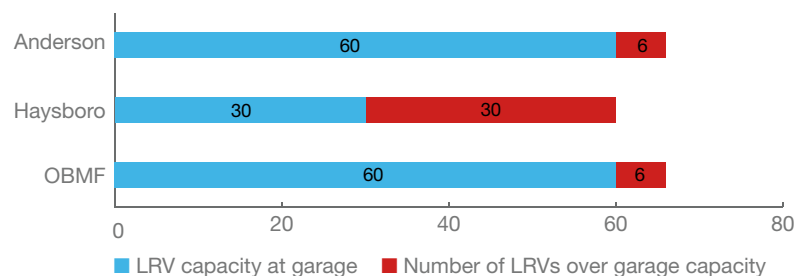
four-car trains simply because the length of the storage facility does not support four-car operation. Additional four-car trains could be supplied from Haysboro storage, but that facility is also not configured for four-car train storage.

In the future, given the current design and capacity limitations of the garages, most four-car trains will have to originate from OBMF. This will significantly impact daily operating cost due to the deadhead time required for these trains to begin service on the

Northwest and South lines. Issues with four-car train service delivery reiterate the need for, and are a consideration in the location of an additional LRV maintenance facility.

As a result of this misalignment of storage facility and demand, the construction of a new storage and maintenance facility on the Route 201 will be an infrastructure priority.

LRV storage and maintenance facilities



“Helping to fix things to look better”



“Keep employing friendly staff!”



"Maintain and improve, i.e. grow with the City. :)"



"Keep LRT stations cleaner to discourage vandalism"

Current LRT Infrastructure

LRT infrastructure includes the track, traction power, communications systems and signals. Some of Calgary's LRT infrastructure is over 30 years old. The first LRT line from Anderson Road to 7 Avenue S.W. opened in 1981, the northeast line opened in 1985 and the northwest line to University station

opened in 1987. Although many stations have been upgraded to four-car platforms and traction power upgrades for four-car trains are taking place, this has not addressed the rest of the aging infrastructure at most stations. Much of the original buildings, track, signal and power systems are still in place and should

be upgraded to increase reliability. For example, most of the poles on the traction power system are original and only some sections of track have been replaced over the years. Regular maintenance is ongoing to ensure the LRT system is in a state of good repair but further upgrades should be done to increase the reliability of the system.

Calgary Transit will be focusing on ways to improve operational flexibility on the CTrain system. Passenger emergencies, mechanical failures and other incidents can cause CTrains to be stopped and the ability of other trains to get around a stopped train affects the operation of the entire

system. Calgary Transit has identified switch, track and signalling improvements to retrofit the system to minimize disruptions caused by stopped trains.

Fleet and facilities to support new transit service

AN ANNUAL INCREASE OF 125,000 HOURS OF SERVICE WILL BE REQUIRED TO MEET TARGETS IN THE CTP

SERVICE HOUR INCREASES

ADDITIONAL FLEET AND SERVICE SUPPORT STAFF WILL BE REQUIRED TO PROVIDE CUSTOMER-FOCUSED SERVICE

INCREASE IN FLEET

INCREASE IN SERVICE SUPPORT

MORE BUS AND LRV FACILITIES AS WELL AS MAINTENANCE STAFF WILL BE REQUIRED TO PROVIDE RELIABLE SERVICE.

INCREASE IN FACILITIES

INCREASE IN FLEET AND FACILITIES STAFF

The following targets have been identified in Calgary 2020 and the CTP:

- » By 2020, 2.6 hours per capita of transit service is provided annually.
- » By 2040, 3.7 hours per capita of transit service is provided annually.

In 2012, Calgary Transit delivered 2.4 service hours per capita. To meet

future targets, substantial increases in service hours will be required (about 125,000 hours per year). These increases will impact all areas of Calgary Transit because additional service hours will require additional support services and fleet. As fleet increases, additional facilities and maintenance staff will also be required.

Fleet

The table below shows the projected fleet growth by vehicle type to support this additional service.

The total growth shown is for new fleet purchases only. An ongoing fleet replacement program will be required so that vehicles are replaced at the appropriate time to ensure reliability of the fleet.

Currently, about half of Calgary Transit's customers travel emissions-free on the CTrain.

Some of the new LRVs in the fleet projection beyond 2020 will be required to operate the new LRT line (North Central/SETWAY). This new line will provide Calgary Transit the opportunity to review other types of rail-based technology, such as low-floor LRVs.

2.4 annual service hours per person is the number of hours all of the trains and buses drive in a year (2.67 million hours) divided by the population of Calgary (1.1 million). Service hours per person is an indicator of the quantity of transit service provided to the community. It is one of many performance measures that Calgary Transit uses to evaluate system performance. Others include: transit trips per capita or person, passengers per hour (of service), net operating cost per hour, etc.

Future transit vehicle fleet requirements to achieve 30 year transit service objectives

	Annual Service Hours	12-Metre Bus	18-Metre Bus	Community Shuttle Bus	Total Buses	LRVs
Current	2,673,000	791	63	116	970	192
2020	3,439,000	925	100	190	1,215	240
2030	4,689,000	1,300	145	245	1,690	335
2040	5,939,000	1,650	170	310	2,130	390
Total Growth	3,266,000	859	107	194	1,160	198

New Vehicle Technology and Alternative Fuel

Transit has a number of positive impacts on the environment including: reduced greenhouse gas (GHG) emissions, reduced land consumption and reduced energy consumption.

One of the ways Calgary Transit can reduce its

environmental footprint is through alternative fuels. In addition to the wind power purchased for the CTrain, alternative fuels are regularly reviewed by Calgary Transit. Compressed natural gas (CNG) buses are being piloted and 12-metre

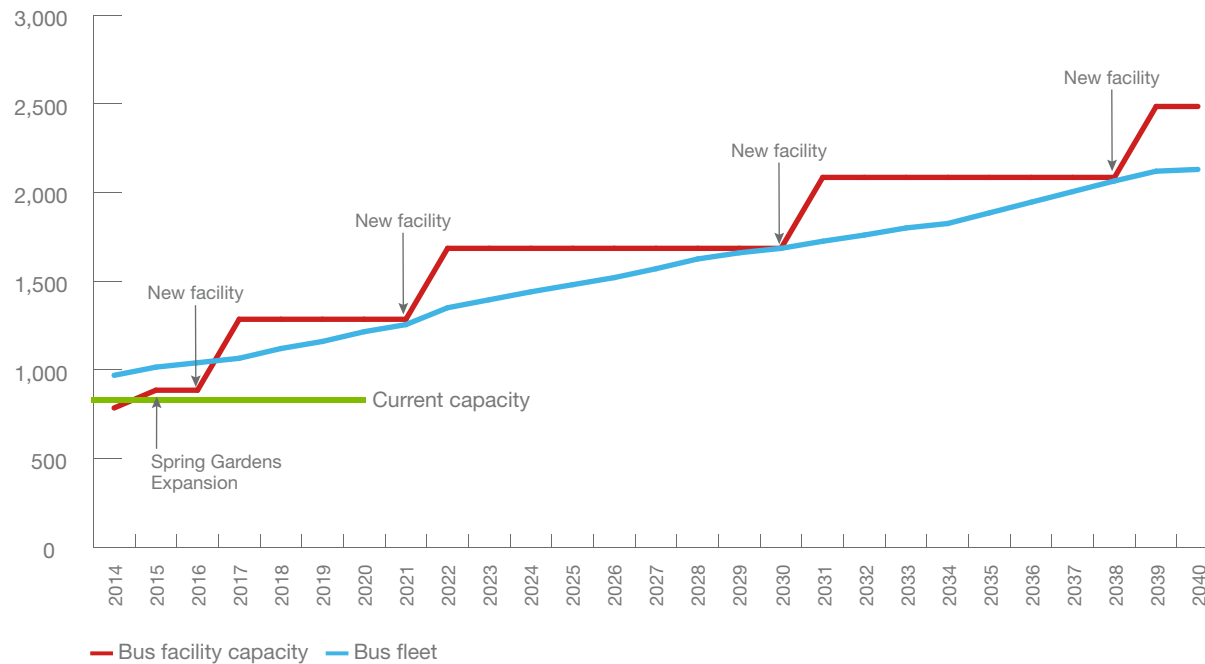
hybrid electric buses are also being investigated. Other considerations taken into account when purchasing new fleet are cost-effectiveness, impacts on reliability, and net environmental impacts (including maintenance considerations).

Maintenance Facility Requirements

As the number of vehicles increases, Calgary Transit will require new facilities and staff to maintain the additional fleet. New bus facilities will be required to ensure reliable transit service. One 12-metre bus can provide approximately 2,500 hours of transit service each year, which means that Calgary Transit will need to add approximately 45 buses to the fleet annually to meet the target of the CTP. Each new facility will accommodate approximately 400 buses. This means that by 2040, four new maintenance facilities will be required to store and maintain the additional fleet.

The blue line in the chart at left shows the increase in Calgary Transit buses that will be required in the future to support an increase of 125,000 service hours per year beginning in 2015 and

Calgary Transit projected bus fleet growth and facility requirements (2015 – 2040)



continuing through to 2040. The green line in the chart shows the current capacity of Calgary Transit bus facilities.

The chart shows that current fleet exceeds the capacity of garages which results in buses having to be stored outside. The required growth of facilities is shown by the red line in the chart. Where the line is flat, there is sufficient capacity in the garages to properly store and maintain all fleet so facility size will stay constant. As fleet

approaches the capacity of the garages, Calgary Transit will begin planning and constructing a new facility to accommodate a maximum of 400 buses.

This is shown by the sharp increases in the red line. New facilities constructed at the appropriate time will ensure reliable service delivery, resulting in fewer delays for customers and more efficient operations.

LRV fleet will need to grow from 192 to approximately 390 in order to:

- » Contribute to the CTP target of 3.7 hours of transit service per capita.
- » Provide four-car CTrain service to address capacity issues.
- » Provide fleet for new LRT lines and extensions.

Based on a design capacity of 150 LRVs for a new LRV facility, two new facilities will be required in the next 40 years to store and maintain LRVs and to accommodate four-car train service.

The replacement plan for LRVs cannot be considered in the same way as a bus replacement plan because the lead-time to procure and put new LRVs into service is approximately two years. Fleet growth will need to be completed in steps because there are a limited number of LRV suppliers and most vehicle manufacturers will not initiate a production line for an order less than 40 or 50 vehicles.

As the number of service hours per capita increases and the length and number of LRT lines grow, so does the number of vehicles required to provide the service. Subsequently, as fleet increases, facility requirements will also increase.



Location of Facilities

Current and future Calgary Transit maintenance facilities



*Additional LRV garage required
for North Central/
SETWAY
(Location TBD).*

Calgary Transit has already begun planning for new bus and LRV maintenance facilities. Because LRVs and buses are significantly different in terms of operating and maintenance, future bus and LRV facilities should be separate facilities.

The map at left shows existing locations of bus, and LRV facilities and the proposed facilities for the next 20 years. At least one additional LRV facility will be required for the new North Central/SETWAY LRT line. This is not shown on the map as the location of this facility is still being determined.

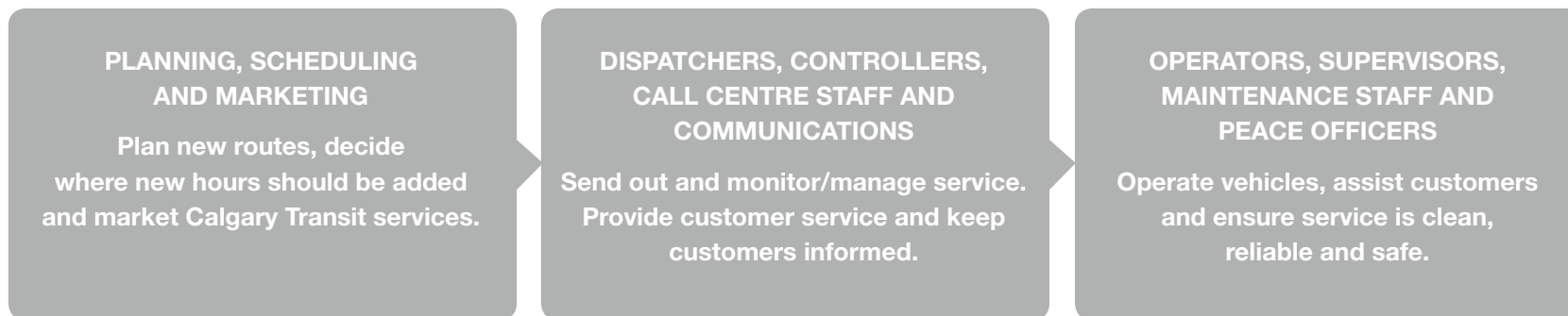
supporting the customer experience

Service Support

The day-to-day operation of any large transit system requires a significant amount of staff and a key factor in providing

customer-focused, reliable transit service is service support. With every increase in service hours,

people are required to plan, schedule, dispatch and operate the service. New operators also need to be trained.



Calgary Transit currently employs over 3,000 people. Almost 2,000 are front-line transit operators, approximately 600 are maintenance staff, and a significant number support the delivery of service in other ways. To improve the customer experience at Calgary Transit, staff will be required in all areas of service support.

With the rapid growth of public transit in the last decade, staffing has focused largely on additional front-line transit operators, peace officers and maintenance staff to ensure that new transit services were being provided.

This has resulted in extremely high employee-to-supervisor ratios and low staff resources in some back-end or service support functions. For example, in 1995 a target ratio of 35 transit operators per supervisor was set to ensure proper supervision/monitoring of service and to effectively engage staff. Since that

time, the ratio has risen steadily and the current ratio is now 70 operators for each supervisor. This ratio makes it challenging for supervisors to perform meaningful and effective employee engagement. Calgary Transit will need to examine the current ratio of operators to supervisors and the current supervision model to identify improvements in this area.

A number of issues exist with respect to staff demographics, recruitment, retention and development of staff:

» The average age of management staff at Calgary Transit is 49 years (50 per cent are over 50 years of age) and 31 per cent have over 20 years of service at The City. In the coming years,

there will be a need for supervisory development and recruitment to replace management employees.

» The average age of union staff is 47 years and the average tenure at The City is only 12 years. It would appear that Calgary Transit is attracting new employees who are experienced, but this

may present challenges, particularly in more physically demanding or shift work positions. This is an area that needs to be analyzed further and work must be undertaken to understand the potential challenges.

» During the 2006 to 2008 economic boom in Alberta, Calgary Transit was challenged in terms of recruiting sufficient staff to deliver service. Recruitment and training of transit operators was intense –

up to 500 new operators were being recruited and trained each year. This was exacerbated by staff turnover. With the booming economy, there was up to 20 per cent turnover of Calgary Transit employees and over 80 per cent turnover of new hires. As a result, it is important that recruiting and training staff have adequate support to hire and train new transit operators and that there are recruitment and retention strategies (particularly

in an economic boom) to ensure enough operators can be hired.

Service support is a key part of providing customer-focused, reliable transit service. To improve the customer experience at Calgary Transit, considerable effort will be required to ensure that resources and training are in place in all areas of service support.

New technologies

New technologies will help Calgary Transit deliver a more customer-focused service. Real-time information for buses will provide customers with accurate information on the location and the arrival times of buses. Staff are required to ensure this information reaches customers in a timely manner. Electronic fare collection will offer customers a more convenient way to pay fares. These new technologies will generate large amounts of data that will be used to improve

schedule adherence and connections. Additional staff will be required to process this information and ensure it is being used to its full potential. These new technologies will also add additional systems to Calgary Transit's fleet. Maintenance staff will be required to ensure that the systems are reliable and do not interfere with the regular operation of transit vehicles.

Depending on when these technologies are introduced, they will require lifecycle maintenance and refurbishment just like the many other pieces that make up Calgary Transit's service delivery.



visions, directions and strategies

Vision

In 2040, Calgary Transit's network addresses the city's growth through four categories of service: introductory, base, primary transit network and rapid transit service. The

primary transit network accommodates added population, employment and retail growth in activity centres and corridors as envisioned in the Municipal Development

Plan. The rapid transit network has expanded to connect more major trip generators, activity centres and corridors outside of the Centre City. There are strong connections to the

Calgary International Airport and to the Calgary Regional Partnership's regional transit services.

direction

N1: Complete capital projects that are critical to the existing network.

Strategies	Benefits	Costs
1. Procure new CTrain vehicles to enable the operation of four-car trains by 2015.	Crowding issues on the existing network will be addressed, and future employment and residential growth in transit-oriented development will be supported.	\$\$\$
2. Continue the four-car platform extension program and refurbishment of older stations to enable the operation of four-car trains by 2015.	Crowding issues on the existing network will be addressed, and future employment and residential growth in transit-oriented development will be supported.	\$\$\$
3. Procure more buses to address growth in ridership, improve reliability, and increase accessibility.	There will be fewer overloaded buses and there will be more capacity, particularly for customers who live in established communities closer to the Centre City.	\$\$\$
4. Leverage public-private partnership funding to build new maintenance facilities to store and maintain the transit fleet.	Service reliability will improve, particularly in cold weather when buses and trains can be stored indoors. Emissions will be reduced if vehicles can be stored indoors.	\$\$\$
5. Continue investments in fleet and facilities for service on the existing network.	Ongoing life-cycle investments on the existing network will improve the overall environment for customers while travelling on the system, will improve service reliability, and will ensure customer safety and comfort.	\$\$\$



“Crowding on South LRT”



“Vehicle replacement, ordering, customization”



“Please make Ctrain platform extensions a priority as Calgary desperately needs more cars per train.”

direction

N2: Initiate design and construction of the highest-priority capital projects on the rapid transit network.

Strategies	Benefits	Costs
1. Design and construct the highest-priority projects in the rapid transit network based on The City's Investing In Mobility 10-year infrastructure plan.	Crowding, reliability and travel time issues will be addressed and improvements will result in higher ridership in priority corridors. Capital investments will encourage sustainable land development in station areas.	\$\$\$
2. Rank future transit capital projects using transparent evaluation criteria, starting with The City's 10-Year Investing In Mobility Plan.	There will be a clear list of priority projects for future funding based on transit-supportive principles.	\$
3. Initiate preliminary design (pre-design) of projects on the funded and unfunded list in The City's 10-year Investing In Mobility plan.	Land acquisition risks will be reduced. Projects will be ready for implementation when sufficient funding is identified. Customers will see service improvements sooner.	\$\$
4. Conduct functional planning studies, including public engagement, for all rapid transit projects for which studies have not yet been completed.	There will be better definition of station/stop locations, interfaces with adjacent land uses, and transit priority/street improvements. Land requirements and cost estimates will be refined. In several cases, financing proposals with partners can be explored.	\$\$
5. Develop guidelines/standards for design of transitway facilities. Use modern urban design principles and apply environmental best practices.	City staff, consultants and contractors will be able to accelerate planning and design of future facilities. The interface between facilities and adjacent developments and communities will be well-designed.	\$\$
6. Confirm philosophy of future LRT lines through public engagement. Review tradeoffs of building at-grade (i.e. surface LRT) and having a more extensive system versus grade-separated (i.e. subway or elevated LRT) with a limited network.	The design of future LRT facilities can move ahead with greater certainty regarding public/customer preferences.	\$

direction

N3: Establish service standards for the evolution of introductory, base and primary transit network service.

Strategies	Benefits	Costs
1. Establish and communicate service standards for introductory transit service in new communities.	Developers and new home buyers will understand the conditions under which service will be introduced (e.g. number of occupied homes, riders per hour on service, and extent to which development has met conditions for efficient transit service delivery).	\$
2. Communicate principles for the progression/evolution of transit service in frequency, span of service, days of week served, stop spacing, and other service attributes. Establish separate standards and explicitly budget for the introductory, base, and primary transit networks.	Citizens will understand the reasons for changes to service and the conditions under which service improvements can be made. It will be clearer to customers that investments are being made in the primary transit network, consistent with the goals of the Calgary Transportation Plan.	\$
3. Conduct a pilot project to investigate the benefits and costs of late-night transit service on key primary transit routes.	Underserved demand for affordable travel options in late night/early morning hours will be addressed. Centre City will continue to be a vibrant and safe place to work, visit, live and play during the evening and early morning hours.	\$-\$\$\$
4. In the long term, establish a frequency of at least 30 minutes on the base transit network.	Non-users will be attracted to transit service and existing customers will have more travel options in off-peak periods, resulting in higher ridership.	\$\$\$



“Late night bus and train service”



“We really need to improve the hours of service meaning

direction

N4: Implement “Yield to the bus” legislation and ensure HOV/transit-only lanes are enforced.

Strategies	Benefits	Costs
1. Implement “Yield to the bus” legislation.	The movement of people per hour on the road network will be higher. Reliability and travel time will be improved.	\$\$
2. Educate citizens on the benefits of yielding to the bus and transit-only lanes.	Benefits of yielding to the bus and transit-only lanes will be communicated to citizens.	\$
3. Educate citizens on the need to reserve the use of HOV/transit-only lanes for legal users and improve enforcement.	Improved compliance of appropriate HOV/transit-only lane use.	\$
4. Evaluate every capital project for opportunities to implement transit priority improvements. Promote the effectiveness of transit-only lanes, queue jumps, transit signal priority, and other transit priority measures.	Opportunities for transit priority will be identified. Benefits of transit priority will be communicated to citizens.	\$



“Buses need to take priority over cars – more bus lanes please.”



“Bus only lanes – yield to buses mandatory”

direction

N5: Expand frequent service on the primary transit network.

Strategies	Benefits	Costs
1. Expand frequent service on the primary transit network (bus and LRT) beyond the existing corridors: a) Red line (South-NW LRT), b) Blue line (NE-West LRT), c) Route 3 corridor north of Heritage Drive	Customers will be able to “show up and go” without consulting a schedule. Connections will be quick and convenient, reducing the overall travel time. System ridership will increase.	\$\$\$
2. Review the current design standard for 15 minute single-tracking on the CTrain network to improve service during disruptions and to ensure frequent service can be delivered reliably on the CTrain network.	The City can identify and prioritize special track work needed to facilitate diversions around trains that are stopped while in service. Frequency will be higher than it is currently during single-tracking of trains. Customers will be able to rely on 10-minute frequency, 15 hours a day, seven days a week on the CTrain network even during necessary maintenance.	\$-\$\$\$
3. Review the benefits and costs of upgrading the signal system to improve frequency and reliability on existing and future CTrain lines.	The frequency and reliability of service on the CTrain network will be improved. Options will be identified before significant lifecycle maintenance/replacement of existing signaling infrastructure is required.	\$-\$\$\$



“Upgrade the existing LRT infrastructure to make it faster and easier to deal with service disruptions on the mainline”



“Updated technology, more efficient trains”

direction

N6: Ensure supporting facilities and resources are scaled to match future projects and service investments in introductory, base and primary transit network plans.

Strategies	Benefits	Costs
1. Address the deficit between the Calgary Transportation Plan targets and current annual investment levels by implementing a minimum annual addition of service.	Workforce planning can be done to reduce the timeline between decisions (service cuts/restored service/additions) and implementation. There will be less overtime required, service delivery will be more efficient, and customers will see more consistency in service delivery.	\$\$\$
2. Increase support behind the scenes to enable service delivery. Add service support (planners, schedulers, dispatch, controllers, supervisors) and maintenance support (mechanics, building maintainers, station and vehicle cleaners, foremen/supervisors). Develop a standard package of vehicles/staff/training/tools and equipment required for every added kilometre of CTrain track, transitway and bus service.	With increases to the transit network and hours of service, adequate support services will be in place to ensure effective delivery of service.	\$\$\$
3. Implement a new operator recruitment model to address growth of the system and demographic changes (increasing rate of retirement).	Ensure that sufficient operator recruitment occurs to adequately meet increases in service and offset operator turnover.	\$
4. Identify high-ridership transit corridors that are not part of the primary transit network that require investment in capital infrastructure to improve service reliability and travel speed for consideration in future capital programs.	Speed and reliability of travel on the base transit network will be improved.	\$-\$\$\$
5. Review approaches used by other agencies regarding maintenance facility efficiency (e.g. centralized body shop, size of facilities) and implement best practices.	It will cost less to deliver service and working conditions will be improved.	\$-\$\$\$
6. Test and adopt new CTrain track, signals, traction power and vehicle technology through pilot projects and in-field testing using scheduled maintenance windows.	It will be more efficient to install, test and monitor effectiveness of new technologies.	\$
7. Review operator training practices and introduce greater use of technology (e.g. e-learning and simulators).	The training process will be more effective and efficient.	\$\$
8. Identify cost-effective means of introducing alternative fuels for buses.	Improvements will help meet The City's emissions targets and improve the environmental footprint of public transit.	\$

direction

N7: Support the introduction of regional transit service to/from Calgary.

Strategies	Benefits	Costs
1. Integrate with regional transit services by working with the Calgary Regional Partnership, Airdrie Transit, the Government of Alberta and the Calgary International Airport on connections to the rapid transit network.	Customers will have quicker, easier transit options in the Calgary region. There will be less reliance on the automobile for trips to and from Calgary.	\$\$
2. Provide transit planning and service design support to the Calgary Regional Partnership and municipalities in the Calgary region.	Regional municipalities will benefit from efficiencies in transit planning expertise. Regional transit services will be introduced sooner, and the interface between Calgary Transit and their services will be well-designed.	\$
3. Work with the Calgary Regional Partnership to identify right of way requirements for future regional transit services, including commuter rail facilities.	The cost of implementation of commuter rail by Calgary region municipalities will be reduced through proactive planning.	\$
4. Work with Calgary Regional Partnership on an accessible transportation strategy for people with disabilities in the region.	Service for people with disabilities will be expanded in the Calgary region.	\$\$
5. Review opportunities, benefits and costs of connections using portions of the provincial transportation utility corridor (TUC) for cross-town and regional transit service.	If appropriate, the provincial right of way in the TUC could be used for long-haul bus service, optimizing the use of existing land/facilities.	\$-\$\$\$



“Feeder routes into neighbouring towns, i.e. Cochrane, Airdrie, Okotoks and Chestermere.”



“Access Calgary service outside Calgary.”

direction

N8: Review long-range planning to ensure alignment with city and regional land use plans.

Strategies	Benefits	Costs
1. Continue planning for additional rapid transit facilities. Align network growth with The City of Calgary's growth management direction, the Framework for Growth and Change.	Functional plans for long-term projects, such as: <ul style="list-style-type: none"> » Keystone area structure plan » Providence area structure plan/Somerset-Bridlewood/Seton cross-town rapid transit <p>will give developers certainty regarding the location of stations. Calgary Transit and other City business units will be able to provide direction to developers regarding street, pedestrian, cycling and transit networks in the community.</p>	\$
2. Conduct further study to review the benefits and costs of urban renewal through other additional transitway/streetcar/tram projects not shown in the rapid transit network. Work with Planning, Development and Assessment to ensure alignment with strategic land use planning.	Transitway/streetcar/tram projects can be incentives for redevelopment of areas that are underdeveloped. Alignment with land use planning will ensure there is sufficient market for current transit-oriented development areas (e.g. CTrain network) and other redevelopment efforts.	\$\$-\$\$\$
3. Review the primary transit network for alignment with future Municipal Development Plan revisions and any future changes to the Calgary Metropolitan Plan (the Calgary Regional Partnership's land use plan) and adjacent municipalities' land use plans.	The primary transit network will continue to align with future land use plans within Calgary and in the region surrounding Calgary.	\$\$
4. Continue to work with Land Use Planning and Policy and Transportation Planning to ensure that new community development and design is transit-supportive.	Transit-supportive community design optimizes transit efficiency and ridership, allows for greater route directions, and improves the pedestrian environment.	\$

5

**The RouteAhead for
Our Finances**



RouteAhead includes strategies to address the customer experience and provide more frequent and reliable transit service on an expanded transit network. To implement these strategies, additional funding is necessary. This section identifies the types and amount of funding needed to implement these strategies. It includes a review of the governance of Calgary Transit in the short- and long-term.

One of The City's challenges is responding to Calgarians' needs within finite budgets. Customer service improvements and network expansions require funding, and both citizens and Calgary Transit customers will continue to share the costs of improvement. Even when ridership grows, revenue from fares only covers a portion (approximately half) of Calgary Transit's expenses.

RouteAhead's funding strategy is guided by the core principles for public transit in Calgary:

- » Meet Council's revenue cost ratio target*.

**Future revenue cost ratios could be revised depending on budget and business plan objectives. The current business plan identifies a revenue cost ratio in the range of 55/45 to 50/50.*

- » Meet the capital funding objectives in Investing in Mobility, including funding allocation

ranges, depending on funding eligibility, for mobility hubs and transit corridors (40-50 per cent), goods movement and traffic growth (25-30 per cent), transportation network optimization (five-10 per cent) and lifecycle and asset management (20-25 per cent).

- » Improve asset management to take care of and optimize use of what we own.



calgary transit's current funding

Calgary Transit relies on two types of funding – operating and capital – to provide transit service. Operating funds are used to run the day-to-day business including wages and maintenance. Capital funds are used for infrastructure such as new CTrain stations and lifecycle refurbishment of existing infrastructure.

Capital funds are usually provided by the federal or provincial governments for a specific purpose and are a one-time source of funding. They cannot be used to fund operations.

Although they are separate, capital and operating funds co-exist hand-in-hand. Bus service could not be provided without

a capital investment in buses. Likewise, capital investments (e.g. the West LRT) could not be made without an operating investment in operators, peace officers, maintenance staff, station cleaners and others. Calgary Transit requires both types of funding in order to be successful.

Operating Funding

Currently, fares cover approximately half of Calgary Transit's operating costs. Another way to describe this is that Calgary Transit's revenue/cost ratio is approximately 50/50. A small percentage of operating funds (approximately three per cent) comes from advertising on vehicles, shelters and stations.

Municipal property taxes cover the remaining half of operating costs. This reflects the social, environmental and economic benefits to all Calgarians, such as:

- » Revitalization, redevelopment, and private sector investment in the city.
- » Improved public health.
- » Reduced congestion, greenhouse gas emissions, land consumption and energy consumption.
- » The provision of low-cost mobility for those who cannot drive.



OPERATING COSTS



Employee wages
(e.g. operators and mechanics)

Fuel and oil

Electricity to power CTrains

Materials and supplies



CAPITAL COSTS



New CTrain lines

New garages or garage expansions

Buses and CTrains

Track upgrades



Calgary Transit



When additional service is added to address future/existing demand, a corresponding increase in municipal funding is required. Although more people ride Calgary Transit because of the service

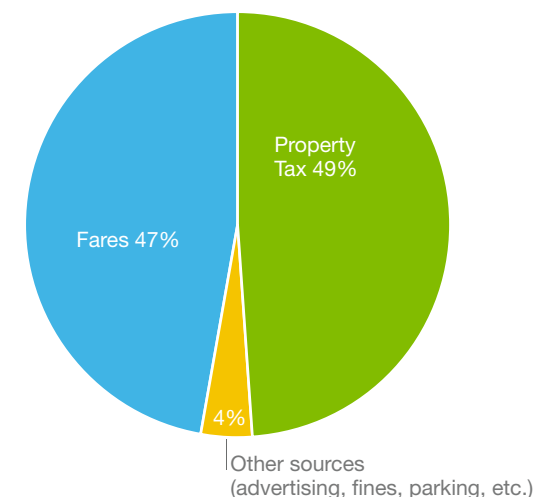
increase, the fare revenue only covers 50 per cent of the cost assuming no latent demand exists.

The percentage of Calgary Transit's operating budget that comes from fares,

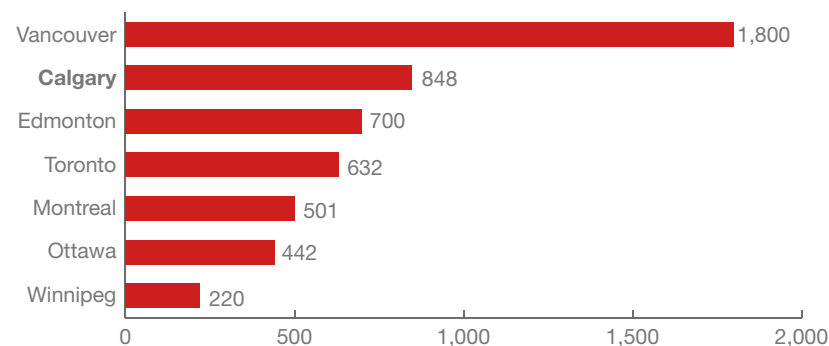
advertising, parking and other internal revenue (shown in chart below) is similar to other major Canadian cities with the exception of Toronto and Montreal. Calgary Transit is able to achieve this ratio even though

it provides service to a larger land area than most. The Toronto Transit Commission (TTC) is able to achieve a notably higher ratio because Toronto's urban density is among the highest in North America.

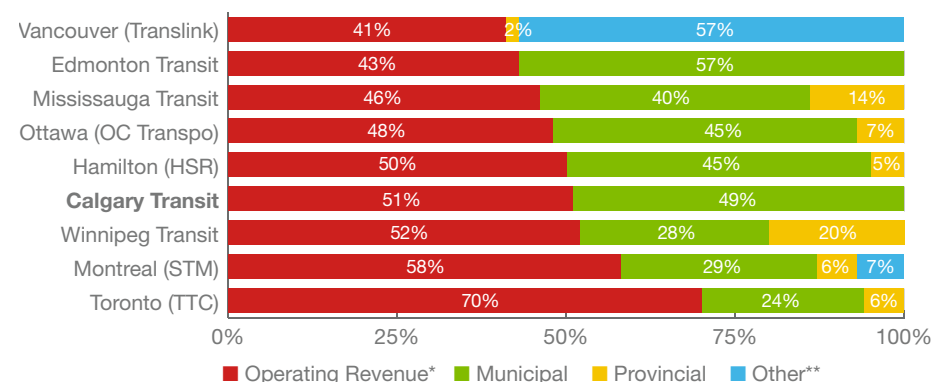
Sources of operating funding 2011



Service area size (km²) – 2009



Transit operating funding by source – 2011



* Numbers in red bar indicate the percentage of cost recovered from revenue. Source: CUTA.
 ** May include fuel tax, levies and tolls.

Since 2003, Calgary Transit has achieved its revenue/cost ratio target of 50/50 to 55/45 per cent in five out of nine years. It is becoming more difficult to meet this target. Since 2007, the average cost of providing a transit trip has risen 23 per cent while the average fare paid by transit customers has only increased 12 per cent. As well, a \$2.3 million annual operating subsidy from

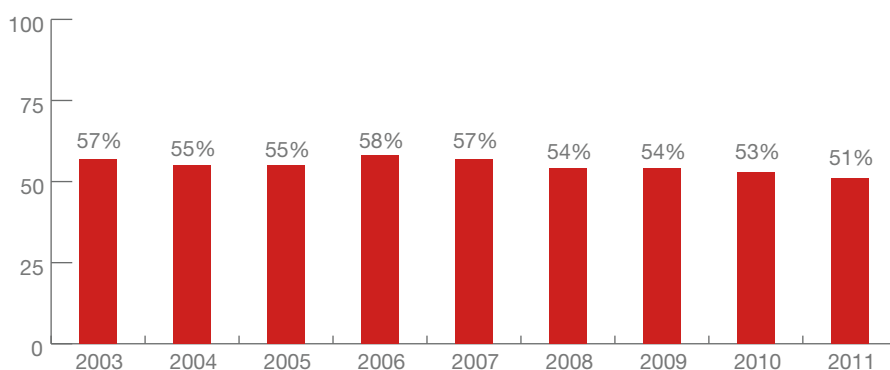
the Government of Alberta for the senior citizen pass discount was eliminated in 2010. Other factors contributing to a lower revenue/cost ratio include:

- » The level of discounts provided for some fare types and services.
- » The need to add service in new areas years before significant fare revenue can be generated.

Calgary Transit keeps fares affordable and in line with other cities. Periodic fare increases are necessary to keep pace with rising operating costs and a growing city.

- » The operation of new capital infrastructure.
- » Higher costs for labour, parts and materials, and fuel.
- » The costs of higher quality services (safety, security, cleaning, better information and maintenance).
- » Increased maintenance and repairs of aging vehicles.

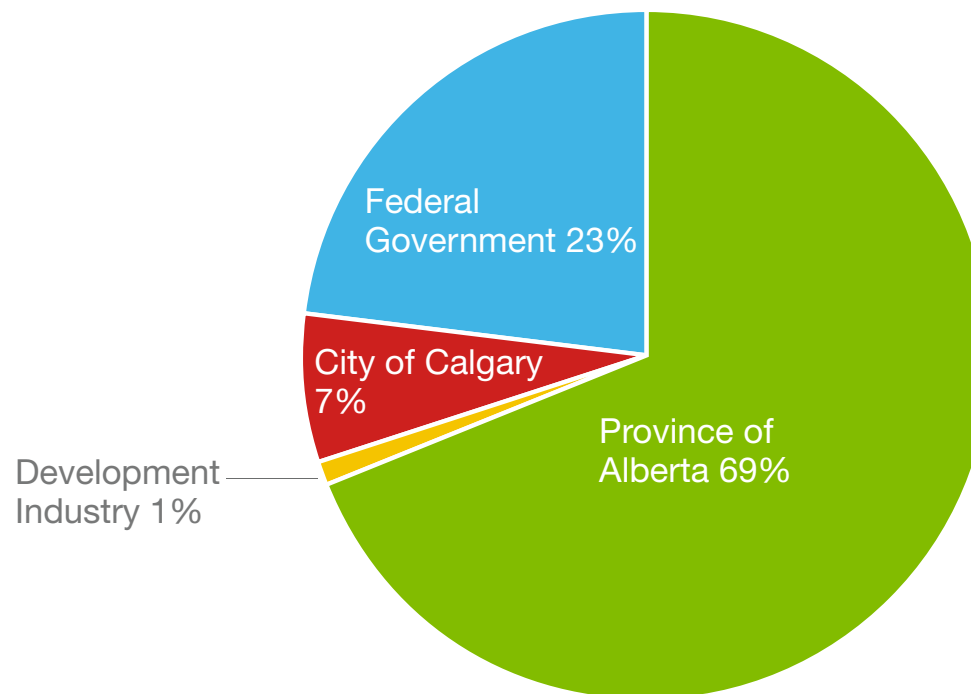
Calgary revenue/cost ratio summary



Capital Funding

The federal and provincial governments provide most of Calgary Transit's capital funding with the remainder coming from The City and the development industry.

Current sources of capital funding 2012 – 2014



cost of delivering the vision

Cost of Improving the Customer Experience

Section 3 identifies key strategies to improve the customer experience at Calgary Transit.

Improvements to the customer experience such as more options for fare payment, more timely information, and improved cleanliness, safety and comfort of the system often have considerable capital

and operating costs. While important for improving the quality of service, because they require operating and capital funding, they take resources away from increasing service. Furthermore, while they help attract more riders, they do not usually attract as many new riders as increased bus and train service. Therefore, these

improvements make it progressively harder to maintain a revenue/cost ratio of 50/50.

Nevertheless, these improvements are important to citizens. This section identifies the funding required for these improvements over 30 years. Improvements to the customer experience

require funding equivalent to 11 per cent of the projected annual operating budget and two per cent of the projected capital budget. These funds would allow Calgary Transit to implement improvements such as real-time displays for buses, enhanced customer information, and bike racks on buses.

One real-time arrival sign costs about \$90,000 to build and install. It then costs about \$10,000 each year to operate and maintain – 50 signs would cost \$500,000 annually just to operate and maintain.

Investment in the Customer Experience by Decade (in 2012 dollars)



** Represents what will be added to the operating budget each decade*





Cost of Improving the Network

Currently, Calgary Transit provides 2.67 million hours of service each year to the 1.12 million people who live in Calgary. This averages to 2.4 hours per capita in Calgary annually. The Calgary Transportation Plan calls for service to increase by 54 per cent while the population increases by 45 per cent population growth increase to achieve a target of 3.7 hours of service per capita annually within 30 years. Most of this growth in service will occur along the primary transit network where service will have a frequency of 10 minutes, 15 hours a day, seven days a week.

The benefits to customers of higher per capita service hours are considerable. For example, routes on the primary transit network, such as the Route #1

Bowness-Forest Lawn or Route #72 Circle Route, will come within 10 minutes and then connect with other high frequency buses or trains. Customers won't need to look at a schedule. The primary transit network will address the most common request from citizens during the RouteAhead engagement process: more frequent service.

While most of the added service hours will be on the primary transit network, there will be improvements to the base network as well. The base network will provide good coverage to all areas of the city. These routes, such as the #36 Riverbend or #43 Northwest Loop will have a minimum frequency of 30 minutes in the long term.

Finding Funds by Becoming More Efficient: Calgary Transit will regularly review service delivery (routing, hours of service, size of vehicles used) and apply service standards agreed to by City Council. Routes that do not meet service standards will be adjusted to ensure the most cost-effective use of fare revenue and tax support.

Route No	Route Name		AM Peak	Mid Day	PM Peak	Eve	SATURDAY Day	SATURDAY Eve	SUNDAY Day
BUS ROUTES TODAY									
1	Bowness - Forest Lawn	♿	10	15/20	15	20/30	30/20	20/30	20/30
72	Circle Route	♿	10	30	15	30	30	30	30
				↓	↓	↓	↓	↓	↓
BUS ROUTES IN 2040									
1	Bowness - Forest Lawn	♿	10	10	10	10	10	10	10
72	Circle Route	♿	10	10	10	10	10	10	10

Route No	Route Name		AM Peak	Mid Day	PM Peak	Eve	SATURDAY Day	SATURDAY Eve	SUNDAY Day
BUS ROUTES TODAY									
36	Riverbend	♿	23	45	23	45	45	45	45
43	Northwest Loop	♿	15	30	15	45	45	45	45
				↓		↓	↓	↓	↓
BUS ROUTES IN 2040									
36	Riverbend	♿	23	30	23	30	30	30	30
43	Northwest Loop	♿	15	30	15	30	30	30	30

Cost of Improving the Network: Access Calgary

Access Calgary provides a critical transportation option for Calgarians whose disabilities limit them from using regular transit services for some or all of their trips. Door-to-door service is much more expensive than regular transit. Access Calgary requires approximately 10 per cent of Calgary Transit's annual budget and each trip costs approximately \$27 to deliver. Increases in

population and changing demographics will result in additional demand for Access Calgary service.

Access Calgary and Calgary Transit are working to improve accessibility of the entire system including purchasing low-floor buses and shuttles, making LRT cars and CTrain stations more accessible and installing advanced passenger information

systems to make it easier for all customers to use Calgary Transit services. In addition, one-on-one travel training enables some Access Calgary customers to use Calgary Transit more frequently. This will free up resources to respond to the aging population and the forecasted increase in demand for Access Calgary services.



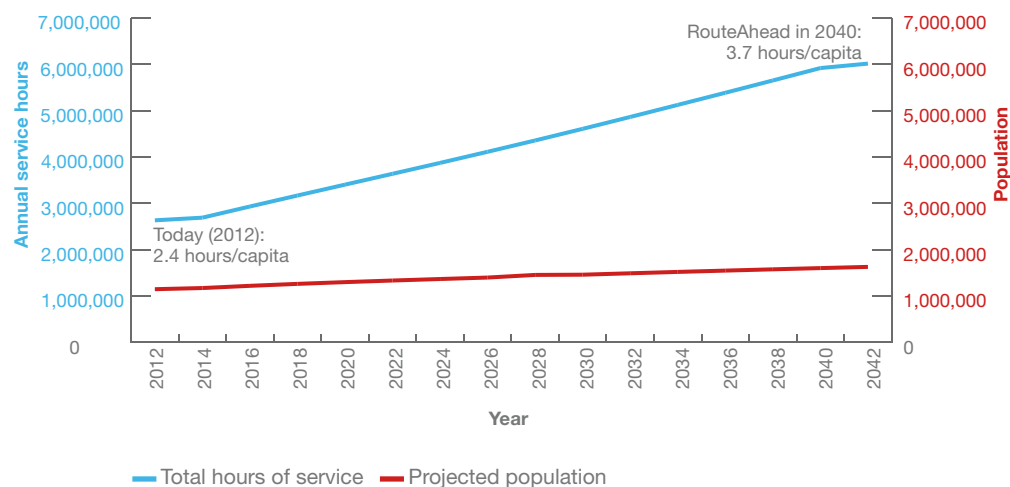
Cost of Improving the Network: Operating Costs

The 2012-2014 business plan and budget provides financial direction to Calgary Transit until the end of 2014. As result, increases to service identified in the RouteAhead plan will begin in 2015. To achieve the goal of 3.7 hours per capita annually, Calgary Transit must add 3.2 million hours of service in total by 2040. This is equivalent to adding \$360 million to the annual operating budget (in today's dollars). If the municipal contribution remains at 50 per cent of the total operating budget, its contribution would increase by \$180 million.

The majority of the additional operating funds are needed to make public transit a more attractive mobility choice and reduce the demands on the overall transportation system. They will enable Calgary Transit to increase service frequency and hours of operation so more Calgarians will choose transit for their personal transportation. Some of the additional operating budget will be needed to accommodate population growth and an expanded bus network. By 2040, \$136 million will be required to address population growth and provide the same level of service as today.

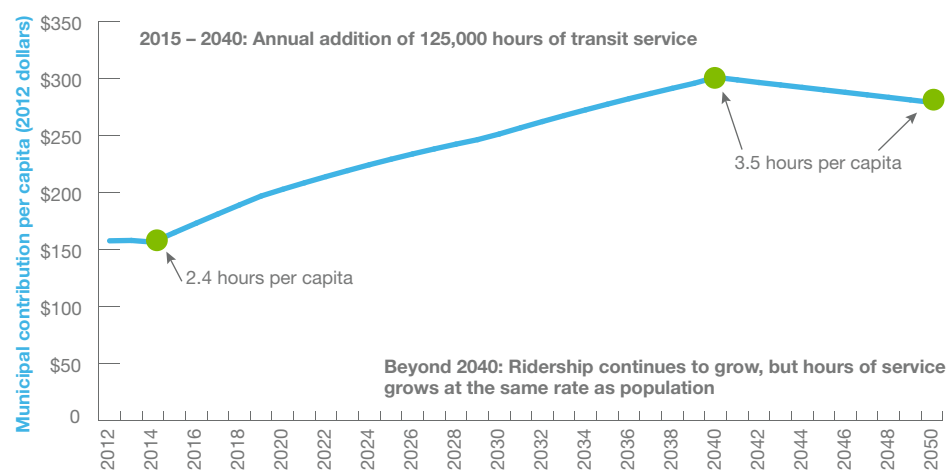
Reaching 3.7 hours of service per Calgarian annually will require, on average, an extra 125,000 hours of transit service annually starting in 2015. This is equivalent to \$14.3 million added to the operating budget each year (in 2012 dollars).

Growth in service compared to growth in population



Projected per capita municipal tax contribution

Based on a projected ridership, population and growth in transit service



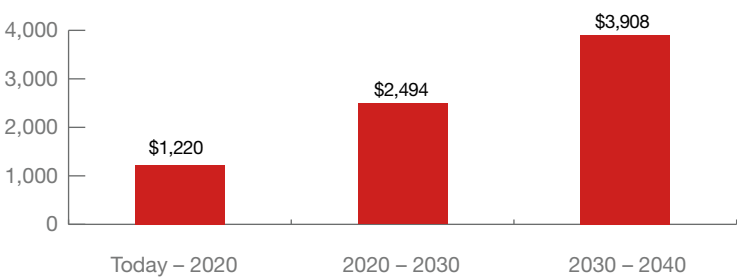
Figures are based on 2012 average revenue per passenger.

Cost of Improving the Network: Capital Costs

Significant investments in vehicles and facilities are required as part of the future network as described in Section 4. In the next 30 years, 966 big buses, 194 community shuttles, and 198 LRVs are required for growth.

Calgary Transit will need another three bus facilities and two LRV facilities to store and maintain vehicles. The table below identifies the capital cost of vehicles and facilities required to address growth in transit service. An average annual investment of \$393 million is required to address growth.

Capital investment per capita (by decade in 2012 dollars)



Capital Costs of Improving the Network

	Vehicle Growth	Facilities Growth	Rapid Transit Network	Total Capital Investments for Growth
Today – 2020	\$286,000,000	\$150,000,000	\$1,040,000,000	\$1,480,000,000
2020 – 2030	\$572,000,000	\$350,000,000	\$2,540,000,000	\$3,460,000,000
2030 – 2040	\$391,000,000	\$350,000,000	\$5,270,000,000	\$6,010,000,000
Total Growth	\$1,250,000,000	\$850,000,000	\$8,850,000,000	\$11,000,000,000
Average \$393 million per year				

Cost of Addressing Reliability: Improving and Maintaining What We Own

Citizens have clearly indicated a desire for improved reliability. The following investments are required to enhance and maintain system reliability:

- » Transit priority – Transit priority improvements such as bus lanes, queue jumps and signal priority range in cost and can be relatively inexpensive when combined with other projects. They provide significant transit

benefits to customers such as shorter transit travel times and service that is more reliable. The travel time improvements also allow Calgary Transit to deliver service at a lower cost.

- » Vehicle replacement – It is important to maintain an optimal vehicle age. Keeping buses and CTrains too long will increase maintenance costs and negatively affect reliability.

After making a public investment in transit service, it makes sense to take full advantage of the system through transit priority measures.

- » Facilities – Storing vehicles inside is critical for reliability in winter. Currently Calgary Transit stores 150 vehicles outside because there is not enough room in existing facilities.
- » Equipment and staffing – To minimize the impact on customers when disruptions occur, having the right resources on

hand would enable Calgary Transit to respond to a service disruption. Additional crossovers on CTrain lines would allow trains to divert around a train that stopped due to a mechanical or passenger issue and avoid a complete track closure.

- » LRT infrastructure maintenance – By addressing the performance of track, signals and overhead power systems, Calgary Transit can ensure that CTrains run on time with fewer disruptions due to unforeseen equipment failures.

		Transit Priority	Vehicle Replacements	LRT Track Additions, Upgrades & Repairs	Facilities	Additional Capacity for Service & Scheduling	Total costs of initiatives to improve reliability
Today – 2020	Operating					\$9,000,000	\$9,000,000
	Capital	\$24,000,000	\$139,000,000	\$189,000,000	\$150,000,000		\$691,000,000
2020 – 2030	Operating					\$14,000,000	\$14,000,000
	Capital	\$40,000,000	\$193,000,000	\$40,000,000			\$313,000,000
2030 – 2040	Operating					\$14,000,000	\$14,000,000
	Capital	\$40,000,000	\$608,000,000	\$40,000,000			\$728,000,000
TOTAL	Operating					\$37,000,000	\$37,000,000
	Capital	\$104,000,000	\$940,000,000	\$269,000,000	\$150,000,000		\$1,730,000,000

Total Cost of the Vision

The total cost of the strategies identified in sections three and four is an additional \$460 million in annual operating costs by 2040 and \$12.9 billion in capital investments over the same period. To address all aspects of the plan, Calgary

Transit's annual budget must grow by an average of \$17.7 million every year not including inflationary costs such as negotiated wage increases, increasing costs of materials, and rising diesel and power costs.

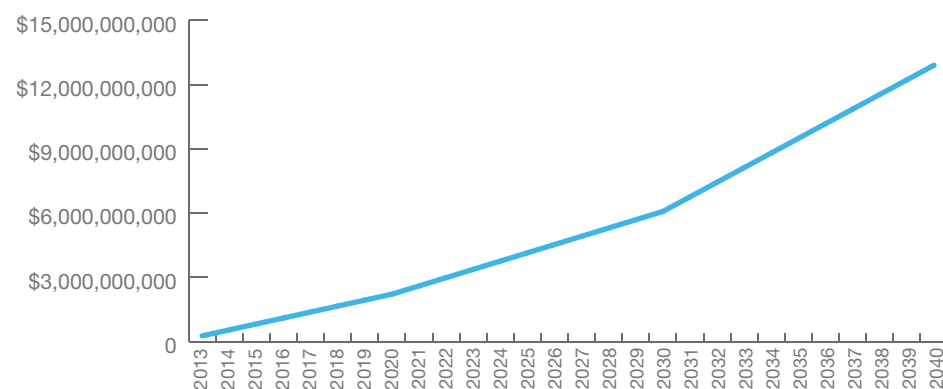
***In 2012 dollars.**

Within the costs under 'Improving Service':

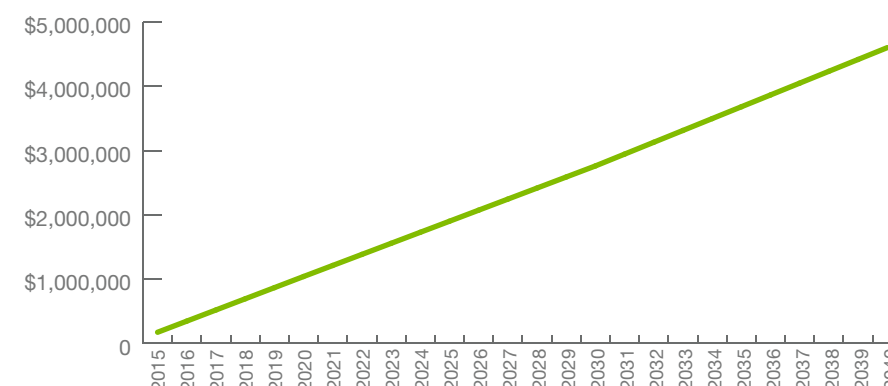
- » **\$136 million in operating budget would be required to respond to population growth (maintaining current levels of service) including service on the rapid transit network.**
- » **\$8.8 billion is a capital investment in the rapid transit network including LRT, BRT and transitways (see Section 4).**

By Decade		The Customer Experience	The Network		Total (not including revenue)
			Improving Service	Improving Reliability	
Today – 2020	Operating	\$12,000,000	\$83,000,000	\$9,000,000	\$104,000,000
	Capital	\$50,000,000	\$1,480,000,000	\$691,000,000	\$2,220,000,000
2020 – 2030	Operating	\$19,000,000	\$139,000,000	\$14,000,000	\$172,000,000
	Capital	\$83,000,000	\$3,460,000,000	\$313,000,000	\$3,850,000,000
2030 – 2040	Operating	\$19,000,000	\$151,000,000	\$14,000,000	\$184,000,000
	Capital	\$83,000,000	\$6,010,000,000	\$728,000,000	\$6,820,000,000
TOTAL	Operating	\$50,000,000	\$373,000,000	\$37,000,000	\$460,000,000
	Capital	\$216,000,000	\$11,000,000,000	\$1,730,000,000	\$12,900,000,000

Capital costs of implementing RouteAhead (2012 dollars)



Operating costs of implementing RouteAhead (2012 dollars)



funding

The Right Future Funding

Predictable and consistent operating funding

Unpredictable funding makes it difficult to plan for new service. This in turn makes it difficult to reliably provide service in newer communities or expand service hours into the evening and on weekends. It often takes years to develop ridership after service improvements. When there are persistent fluctuations in funding, Calgary Transit focuses on projects with smaller but more certain returns. The

lack of certainty also leaves Calgary Transit with little opportunity to ensure that the right mix of employees and resources are in place to implement changes and grow service.

Consistent operating funding positively affects the customer experience as well. Customers depend on Calgary Transit service and make

**TO REACH THE CTP TARGET
OF 3.7 HOURS PER CALGARIAN BY 2040
125,000 HOURS PER YEAR
ARE NEEDED EVERY YEAR STARTING IN 2015**

personal transportation decisions based on it. Reductions in service can negatively impact customers' experience and are often perceived as poor transit reliability.

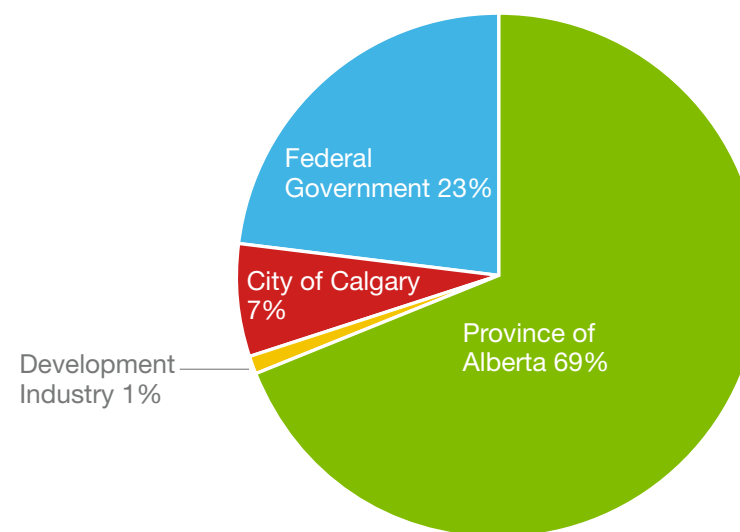
Predictable and Assured Capital Funding

Predictable and assured sources of funding make it easier to plan and implement capital projects. Without a guarantee of when future funding will be available, the design and public engagement of projects might be initiated long before the funds for construction become available. This can result

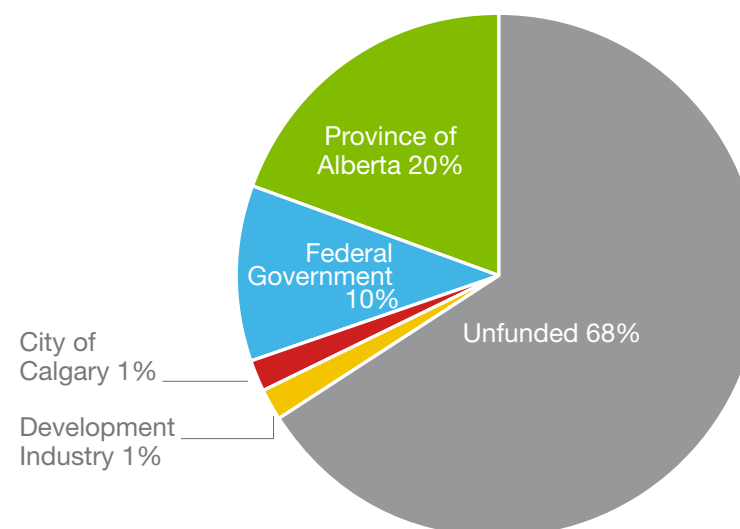
in the need to change plans and project budgets. Without a consistent stream of capital funds, vehicle purchases have to be made in smaller batches and The City loses the ability to buy in bulk.

The exhibits at right identify the gaps in assured capital funding for public transit in Calgary.

Current sources of capital funding 2012 – 2014



RouteAhead capital funding 2015 – 2020





Finding The Right Revenue/Cost Ratio

The Unique Challenges of Growth

When new transit service is added, it may take months or years for citizens to become aware of it, try it and begin to use it consistently. As a result, fare revenue will be insufficient to meet revenue/cost ratio targets in the short-term and The City must find sources of funding other than revenue from fares.

In the longer term, when travel behaviour and land use patterns change, ridership will increase and corresponding fare revenue will grow. Only then will Calgary Transit

be in a position to meet its revenue/cost ratio target. A more dense land use pattern will make high frequency transit more efficient.

In order to expand transit service, capital investments in new vehicles and facilities are required. It can take years to develop specifications, evaluate potential suppliers, receive proposals/bids and finally, acquire vehicles. Suppliers often have to set up their own facilities to manufacture vehicles. As result, sufficient capital funding needs to be identified and allocated long before new service is implemented.

The Effects of Customer Experience Improvement

RouteAhead's customer experience strategies address safety, security, cleanliness, information and customer amenities. The operating cost of these improvements however, make it progressively more difficult to achieve revenue/cost targets. Many of the improvements requested by customers do not result in an increase to fare revenue to the same degree as basic increases in transit service. Funding sources should account for this added impact on the revenue/cost ratio.

Funding Sources

Fares

In developing a future fare strategy, Calgary Transit considers the following:

- » What should the revenue/cost ratio be? (Calgary Transit and City Council consider how much of total operating budget should come from fare revenues.)
- » What contribution to the overall fare revenue should be attributed to each customer segment?

Appropriate Revenue/Cost Ratio

The value of Calgary Transit's service to customers and to all Calgarians is reflected in the revenue/cost ratio. As previously discussed, current and future impacts on the revenue/cost ratio make it challenging to achieve current targets.

Large increases to fares would put excessive financial burden on customers without recognizing the significant

benefits to all Calgarians. As a result, the revenue/cost ratio will likely need to be lower as part of the implementation of the RouteAhead plan. A review in the form of a new fare strategy is required.

Appropriate Fare Structure

Within the total fare envelope (the established revenue/cost ratio), Calgary Transit must determine the fare structure. In 1999, Council approved a fare policy¹ that established fare discount guidelines. This policy requires Calgary Transit to set the adult cash

fare only. All other fares are then derived using the pricing relationship approved in the policy.

Without creating financial barriers, Calgary Transit must explore a fare structure to meet revenue/cost ratio targets including consideration of the following:

- » Charging more for premium services.
- » Alternatives for funding and administration of low-income transit fares.

» Charging a premium to people who do not live in Calgary (and do not pay property taxes in the city but benefit from the transit service).

» Charging more for peak hour service.

» Implementing zone or distance based fares, mindful that if fares are lower in one zone they would need to be higher in another to meet the revenue/cost target.

This fare strategy has been frequently adjusted on a fare-by-fare basis.



"Bus waiting time cut shorter"



"Decorate stations"

¹ C99-86 – Calgary Transit Fare Strategy – Phase 1, 1999 November

Approved Pricing Relationship for Fare Options

Fare Type	Policy Discount vs Adult Cash Fare	2012 Discount vs Adult Cash Fare
Adult cash	0%	0%
Adult monthly pass (based on 42 trips/month)	20%	19%
Low-income monthly pass (introduced in 2005)*	50% of Adult Pass	57%
Youth cash	30%	36%
Youth monthly pass (42 trips/month)	45%	50%

**Eligibility threshold to be lowered in 2013*

The senior's annual pass is not shown above and is currently \$55/year.

Fares over time

Fare Option	2004	2005	2006	2007	2008	2009	2010	2011	2012
Adult									
Cash / Single Ticket	\$2.00	\$2.00	\$2.25	\$2.25	\$2.50	\$2.50	\$2.75	\$2.75	\$2.75
Ticket Book (10)	\$17.50	\$17.50	\$19.50	\$19.50	\$21.00	\$23.00	\$24.00	\$24.00	\$27.50
Day Pass	\$5.60	\$5.60	\$5.60	\$6.75	\$6.75	\$7.50	\$8.25	\$8.25	\$8.25
Monthly Pass	\$65.00	\$70.00	\$70.00	\$75.00	\$75.00	\$83.00	\$85.25	\$90.00	\$94.00
Low Income Monthly Pass	N/A	\$35.00	\$35.00	\$37.50	\$37.50	\$41.50	\$41.50	\$40.00	\$40.00
Cash / Single Ticket	\$1.25	\$1.40	\$1.40	\$1.50	\$1.50	\$1.75	\$1.75	\$1.75	\$1.75
Ticket Book (10)	\$10.00	\$12.00	\$12.00	\$13.00	\$13.00	\$15.00	\$15.00	\$15.00	\$17.50
Day Pass	\$3.60	\$3.60	\$3.60	\$4.50	\$4.50	\$5.25	\$5.25	\$5.25	\$5.25
Monthly Pass	\$40.00	\$47.00	\$47.00	\$50.50	\$50.50	\$52.50	\$54.25	\$54.25	\$57.50
Regular Annual Pass	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$55.00
Supplemented Annual Pass	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00	\$15.00

Calgary Transit's fare prices are comparable to many other Canadian transit systems.

	Calgary	Edmonton	Ottawa	Montreal	Winnipeg	Vancouver (Zone based)	Hamilton	Mississauga	Toronto	Regina
As of September 2012	Red text denotes values higher than Calgary									
Adult Cash	\$2.75	\$2.85	\$3.25	\$3.00	\$2.40	\$3.75	\$2.55	\$3.00	\$3.00	\$2.50
Adult Tickets (per ticket price)	\$2.75	\$2.28	\$2.50	\$2.25	\$2.10	\$3.15	\$2.00	\$2.50	\$2.50	\$2.00
Adult Monthly Pass	\$94.00	\$84.65	\$91.50	\$72.75	\$75.35	\$110.00	\$87.00	\$116.00	\$121.00	\$62.00
Adult Day Pass	\$8.25	\$8.55	\$7.50	\$8.00	N/A	\$9.00	N/A	N/A	\$10.00	\$7.00
Youth Cash	\$1.75	\$2.85	\$1.60	\$2.00	\$1.85	\$2.50	\$2.55	\$3.00	\$2.00	\$2.00
Youth Tickets (per ticket price)	\$1.75	\$2.00	\$1.25	\$1.30	\$1.43	N/A	\$1.65	\$2.25	\$1.65	\$1.50
Youth Monthly Pass	\$57.50	\$65.55	N/A	\$41.00	\$51.00	\$46.50	\$71.00	\$101.00	\$99.00	\$47.00
Youth Day Pass	\$5.25	\$8.55	\$7.50	\$8.00	N/A	\$7.00	N/A	N/A	\$10.00	\$7.00
Seniors Annual Pass	\$15.00/ \$55.00	\$51.00/ \$118.00	\$395.00	N/A	N/A	N/A	\$205.00	\$444.00	N/A	N/A
Low Income Monthly Pass (Adult)	\$40.00	\$33.00	\$32.00	N/A	N/A	N/A	43.50	N/A	N/A	\$20.00

Calgary's 2011 average fare per trip is \$1.60. Average cost per trip is \$3.25



Other Internal Sources of Operating Funds

Other internal sources of operating funds are relatively small. They include advertising revenue, parking fees and fines. Recently, a review of the revenue from parking and fines was conducted and it was determined that they do not offer additional short-term funding. Advertising

revenues are generated through a contract with advertising agencies that attempt to sell as much advertising as possible. Mindful of sensitivities around advertising, Calgary Transit approves as much creative advertising as possible to increase advertising revenue.

Alternative Sources of Funding

The City must consider alternative sources of funding to implement the RouteAhead plan. The following funding sources have been suggested by citizens and key stakeholders during the RouteAhead public engagement phase. These will be explored by The City on a case-by-case basis in the future.

P3 Financing:

Public-private partnerships (P3s) are contractual agreements between a

public agency and private companies whereby the private company performs one or more of the following roles: design, build, finance, operate and/or maintain. P3 financing helps public agencies construct large capital infrastructure projects when limited capital funding is available.

P3 financing has implications that vary depending on the project in question. Depending on the ultimate financial and scope impacts, the P3 approach might not be of long-term benefit to



the municipality, even if it results in additional upfront capital funding. *(Capital)*

Fuel tax: Calgary Transit currently receives some fuel tax dollars annually for capital projects. Beyond this, an additional fuel tax could be used to fund public transit capital projects and/or operating costs. Legislative changes are required to implement further sharing of fuel taxes or to implement a municipal fuel tax. *(Capital/Operating)*

Goods And Services Tax (GST): Sales taxes to fund public transit are common in the United States. In Canada, funds collected from GST could be used for capital or operating costs. Legislative changes

are required to implement further sharing of federal GST or to implement a municipal GST. *(Capital/Operating)*

Land Value Capture Tax: This type of tax captures a portion of the increase in land value resulting from zoning of the land to a higher use. It is used in the United States and is often called a “transit benefit district tax”. This could be applied specifically to transit oriented development around LRT stations, including conversion of park and ride areas. Funds could be used for both capital and operating costs. Legislative changes may be required. *(Capital/Operating)*

Toll Roads or Congestion

Pricing: Assessing a toll for driving on a particular road or area during peak periods could be a source of funding for public transit. Further work would be required to address legislative changes necessary to implement this type of tax, since it is not currently permitted under Section 16 of the Traffic Safety Act. *(Operating)*

Vehicle Insurance

Tax: Assessing a tax on vehicle insurance sold in Calgary could be used for public transit capital and operating costs. Further work would be required to address legislative changes necessary to implement this type of tax. *(Capital/Operating)*

Vehicle Registration

Tax: Vehicle registration levies are used in Montreal and Quebec City. A tax on vehicle registration in Calgary could be used for public transit capital and operating costs. Further work would be required to address the legislative issues associated with this tax. *(Capital/Operating)*

Developer Funded Transit

Service: This occurs when an agreement is reached where a developer funds the initial transit service in a community. The developer funding accelerates the introduction of service and an agreement is necessary to address revenue sharing, the ridership threshold when the municipality would take over service and/or duration of the

funding. *(Operating)*

The City of Calgary is currently discussing a broad range of issues, including funding, with the provincial and federal governments. In these discussions, The City will address funding by:

- » Encouraging the province to continue to provide long-term, sustainable funding through the Municipal Sustainability Initiative (MSI) grants, Green Transit Incentives Program (GreenTRIP), or other future funding mechanisms.
- » Participating in the development of a long-term plan for public infrastructure beyond the Build Canada Fund

and the Infrastructure Stimulus Fund.

- » Continuing to advocate that the Government of Canada implement a fully funded National Transit Framework, which would provide an annual investment of \$2 billion to cities and communities to build and encourage greater public transit usage and mitigate the impact of municipalities’ transportation networks on climate change.

Regardless of the source, it is important that Calgary Transit’s funding be sufficient, predictable and consistent and that future revenue/cost ratio targets respond to the unique funding challenges associated with service growth and improvements in the customer experience.



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transit governance

The following section provides an overview of approaches to transit governance models. The discussion focuses on transit governance specifically for an individual municipality, and approaches that would be suitable for the Calgary environment, including the advantages and disadvantages of each, and a recommended direction in the short term. From there, given the

30 year time horizon for RouteAhead, a discussion on regional transit governance is provided. This discussion recognizes that work is currently underway by the Calgary Regional Partnership, including participation by The City of Calgary, and is sensitive to the different perspectives from member municipalities.

In general, Canadian transit agencies that provide service to an individual

municipality can be split into four types: municipal departments (Calgary, Edmonton, Winnipeg); commissions (Toronto, Ottawa) ; private sector contractors (Kamloops, Prince George); and provincial agencies (BC Transit). When you consider the evolution of public transit in Calgary, and municipal governance in Alberta, only two of these models are immediately applicable to The City of Calgary – the municipal

department and the commission approach.

As the Calgary region and adjacent communities develop further in the longer term, a more regional approach may be required. Work is underway in this regard by the Calgary Regional Partnership, and The City of Calgary (Calgary Transit) will be fully involved in the ongoing discussions.

Municipal Department Model

Currently, Calgary Transit is a business unit within The City of Calgary's Transportation Department. From an administrative perspective, the director of Calgary Transit reports to the general manager of Transportation and ultimately to the city manager. From a policy perspective, reports are presented to the Standing Policy Committee on Transportation and Transit and then to City Council. Calgary Transit's operating and capital budgets are presented to and approved by City Council. The fare structure for Calgary Transit is part of the operating

budget and requires Council approval.

Other large Canadian cities where the transit agency operates as a municipal department include: Edmonton, Winnipeg, Regina, Saskatoon, Mississauga and Hamilton. However, there are variations in administrative organizational and reporting structures. For example, the director of Winnipeg Transit reports directly to the chief administrative officer of the City of Winnipeg and other transportation activities are included in Public Works. The City of Edmonton is similar to Calgary in that

the manager of Edmonton Transit System reports to the general manager of Transportation Services who is also responsible for other transportation activities. The City of Edmonton's general manager of Transportation Services takes reports through the Transportation and Infrastructure Committee and then to City Council for approval.

When a public transit agency is a part of a municipal department (as Calgary Transit is), City Council sets the policy, budget, priorities and direction for the

organization. The direction is then executed by the people working within the department. This provides an efficient connection between the politicians who are accountable for allocating taxpayer dollars and determining priorities, and the leadership of the transit agency that provides the service.

This model promotes collaboration in terms of all aspects of urban transportation and also with other City departments that are important to the success of public transit. For example, land-use planning decisions are important for transit

efficiency. When land use planning, transportation planning and public transit functions are within the same organization, there are more frequent opportunities to make aligned decisions. Furthermore, all groups are accountable to the same decision-makers.

Another focus area of the municipal department governance model is to provide transit service for people with disabilities. Access Calgary is the division of Calgary Transit that determines service eligibility for people with disabilities, and plans, schedules and dispatches accessible



"Increase the amount of people using transit to decrease cost per person"



"Government funding – Smart spending!!!"



transit service. Service delivery is contracted to Calgary HandiBus, other service providers, and taxi companies. In Edmonton, Edmonton Transit Service does the eligibility and planning work, but also operates the Disabled Adult Transit Service in-house, rather than as contracted service.

As with any model, there are some disadvantages with the municipal

department governance model. With this reporting structure, policy-makers may become overly involved in operational decisions (e.g. the location of bus zones or the scheduled times on a route). As well, some elected officials might take a narrow perspective on transit issues such as prioritizing service improvements in a specific area or community over the interests of the system

as a whole. As a part of a municipal department, it can be more challenging to align appropriate resources for the transit organization given the broad responsibilities of the municipality. For example, during budget deliberations, depending on current events at the time, the competition for limited operating funds may restrict the ability to enhance public transit when issues around public safety and policing appear to be more pressing.

Municipal Transit Commission Model

The municipal transit commission model is the second type of organizational structure that should be considered in the context of providing transit service to the city of Calgary. The commission model differs from the municipal department approach in that the agency has an arms-length relationship with City Council. In the commission model, City Council appoints a board of commissioners or

transit commission that is comprised of members of City Council and can include representatives from the general public. In the Canadian context, examples of the transit commission structure include OC Transpo in Ottawa and the Toronto Transit Commission (TTC).

The mandate of the transit commission is focused on all aspects of the transit agency. For example, the mandates of the transit commission in Ottawa and Toronto are outlined below:



OC Transpo

“The Transit Commission is responsible for ensuring the development of a safe, efficient, accessible and client-focused transit system and for providing overall guidance and direction to the Transit Services Department on all issues relating to the operation of public transit, including the O-train and the Para Transpo service delivery model.”

Toronto Transit Commission

“The Commission serves the people of Toronto

by ensuring your transit system is reliable, safe, and prepared for the future. To that end, we are responsible for planning and coordinating all TTC services; constructing, maintaining and operating the system; and expanding services and facilities where required.”

In terms of the relationship between the transit commission board and City Council in Ottawa and Toronto, the commission board seeks approval from City Council on budgets (operating and capital),

fares and the associated service levels for the transit agency. However, in comparison to the municipal department model, there appears to be a greater level of “delegated authority” given to the transit commission board in terms of providing direction to the transit agency.

In general, the transit commission board provides strategic direction to the transit agency and the transit agency is allowed to operate more independently in comparison to other city services. This is a

key benefit relative to the municipal department model. Under this model, the decision-makers (the transit commission board) have a specific focus. The transit commission board makes decisions on transit issues only instead of all transportation or public works issues. This might contribute to more efficient decision-making and a higher level of specialization and focus. As well, given the specific focus, the transit commission model may help strengthen the profile of public transit within a municipality.

However, the transit commission model may result in more distant relationships between the transit agency and other groups that are key to transit success – such as land use planning, transportation planning and roads/traffic operations. As well, because of its arms-length nature, there may be some duplication of City support services such as human resources, information technology, finance and communications. On the

other hand, there are benefits to this: each of these functions are able to provide tailored support to continuously contribute to better transit solutions.

In Calgary, both the Calgary Parking Authority and the Calgary Police Service could be considered similar to the transit commission model. In each case, the agency reports through a Council-appointed board for strategic direction and reporting; however, they have greater autonomy and operating authority.



Short Term Direction

The type of transit system governance that a municipality adopts can be dependent on a variety of circumstances, some internal to the organization and others external. For example, BC Transit (a provincial crown corporation) coordinates the delivery of public transit in British Columbia outside of Metro Vancouver. It has a partnership agreement with the Victoria Regional Transit Commission and the local governments in other municipalities and non-metropolitan areas of the province. In Ontario, the amalgamation of municipalities has been a

partial driver to its approach to transit governance in certain municipalities.

Of the seven largest cities in Canada, the transit agencies in Calgary, Edmonton and Winnipeg are municipal departments; Toronto and Ottawa have municipal transit commissions (the Greater Toronto Area also has a provincially-appointed regional transportation planning authority – Metrolinx); Montreal has a regional transit agency/commission and Vancouver has a regional transportation organization that includes public transit among other functions.

With no clear external drivers affecting public transit governance in Calgary, this analysis has only concentrated on the municipal department and transit commission approaches. Based on literature review and the experience of other municipalities, both of these approaches can effectively and efficiently assist a transit system meet defined measures of success. There are advantages and disadvantages to each: different decision-making processes; relationships with customers; and relationships between business groups such as land use and transportation

planning. Ultimately, for a transit system to succeed, it is more important to ensure there is sufficient and stable capital and operating funds. It is also important to ensure there are transit-supportive policies in place relative to land use and transportation.

Accordingly, RouteAhead recommends that Calgary Transit continue to be part of the Transportation Department, continue to report to City Council through the Standing Policy Committee on Transportation and Transit, and continue to maintain and work with a Calgary Transit Customer Advisory Group.

As well, in the short and longer term context of RouteAhead, it will be important to establish roles and responsibilities between City Council (setting direction and priorities) and Calgary Transit (executing improvements and efficiencies) along with the development of service standards for the introductory, base and primary transit networks. This will help ensure that standards for system improvements and efficiencies are clear to the public and new service hours can be introduced more quickly with appropriate workforce planning in place.



“Work towards getting more staff. Work with City planners. Try and keep up with demand of growing population”



“Use environmentally friendly fuel”



“More buses on the busier routes”



Regional Transit Governance

As the city of Calgary and adjacent regional communities grow during this 30 year vision for public transit in Calgary, there will be opportunities to work with municipal partners and address regional transit issues. These issues include: regional fare strategy and integration; regional transit marketing and branding; service standards; vehicle types; community engagement on service plans, etc. To accomplish a regional perspective on public transit, there are a wide variety of regional governance models to draw from both in the Canadian and United States context. The table below provides a brief outline of some of the regional transit governance models currently in place, including the approach being taken by the Calgary Regional Partnership.

Governance Option	Brief Description	Example	Advantages	Disadvantages
Regional Transit District or Authority	The board is appointed by the province (or state) which then makes transit decisions within the mandated area.	Trimet (Portland) Utah Transit Authority (Salt Lake City) Regional Transportation District (Denver) Victoria Regional Transit Commission (Victoria)	<ul style="list-style-type: none"> » Can make regional decisions as permitted by mandate. » Benefits from provincial (or state) support on funding and authority. » Able to address inter-municipal issues. » Economies of scale across multiple communities. » Aligned service delivery. 	<ul style="list-style-type: none"> » Loss of local municipal autonomy and flexibility. » Less collaboration with functions that are key to transit success (land use planning, transportation planning, parking, roads/traffic operations). » Decision-making can be slow and marked by local political interests.
Regional Transportation Agency or Authority	The board is appointed by a Mayors' Council (comprised of representatives from member municipalities). Responsible for all major roads, transit, bridges within the mandated region.	Translink (Vancouver)	<ul style="list-style-type: none"> » Ability to provide a broad range of inter-municipal transportation solutions. » Transit closely linked to other key transportation and land-use decisions. » Economies of scale across multiple municipalities. 	<ul style="list-style-type: none"> » Decision-making can be slow and marked by local political interests. » Loss of local municipal autonomy and flexibility.
Inter-municipal partnership	Member municipalities implement transit solutions within their municipality and collaborate to address regional issues.	Calgary Regional Partnership (CRP) Capital Region Board (Edmonton)	<ul style="list-style-type: none"> » Each municipality can provide service specifically suited to their community. » Opportunities for economies of scale and learning. 	<ul style="list-style-type: none"> » Difficult to advance larger projects (Lambert, 2012). » Fewer efficiencies (Lambert, 2012).

Reference: Lambert, B. (October 18, 2012). *Calgary Regional Partnership Regional Transit Services – Continuing to Move Forward*. Retrieved on November 23, 2012 from http://www.calgaryregion.ca/crp/media/160669/new%20oct_20_2012_presentation_v3forposting.pdf

Regional transit in the Calgary metropolitan area is currently in an infancy stage. As such, it is best to leave all options for regional transit governance in the Calgary metropolitan area open for consideration. Within the Calgary Regional Partnership, municipalities work together to solve “regional issues through inter-municipal collaboration” recognizing that “the current legislation and roles place much of the implementation for actions, specifically, in the hands of local municipalities” (Calgary Metropolitan

Plan, p.5). Under the current model, member municipalities “provide local transit service, cycling and walking facilities and systems to connect with regional transit systems” (Calgary Metropolitan Plan, p.13).

The Calgary Regional Partnership’s role in transit is evolving and with its member municipalities, will continue to work further in 2013. Consideration is being given to two different governance scenarios. The first is maintaining status quo where municipalities provide transit service independently. Today,

public transit service is being provided by the local municipalities in Calgary, Airdrie and Bow Valley (Canmore-Banff). Feasibility studies are underway in Cochrane, Chestermere and Okotoks, and other communities are also considering transit. In the past, Calgary Transit has provided varying degrees of transit expertise to communities in the partnership.

Under CRP’s governance Scenario 1, the advancement of public transit in the region will continue with little risk and some regional coordination

of activities such as branding, fare integration, land use and transit oriented development policy planning. However, this approach may inhibit the ability to develop regional transit and move forward with inter-municipal transit connections. With municipalities working independently, there may be less opportunity to share facilities and gain administrative efficiencies.

Under CRP’s governance Scenario 2, has the “CRP owning assets and operating the inter-municipal and regional transit service and/

or coordinating service delivery” (CRP, 2012, p. 5²). Under the scenario, the regional transit agenda is more focused and could result in some of the following: greater integration and efficiency in planning, marketing and branding; an integrated fare system; and greater opportunities for joint procurement and sharing of infrastructure. Details would need to be determined around organizational structure, responsibilities, governance, financing, etc. From The City of Calgary’s perspective, it would need to be determined how

Calgary Transit would work with this type of regional transit agency.

The Calgary Regional Partnership is studying each scenario and will continue this work in 2013. It will review the analysis of each scenario and then make recommendations to the executive committee. Accordingly, The City of Calgary/Calgary Transit should continue to methodically work as part of the Calgary Regional Partnership to determine the appropriate method of regional transit governance for the long term.

² The source for this document is <http://www.calgaryregion.ca/crp/media/160594/regional%20transit%20governance%20sept%2014%202012.pdf>





visions, directions and strategies

Vision: In 2040, Calgary Transit receives stable and predictable operating and capital funding. Calgary Transit continues to find efficiencies in service

delivery to maximize the return on investment by Calgarians. Organizations and customers that benefit directly from premium services are financial partners in service delivery.

Transit-supportive land use results in increasing ridership and revenue, allowing The City to offer affordable public transit with fares in line with other Canadian cities.

direction

F1: Protect and maintain existing funding sources.

Strategies	Benefits	Costs
1. Review the use of fare discounts that reduce revenues.	Current revenue/cost ratio targets will be met. Fares will be fair and Calgary Transit will be able to provide more services.	n/a
2. Retain the current revenue/cost ratio range of 50/50 to 55/45 for the next business plan & budget.	Calgary Transit will be able to move forward with strategies resulting in improvements and growth in service hours with certainty regarding financial constraints.	n/a
3. Develop a long-range fare and funding strategy, in consultation with stakeholders, customers and citizens, including potential options for cost-sharing between users and non-users to address the cost of different service improvements. The strategy will include revenue/cost ratio target ranges.	Sources of funding will be available for customer service improvements and system growth.	\$
4. If revenues from ridership increase unexpectedly, that revenue should fund additional transit service.	Sources of funding will be available for customer service improvements and system growth.	n/a



“Calgary Transit is a cheap and convenient way of transportation”



“CT is doing well with offering discounts to groups such as students and seniors”

direction

F2: Increase the efficiency of service delivery.

Strategies	Benefits	Costs
1. Consider operating costs in the process of approving capital projects ensuring the capacity to operate new services.	Council and citizens will see reduced operating costs through strategic use of capital and improved service delivery.	n/a
2. Optimize service by matching frequency to demand on routes.	Increasing frequency on high demand routes will result in improved service and increased ridership.	\$
3. Continue to allocate community shuttles to lower demand routes, while considering the impact of heavy use on vehicle lifespan and efficient allocation of staff and vehicles across routes.	Calgary Transit will be able to deliver more service by optimizing service delivery.	n/a
4. Review the benefits and costs of using smaller (e.g. 12-seat) vehicles on routes with lower ridership balanced with efficient allocation of staff and vehicles.	Further efficiency in service delivery might be realized.	\$
5. Manage demand for peak period travel through travel demand management (e.g. marketing and incentives for travel outside peaks).	Crowding issues during peak periods would be addressed, and customers who do not travel in peak periods would receive incentives.	\$
6. Review the current challenges, cost and demand for Access Calgary service and identify future growth and budget requirements.	Future funding requirements for Access Calgary will be identified.	\$
7. Regularly review asset management plans for facilities (stations, track, signals, power, buildings, etc.) and vehicles.	Funding will be allocated to lifecycle maintenance, repairs and replacement of facilities and vehicles at the optimal time.	\$



direction

F3: Aggressively market services to increase ridership.

Strategies	Benefits	Costs
1. Aggressively promote new projects, services, and customer experience improvements on the introductory, base and primary transit networks.	Customers will be aware of new services. People unfamiliar with Calgary Transit will be attracted to the service. Ridership will increase.	\$\$
2. Continue support for transportation demand management programs to increase ridership, reduce traffic congestion, optimise use of the existing transportation network and improve Calgary's environment.	Citizens will be encouraged to consider using Calgary Transit, further contributing to increased ridership.	\$\$
3. Work cooperatively with other City business units to increase transit-supportive land use, and higher ridership.	It will be easier for residents and employees in new developments to use public transit, and ridership will increase. The density and mix of development in station areas will increase, resulting in a more sustainable development pattern.	\$\$



“High Frequency network should have different branding and appearance than “regular service. Identify routes with clearer names (A-line, B-line or Blue-line, Green-line etc.) and vehicle colours”



“Increase ridership with incentives (residential reduced fare passes, more bus-lanes, more service, etc.)”

direction

F4: Achieve flexible financing arrangements for improvements with mutual benefits.

Strategies	Benefits	Costs
1. Strengthen the role of comprehensive land use planning as part of CTrain and transitway projects to capture the return on investment from station area lands.	The net cost of transit projects to The City will be reduced through the long-term return on investment of sale/lease of property. Transit-oriented development will occur more quickly, resulting in increased ridership and sustainable development.	\$\$
2. Partner with organizations that benefit directly from service improvements above and beyond a basic level of service.	Certain organizations, such as special event facilities, care centres, employment centres and schools would benefit from higher levels of transit service than in the past.	\$
3. In conjunction with electronic fare collection, investigate the potential for different fares based on frequency of use, distance, zones or other criteria.	The additional costs of service delivery associated with a growing city will be allocated to customers equitably.	\$



“Don’t bring in a 3 zoned fare system – too confusing.”



“Different distance, different fee”



“To increase ridership (read revenue), offer annual transit passes. Start with the City, with payroll deductions, then approach other companies.”

direction

F5: Pursue flexible, sustained, future funding sources considering both operating and capital objectives.

Strategies	Benefits	Costs
1. Explore alternative sources of funding for operating and capital (e.g. graduated vehicle licensing fees, portion of gas tax). Continue to lobby the Province for cities to be able to use sources other than property and business tax.	Rapid transit projects and supporting facilities will move ahead sooner, and the RouteAhead long-term plan will be completed on schedule.	\$\$
2. Identify the impact of implementing primary transit network service on operating funding and identify possibilities for addressing any gap.	There will be a clear financial plan to better ensure delivery of the primary transit network.	\$
3. Identify sufficient funding for maintenance and lifecycle replacement of facilities, vehicles and customer experience improvements (e.g. maintenance of technology/software).	Long term funding for the facilities, staffing and resources required as part of the RouteAhead plan will be supported.	n/a
4. Convey the benefits of public transit to inform customers and other citizens of the value of their investment.	The rationale for implementation of alternative funding sources will be clear. It will be easier to introduce sustainable public transit in regional communities, supporting economic development in the Calgary region.	\$



“Look for more Federal funding to establish a higher-quality network”



“Consult with the public on strategic decisions (i.e. route planning and funding) rather than just customer service or finalized infrastructure plans

direction

F6: Establish the right governance and organizational structure to make financial decisions.

Strategies	Benefits	Costs
1. Continue to work with the Calgary Regional Partnership on its review of regional transit governance.	Roles and responsibilities for implementation of future regional transit services will continue to be clear and transparent.	\$
2. Retain the reporting structure of Calgary Transit through the Standing Policy Committee on Transportation and Transit.	Clear accountability and efficiency of reporting will be maintained.	n/a
3. Establish roles and responsibilities between Council (setting direction and priorities) and Calgary Transit (executing improvements and efficiencies) along with the development of service standards for the introductory, base and primary transit networks.	Standards for system improvements and efficiencies will be clear to the public. Workforce planning and the introduction of new service hours will be quicker and more efficient. Calgary can capitalize on the benefits of other governance models.	\$
4. Review the organizational structure of Calgary Transit to ensure alignment with the 30-year strategies.	Resources at Calgary Transit will be aligned to fast-track implementation of RouteAhead strategies.	\$\$



“Working with other jurisdictions and municipalities on transit service (regional).”



“Address partnerships with external providers, Cochrane commuter etc”

6

**The RouteAhead
What's Next?**



roles and responsibilities for delivering strategies

The strategies outlined in each of the Customer Experience, Network and Financing sections will be assigned to various teams in Calgary Transit for short, medium and/or long-term delivery. These roles and responsibilities will need to

be identified as a next step in 2013 leading up to the development of the 2015-2017 Business Plan and Budget for Transportation at The City. The development of roles and responsibilities will be lead by the director of Calgary Transit.

A report to City Council in December 2013 will identify roles and responsibilities, and progress on short-term strategies.



Regional Transit Governance

As discussed in Section 5, the Calgary Regional Partnership is conducting a review of regional public transit governance. City of Calgary staff and elected officials will continue to provide input to this review.

Calgary Transit staff will work closely with Airdrie Transit and the Calgary Regional Partnership on issues associated with the integration of transit systems in the Calgary region, including fares and service expansion.

Calgary Transit will also continue to support the introduction of transit service by regional municipalities.

Phasing of Delivery of Capital Projects to Match Funding

RouteAhead developed a set of criteria to rank capital projects as well as a logical mode progression on rapid transit corridors. The ranked list is not necessarily a definitive answer to the logical order for construction of the projects. There are many other variables to be accounted for when deciding which projects are to be constructed, such as community readiness (e.g. land requirements have been identified, public engagement has been conducted, and the

community understands the impacts and benefits of the project), availability of capital and operating funds, and political support. The City's Investing in Mobility plan identifies the recommended phasing of projects in transit corridors over the next 10 years. Investing in Mobility is a financially constrained plan, meaning it is based on the amount of capital funding expected to be available over the next 10 years.

There is positive political and citizen support for

additional transit projects to relieve crowding, increase frequency, improve reliability, reduce travel times and improve the customer experience. The City cannot afford to pay for large capital projects using property tax revenue and must rely on other levels of government to fund these projects. Securing stable, long-term capital funding will help The City plan the logical phasing of capital projects.

Moving Ahead with Rapid Transit Projects

In the past, The City has not typically proceeded with pre-design and a detailed design of transit capital projects until funding was approved for construction. This approach is tied to the uncertainty of capital funding streams. It eliminated the need to revisit designs that were completed years before funding was available to build the project, and allowed funds to be spent on other priorities.

A new approach identified in RouteAhead is to advance the pre-design to

a point (typically the 30 per cent level) for projects that are immediate priorities but are not yet fully funded. This approach reduces the time between funding approval and construction. Past economic stimulus funds were available for “shovel ready” projects only; this new approach will bring high-priority transit projects to the “shovel ready” stage, allowing The City to capitalize on future funding opportunities. This approach will also make it easier for The City to move ahead with projects under uncertain funding streams.

FUNCTIONAL PLANNING studies are preliminary studies to determine if the proposed project is feasible and to provide preliminary estimates of capital and operating costs, land requirements, infrastructure requirements and community impacts.

PRE-DESIGN STUDIES include engineering analysis and plans that refine the information provided in the functional plan and create “30 per cent” design plans to be used for land acquisition, quantities, detailed cost estimates and construction phasing.

DETAILED DESIGN involves the creation of engineering plans and specifications used for construction.





Calgary Transit's On-Going Engagement

The public engagement during the RouteAhead project will continue as part of Calgary Transit's long-term planning functions.

The RouteAhead bus was very popular and proved to be an excellent way to interact with customers when the bus was in service, and with non-customers at events such as the Mayor's Environment Expo. Calgary Transit will continue to use the bus for public engagement on projects identified in this plan.

Social media was used successfully to interact with Calgarians. Twitter was very popular among Calgarians and people from across Canada. The RouteAhead.ca website was an effective way to share information about the process and the plan, and a blog offered a good way to share information in a less formal manner than a Council report.

Although there is a cost to this level of engagement, it is valuable to have ongoing conversations with citizens regarding the future of Calgary Transit.

Review of RouteAhead and the Calgary Transportation Plan

The RouteAhead plan provides an over-arching document to guide City Council's and Calgary Transit's strategic decision-making for the next 30 years. There are assumptions and forecasts in the plan based on land use plans and data that are available today. There will also be new information arising from project plans. New route alignments and updated cost/benefit information will become available. The RouteAhead plan should

be updated approximately every five years to make sure it remains current and practical for decision makers. It should be updated in conjunction with a future review of the MDP and the CTP to ensure these documents remain in alignment. The next RouteAhead update shouldn't need to be as intensive as the process to create this plan, but it should include public engagement, comprehensive analysis, and review and approval by City Council.

glossary of terms

Access Calgary Vehicles

Accessible vehicles are used for door-to-door, shared ride (customers share the vehicle and may travel to multiple destinations) transit services for people with disabilities.

Articulated Bus

18 metre-long articulated buses can carry 125 passengers and are used on routes with high ridership or where additional capacity is needed during peak travel times.

Base Transit Service

A range of transit services

(feeder routes, mainline and cross-town services) that will support the primary transit network by providing coverage in communities and areas that do not meet the threshold for primary level service. The target for all base transit is 30-minute frequency.

Boarding Passengers

The total number of passengers who board transit vehicles. Passengers are accounted for each time he/she boards a transit vehicle even though the boarding occurred after transferring from one route to another to complete a trip.

Bus Rapid Transit (BRT)

A type of limited stop bus service that may rely on technology to speed up the service. It can operate in-street with regular traffic, on exclusive transitways, on high occupancy vehicle lanes and on almost any type of street.

Calgary Metropolitan Plan

A regional plan to guide the long-term growth and development for members of the Calgary Regional Partnership.

Calgary Regional Partnership (CRP)

An association of municipalities in the Calgary Region – from Crossfield in the north to Nanton in the south, and from Banff in the west, to Wheatland County in the east, with Calgary at its geographic centre – that are working together to develop an integrated regional land use and transportation plan.

Calgary Transportation Plan (CTP)

The CTP provides the policy framework and direction for the development of the transportation network in The City of Calgary. In conjunction with the Municipal Development Plan, the CTP provides a long-term strategy for a more sustainable city through the integration of land use and mobility policies.

Capacity

The number of passengers that can be accommodated on a transit vehicle including standees. For example, on a regular (12 metre) bus, this is usually in the range of 65 to 75 passengers.

Capital Budget

The funds that are available for constructing and maintaining long term assets such as property, buildings, vehicles, LRT lines, and major equipment. Funds to cover the costs of these assets are normally provided through ongoing programs or one-time grants from the provincial and federal governments.

Catenary

The overhead wire (contact wire) that is suspended over the LRT tracks that supplies power to light rail vehicles.

Community Shuttle

Smaller vehicles that are used when introducing service to new communities and on routes that have fewer passengers. Community shuttles typically have a seating capacity of up to 24 passengers. Because community shuttles cost less to buy and operate they allow Calgary Transit to provide service on routes and in areas that would not be viable with a larger bus.

Connection

The need for a customer to use more than one route to complete a trip (also called a transfer.) Connections are often required due to the multiple origins and destinations of transit customers.

Connective Grids

A network of routes laid out in a grid (perpendicular lines) to enable more direct trips using connections and frequent service.

Crime Prevention Through Environmental Design (CPTED)

The proper design and effective use of the built environment, which may lead to a reduction in the fear and incidence of crime and an improvement in quality of life.

Cross-over

A pair of switches that connects two parallel rail tracks allowing a train on one track to cross over to the other.

Deadhead Time

Time required to move a transit vehicle without passengers. It includes the time required for a transit vehicle to travel to or from the garage and a terminus point where service on a route begins. It can also include the travel time between the end of service on one route to the beginning of service of another.

Frequency of Service

The quantity of service on a route or corridor. The amount of time scheduled between consecutive buses on a given route or corridor; in other words, how often the bus or train comes.

Frequent Transit Service

The element of the primary transit network that is most attractive to customers. Frequent transit service (e.g. a bus or CTrain will arrive every 10 minutes for 15 hours a day, 7 days a week) will be provided on high ridership routes along priority corridors and between activity centres identified in the Municipal Development Plan.

Headways

The scheduled time interval between transit vehicles operating in the same direction on the same route.

Hours of Operation

The span of hours over which service is operated during the course of a day. The service span normally varies by weekday, Saturday and Sunday.

Introductory Transit Service

The transit service first offered to a new community, based on Council policies and the availability of service hours, vehicles and a connected road network.

Life-cycle Maintenance

A process of ensuring the required maintenance of an asset (building, vehicle, systems) occurs at prescribed times to maximize the useful and expected life of the asset.

Life-cycle Cost

The total cost over the life time of an asset. It includes purchase price, installation cost, operating costs, maintenance and upgrade costs and remaining (residual or salvage) value at the end of ownership or of its useful life.

Light Rail Transit (LRT)

Electrical powered rail cars operating on protected rights-of-way, adjacent to or in the medians of roadways or rail rights-of-way. Generally operate at grade, with some sections in mixed traffic and/or tunnels or on elevated bridge structures. Calgary Transit has a fleet of approximately 200 light rail vehicles to provide service on the four legs of the LRT system, commonly called the CTrain. A three-car CTrain can carry approximately 600 people.

Mode

Mode refers to a particular form of travel (e.g. pedestrian, cycling, transit, private automobile).

Mode Split or Modal Split

The proportion of total person trips using each of the various modes of transportation. The proportion using any one mode is its modal share.

Municipal Development Plan (MDP)

The MDP is a statutory plan, prepared and adopted by bylaw in accordance with the Municipal Government Act. The MDP guides the land use development within the city. In conjunction with the Calgary Transportation Plan, the MDP provides a long-term strategy for a more sustainable city through the integration of land use and mobility policies.

Network

The network refers to the transit system as a whole including all bus and CTrain routes. The transit network is part of the overall transportation network.

Off-peak Period

Periods of time outside of the peak period (i.e. between 9 a.m. and 3 p.m. on weekdays, after 6 p.m. on weekdays and weekends).

Operating Budget

Approved through the three-year budget/business plan process at The City of Calgary by City Council, the operating budget provides the funds that are available on an annual basis to cover the costs of operating the transit system. The operating budget includes funds for staff salaries/wages, maintenance of

vehicles, buildings and other infrastructure, fuel and other costs of running the system. Funds are made available through revenue generated through the operation of the transit system and property taxes.

Park and Ride Lots

Parking lots located at LRT stations, bus terminals or bus stops that allow automobile users to park their private vehicles and connect with public transportation in a convenient manner.

Peak Hour

The 60 minute period in the morning or afternoon peak period on weekdays where the volume of riders carried on a route or on the entire system is at its highest.

Peak Period

This term normally refers to the weekday period of highest demand, typically from 6 to 9 a.m. and from 3 to 6 p.m.

Peak/Base Ratio

This refers to the number of vehicles operated in service during the peak period divided by the number operated during the middle of the day (9 a.m. to 3 p.m. on weekdays).

Pedestrian-oriented

An environment designed to make travel on foot convenient, attractive and comfortable for various ages and abilities. Considerations include directness of the route, interest along the route, safety, amount of street activity, separation of pedestrians and traffic, street furniture, surface material, sidewalk width, prevailing wind direction, intersection treatment, curb cuts, ramps and landscaping.

Primary Transit Network

Primary transit network: defined by the level, or frequency, of service and not by the mode or vehicle that provides the service. It comprises a permanent network of high-frequency transit services (LRT, bus rapid transit (BRT), streetcars/trams and frequent bus service) that will operate every 10 minutes or better over an extended operating period, seven days a week. Currently, Calgary Transit has implemented primary transit levels of service on the CTrain network and Route 3 (Sandstone – Elbow Drive), north of Heritage Station.

Polycentric

Having more than one centre or destination.

Rapid Transit Network

The rapid transit network is designed to provide limited stop transit service offering customers a faster way to travel. Calgary's future rapid transit network will consist of light rail transit (LRT), bus rapid transit (BRT), bus-only lanes or high occupancy vehicle lanes (HOV) and transitways. It is distinguished by a heavy investment in capital infrastructure to provide limited stop service and a high level of transit priority.

Refurbishment

This refers to the process of upgrading a bus or train to extend the usable life of the vehicle. The process may include upgrades to the interior, exterior and the electrical/mechanical components of the vehicle.

Regular Bus

The traditional 12 metre-long bus is the workhorse of Calgary Transit's fleet. There are approximately 800 regular buses in the current fleet, with a passenger capacity of 65-75 passengers per bus.

Revenue/Cost Ratio

Revenue generated from the operation of transit service (including fares, advertising revenue, fines/penalties) divided by the total costs of operation.

Revenue Service

The measure of the time when transit vehicles are in operation on a route and available to pick up passengers for transport.

Ridership

The number of rides taken by people using a transit system in a given time period. The annual ridership for Calgary Transit is calculated based on calculations of transit usage through sales of the various fare products (cash, tickets, passes). This can also be called revenue ridership.

Ridership Per Capita

Total system ridership divided by population. This provides an indication of the consumption of transit by the population of a city.

Roadway

A generic term that encompasses all types of roads and streets.

Schedule

The time at which a bus or train is to depart from a specific points (time-points) along a route. A time-table outlines the collection of times on a route when service is provided to customers.

Schedule Reliability

This term generally refers to whether vehicles on a transit route are arriving at designated points as per the schedule . Calgary Transit considers vehicles to be on-time if they are zero to three minutes past the departure time on the posted schedule.

Service Hours

The measure of the time that is required on all buses and trains to operate the transit system. This would include the total time for all vehicles providing transit service -from the time vehicles leave the garage until they return – calculated for the entire year.

Service Hours per Capita

This is a measure of the amount of transit service provided to Calgarians. The total hours of service provided in a given year divided by the population.

Signal Systems

A network of mechanical or electrical devices erected beside a rail line to pass information relating to the state of the line ahead to the train/train operator. The operator and/or train interprets the signal's indication and acts accordingly. For example, a signal might inform the driver when to proceed or may instruct the operator to stop.

State of Good Repair

This term refers to a process of measuring the condition of capital assets, determining investment priorities for upgrades and ensuring ongoing preventative maintenance practices. This is essential for providing safe and reliable transit service.

Streetcars

Urban rail vehicles operating at low speeds (e.g., 10 to 25 km/h) in mixed traffic, with closely spaced stops (e.g., every 200 metres).

Switch

A switch refers to a mechanical installation enabling trains to be guided from one track to another.

Traction Power

Traction power is the electricity grid that powers the operation of the light rail transit system.

Transfer

The need for a customer to use more than one route to complete a trip. (Also called a connection.) Transfers are often required due to the multiple origins and destinations of transit customers.

Transit-oriented Development (TOD)

A mixed-use community within walking distance of a transit stop that mixes residential, retail, office, open space and public uses in a way that makes it convenient to travel on foot or by public transportation.

Transit-oriented, Transit-friendly or Transit-supportive

The elements of urban form and design that make transit more accessible and efficient. These range from land use elements, (e.g., locating higher intensity housing and commercial uses along transit routes) to design (e.g., street layout that allows efficient bus routing). It also encompasses pedestrian-friendly features, as most transit customers begin and end their trips as pedestrians.

Transit Priority Measures

Strategies that improve transit operating speeds and transit travel time reliability in mixed traffic, such as traffic signal priority or queue jumps.

Transitway

Can be comprised of transit-only lanes separated from regular roadways, or separate lanes on existing roadways, or shoulders on an existing roadway, or any combination of these options. In each case, the transitway lanes are for the exclusive use of transit and emergency services vehicles.

Unicentric

Having a single centre or destination.

Wayfinding

A term used to describe how people respond to the built environment to orient themselves. Elements that contribute to wayfinding include reference points such as signage, pavements/curbs/ markings, natural areas or parks, landmark buildings, bridges, distinctive lighting and public art.

acknowledgements

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Thank you to all of the employees at Calgary Transit for their contributions to the development of this plan.

