



## EDMONTON LRT EXPANSION PLAN



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## CONTENTS

<b>1</b>	<b>INTRODUCTION</b> .....	<b>3</b>
	Purpose .....	3
	Project Background.....	3
<b>2</b>	<b>PROJECT CONTEXT</b> .....	<b>9</b>
	Background.....	9
	The Capital City Downtown Plan .....	9
	The LRT Expansion Plan - LRT Downtown Plan Report .....	10
<b>3</b>	<b>OPTION DEVELOPMENT AND ASSESSMENT</b> .....	<b>15</b>
	Process Overview .....	15
	Assessment Criteria.....	16
	LRT Option Assessment .....	18
	Traffic Assessment.....	31
<b>4</b>	<b>THE RECOMMENDED CORRIDOR</b> .....	<b>36</b>
<b>5</b>	<b>NEXT STEPS</b> .....	<b>40</b>

## FIGURES

Figure 1.1	Examples of City Scale - Urban Style .....	4
Figure 1.2	Study Area .....	6
Figure 2.1	Route Options.....	11
Figure 3.1	North / South Route Options .....	19
Figure 3.2	Route Option on 107 Street and 102 Avenue .....	24
Figure 3.3	Route Option on 107 Street and 103/102A Avenue .....	25

## TABLES

Table 2.1	Shortlisted Corridors.....	10
Table 3.1	Assessment Criteria and Associated Measures .....	17

## APPENDIX

### A PROPOSED DOWNTOWN LRT ALIGNMENT

THE CAPITAL CITY DOWNTOWN LRT PLAN

# INTRODUCTION







# 1 Introduction

## Purpose

- 1.1 This report describes how an expanded Edmonton LRT network is proposed to be accommodated within the downtown. It describes the approach taken to develop and assess the potential downtown route options and presents a summary of the technical analysis that result in the recommended LRT corridor.
- 1.2 The recommended downtown LRT route complements, and links with, the proposed West and Southeast LRT corridors and is also consistent with the draft Capital City Downtown Plan. In combination these initiatives provide a major opportunity for the City of Edmonton to introduce a series of major improvements to the Downtown. In particular, the introduction of a new (surface level) LRT route can be a significant “city shaper” providing a focus for new development, and changing the way in which people access and use the downtown and it’s many facilities.
- 1.3 The report consists of the following five sections:
- Introduction
  - Project Context
  - Option Development and Evaluation
  - Conclusions
  - Next Steps

## Project Background

- 1.4 The City of Edmonton has adopted a new long term Light Rail Transit (LRT) network plan and style of system that differs from the current LRT line. The focus of future LRT expansion will be to provide an Urban Style - City Scale system. An approach that will provide closer stop spacing and improved links to communities, supporting the City's vision for a more compact, sustainable and liveable city.

**City Scale:-**                    *Distinctive design that provides; identity; seamless integration; easily accessible; supportive of land use plans, and walkable communities.*

**Urban Style:-**                *Reduced scale platforms and stops; modern low floor LRT vehicles; frequent stops; transit priority; serving dense urban corridors;.*

FIGURE 1.1 EXAMPLES OF CITY SCALE - URBAN STYLE



Modern LRT/Stop - Dublin, Ireland



Alignment - Lyon, France

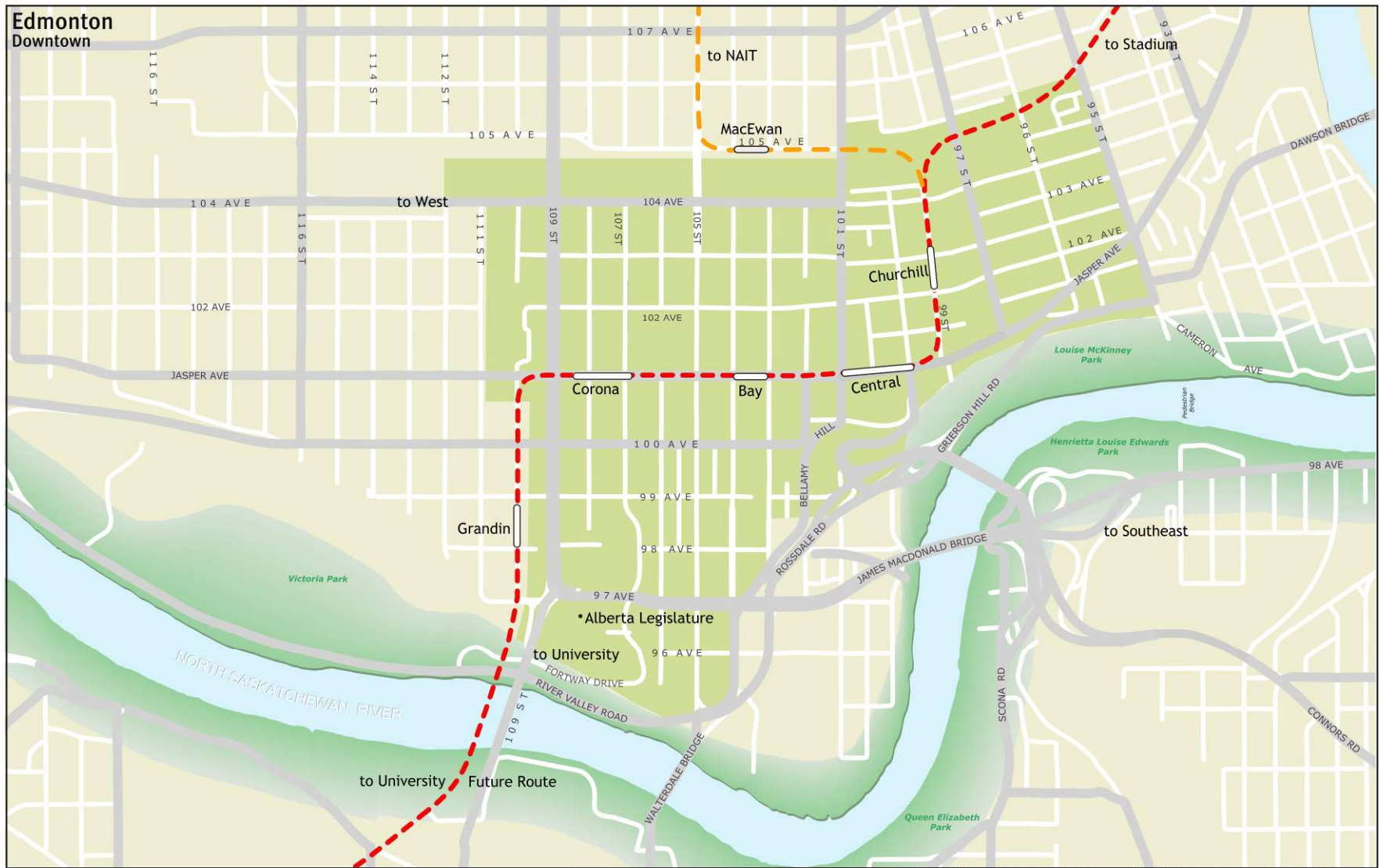


- 1.5 To support the development of an "Urban Style - City Scale" system, low-floor LRT vehicles are proposed for new lines, which would not be physically connected to the existing network. This style of vehicle will help to reduce the scale of infrastructure enabling new route to be more easily integrated within the existing urban fabric.
- 1.6 Two new LRT routes are being planned based on these principles, the Southeast Line to Millwoods and the West Line to Lewis Estates. The downtown LRT route will provide the connection between these routes and will provide passengers with access to destinations throughout the downtown.
- 1.7 The new low floor routes will, where possible, be developed within the existing road corridors, use embedded track, providing a level surface. The new lines will be segregated from other road users and pedestrians through the use of clear visual markers such as curb lines or road markings rather than fencing or barriers reducing visual intrusion and the LRT alignment width. Priority for the LRT will be provided by reducing the number of intersections crossed and by providing priority to the LRT where possible at the remaining intersections.
- 1.8 Low floor platforms will be provided using a reduced level of stop infrastructure facilitating their integration with communities, while reducing the visual impact. Stops will provide level boarding and passenger amenities such as shelters, real time information and close circuit television.
- 1.9 Modern low floor vehicles will be deployed providing identity and energy efficiency, powered by single wire overhead reducing visual intrusion and using span wires for support from building or poles combined with street lighting or other street furniture.
- 1.10 The development of lines will use the techniques above to minimise the impact of future LRT routes, to provide closer integration with communities and people and help facilitate public realm improvements along the length of the routes and in particular around stops.
- 1.11 The development of these new LRT lines and the route through the downtown provides the City of Edmonton with a unique opportunity to integrate the development of LRT with the City's development plans and to support the Capital City Downtown Plan.


### ***Downtown Study Boundary***

- 1.12 The Downtown study area encompasses wider Downtown Edmonton, broadly the area bounded by 95 Street to the East, 109 Street to the West, 104 Avenue to the North and the North Saskatchewan River to the south, as shown in Figure 1.2.
- 1.13 The area encompasses both the Downtown, which includes the Warehouse, Commercial, McKay Avenue and Capital City districts, and the Quarters a development area alongside the eastern boundary of the Downtown.

# The Capital City Downtown LRT Plan



Edmonton LRT Expansion  
Figure 1.2 - Study Area

 Study Area

 **steer davis gleave**

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THE CAPITAL CITY DOWNTOWN LRT PLAN

## PROJECT CONTEXT







## 2 Project Context

### Background

2.1 The development and assessment of the recommended corridor for LRT through the downtown has been influenced by The City of Edmonton’s strategic vision, which aims for a more compact, livable and sustainable city, where people have the opportunity to choose and use alternative transportation modes. This is outlined in:

- “The Way Ahead”, the Strategic Plan;
- “The Way We Grow”, the draft Municipal Development Plan;
- The “Capital City Downtown Plan”; and
- “The Way We Move”, the Transportation Master Plan;

### The Capital City Downtown Plan

2.2 The Capital City Downtown Plan sets out the proposals for the ongoing development of the downtown area, setting out a strategy for the existing developed areas of the city and a strategy for the development of the currently less developed and underutilised areas of the downtown.

2.3 The development of an LRT alignment through the downtown will provide the opportunity to integrate the proposed route in support of the Downtown Plan, its Vision and proposed Policy Framework. The LRT route provides opportunities to improve access to the proposed areas of development, while connecting to the existing developed areas in the downtown. The LRT stops will provide a focus for development and help support new centres and communities.

2.4 The Capital City Downtown Plan is currently being finalised in parallel with the current Downtown LRT study this has provided the ideal opportunity to integrate the two studies to ensure the LRT network is integrated into the Downtown Plan to maximise integration with the proposals for land use, urban realm, street use which include pedestrian, cycling, transit and general traffic.

### *Edmonton LRT Network Plan*

2.5 Expansion of the Light Rail Transit (LRT) network has a significant role to play in helping to shape future city development and supporting the City’s strategic objectives.

2.6 New LRT stops providing the catalyst for the development of more compact urban communities. The new LRT lines provide the opportunity to incorporate urban realm improvements, integrating the routes and stop with the communities they serve. The use of surface routes and stops providing improved accessibility, helping to promote greater use of transit, and increasing mode share. The stops helping to generate increased local vibrancy through the pedestrian movement to and from the stops.



## The Capital City Downtown LRT Plan

- 2.7 Recognising the importance of transit in helping to meet the City's strategic goals and the role that the existing and future development of LRT can play in this, the City has developed an LRT Network Plan to guide the long term expansion of the network.
- 2.8 The Plan is based on an assessment of long term population and employment growth, capacity requirements, and an evaluation of potential LRT catchments and corridors. The plan proposes a six line LRT system extending from the Downtown to the Northwest, Northeast, East, Southeast, South and West.
- 2.9 Key elements of this plan include:
- Serving communities only where future land use and demand warrants it;
  - Street level operation of new lines;
  - An Urban Style, City Scale approach to guide any future development; and,
  - Low-floor LRT technology for new lines unconnected to the existing system.

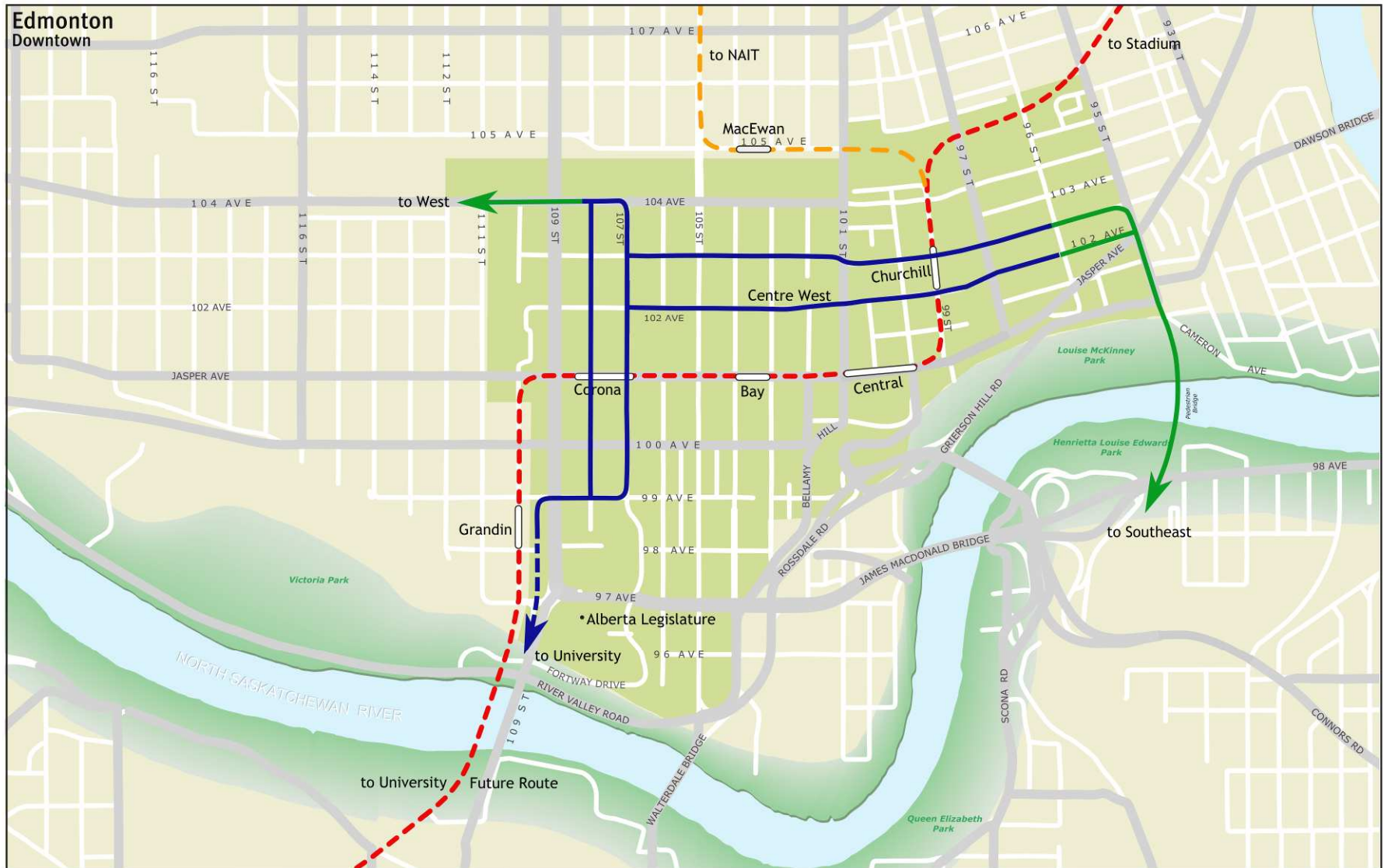
### The LRT Expansion Plan - LRT Downtown Plan Report

- 2.10 In developing the LRT network plan the opportunities and options for a series of alternative LRT routes through the downtown area were examined, including options for a wider Central Area circulator route through Strathcona. The Central Area Circulator LRT network does not form part of the current scope of work, other than making future provision for this route.
- 2.11 The report identified two potential north / south corridors, and two east /west corridors as shown in Table 2.1 and Figure 2.1

**TABLE 2.1 SHORTLISTED CORRIDORS**

North South Corridors	East/West Corridors
107 Street	102 Ave
108 Street	103 Ave / 102A Ave

- 2.12 These corridors formed the basis for further development and assessment to identify the preferred option for LRT routing through the downtown.



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Edmonton LRT Expansion  
Figure 2.1 - Route Options

 Downtown LRT Routes



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THE CAPITAL CITY DOWNTOWN LRT PLAN

# OPTION DEVELOPMENT AND ASSESSMENT







## 3 Option Development and Assessment

### Process Overview

- 3.1 The Transportation Department and the project team, in conjunction with stakeholders, have used a multi-stage process to review, develop, assess and identify the preferred option for the LRT route through the downtown.
- 3.2 The potential downtown LRT routes identified in the LRT Expansion plan formed the starting point for the study team. The short listed route options being the two potential North / South corridors, 107 and 108 Streets and two East / West corridors, 102 and 103 / 102A Avenues.
- 3.3 To ensure that the analysis, conclusions and the route options were consistent with the developing Downtown Plan the team undertook an initial high level review working with the Capital City Downtown Plan (CCDP) team.
- 3.4 The selection of the preferred route was then approached in two stages. The North/ South route options were assessed first as the team identified a range of issues and opportunities during stakeholder consultations and the review of options with the CCDP team. This process ensured key concerns that had been identified were given priority, while also simplifying the later analysis.
- 3.5 The preferred North/South corridor was then combined with the East/West corridors. The resulting route alignments were further developed and a single preferred option identified on the basis of a common assessment framework and stakeholder consultation.
- 3.6 The team then undertook further stakeholder consultation and route refinement work to verify the selection and produce a concept LRT alignment for the downtown route.
- 3.7 Throughout the study the team has liaised with the teams working on the Southeast and West LRT routes to ensure the LRT route through the downtown provides the optimum connection for these radial corridors.
- 3.8 The Downtown LRT study has also been undertaken in parallel with the development of the Capital City Downtown Plan. Both teams have throughout the process coordinated their activities, to ensure integration of Transportation and Land-Use, and to maximise the opportunities and synergies of the two studies.

## The Capital City Downtown LRT Plan

### **Stakeholders**

3.9 Throughout the process stakeholder consultation has taken place with a number of organisations and representatives, as follows:

- |   |                                      |
|---|--------------------------------------|
| ■ Edmonton Transportation Planning              | ■ Norquest College                   |
| ■ Edmonton Planning & Development               | ■ Grant MacEwan University           |
| ■ Capital City Downtown Planning & Policy Team  | ■ City Centre Mall                   |
| ■ The Quarters Development Team                 | ■ YMCA                               |
| ■ Representatives for the Downtown Arena        | ■ Winspear Center                    |
| ■ Capital City Downtown Plan Advisory Committee | ■ Edmonton Public Library            |
| ■ Edmonton Design Committee                     | ■ Katz Group                         |
| ■ Southeast and West LRT Route Development Team | ■ Downtown Business Association      |
| ■ Government of Alberta Real Estate Services    | ■ BOMA                               |
|   | ■ Downtown Edmonton Community League |
|   | ■ Alberta Health Service             |

### **Assessment Criteria**

- 3.10 The assessment framework uses the more detailed measures set out under the Council approved assessment criteria.
- 3.11 Within the Downtown the primarily role of the LRT is somewhat different to the radial LRT corridors which feed it. The Downtown LRT route will be much more focused on serving major destinations and providing integration with the existing transit/transportation network. The route will also need to support the higher levels of development that exist within a downtown area and the development proposals set out in the CCDP.
- 3.12 This downtown emphasis led to a greater focus on a set of core assessment criteria. These are: passenger catchment, land use integration, transportation network integration, urban design and urban form. These measures were agreed in consultation with the City of Edmonton Transportation Planning team, and ensure that the selection of a preferred route is based on the application of a consistent and objective set of criteria. The key measures associated with these assessment criteria are detailed in Table 3.1.

TABLE 3.1 ASSESSMENT CRITERIA AND ASSOCIATED MEASURES

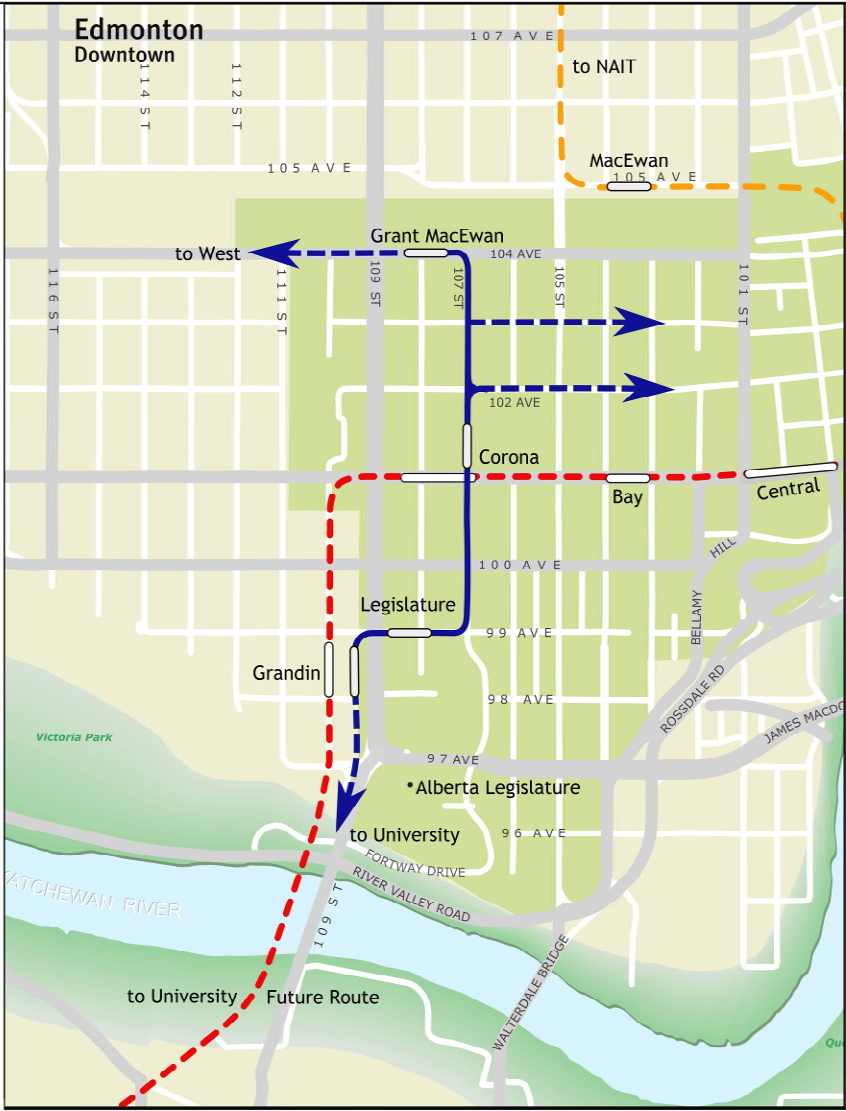
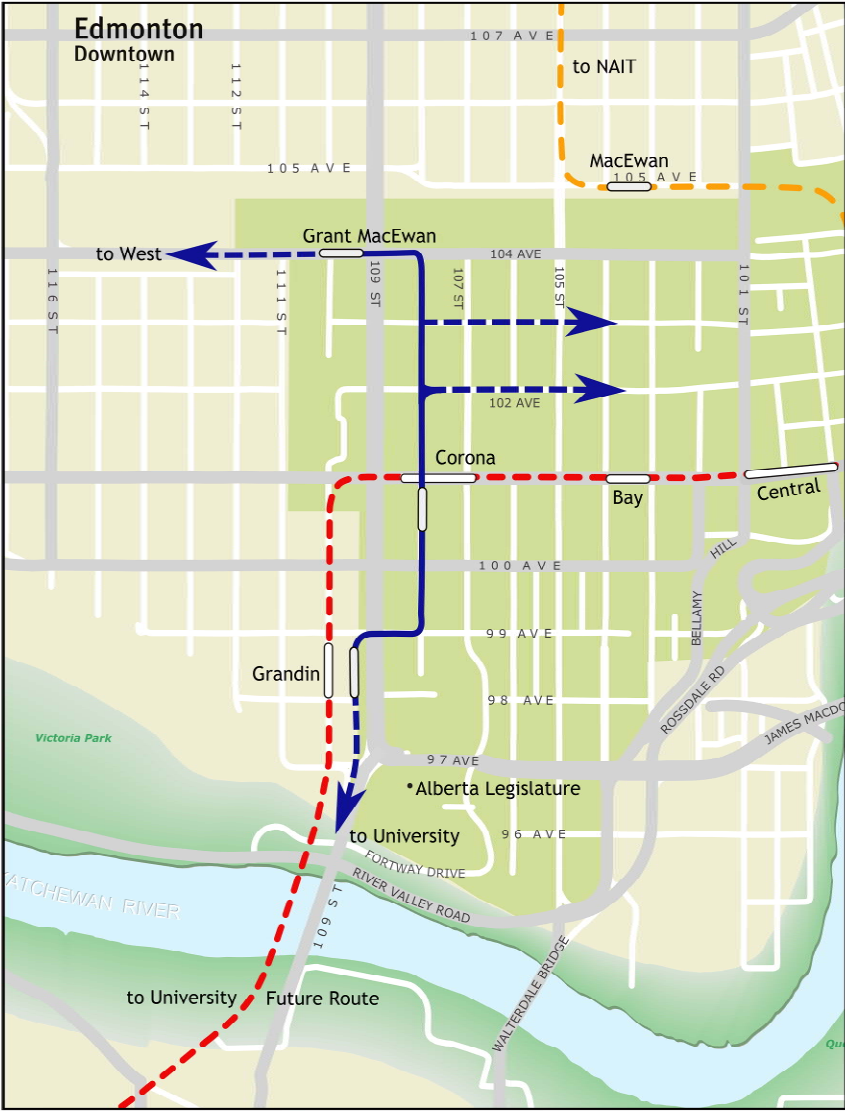
Assessment Criteria	Associated Measures
LRT Alignment	Route Length, number of stops, Average Stop Spacing, Downtown Integration, Connection to gateways
Catchment	Population and employment within 400 metre catchment
Land Use Integration	Number of Key Destinations (Employment, Theatres, Colleges, Shopping, etc.), integration with development
Transportation Network Integration	Integration with other transit modes
Urban Design	<p>Identification of any urban design opportunities created e.g.</p> <p>Streetscape improvements, Improved boundary treatment, Landscaping / Planting / Trees, Community Identity Cohesion, Linking Zones</p> <p>Facilitate TOD, Impetus for redevelopment, Facilitate density/ mixed use development , Additional LRT stops, Improved links (social cohesion)</p>
Urban Form	<p>Does the route create physical barriers? ( severance)</p> <p>Does the route support CCDP Policy Framework proposals?</p>

## The Capital City Downtown LRT Plan

### LRT Option Assessment

#### *Introduction*

- 3.13 The development of the overall LRT Expansion Plan included an initial consideration of downtown routes to connect with various radial LRT corridors. From this work it was concluded that North/South alignments on 107 and 108 Streets, and East/West alignments on 102 and 103/102A Avenues should be considered in more detail.



Edmonton LRT Expansion  
 Figure 3.1 North / South Route Options  
 108 Street Option

107 Street Option

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***Evaluation and selection of the North / South Route Corridors***

- 3.14 In an initial review of the potential LRT routes to be taken forward and also in consultation with stakeholders, concerns were raised regarding the appropriateness of the 108 Street corridor. The team concluded that it would be beneficial to undertake an assessment of the two north-south route options in order to identify the most appropriate option for the Downtown LRT alignment. The two options considered are shown in Figure 3.1.

***107 Street Option***

- 3.15 This route option runs from the connection with a future Central Area Circulator LRT network at Grandin, turning east onto 99 Avenue with a stop located on the northern edge of the Alberta Legislature complex. The route then continues east turning north, to run on the west side of 107 Street. A stop would be located north of Jasper Avenue to connect with the existing LRT station at Corona.
- 3.16 The route then continues through to 104 Avenue, turning west with a stop sited on the north side of 104 Avenue to serve Grant MacEwan University. The route then continues, connecting to the West LRT route.

***108 Street Option***

- 3.17 This route option again runs from the connection with a future Central Area Circulator LRT network at Grandin, turning east onto 99 Avenue before turning more immediately north onto 108 Street. This option does not have a sufficient length of straight track on 99 Avenue to enable a stop to be provided at this location. The route continues north on 108 Street with a stop located north of Jasper Avenue to connect with the existing LRT station at Corona.
- 3.18 The route then continues through to 104 Avenue, turning west to continue across 109 Street. A stop would be located on the west side of 109 Street. This option does not have a sufficient length of straight track on 104 Avenue to enable a stop to be provided immediately adjacent to the Grant MacEwan University. The route then continues, connecting to the West LRT route.

***Assessment***

- 3.19 The assessment of the route against the key assessment criteria, as identified in section 2, is detailed below.

## The Capital City Downtown LRT Plan

Assessment Key:







Negative

Neutral

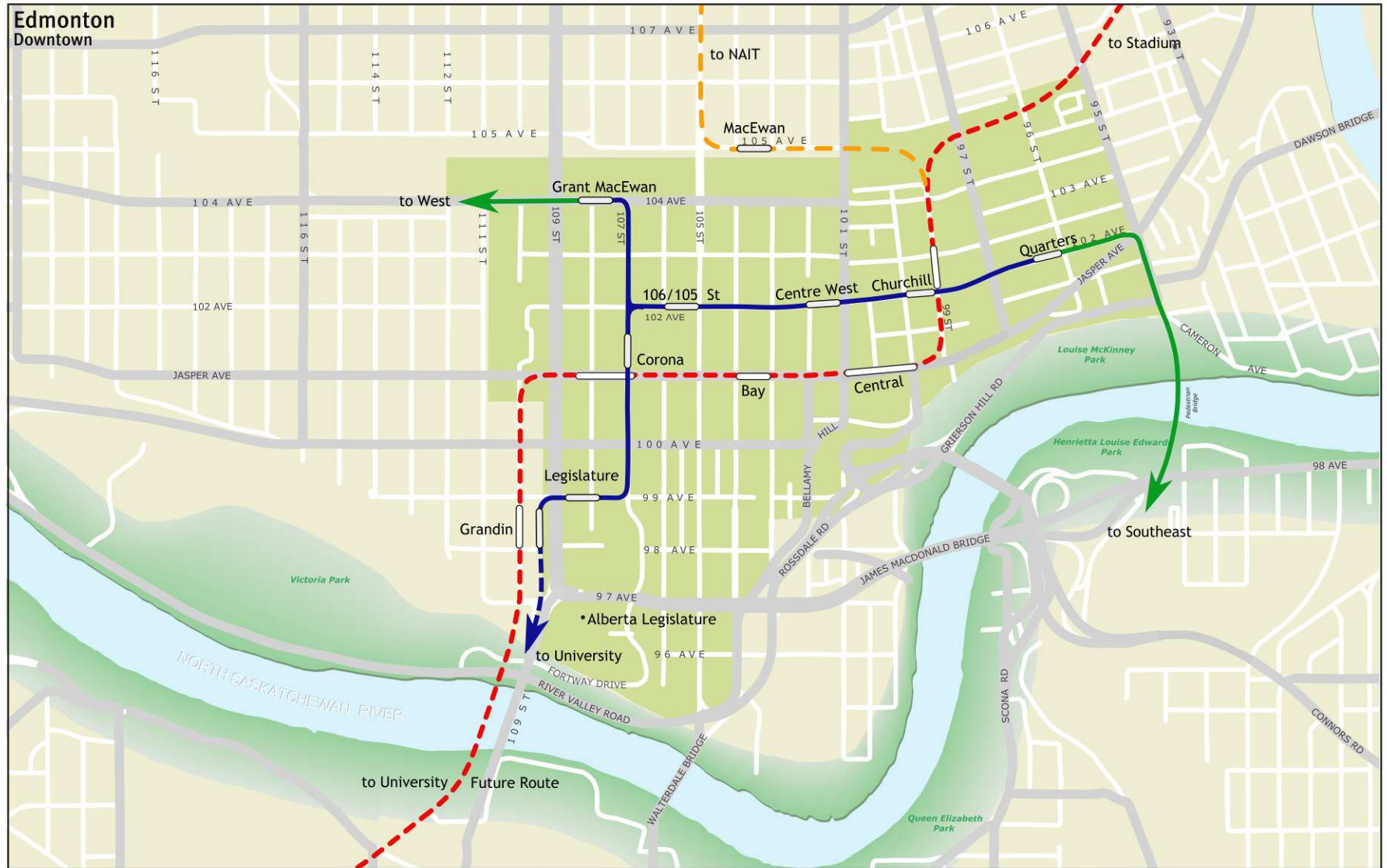
Positive

Assessment Criteria	107 Street	108 Street	
		Rating	Rating
LRT Alignment	The route provides enhanced stop accessibility at the Legislature, Corona and Grant MacEwan.		The route does not provide sufficient straight track in front of the Legislature for a stop on 99 Ave, and impacts on the location of Grant MacEwan stop.
Catchment	The stop on the north side of 104 Avenue provides a good direct walking connection to Grant MacEwan. A stop is located at the Legislature, serving the surrounding employment.		The 108 street route, results in the Grant MacEwan stop being located further west away from the University. The route does not provide a stop on 99 Avenue to serve the Legislature and the surrounding employment
Land Use Integration	With additional stops and their respective locations this option provides improved access to existing and future development. Corona stop offers significant development potential, being adjacent to a large vacant site.		With fewer stops and altered stop locations, the route extends walk links to the area served. The route would support development at the north end of 108 Street.
Transportation Network Integration	The route provides good connections to the existing LRT stations at Corona and Grandin.		The route provides good transfers at Grandin LRT station. At Corona transfers would require a longer walk than the 107 Street option.

Urban Design	The route and, in particular, a number of the stop locations could be the catalyst for urban design improvements along the length of the corridor.		The route could be the catalyst for development along its length, particularly with the proposals for 108 Street to become the Capital Boulevard enhancing the views of the Legislature building.	
Urban Form	The route could result in the potential closure of a section of 107 Street between Jasper Avenue and 102 Avenue.		108 Street is proposed to be the Capital Boulevard, an LRT route may be unacceptable, especially if the Boulevard is built ahead of the LRT.	

- 3.20 Under the Transportation focussed criteria (LRT Alignment, Catchment and Transportation Network Integration) the assessment identified that the 107 Street was better suited for the provision of LRT stops. The route provides integration with the existing LRT stations at Corona and Grandin, increasing the number of locations where passengers can transfer providing comprehensive LRT coverage through the downtown. The interchange locations also provide opportunities to create high quality connections between the existing underground LRT system and the new surface level LRT alignment, with greater presence at street level, improving the visibility and accessibility of the network.
- 3.21 The proposed stop locations at the Legislature and Grant MacEwan University are adjacent to the two sites, providing direct walk links, removing the need to cross streets. This approach provides more seamless walking routes and opportunities to create pedestrian-focused urban spaces around the stop, with easy access to the University.
- 3.22 Under Land Use and Urban Form, the 107 Street route option performed better than the 108 Street route. It was considered able to provide improved stop integration as detailed above, which will better serve the destinations and the local communities centred on them. Stop locations can also become the focal point within the different neighbourhoods, with development radiating out from them, helping to reinforce transit as the primary mode for the area.
- 3.23 Under Urban Design the 108 route could be developed to complement the proposals for the Capital Boulevard to create a new integrated pedestrian and transit focused street. The acceptability of this approach is uncertain if the Capital Boulevard proposals are implemented before the LRT route. The development of LRT and in particular the stop locations provide opportunities to enhance the streetscape and the areas around stops, improving the pedestrian environment and placing LRT at the heart of communities.
- 3.24 The 107 Street route was therefore proposed for the Downtown LRT route, in combination with either the 102 Avenue or 103/102A Avenue routes.

# The Capital City Downtown LRT Plan



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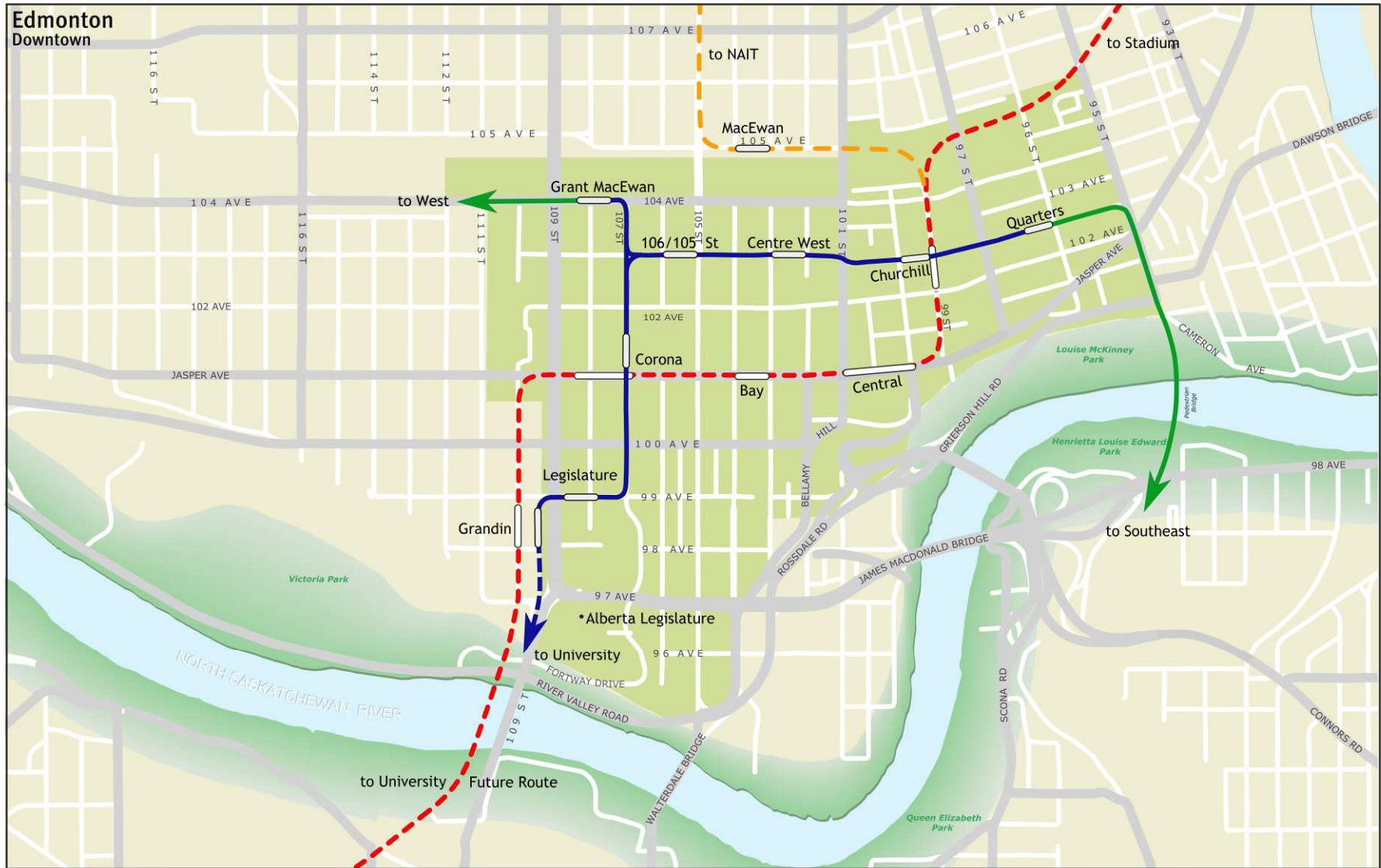
**Edmonton LRT Expansion**  
**Figure 3.2 - Route Option on 107 Street and 102 Avenue**

--- Existing LRT Route



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Edmonton LRT Expansion  
 Figure 3.3 - Route Option on 107 Street and 103/102A Avenue

--- Existing LRT Route

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## The Capital City Downtown LRT Plan

### *Assessment of Route Options*

**3.25** Following the interim conclusion that the 107 Street is the preferred North/South route for LRT, the next stage of the assessment reviewed route options incorporating East/West connections. The alignment options considered were:

- 107 Street and 102 Avenue
- 107 Street and 103/102A Avenue

**3.26** These route options are shown in figures 3.3 and 3.4.

#### ***107 Street and 102 Avenue***

**3.27** This route option runs from the connection with the proposed West Line on 104 Avenue, with a stop provided on the north side of the road. This stop facilitates a direct walking connection with the Grant MacEwan University. The route then turn south onto 107 Street before turning east onto 102 Avenue. A stop would be provided east of 106 Street to serve the Warehouse District and provide a convenient walking connection to Corona Station.

**3.28** The route continues on 102 Avenue with stops provided at (i) Centre West to serve the business district and shopping, and the proposed Downtown Arena (ii) Churchill Square to serve the local government centre, the Entertainment District and provide an interchange with the existing LRT, and (iii) The Quarters to serve the Quarters development area.

**3.29** The route then descends into the tunnel portal on 102 Avenue to turn south, under 95 Street, to cross the North Saskatchewan River.

**3.30** Provision for a route to connect to a central area circulator serving the University and Strathcona areas would be via 107 Street. At the intersection of 102 Avenue and 107 Street the route would continue south on 107 Street, with a stop at Corona to provide interchange with the existing LRT line. The route would continue south before turning west onto 99 Avenue with a stop to serve the Legislature and surrounding employment destinations. The route then continues west, turning south, through the intersection at 109 Street, to run within the multi-use Trail towards the High Level Bridge. The City of Edmonton will work with the Province of Albert to examine options for a multi-modal (LRT/HRT) facility in the vicinity of 109 Street and the routing of the LRT across the river.

**3.31** The route is shown in Figure 3.2.

#### ***107 Street and 103/102A Avenues***

**3.32** This route option runs from the connection with the proposed West Line on 104 Avenue, with a stop provided on the north side of the road facilitating a direct walking connection with the Grant MacEwan University. The route then turns south onto 107 Street, before turning east onto 103 Avenue. A stop would be provided east of 106 Street to serve the Warehouse District.

- 3.33 The route continues on 103 Avenue, with stops provided between 103 Street and 102 Street, serving the proposed Downtown Arena development and the long-distance bus terminus (Greyhound). The route would continue east, through an area of the Downtown where most of the existing development is backed onto the street.
- 3.34 At Churchill Square, a stop would be sited in front of City Hall to serve the local government centre, the Entertainment District and provide an interchange with the existing LRT line. Running the LRT through this closed section of 102 Street will require special consideration given the roadway closures objective to provide improved walking connectivity between City Hall and Churchill Square. A final stop would be located to the east of 96 Street to serve the Quarters development area.
- 3.35 The route then descends into the tunnel portal on 102A Avenue and turns south under 95 Street to cross the North Saskatchewan River.
- 3.36 Provision for a route to connect to a Central Area Circulator LRT network would be via 107 Street. At the intersection of 103 Avenue and 107 Street, the route would continue south on 107 Street, with a stop provided at Corona to facilitate interchange with the existing LRT line. The route would continue south before turning west onto 99 Avenue, with a stop to serve the legislature and surrounding employment locations. The route then continues west, turning south through the intersection at 109 Street and running within the Multi-use Trail towards the High Level Bridge. The City of Edmonton will work with the Province of Alberta to examine options for a multi-modal (LRT/HRT) facility in the vicinity of 109 Street and the routing of the LRT across the river.
- 3.37 The route is shown in Figure 3.3.

## The Capital City Downtown LRT Plan

### Assessment

3.38 The assessment of the routes against the key assessment criteria as identified in section 2 is detailed below.

3.39 Assessment Key:



Negative

Neutral





Positive



Assessment Criteria	107 Street & 102 Ave		107 Street & 103/102A Ave	
		Rating		Rating
LRT Alignment	The route provides the connection between the West and Southeast LRT routes with provision for a connection to a Central Area Circulator LRT network. The route proximity to Jasper Avenue will provide links to the new stops on 102 Avenue.		The route provides the connection between the West and Southeast routes with provision for a connection to a Central Area Circulator LRT network. The route is further from Jasper Avenue limiting the walking connection through to the new stops on 103 Avenue.	
Catchment	The LRT system's route through the downtown is more focused on serving key destinations. The route will serve the proposed Arena with the LRT stop located to allow for major crowd dispersal after major events.  The proximity of the route to Jasper Avenue provides good walk links		The 103 Avenue route by comparison is close to the Arena which may impact on efficient LRT operation, and is some distance from Jasper Avenue and is unlikely to provide good walking connections over this distance. The route is also currently less developed with more limited existing catchment or destinations.	



<p>Land Use Integration</p>	<p>The route supports existing employment on Jasper Avenue, the downtown core and the Legislature. The 102 Ave section would be highly supportive of development north into the less well-developed areas of the downtown. The route would also support the development of the Warehouse District.</p> <p>The route's proximity to existing development is most likely to help generate infill development and extend the built environment into these areas.</p> <p>The stop locations will provide focal points around which to develop, helping to create opportunities to deliver the City's objectives for the downtown.</p> <p>The route would support the Downtown Arena development resulting in four LRT stops surrounding the proposed site. The location of the new low floor stops would be a short distance from the development aiding in the dispersal of people at the end of events and spreading the resulting people across a number of stops.</p>	<p>The 103 Ave route runs through less developed areas of the downtown with limited integration over the majority of its length with the existing employment and the activity centres. The exception is those centred on the Churchill stop. The route would support the development of the Warehouse District. Buildings over part of this core section back onto the LRT route and would reduce the integration with the LRT over this section.</p> <p>The route would support the Downtown Arena development resulting in four LRT stops surrounding the proposed site.</p> <p>The stop locations will provide focal points around which to develop, helping to create opportunities to deliver the City's objectives for the downtown.</p> <p>The route would support the Downtown Arena development resulting in four LRT stops surrounding the proposed site. The location of the new low floor stops would be adjacent to the development on 103 Avenue. This could necessitate a larger scale stop to provide for queuing of passengers at the stop at the end of events at the arena.</p> <p>The proximity of the stop may also concentrate passengers at this location.</p>	
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## The Capital City Downtown LRT Plan

<p>Transportation Network Integration</p>	<p>The route will initially provide direct integration with the existing LRT at Churchill and offer good walk links to the existing LRT stations along Jasper Avenue. Construction of the Central Area Circulator LRT network would provide further integration at Corona and Grandin. The route would also provide interchange to the bus services running through the downtown, particularly to those bus routes operating on 101 Street and at Churchill Square.</p> <p>The route provides connections to the Pedway network at Centrewest and Churchill Square.</p> <p>The buses services currently on the 102 Avenue would be removed as part of the wider revision of bus services in conjunction with the West and Southeast LRT lines.</p>		<p>The route will initially provide direct integration with the existing LRT at Churchill only. Construction of the Central Area Circulator LRT network would provide further integration at Corona and Grandin.</p> <p>The route would offer some level of interchange to the bus service running through the downtown.</p> <p>The route provides a connection to the Pedway network at Churchill Square.</p>	
<p>Urban Design</p>	<p>Stops will become people generators providing the impetus to create a new vibrant pedestrian-focused urban realm. There are also opportunities to use the stop locations as hubs around which development and the urban form is centred.</p> <p>The 102 Avenue section of the route has the benefit of being adjacent to the existing developed areas. With improvement in the walk links to the existing built environment and to the less well developed areas to the north, the route will support CCDDP objectives.</p>		<p>The development of LRT will provide significant opportunities to enhance the urban environment. Stops will be a key area around which this can be achieved, as works are undertaken to improve the walk links and integrate the stop within there local area.</p> <p>Stops will become people generators providing the impetus to create a new vibrant pedestrian-focused urban realm, and offer opportunities to use the stop locations as hubs around which development may be centred.</p>	

<p>Urban Form</p>	<p>Developing improved walk links will help to reduce severance and create greater pedestrian penetration into the less well developed areas of the downtown.</p> <p>The impact of the route on access and egress from existing buildings or parkades has been reviewed, access routes will require some revision in places using the back lanes as set out as a future strategy in the downtown plan.</p> <p>Cycle routes would be proposed to be included with the development of LRT on 102 Avenue to provide improved cycle route through the downtown.</p>		<p>The route, in developing improved walk links will help to reduce severance and create greater pedestrian penetration into the less well developed areas of the downtown.</p> <p>The route does impact upon access and egress arrangements from existing buildings between 99 Street and 97 Street. Retention of access is required on both sides of 102A Avenue, which may not be achievable or may be costly in conjunction with an LRT alignment through this location.</p> <p>In all other areas access and egress arrangement may need to be revised, but could be retained.</p>	
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- 3.40 The comparative assessment summary highlights that the 102 Avenue route performs better under all of the key assessment criteria. The major determining factors are its closer proximity to the existing key destinations, and the scope to support new development initiatives in accordance with the draft CCDP.
- 3.41 Overall, it is concluded that the preferred route option through the downtown, to connect the proposed Southeast and West LRT routes and make provision for a future Central Area Circulator LRT route, is the 107 Street and 102 Avenue LRT route option.

**Traffic Assessment**

- 3.42 In developing LRT through the downtown it is proposed to use some of the existing road space to create a segregated LRT corridor, reducing the available space for other modes of travel within the identified corridors. A high level assessment of the potential impacts and effects on traffic has been undertaken using The City of Edmonton's Regional Travel Model.
- 3.43 The Emme2 model is a strategic level model and has been used to provide an assessment of the potential overall effects on the downtown road network. The model is not appropriate for and has not been used to identify or assess localised intersection issues.
- 3.44 The assessment identified that there are reductions in traffic volumes on the LRT corridors with corresponding increases and decreases in traffic volumes within the wider downtown network as drivers seek to find alternative routes. The results show that the road network is generally resilient enough to cope with these changes, with the volume to capacity ratio found to be acceptable.

## The Capital City Downtown LRT Plan

- 3.45 The proposals for the LRT and road arrangements on 102 Avenue as shown on the LRT alignment drawing contained within Appendix A, provide a segregated corridor for the LRT, traffic lanes for 2 way traffic, and cycle lanes to provide improved cycling connectivity through the Downtown as proposed within the Capital City Downtown Plan.
- 3.46 Further assessment of the potential traffic impacts and mitigation measures will need to be undertaken as the LRT alignment and road designs are developed. This assessment should be undertaken using a micro-simulation model to provide greater clarity on the issues and opportunities at each road intersection throughout the downtown area, consideration should also be given to the assessment of all road uses from pedestrian through to general vehicular traffic in place of the volume to capacity ratio currently used.





THE CAPITAL CITY DOWNTOWN LRT PLAN

## THE RECOMMENDED CORRIDOR





## 4 The Recommended Corridor

- 4.1 The review, development and assessment of the potential downtown LRT route options, and the consultation undertaken with stakeholder identified that a combination of the 107 Street and 102 Avenue corridors would best meet both the objectives for the future LRT and be the most supportive of the draft Capital City Downtown Plan, as well as the wider City objectives.
- 4.2 The development and assessment of the options for a low-floor surface LRT alignment through Downtown Edmonton has been approached so that it both supports and reflects the parallel development of the Downtown Plan. In summary the Downtown LRT route's prime functions are:
- 4.3 i. to both serve the downtown itself and to connect the proposed West and Southeast LRT routes
- 4.4 ii. to make provision for a Central Area Circulator LRT network to provide LRT links to the University and Strathcona areas.
- 4.5 iii. to reflect and advance the wider City and Downtown objectives, including support for development, reducing car use and making Edmonton a more liveable city.
- 4.6 The use of 107 Street option for the north-south component of the route was identified as best supporting the LRT and Downtown objectives by meeting the following criteria:
- LRT Alignment, Catchment and Transportation Network Integration: the assessment identified that the 107 Street was better suited for the provision of LRT stops at the Legislature and Grant MacEwan University. The route also provides improved integration with the existing Corona Station.
  - Under Land Use, Urban Design and Urban Form, the 107 Street route option performed better than the 108 Street route. It was considered able to provide improved stop integration, which better serves the catchment area, and subsequently offers more support for the City's development and land use objectives.
- 4.7 With respect to the east-west part of the route, the structured comparison of 102 Avenue and 103 Avenue showed that the 102 Avenue option performed better under all the criteria:
- LRT Alignment, Catchment and Transportation Network Integration: the 102 Avenue corridor provides shorter walking connections to the existing developed areas of the Downtown and runs through the central core providing greater integration with existing passenger destinations. The route provides integration with bus services on 101 Street. The initial route would also provide a close walk link and integration with the existing Corona station.



- Under Land Use, Urban Design and Urban Form, 102 Avenue supports the existing density on Jasper Avenue and will support the extension of this development north around 102 Avenue. The 102 route also provides closer connections to existing key destinations such as the theatres, library, cinema, shopping, employment, etc, over the 103 Avenue option. The route was concluded to offer greater potential for encouraging improved streetscape/urban realm on more active streets. The 102 Avenue has minimal impacts on building access, the 103 route impacts on building / parkade accesses in the downtown core.
- 4.8 As part of the development and assessment process the team has developed concept designs for the proposed LRT route, these are included in Appendix A. The concept design drawings show the possible arrangement of the LRT within the road space and potential stop locations. The arrangement of the LRT in the road space has been informed by the need to take account of the access arrangement to existing properties, parking and general access. The stop locations have been informed by the need to provide the highest level of seamless access to existing destinations, provide integration with existing transit and to support development around them. If the recommended route is approved, further works will need to be undertaken to refine the location of both the LRT alignment and the stop locations.
- 4.9 In summary, the optimal route was concluded to be a combination of 107 Street/102 Avenue, based on a balanced consideration of a broad range of criteria and the ability of the route to support wider city objectives, as reflected in the draft Capital City Downtown Plan.



THE CAPITAL CITY DOWNTOWN LRT PLAN

## NEXT STEPS

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### 5 Next Steps

- 5.1 The recommended LRT routes and the associated concept plans provide the basis for the further development of the Downtown LRT alignment.
- 5.2 Additional works will be required to optimise the design, to mitigate issues and to maximise the route's benefits both in terms of the transportation network and land use integration.
- 5.3 The LRT routes, as detailed in this document provide a functional alignment with stops located to serve existing key destinations and also act as focal points ("city shaping") for new development. The approach to integrating the alignment with other transportation functions has, at this stage, been conservative.
- 5.4 Although the recommended route will be unchanged, there remains much more scope to integrate the LRT alignment, and in particular the stops, to create more public space to accommodate pedestrian and cycle movement, in preference to vehicular traffic. This more comprehensive approach is common to many new LRT projects in cities around the world, and is recommended for further consideration in Edmonton.
- 5.5 The parallel development of the Capital City Downtown Plan and the LRT route through the downtown provides a real opportunity for the City to coordinate transit and land use investment decisions and deliver its stated sustainable City Vision objectives.
- 5.6 Works will need to include:
  - Continued development and integration with the draft Capital City Downtown Plan
  - Coordination with the LRT corridor studies
  - Optimisation of stop locations
    - Stop area plans
    - Urban realm design
    - Pedestrian and cycle connections
    - Transit integration
    - Integration with development
  - Alignment development
    - Building access and egress arrangements
    - Detailed assessment of local and network traffic impacts
    - Intersection priority and traffic arrangements
    - Urban realm design



## The Capital City Downtown LRT Plan

- Coordination with the development of the Central Area Circulator LRT Network
- Coordination with High Speed Rail plans
- Coordination with ongoing land use planning both in the Downtown and the LRT corridors
- Downtown road network assessment (all users, pedestrians through to general traffic)

**APPENDIX**

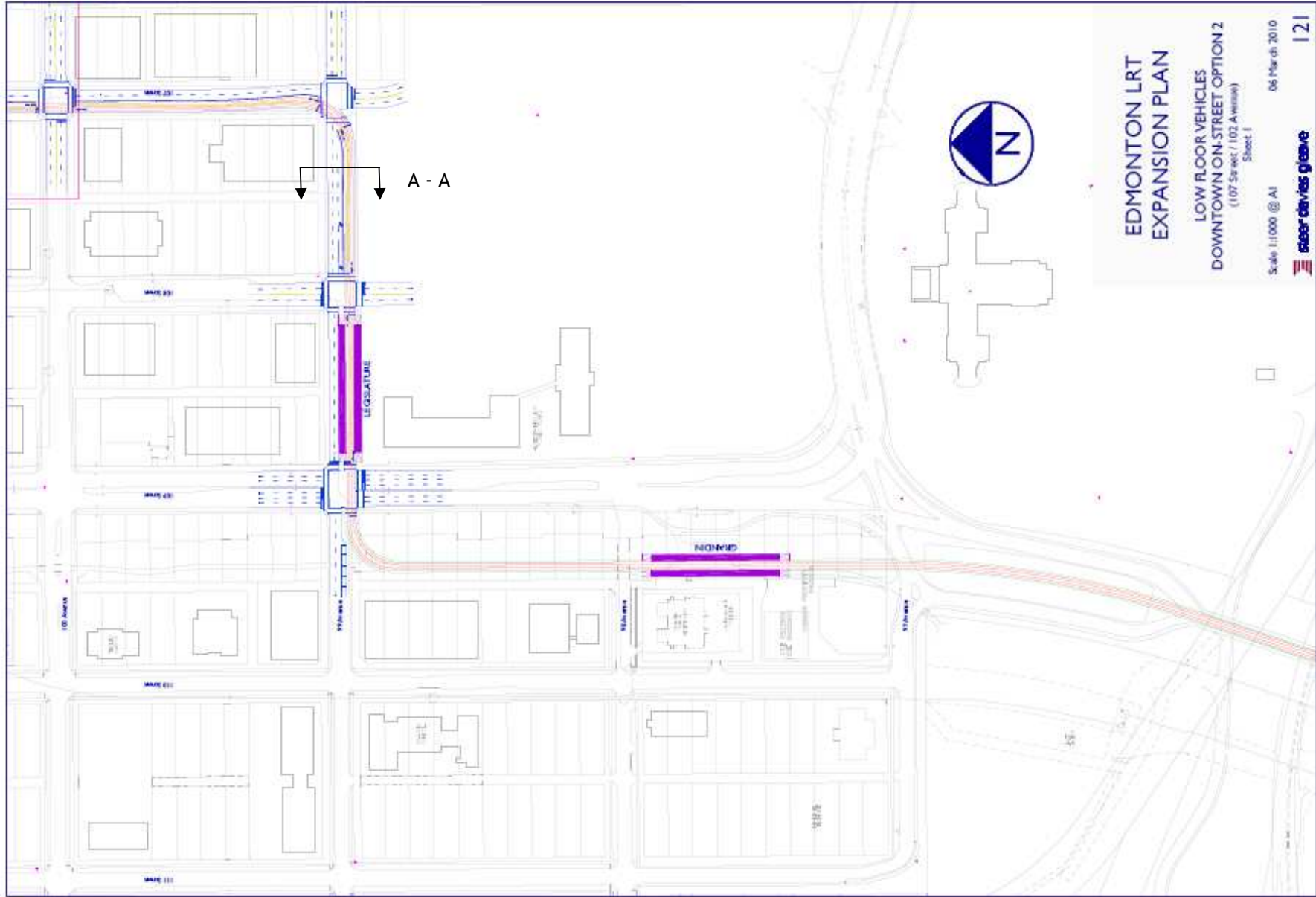
**A**

**PROPOSED DOWNTOWN LRT ALIGNMENT**



**A1 PROPOSED DOWNTOWN LRT ALIGNMENT**

# The Capital City Downtown LRT Plan





### Description

- A1.1 This LRT route runs through primarily an area of employment, which include the Alberta Legislature, and a number of the associated provincial government offices. Residential development is sited to the west of 109 Street and on the east side of the Legislature site.
- A1.2 The proposed LRT routes would form a southern connection to a Central Area Circulator LRT network run within the Multi-use Trail to the west of 109 Street. A stop would be located at Grandin to connect with the high floor system and the Legislature.
- A1.3 The route would turn east onto 99 Avenue with a stop sited to serve the Legislature and the surrounding employment of 108 and 107 Streets. The route then turns north to run on 107 Street.

### Key Features

- The route forms the potential connection to a Central Area Circulator LRT network.
- Interchange with existing LRT at Grandin
- Integration with pedestrian and cycle network
- Stops at Grandin and 99 Avenue
- Interchange with the proposed High Speed Rail link to Calgary

### Access and Egress

- A1.4 The access and egress arrangements to existing buildings and parking would be retained or revised to ensure continued access.

### Potential Cross Sections



A-A 99 Avenue looking west

### Next Steps

- Stop location refinement
- Development of pedestrian and cycling links
- Access and egress refinement
- Roadway and LRT alignment refinement

# The Capital City Downtown LRT Plan



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**Description**

- A1.5 The LRT route runs through mainly commercial, educational and the retail districts within the downtown core. A number of significant developable sites exist along 102 Avenue.
- A1.6 The LRT route continues on 107 Street with a stop at Corona providing interchange with the existing LRT system. The route then turn east to run on 102 Avenue with stops located at 106 Street to serve the Warehouse District and at Centre West to serve the retail and employment in the central downtown. The stops would also provide walking links to Jasper Avenue.

**Key Features**

- Stops at Corona, 106 Street and Centre West
- Interchange with existing LRT line at Corona
- Interchange with bus services on 101 Street
- Integration with proposed development of the Warehouse District
- Provide a stop close to the proposed Downtown Arena
- Integration with pedestrian and cycle network

**Access and Egress**

- A1.7 The access and egress arrangements to existing buildings and parking would be retained or revised to ensure continued access.
- A1.8 The access to the underground parkade at the Capital Health Centre building on 107 Street, will need to be retained requiring the only crossing of the LRT in the Downtown for this purpose. Sight lines and possible signal arrangements will need to be reviewed at this location.

**Potential Cross Sections**



A-A 107 Street north of 100 Street

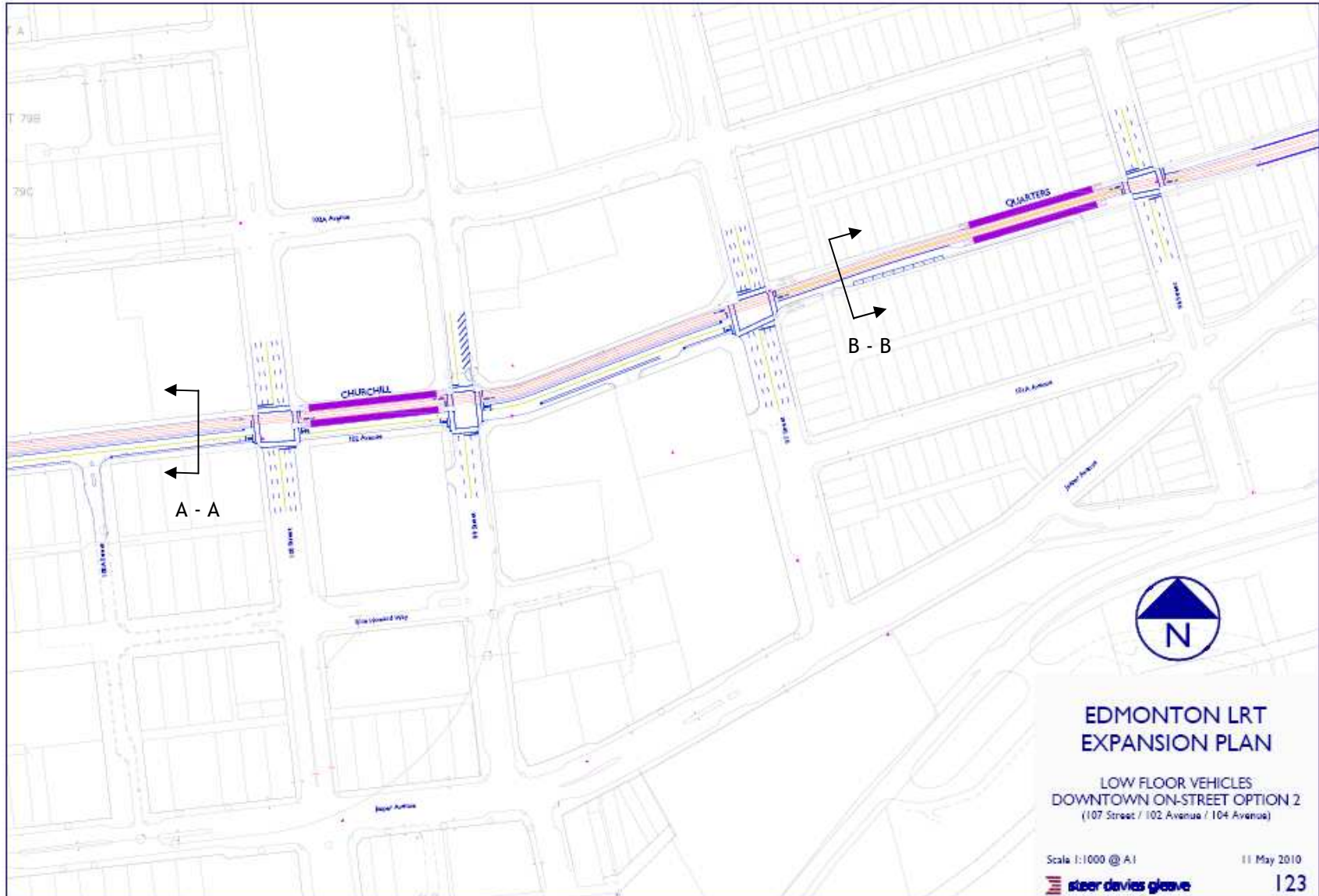


B-B 102 Avenue east of 104 Street

**Next Steps**

- Stop location refinement
- Development of pedestrian and cycling links
- Integration with development proposals
- Access and egress refinement
- Roadway and LRT alignment refinement

# The Capital City Downtown LRT Plan



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## Description

- A1.9 The route runs through the core downtown business, local government, retail and entertainment areas, before continuing east into The Quarters which is an area earmarked for substantial redevelopment.
- A1.10 Stops would be located at Churchill Square and The Quarters to respectively serve the core business district, local government and entertainment destination as well as The Quarters development area.

## Key Features

- Stops at Churchill Square and The Quarters
- Interchange with existing LRT at Churchill
- Interchange with bus services on 100 Street
- Integration with Quarters development
- Integration with pedestrian and cycle network
- Connection to the Southeast LRT route

## Access and Egress

- A1.11 The access and egress arrangements to existing buildings and parking would be retained or revised to ensure continued access.

## Potential Cross Sections



A-A 102 Avenue west of 101 Street



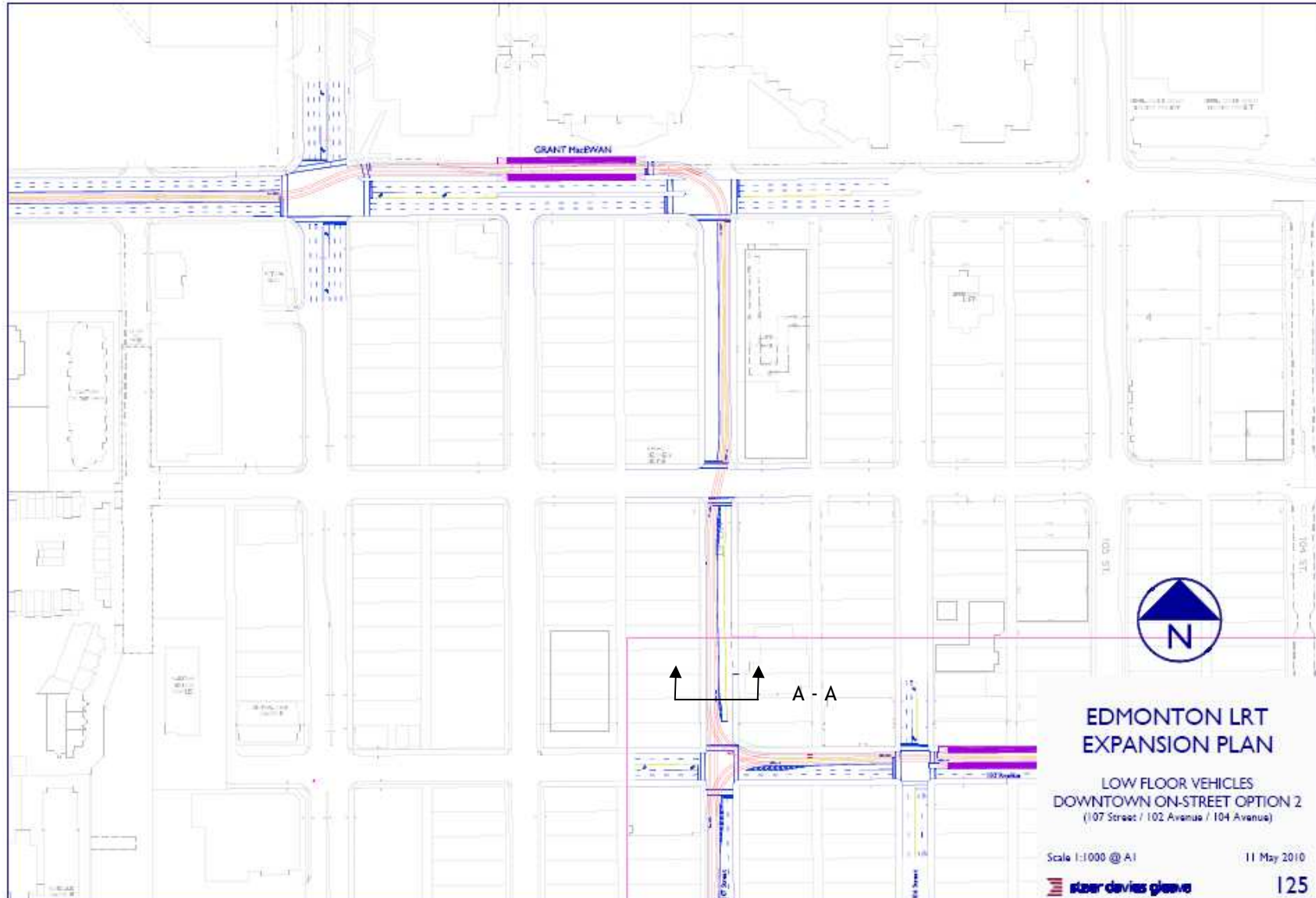
B-B 102 Avenue east of 97 Street

## Next Steps

- Stop location refinement
- Development of pedestrian and cycling links
- Integration with development proposals
- Access and egress refinement
- Roadway and LRT alignment refinement
- Connection to Southeast LRT line



# The Capital City Downtown LRT Plan



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### Description

- A1.12 This area one of the less well developed areas of the downtown, but does feature a number of colleges and some remaining old warehouse buildings. Within the Downtown Plan this area is proposed for significant residential development.
- A1.13 The LRT route would form the connection to the West LRT route on 104 Avenue, the route continuing east on 104 Avenue with a stop serving the Grant MacEwan University. The route then turn south onto 107 Street connecting to the 102 Avenue route and the Central Area Circulator LRT network.

### Key Features

- Stop serving Grant MacEwan University
- Integration with proposed development in the Warehouse District
- Integration with pedestrian and cycle network
- Connection to the West LRT route

### Access and Egress

The access and egress arrangements to existing buildings and parking would be retained or revised to ensure continued access.

### Potential Cross Sections



A - A 107 Street north of 102 Avenue

### Next Steps

- Stop location refinement
- Development of pedestrian and cycling links
- Integration with development proposals
- Access and egress refinement
- Roadway and LRT alignment refinement
- Connection to West LRT line