



Edmonton LRT Expansion Plan

Defining the Long Range Network & Technology Choice

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Introduction

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Edmonton's Planning Hierarchy

- The Way Ahead (Strategic Plan)
- The Way We Grow (Municipal Development Plan)
- The Way We Move (Transportation Master Plan)
- Integrated Transit & Land Use Policy Framework
- Edmonton's Downtown Plan

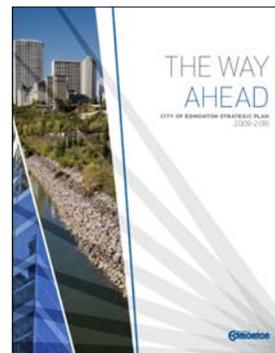


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The Way Ahead - The City's Vision

- The ten-year strategic goals are
 - Preserve and sustain Edmonton's Environment
 - Improve Edmonton's Livability
 - Transform Edmonton's Urban Form
 - Shift Edmonton's Transportation Mode
 - Ensure Edmonton's Financial Stability
 - Diversify Edmonton's Economy



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The LRT Expansion Plan: Vision & Objectives

- | *“The LRT Expansion Plan will deliver a high quality, fully accessible, safe, efficient and environmentally sustainable LRT network that maximises passenger convenience and supports the City’s continuing economic prosperity serving, and in turn being served by, transit-oriented land use policies”*

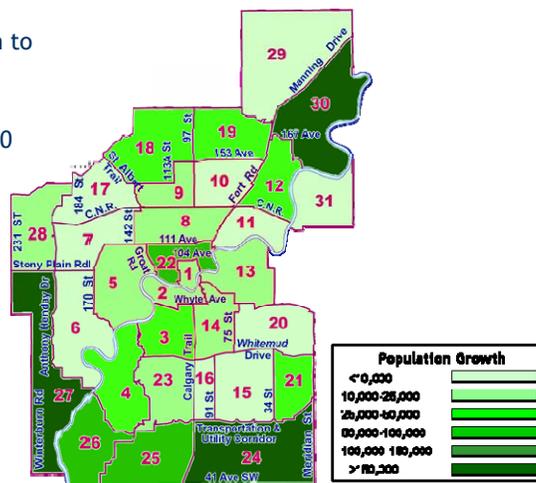
- | The LRT Vision Statement is supported by the following Objectives:
 - Fully Accessible
 - Safe
 - Efficient
 - Environmentally sustainable
 - Maximising passenger convenience
 - Supporting economic prosperity
 - Linked to Transit-oriented Land Use Policies

Edmonton and Region: 100-year population forecasts

- | Total regional population to grow from 1m to 3.3m

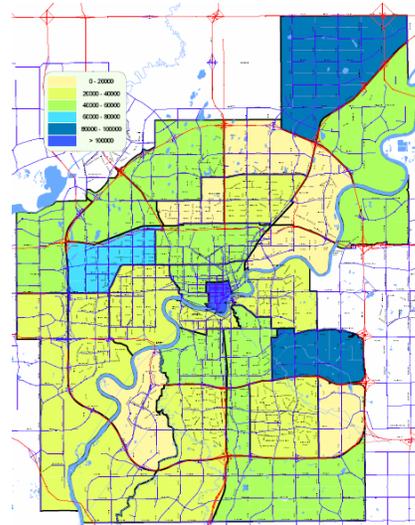
- | City to grow from 750,000 to 1.8m

- | The region to grow from 330,000 to 1.5m



Edmonton and Region: 100-year employment forecasts

- Highest employment density will continue to be Downtown and the University
- Major employment growth is projected to occur outside the City



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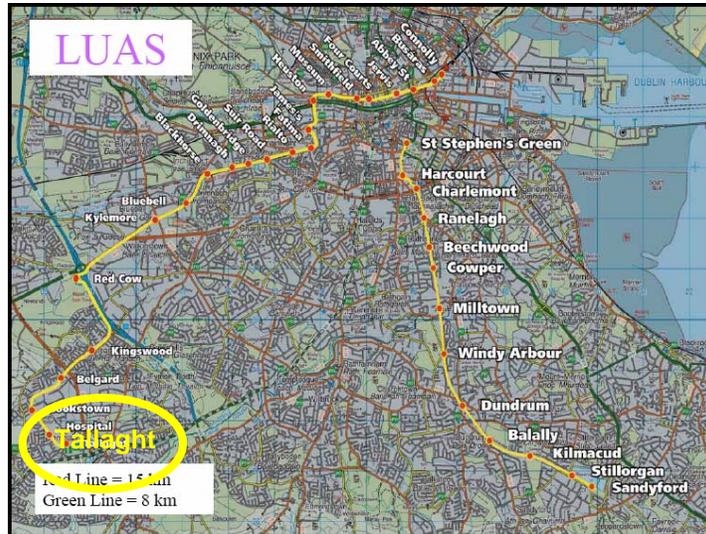
Conclusions - Population and Employment Growth

- Similar to the City's Strategic Plan, The Draft Regional Land Use Plan encourages density around Transit Nodes and Corridors. However,
 - Lower density industrial land uses will continue to exist between Edmonton and these areas
 - Overall densities in most outlying areas will likely be less than within Edmonton
- The Transit Challenge: how can the LRT Expansion Plan help achieve the City's wider objectives?

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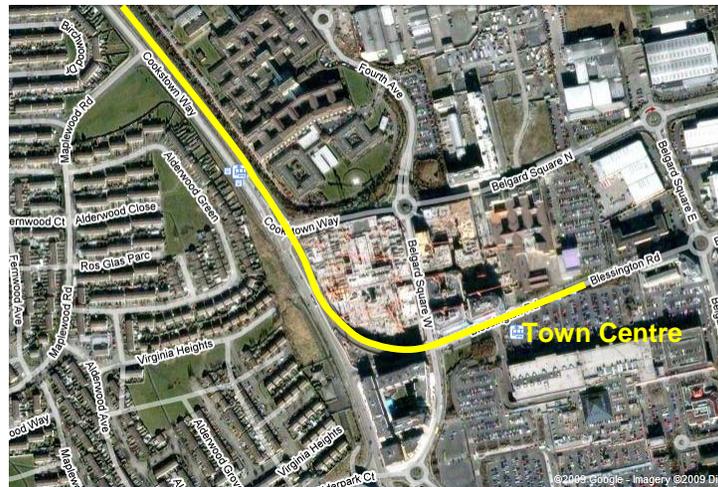
Dublin LRT - Integrated Land Use and Transit Planning



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Dublin LRT - Tallaght Town Centre



Dublin, Ireland

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Tallaght - Transit Oriented Development



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LRT: Transit Oriented Development



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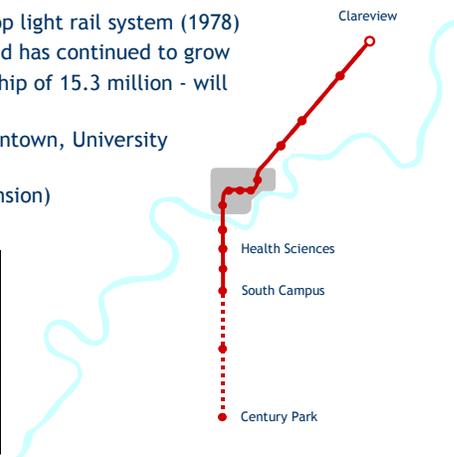
The LRT Expansion Plan

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Edmonton's LRT System

- First city in North America to develop light rail system (1978)
- System 'State of the Art' at time and has continued to grow
- Currently 15.2km with annual ridership of 15.3 million - will serve 15 stations
- Serves the heart of Edmonton's downtown, University and Health Sciences
- Continuing to expand (Gorman extension)

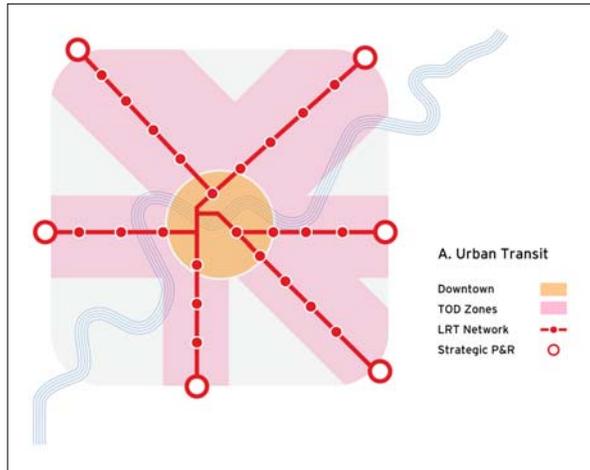


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Urban System Style

- 400m to 800m stop spacing (20-30km Average speed)



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Evaluation of Urban LRT Style

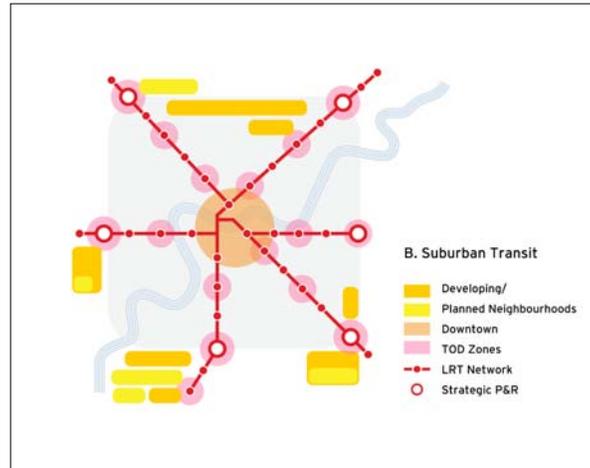
TMP/LRT Expansion Plan Objectives	Assessment
Transportation and Land Use Integration	Strongly Positive
Access and Mobility	Strongly Positive
Maximise Passenger Convenience	Strongly Positive
Sustainability	Positive
Modal Shift	Positive
Health and Safety	Strongly Positive
Infrastructure Maintenance	Positive
Economic Vitality	Strongly Positive

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Suburban System Style

- 1000m to 2500m stop spacing (40km Average speed)



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Evaluation of Suburban LRT Style

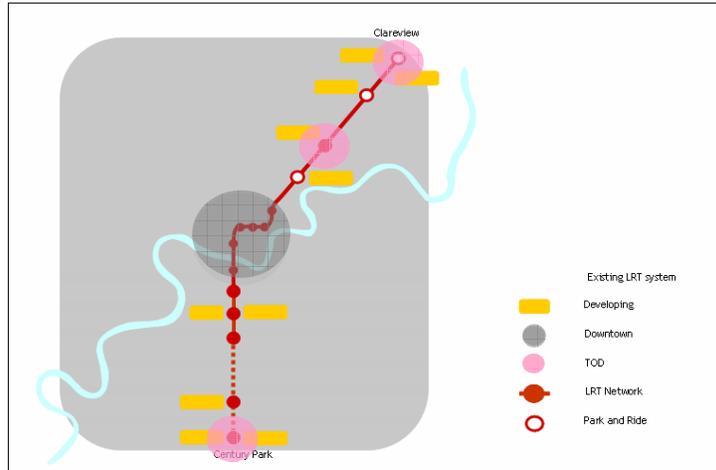
TMP/LRT Expansion Plan Objectives	Assessment
Transportation and Land Use Integration	Positive
Access and Mobility	Positive
Maximise Passenger Convenience	Neutral
Sustainability	Neutral
Modal Shift	Positive/Neutral
Health and Safety	Positive/Neutral
Infrastructure Maintenance	Neutral
Economic Vitality	Positive/Neutral

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Existing System Style

Existing system ≈2km stop spacing - Suburban in Style

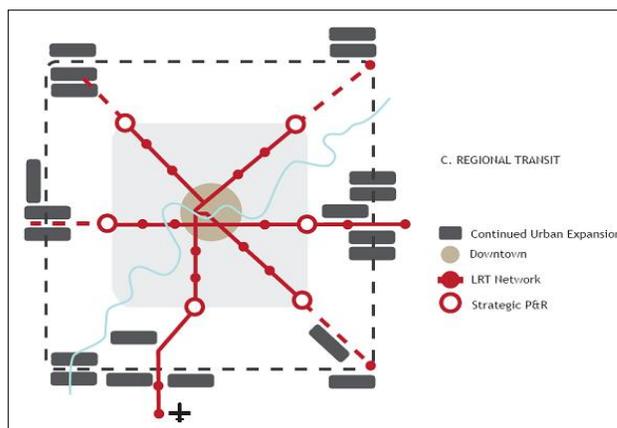


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Regional System Style

>2.5km (10km)+ stop spacing (40km+ Average speed)



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Evaluation of Regional LRT Style

TMP/LRT Expansion Plan Objectives	Assessment
Transportation and Land Use Integration	Neutral
Access and Mobility	Positive
Maximise Passenger Convenience	Neutral
Sustainability	Neutral
Modal Shift	Positive/Neutral
Health and Safety	Positive/Neutral
Infrastructure Maintenance	Neutral
Economic Vitality	Neutral

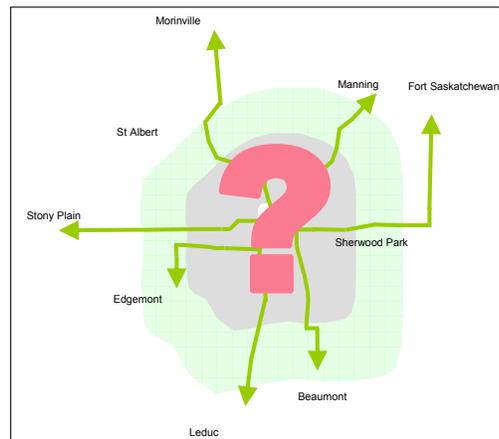
LRT Expansion Plan - Network Options

LRT Network Options

- The assessment has included 5, 6 and 7-line LRT networks
- Range of network options tested (ridership, costs & operations)
- 100-year land-use projections used that include:
 - Big increases in regional population (3m+ total)
 - Continuation of suburban development outside City boundary
- Long term assessment on which parts of the region could support LRT expansion

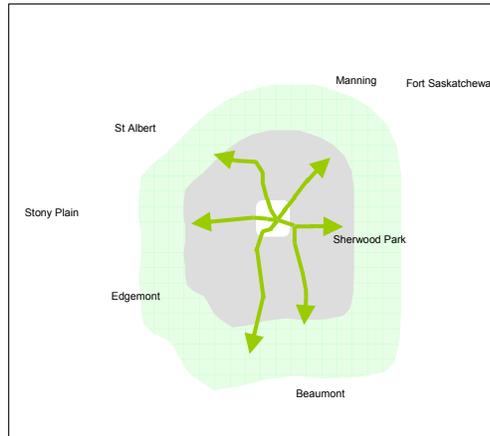
Potential Full Regional LRT Network - Our Starting Point

- A significant network expansion over a 100-year period
- 2 lines to 7 lines
- 15.2km to 198km
- 13 (15) stops to 78
- 74 vehicles to 480
- 2.5km stop spacing
- Can such a large network be justified?



City-Scale LRT Network

- 2 lines to 6 lines
- 15.2km to 128km
- 13 (15) stops to 63
- 74 vehicles to 359
- 2km stop spacing



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Comparison of LRT Network Options

	Edmonton's Existing LRT	Full Regional LRT Network	City-Scale LRT Network
Route Length	15.2 km	198 km	128 km
Lines	2	7	6
Stops	13 (15)	78	63
Capital Cost	-	\$14 billion	\$9 billion
Operating Cost	\$27.7m/year	\$338m/year	\$220m/year
Daily Ridership	53,500	573,000	499,000
Passengers/hour	370	407	474

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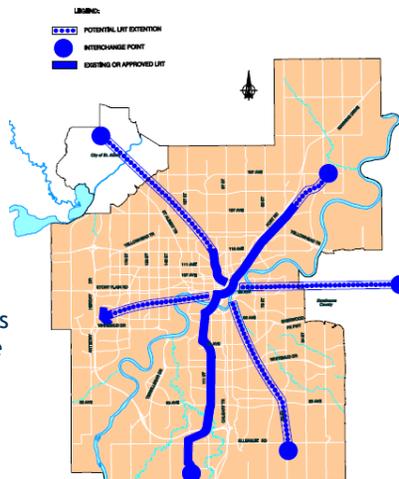
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Conclusions of the LRT Network Assessment

- | Total ridership highest for largest Regional Network
- | Best performing is City scale Network serving the highest density areas
- | Based on:
 - Long range land use, population and employment density forecasts
 - Ridership projections
 - Line lengths
 - Distance between City and regional centres

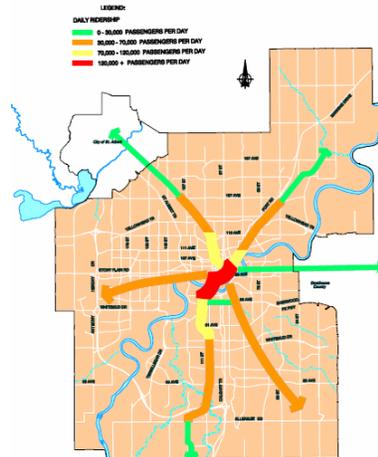
Recommendations of the LRT Network Assessment

- | Population and employment forecasts within the City of Edmonton support LRT expansion
- | However...even in 100 years, parts of the wider region are unlikely to justify LRT investment
- | LRT Expansion Plan should focus on the City's urban area and be part of a fully integrated regional transit network



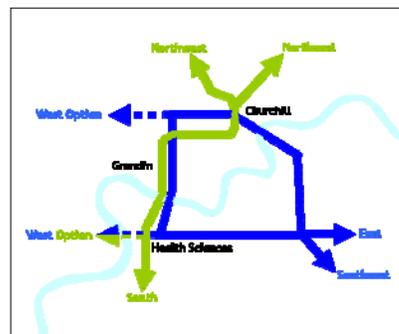
Long Range Ridership Forecasts (Daily)

- Northeast: 70,000-80,000
 - Northwest: 70,000-80,000
 - South: 90,000-100,000
 - Southeast: 45,000-50,000
 - West: 45,000-50,000
 - East: 20,000-30,000
- Other factors to consider:
- Capital costs
 - Operating costs
 - Land-use
 - Fit with objectives
 - Funding availability



A Larger Network Will Need More Capacity Downtown

- Existing tunnel has a capacity of 24 trains/hour
- Existing and committed lines (Northeast, Northwest and South) will require most/all of this capacity
- As the network grows, capacity at the centre will be a significant issue
- Do we continue to build more tunnels or look for other options?
- Creation of on-street downtown network with a link through Strathcona provides:
 - Additional capacity downtown
 - More direct journey opportunities



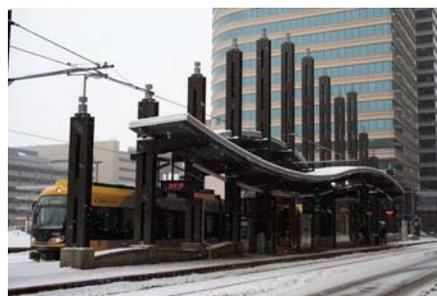
LRT Expansion Plan: What Would it Look Like?

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Edmonton LRT Expansion Plan: The Opportunities

- Develop an urban style LRT network
- LRT to contribute to Edmonton being a livable city
- LRT becoming a key part of vibrant neighbourhoods
- LRT becoming a real transportation choice
- Increasing the population within 400/800m of LRT stops
- LRT serves key destinations directly
- LRT to be part of a wider integrated transit system - linked with buses, transit centres, park and ride



Minneapolis, USA

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Potential for Different Style - An Urban LRT Network

- Closer stop spacing:
 - Directly serves people and places
 - Supports the development of complete corridors
- Modern low-floor LRT technology for easier urban integration
 - Improves accessibility
 - Minimises urban impacts



Dublin, Ireland

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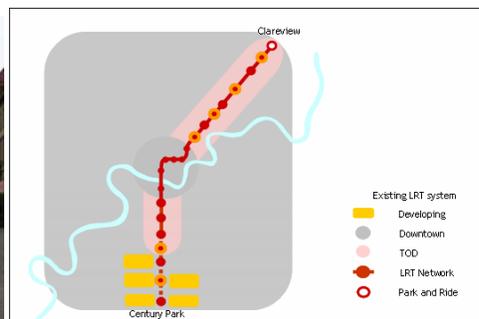
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Adding Stops to the Existing System and extensions

- Move towards a more urban style of system by adding new stops to:
 - Increase passenger catchment
 - Support TOD, sustainable communities
 - Improve single seat journey opportunities



Stuttgart, Germany



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Low Floor Vehicle Technology - Current 'State of the Art'

I Low Floor technology

- Low floor vehicle technology does not mean streetcar
- System would be
 - Segregated right of way
 - Priority through road junctions
 - Vehicle performance similar to existing Edmonton vehicles
 - Journey times would be the same as a high floor system



Portland Streetcar 120 Capacity, sharing road space



Dublin LRT 300 Capacity, priority over cars

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Montpellier, France

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Low Floor LRT

- An industry standard
- Introduced in mid-1980's
- A proven system
- Operates in a range of conditions



Croydon, UK



Lyon, France

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Low Floor Advantages - Access for All

- Low floor vehicles and platforms provide
 - Enhanced accessibility
 - Improved connectivity



Lyon, France



Montpellier, France

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Low Floor Vehicle Technology - Right of Way

■ Low Floor LRT

- Operates on own right of way
- Can share with traffic (if required)
- Surface level layouts
- Train control can range from full rail signal operation to line of sight



Lyon, France

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Portland, USA

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Low Floor Advantages - Simple Stop Design

- Low floor vehicles and platforms provide:
 - Reduced Infrastructure
 - Easy integration in urban environment
 - Improved neighbourhood connections



Complementary Initiatives - LRT/Bus Interchange



Strasbourg, France

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Complementary Initiatives - Park & Ride

PARK & GLIDE.



Nottingham's new tram will cut more time minutes to each hour as well as in traffic when you can glide from your car to a free parking in locations at National Stadium, School, Phoenix Park, Mill Bridge, Willemson Street and Forest Recreation Ground.
The new tram will start running tomorrow. For more information, please call 0115 342 2777 or visit www.nottingham.gov.uk

Opens tomorrow.



NET
TAKES THE TRAM



Nottingham, UK



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LRT - Urban Style

- LRT is part of the street
- Easy access for passengers
- LRT mixes with pedestrians



Portland, USA

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LRT - Urban Style - Creating Places



Strasbourg, France

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Recommendations

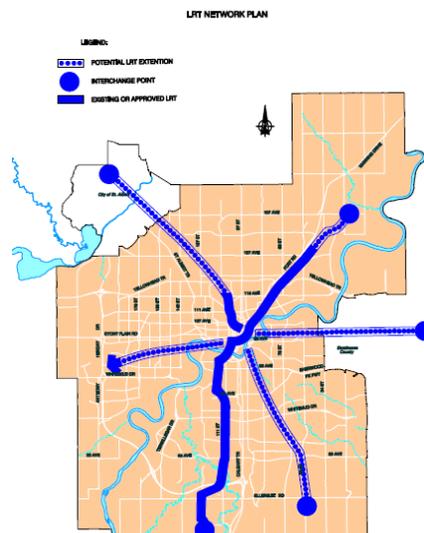
- The LRT Expansion Plan must address the City's wider objectives
- Adopt an Urban style LRT system with closer stop spacings
- Develop a 6-line City-scale Network (subject to detailed studies)
- Design in flexibility and capacity with surface-level routes through Downtown and Strathcona
- Apply urban style LRT to high floor line (including future extensions)
- Develop new corridors using urban style LRT and low floor vehicles
- Incorporate Complementary Measures to maximise LRT benefits

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Next Steps

- Further development of network detail
- System and design specifications
- Central Area and Corridor studies
- Funding and procurement assessment(s)
- Programming, phasing and delivery



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Notice of Public Hearing

■ The Transportation and Public Works Committee of City Council will be holding a Non-Statutory Public Hearing on the general City-wide and Regional LRT Network Plan, as scheduled below:

■ LRT Network Plan
June 2, 2009 - 9:30 am
River Valley Room, City Hall
#1 Sir Winston Churchill Square

■ If you wish to make a presentation to the Transportation and Public Works Committee at the public hearing, please contact:

Transportation and Public Works Committee Secretary
Office of The City Clerk
3rd Floor, City Hall
#1, Sir Winston Churchill Square
Telephone: 780-496-8178
Email: city.clerk@edmonton.ca

Thank you