Introduction
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

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
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

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?
Tallaght - Transit Oriented Development

LRT: Transit Oriented Development

Dublin, Ireland
The LRT Expansion Plan

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)
Urban System Style

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

Evaluation of Urban LRT Style

<table>
<thead>
<tr>
<th>TMP/LRT Expansion Plan Objectives</th>
<th>Assessment</th>
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<tbody>
<tr>
<td>Transportation and Land Use Integration</td>
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<td>Economic Vitality</td>
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Suburban System Style

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

Evaluation of Suburban LRT Style

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**Existing System Style**

- Existing system ≈2km stop spacing - Suburban in Style

**Regional System Style**

- >2.5km (10km) + stop spacing (40km+ Average speed)
Evaluation of Regional LRT Style

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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

Comparison of LRT Network Options

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

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
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

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
Low Floor Vehicle Technology - Current ‘State of the Art’

- 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 the same as a high floor system

Portland Streetcar 120 Capacity, sharing road space
Dublin LRT 300 Capacity, priority over cars

Montpellier, France
Low Floor LRT

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

Croydon, UK  Lyon, France

Low Floor Advantages - Access for All

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

Lyon, France  Montpellier, France
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

Portland, USA
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*

Complementary Initiatives - Park & Ride

*Nottingham, UK*
LRT - Urban Style

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

Portland, USA

Edmonton LRT Expansion

LRT - Urban Style - Creating Places

Strasbourg, France

Edmonton LRT Expansion
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

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
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