Welcome
Downtown LRT
97 Street to 95 Street
Information Session
October 5, 2011
Council directed City administration to undertake further consultation and evaluation of the possible options for the Downtown LRT route between 97 and 95 Streets on both the 102 and 102A Avenue corridors.
The Downtown LRT Connector forms part of the wider Southeast to West low-floor LRT project.

The 97 Street to 95 Street segment represents 600 metres of the total 27 kilometres of planned low-floor LRT route.
On July 24th, a walking tour followed by round table discussions was undertaken with residents, business owners, property owners, and other stakeholders from the community and surrounding study area.

Many issues and opportunities were identified by study area stakeholders. Key themes identified included:

• The Chinatown Gate’s historic & cultural significance
• The critical community & cultural identity of 102 Avenue area (core of the Chinese community)
• The importance of 102 Avenue carrying many pedestrians, buses & traffic
• That there are fewer activity centres and multiple vacant lots are located along 102A Avenue
• That an underground LRT option mitigates potential negative impacts
• That there is potential for the benefits of more development and activity to draw people to the area
• The critical importance of emergency access
• That it is critical to maintain vehicular access and parking
• The importance of the pedestrian realm and mid block crossings (seniors & local businesses)
What is Low-floor Urban Style LRT?

Monitor with Rolling Presentation
On August 21st, the second in a series of three meetings was held at the Winspear Centre with residents, business/land owners and community group representatives from the community surrounding 102 Avenue and 102A Avenue, between 95 Street and 97 Street.

Participants attending this session were split into five groups, with each group given the opportunity to design four LRT options within the study boundary.

The four options included:

- 102A Avenue Surface
- 102A Avenue Underground
- 102 Avenue Surface
- 102 Avenue Underground
102 Ave Surface Options

Evaluation Option

Stakeholder Elements Included in Design
- The stop is located on the south side of 102 Ave
- The stop is located between 96th Street and 97th Street
- On street parking is provided on 102 Ave

New and Recommended Elements
- LRT at street level
- Underground LRT
- LRT stop platform
- Cycle facilities
- Sidewalk
- On-street parking
- Roadworks
- Tunnel portal
- Property requirement

Group 1
Group 2
Group 3
Group 4
Group 5
102 Ave Underground Options

Evaluation Option

New and Recommended Elements
- LRT at street level
- Underground LRT
- LRT stop platform
- Roadworks
- Cycle facilities
- Sidewalk
- On-street parking
- Tunnel portal
- Property requirement

Stakeholder Elements Included in Design
- Traffic lanes and parking above underground stop
- The stop is located between 95th Street and 96th Street
- Sidewalk and traffic lanes are provided with portal
102 A Ave Surface Options

Evaluation Option

New and Recommended Elements
- LRT at street level
- Underground LRT
- LRT stop platform
- Cycle facilities
- Sidewalk
- On-street parking
- Roadworks
- Tunnel portal
- Property requirement

Stakeholder Elements Included in Design
- The stop is located on north side of 102A Ave
- The stop is located between 96th Street and 97th Street
- Traffic lanes and sidewalk are provided south of the stop

Group 1

Group 2

Group 3

Group 4

Group 5
### 102 A Ave Underground Options

**Evaluation Option**

- **New and Recommended Elements**
  - LRT at street level
  - Underground LRT
  - LRT stop platform
  - Cycle facilities
  - Sidewalk
  - On-street parking
  - Tunnel portal
  - Property requirement

- **Stakeholder Elements Included in Design**
  - Stop location and orientation between 95th Street and 96th Street
  - Sidewalks provided on both sides of portal
  - One way traffic provided on south side of portal
The following Council-adopted evaluation criteria are used to evaluate all City of Edmonton LRT routes.

<table>
<thead>
<tr>
<th>LRT Criteria</th>
<th>Individual Criterion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feasibility / Constructability</td>
<td>Capital cost&lt;br&gt;Operating cost&lt;br&gt;Grade separated intersections&lt;br&gt;Impact on bus services&lt;br&gt;Cost per rider&lt;br&gt;Route length&lt;br&gt;At grade intersections&lt;br&gt;Number of stops&lt;br&gt;Average stop spacing&lt;br&gt;Connections to future routes</td>
</tr>
<tr>
<td>Land Use - Promoting Compact Urban Form</td>
<td>Transit integration&lt;br&gt;Population within 400m&lt;br&gt;Employment within 400m&lt;br&gt;Student population within 400m&lt;br&gt;Future population&lt;br&gt;Future employment</td>
</tr>
<tr>
<td>Movement of People &amp; Goods</td>
<td>Integration of right of way with street&lt;br&gt;Impact on riparian habitat&lt;br&gt;Stream / rivers crossed&lt;br&gt;Consistent with regulations governing natural areas&lt;br&gt;Area disturbed during construction</td>
</tr>
<tr>
<td>Natural Environment</td>
<td>Impact on riparian habitat&lt;br&gt;Stream / rivers crossed&lt;br&gt;Consistent with regulations governing natural areas&lt;br&gt;Area disturbed during construction</td>
</tr>
<tr>
<td>Parks, River Valley &amp; Ravine System</td>
<td>Opportunities for improved streetscape, boundary treatment, landscaping, planting, trees&lt;br&gt;Impacts on parks / open space</td>
</tr>
<tr>
<td>Social Environment</td>
<td>Property and land impacts&lt;br&gt;Heritage building impacts&lt;br&gt;Cultural / heritage sites adjacent to route</td>
</tr>
<tr>
<td></td>
<td>Ability to mitigate neighbourhood impacts&lt;br&gt;Creation of physical barriers or severance&lt;br&gt;Noise and vibration impacts</td>
</tr>
<tr>
<td></td>
<td>Employment generated&lt;br&gt;Student population within 400m&lt;br&gt;Lower income / no car / seniors within 400m</td>
</tr>
</tbody>
</table>
## Feasibility / Constructability - Evaluation

<table>
<thead>
<tr>
<th>Feasibility / Constructability</th>
<th>Surface 102 Avenue</th>
<th>Underground 102 Avenue</th>
<th>Surface 10ZA Avenue</th>
<th>Underground 10ZA Avenue</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital cost</td>
<td>$50.9 million</td>
<td>$122.8 million</td>
<td>$63.2 million</td>
<td>$135.0 million</td>
<td></td>
</tr>
<tr>
<td>Operating cost</td>
<td>Low</td>
<td>High</td>
<td>Low</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Grade separated intersections</td>
<td>1 intersection</td>
<td>2 intersections</td>
<td>1 intersection</td>
<td>2 intersections</td>
<td></td>
</tr>
<tr>
<td>Impact on bus services</td>
<td></td>
<td></td>
<td>Bus service revised for all options considered</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost per rider</td>
<td>Low</td>
<td>High</td>
<td>Low</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Route length</td>
<td>720 metres</td>
<td>720 metres</td>
<td>800 metres</td>
<td>800 metres</td>
<td></td>
</tr>
<tr>
<td>At grade intersections</td>
<td>2 intersections</td>
<td>1 intersection</td>
<td>2 intersections</td>
<td>1 intersection</td>
<td></td>
</tr>
<tr>
<td>Number of stops</td>
<td></td>
<td></td>
<td>One stop provided with all options</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average stop spacing</td>
<td></td>
<td></td>
<td>Evaluated as equal for all options</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Connection to future routes</td>
<td></td>
<td></td>
<td>Evaluated as equal for all options</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Evaluation Result**

- 102 Ave Surface option - Lowest cost, Short route

- Underground options go under 96 Street
- High capital cost options increase cost per rider
- Surface options run across 96 & 97 Streets
- Concept design cost estimate
- Underground stations have a significantly higher operating cost
## Land Use / Promoting Compact Urban Form - Evaluation

<table>
<thead>
<tr>
<th>Land Use / Promoting Compact Urban Form</th>
<th>Surface 102 Avenue</th>
<th>Underground</th>
<th>Surface 102A Avenue</th>
<th>Underground</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population within 400 metres</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
<td>Population currently higher on 102 Avenue</td>
</tr>
<tr>
<td>Future population</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>Future higher density focused on 102 Avenue</td>
</tr>
<tr>
<td>Future employment</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
<td>Future higher density focused on 102 Avenue</td>
</tr>
<tr>
<td>Number of activity centres</td>
<td>11 Centres</td>
<td>11 Centres</td>
<td>3 Centres</td>
<td>3 Centres</td>
<td>102 Ave supportive of planned higher density</td>
</tr>
<tr>
<td>Supportive of Transportation, Municipal Development Plans</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>102A Ave has significant adjacent vacant land</td>
</tr>
<tr>
<td>Housing density</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
<td>102 Ave supportive of planned higher density</td>
</tr>
<tr>
<td>Vacant land</td>
<td>Medium Area</td>
<td>Medium Area</td>
<td>Large Area</td>
<td>Large Area</td>
<td>102 Ave supportive of planned higher density</td>
</tr>
<tr>
<td>Opportunities for streetscape improvements</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>102 Ave supportive of planned higher density</td>
</tr>
<tr>
<td>Community identity - Linking of neighbourhoods</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>102 Ave supportive of planned higher density</td>
</tr>
<tr>
<td>Ability to facilitate Transit Oriented Development</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>102 Ave supportive of planned higher density</td>
</tr>
<tr>
<td>Impetus for redevelopment</td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>102 Ave supportive of planned higher density</td>
</tr>
<tr>
<td>Facilitation of increased density - mixed use development</td>
<td>High</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
<td>102 Ave supportive of planned higher density</td>
</tr>
</tbody>
</table>

**Evaluation Result**
- Activity Centres & Vacant Land: Evaluated as equal for all options
- Population within 400 metres: Medium Density
- Future population: High Density
- Future employment: Medium Density
- Number of activity centres: 11 Centres
- Supportive of Transportation, Municipal Development Plans: Medium Density
- Housing density: Medium Density
- Vacant land: Medium Area
- Opportunities for streetscape improvements: High Density
- Community identity - Linking of neighbourhoods: High Density
- Ability to facilitate Transit Oriented Development: High Density
- Impetus for redevelopment: High Density
- Facilitation of increased density - mixed use development: High Density

**Future Population / Employment Density**
- High Density
- Medium Density
- Low Density

**Map**
- Population: Medium Density, Low Density
- Activity Centres & Vacant Land: Evaluated as equal for all options
- Future Population / Employment Density: High Density, Medium Density, Low Density
## Movement of People/Goods and Parks, River Valley, and Ravine System - Evaluation

<table>
<thead>
<tr>
<th>Movement of People/Goods</th>
<th>Surface</th>
<th>102 Avenue Underground</th>
<th>Surface</th>
<th>102A Avenue Underground</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integration of right of way with street</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>102 Ave surface route integrates well with street</td>
</tr>
<tr>
<td>Increase in transit ridership</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
<td>102 Ave will benefit from increased ridership due to activity centres</td>
</tr>
<tr>
<td>Integration with transit system</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
<td>All routes will connect to the LRT system</td>
</tr>
<tr>
<td>Integration with bicycles</td>
<td>Medium</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
<td>102 Ave routes are closer to planned bike routes</td>
</tr>
<tr>
<td>Integration with pedestrians</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td>102 Ave currently has more pedestrian activity</td>
</tr>
<tr>
<td>Transit network impacts</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
<td>All routes will impact the transit network</td>
</tr>
<tr>
<td>Road network impacts</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
<td>No route routes will need to rejoin 102 Ave west of 97th St</td>
</tr>
</tbody>
</table>

### Evaluation Result

- **High**
- **Medium**
- **Low**

### Parks, River Valley and Ravine System

| Opportunities for improved streetscape, boundary treatment, landscaping, planting trees | High    | Medium | Medium | Medium | 102 Ave surface construction will present an opportunity for streetscape improvement |
| Impacts on parks / open space | Medium | Medium | Medium | Medium | No routes deliver significant impacts on parks |

### Evaluation Result

- **High**
- **Medium**
- **Low**
### Social Environment - Evaluation

<table>
<thead>
<tr>
<th>Social Environment</th>
<th>102 Avenue Surface</th>
<th>102 Avenue Underground</th>
<th>102A Avenue Surface</th>
<th>102A Avenue Underground</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property and land impacts</td>
<td>$5.3 million</td>
<td>$8.7 million</td>
<td>$4.1 million</td>
<td>$10.3 million</td>
<td></td>
</tr>
<tr>
<td>Heritage building impacts</td>
<td>Evaluated as equal for all options</td>
<td>Evaluated as equal for all options</td>
<td>Evaluated as equal for all options</td>
<td>Evaluated as equal for all options</td>
<td></td>
</tr>
<tr>
<td>Cultural / heritage sites adjacent to route</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Ability to mitigate neighbourhood impacts</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>Creation of physical barriers or severance</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>Noise and vibration impacts</td>
<td>Evaluated as equal for all options</td>
<td>Evaluated as equal for all options</td>
<td>Evaluated as equal for all options</td>
<td>Evaluated as equal for all options</td>
<td></td>
</tr>
<tr>
<td>Employment generated</td>
<td>Evaluated as equal for all options</td>
<td>Evaluated as equal for all options</td>
<td>Evaluated as equal for all options</td>
<td>Evaluated as equal for all options</td>
<td></td>
</tr>
<tr>
<td>Student population within 400m</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>Lower income / no car / seniors within 400m</td>
<td>High</td>
<td>High</td>
<td>Medium</td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>Evaluation Result</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
<td>Good</td>
<td></td>
</tr>
</tbody>
</table>

#### Senior and Affordable Housing

- **11 Centres**: High
- **3 Centres**: Medium

#### Property and Land Impacts 102 Ave

- **Surface**: High
- **Underground**: Medium

#### Property and Land Impacts 102A Ave

- **Surface**: High
- **Underground**: Medium

#### Property and Land Impacts Cost Estimate

- **Concept Design Cost Estimate**: Low
- **Evaluation Result**: Evaluated as equal for all options

#### Comments

- No option has impact on heritage buildings
- The "Chinatown Gate" is located on 102 Ave
- All options require the development of a portal
- 102 Ave surface route may interfere with crossing
- 102 Ave is located closest to more senior housing
- All routes received similar scores for social environment
- No route has significant student population
### Overall Evaluation

<table>
<thead>
<tr>
<th>Overall Evaluation</th>
<th>102 Avenue</th>
<th>102A Avenue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface</td>
<td>Underground</td>
<td>Surface</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
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</tr>
</tbody>
</table>

#### Feasibility / Constructability
- All the options include the need for a portal.
- Underground options are significantly more expensive.
- Underground options more impactful during construction.
- 102A options require more right of way and cost more.

#### Land Use / Promoting Compact Urban Form
- Current and future population density is higher on 102 Ave corridor.
- Number of present and future activity centres is greater on 102 Ave.
- Greater opportunity to reinforce cultural identity on 102 Avenue due to substantive cultural buildings and resources on 102 Avenue.

#### Movement of People / Goods
- 102 Ave has greater connectivity to both current and future population / ridership.
- All options will impact the road network.

#### Natural Environment
- These criteria were not applicable to any option.

#### Parks, River Valley, and Ravine System
- 102 Ave surface option presents the greatest opportunity to improve the streetscape.

#### Social Environment
- Property impacts are higher for underground options due to increased construction.
- Property impacts are similar on 102 Ave and 102A Ave.
- There are more cultural heritage sites on 102 Avenue.
- The Chinatown Gate on 102 Ave will be retained for all options - the 102 Ave options will run through it.
- No option mitigates the need for a portal.
- Potentially, the 102 Ave options' portal creates the greatest barrier.
- Potentially, the 102 Ave portal barrier can be mitigated by retaining current pedestrian crossings.
- Potential noise and vibration impacts are the same on both corridors.
- 102 Avenue has greater connectivity to lower income and senior housing.
Administration’s Recommendation / Changes Incorporated From Feedback

New and Recommended Elements

- LRT at street level
- Underground LRT
- Cycle facilities
- Sidewalk
- LRT stop platform
- On-street parking
- Rbadworks
- Property requirement
- Tunnel portal
- Roadworks
- LRT stop platform
- On-street parking
- Cycle facilities
- Sidewalk
- LRT at street level
- Underground LRT

*1 Frontage parking to be provided subject to design constraints

Original LRT Route Proposal (Spring 2011)

- Stop moved to south side of 102 Avenue
- Parking and access provided on south side
- Chinatown Gate retained
- Mid-block pedestrian crossing
- Portal width reduced & portal moved
- Cultural identity to be reinforced
- Parking and access provided *1
- Eastbound traffic lane and property impact removed
- Quarters Plan - Future Park
- Mid-block pedestrian crossing - 15m east of existing
- Property requirement

*1 Frontage parking to be provided subject to design constraints
Next Steps

The recommendation will be presented to the Transportation & Infrastructure Committee on November 15, 2011 at 9:30am in the River Valley Room at City Hall.

The recommendation will include:

- Public consultation contributions (including feedback from all sessions)
- Evaluation and recommendation
- Concept design

The public can register to speak at www.edmonton.ca/meetings