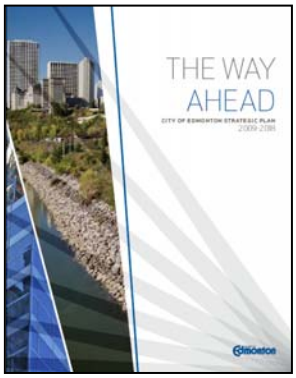
Vehicle Technology Review
Fact Sheet

www.edmonton.ca/LRTProjects May 2009

The City of Edmonton's strategic vision calls for a more compact, livable and sustainable city, where people have an opportunity and choose to use alternative transportation modes. This is outlined in the City's *Strategic Plan* as well as the *Transportation Master Plan* and *Municipal Development Plan*. Expanding the Light Rail Transit (LRT) network is one of the ways the City is planning to meet these objectives.



LRT Network Plan

The City has developed an overall LRT Network Plan and a comprehensive technical review of its approach to LRT system planning and operation. A vehicle technology review was completed to provide an overview of technology options and identify the LRT vehicle style most appropriate to meet long-term transportation objectives. The review recommends:

- Using new low-floor LRT vehicles on new lines that do not connect to the existing system
- Maintaining high-floor LRT vehicle style on the existing system and the extension of those lines.

High-floor LRT vehicles

The City of Edmonton opened its first LRT line in 1978. It was the first city in North America to develop a modern LRT system. High-floor LRT vehicles were state-of-the-art technology at the time, and this technology was used for other LRT systems, including San Diego, Calgary and Sacramento.

Most of the mechanical equipment on a high-floor LRT car is located at the bottom of the vehicle, which elevates passenger doors. This impacts station design because platforms are higher and more infrastructure is needed for passenger access (ramps, steps, and in some places escalators and elevators). High-floor LRT systems have been built in other municipalities without high station platforms. In these areas, ramps or lifts for wheelchair access are required at either the platform or within LRT vehicles.

A high-floor LRT car in Edmonton

Low-floor LRT Vehicles

Low-floor LRT vehicles were first introduced in the late 1980s and have since evolved to become the industry standard for new LRT systems in Europe and North America. Most of the mechanical equipment on a low-floor LRT vehicle is located on the roof, which means doors can be provided at street-level for step-free boarding onto the vehicle.

Urban Design

The biggest advantage to a low-floor LRT system is that the stations can be smaller and require less infrastructure. A station stop can be as simple as a raised curb and sidewalk. This makes it easier to integrate stations with their local surroundings with a more urban feel. Low-floor LRT stations provide better pedestrian connections and fewer barriers to accessibility because ramps and steps are not needed.

New low-floor LRT station in Portland

LRT Operations

A low-floor LRT system in Edmonton would operate on a track that is separate from traffic with traffic signal priority so trains would not stop at intersections. This is similar to the existing LRT system.

However, when an urban-style system is combined with low-floor technology, there are other operational advantages.

- Low-floor LRT stops can be integrated with sidewalks to provide more direct connections to people and places.
- Because of reduced station infrastructure and a more urban operational style, right-of-way and barrier requirements are reduced.

A low-floor LRT in Dublin shows how low-floor LRT would operate in Edmonton. Trains would operate on separate track space and stations could be integrated with sidewalks.

Costs to build and maintain

Costs to build a low-floor LRT line are comparatively less than a high-floor LRT system, primarily because there are fewer infrastructure requirements for stations. Maintenance costs for LRT vehicles are similar. However, constructing and maintaining rails through urban areas would have higher capital and maintenance costs. This would be balanced by fewer maintenance costs for station infrastructure such as elevators, escalators, and other mechanical equipment.

Can we convert the existing system to Low-floor LRT?

In light of the significant operating impacts and cost, this approach is not recommended. Beyond the need to acquire a new fleet of LRT vehicles, significant station and platform reconfigurations would be required at all current stops, and may not be possible in all locations. In addition, the scale of this project would require closing the system for a minimum of 18 to 24 months.

For more information:

Visit www.edmonton.ca/LRTprojects
Call (780) 496-4874
Email: LRTProjects@edmonton.ca