

Automated Metro vs Tram

Tram

Outside of Canada and the US with the exception of Quebec, the rest of the world calls the system a Tram and not a LRT.

Using the Ottawa Confederation Line as a reference with one train having four sections and a frequency of every 5 minutes for 12 trains an hour.

- One train (50m) is capable of carrying 300 passengers with a total capacity of 3,600 pphpd.
- Two trains coupled together (100m) is capable of carrying 600 passengers with a total capacity of 7,200 pphpd.

The Ottawa Confederation Line does not have any level crossings, but most Trams do have level crossings. Frequencies of less than 5 minutes would affect the cross traffic at the level crossings with priority signaling. With no priority signaling the trains can have higher frequencies but would need to stop at the traffic lights the same as a car. This would increase the travel time.

- The average speed of a Tram with traffic in a city street is approximately 15km/hr.
- The average speed of a Tram in its own lane in a city street with stations every 1000m is approximately 24km/hr.
- The average speed of a Tram with few or no level crossings and separated from traffic with stations every 1000m is around 30km/hr.

Metro

An Automated Metro can have a frequency of up to 40 to 48 trains per hour depending on the signaling system and the type of vehicles. Skytrain (Linear Induction) with Sel Trac signalling is designed to run up to 48 trains per hour. The Montreal REM is designed to run up to 40 trains per hour.

- The new 5 car trains (85m) on the Expo and Millenium Lines would have a maximum capacity of 31,200 pphpd running 48 trains an hour (This is not “crush” mode).
- The Montreal REM four car trains (80m) can carry 600 passengers and have a maximum capacity of 24,000 pphpd running 40 trains an hour (This is not “crush” mode).
- The average speed for Skytrain (Expo and Millenium Line) is around 42-45km/hr. The average distance between station stops is 1.2km to 1.5km.
- The average speed of the Montreal Rem is around 50km/hr. The average distance between station stop is 2km.

The average speed of an Automated Metro is higher than a Tram, allowing for faster travel times across the region. An Automated Metro has a longer life span before reaching capacity than a Tram.

The cost difference was only 30% higher for Skytrain with a fully elevated track over an at grade Tram on the Fraser Hwy and 20% difference for the Surrey-Newton-Guilford Line.

The Montreal REM cost less as the majority of the metro line was at grade.