

The Olympic Line

< Vancouver's 2010 Streetcar >

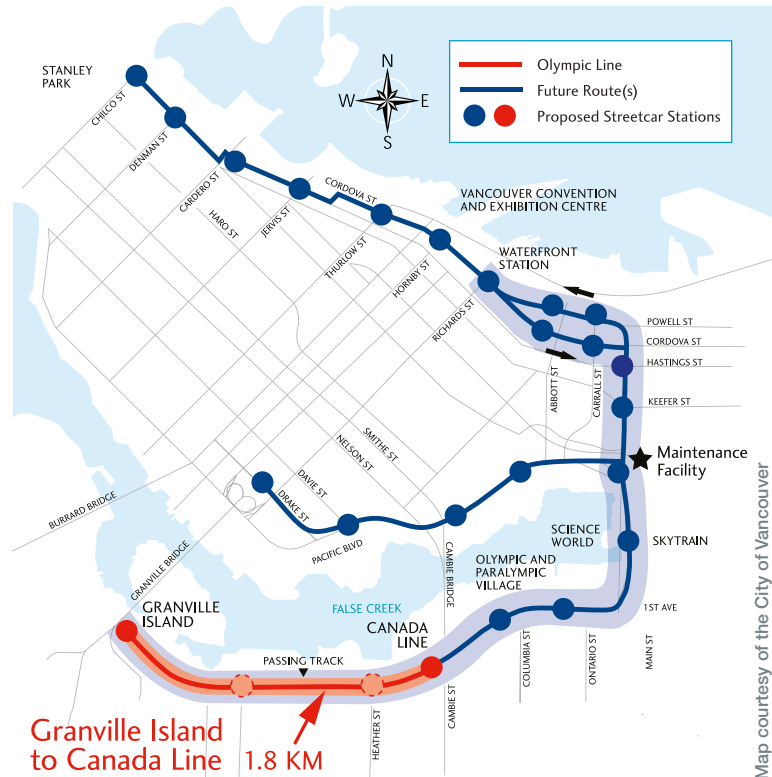


Bombardier Transportation, in partnership with the City of Vancouver, will provide free streetcar service for Vancouver residents, visitors and athletes during the Vancouver 2010 Olympic and Paralympic Winter Games.

Connecting Granville Island, a key entertainment centre for the 2010 Winter Games, and the Olympic and Paralympic Village Vancouver, the Olympic Line streetcar service will extend Vancouver's regional transit network along False Creek during 60 days of celebration before and during the 2010 Winter Games.

As part of Bombardier's sponsorship of the streetcar demonstration, it will provide two *FLEXTITY** streetcars on loan from Belgium's Brussels Transport Company. Using the existing Downtown Historic Railway, these 100% low-floor modern streetcars will operate on the 1.8-km of upgraded rail infrastructure. The upgrade is the result of an \$8.5 million investment by the City of Vancouver with a \$500,000 contribution from the Canada Mortgage and Housing Corporation, the administrator of Granville Island.

Bombardier will operate and maintain the demonstration streetcars 18 hours a day, 7 days a week from January 21 to March 21, 2010.



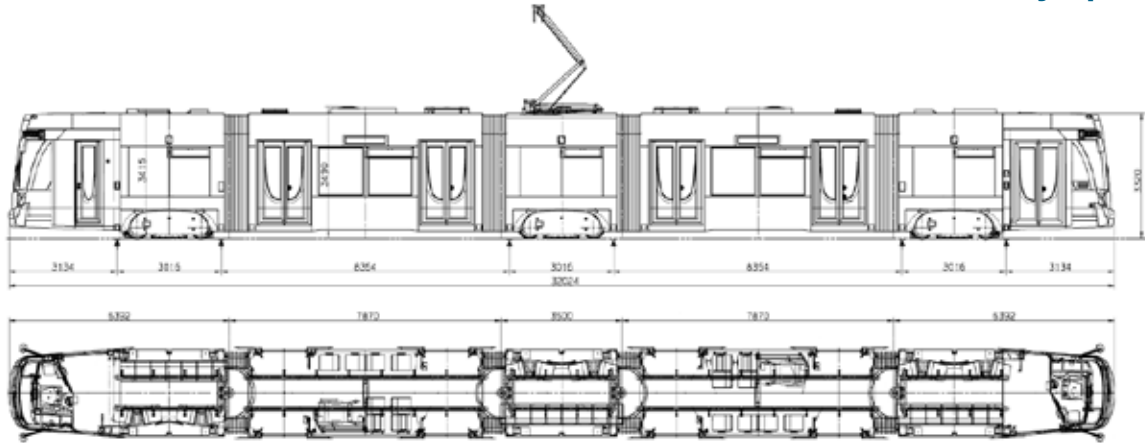
Granville Island to Canada Line 1.8 KM

BOMBARDIER

Map courtesy of the City of Vancouver

Vancouver's 2010 Streetcar

The Olympic Line



Vehicle Data

Type of vehicle	<i>BOMBARDIER FLEXITY Outlook</i>
Model	bi-directional
Owner	STIB (Société des Transports Intercommunaux de Bruxelles)



Technical Characteristics

Length of vehicle	32 m
Height	3.4 m
Width	2.3 m
Percentage of low-floor area	100%
Electric double-sliding doors	5 per side
• door clearance width	1,300 mm
Electric single-sliding doors	1 per side
• door clearance width	650 mm
Aisle width	630 mm
Maximum speed	70 km/h
Seated passengers	50
Standing passengers (4 pass./m ²)	128
Bicycle, pram and wheel chair locations	2



Bombardier Transportation

814 Richards St. – Suite 400
Vancouver, British Columbia
Canada V6B 3A7

Tel +1 604 623 4720

www.vancouverstreetcar.bombardier.com



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FLEXITY Outlook Brussels, Belgium



The Brussels transport authority (STIB) commissioned Bombardier to develop and manufacture 170 bi-directional trams of the **BOMBARDIER* FLEXITY* Outlook** type. The order entails 19 “long” trams consisting of seven modules and 151 “short” trams consisting of five modules.

STIB ordered two different tram lengths in order to respond to the various needs in passenger volumes on the different lines. The contract also includes the overhaul of the vehicles' bogies and traction equipment for a period of 15 years. The *FLEXITY* Outlook trams for Brussels are based on a proven technology which features 100% low-floor interior and conventional wheel-set bogies. This results in better and more running stability and improved passenger comfort. A lot of attention was paid to the safety of both the driver and the passengers: the front module resists a buffer load of 40 tons and the steel structure of the frame has

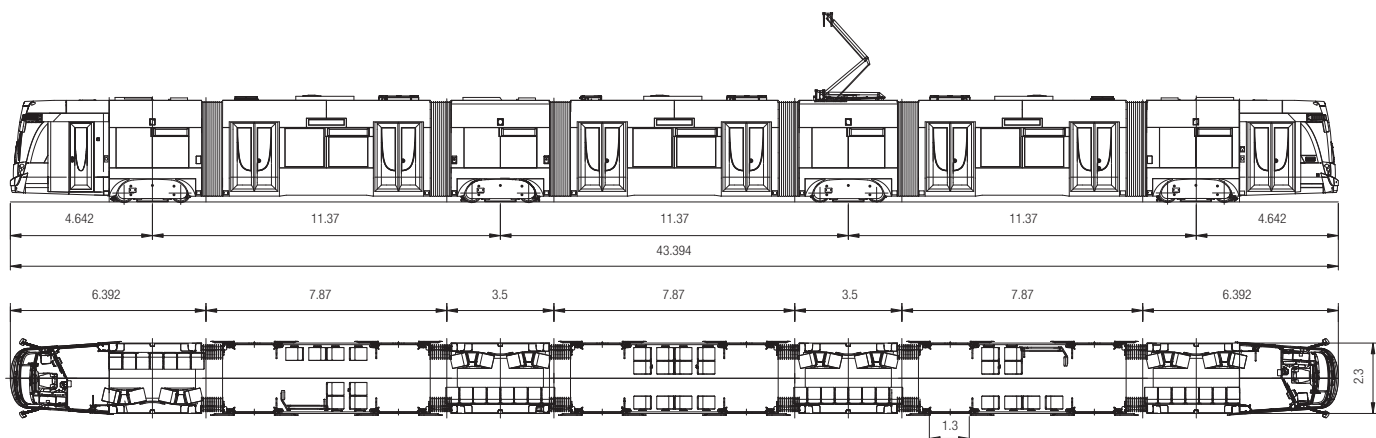


been pulled up to the sidewalls of the tram to protect the passengers in case of collisions along the side of the vehicle. The *FLEXITY* Outlook concept with its wide doors and integral low-floor ensures easy access to the vehicle for passengers with limited mobility.

The modern industrial design look is a contemporary interpretation of the “Art Nouveau” style. The vehicle's attractive appearance is based on noble materials, an elegant colour scheme and functional user-friendly details.

FLEXITY Outlook

Brussels, Belgium



General Data

First Contract award	September 2003
Type of vehicle	<i>BOMBARDIER FLEXITY Outlook</i>
Model	bi-directional
Owner	STIB (Société des Transports Intercommunaux de Bruxelles)
Quantity	170 (151 vehicles with 5 modules 19 vehicles with 7 modules)

Dimensions and Weight

Length of vehicle	32 / 43.4 m
Height	3.4 m
Width	2.3 m
Floor height above TOR	350 mm
• low-floor entrance	100 %
Percentage of low-floor area	100 %
Electric double-sliding doors	5 / 7 per side
• door clearance height	2,072 mm
• door clearance width	1,300 mm
Electric single-sliding doors	1 per side
• door clearance height	2,072 mm
• door clearance width	650 mm
Aisle width	630 mm
Wheel diameter (new / worn)	580 / 510 mm
Gauge	1,435 mm
Minimum horizontal curve radius	15 m
Minimum vertical curve radius, crest	140 m
Minimum vertical curve radius, sag	140 m
Car weight (empty)	39.2 / 52.5 t
Car weight (loaded) (4 pass./m ²)	51.7 / 70.1 t
Maximum axle load	10.5 t
Buffer load	400 kN

Technical Characteristics

Nominal current supply: 650 Vdc
Energy recuperation
Low voltage: 24 Vdc
Four / six 3-phase asynchronous motors
105 kW motor power
Air-cooled motor
2 / 3 powered bogies; 1 / 1 trailer bogie
• Rubber/metal primary suspension
• Coil spring secondary suspension
• 8 / 8 sanders
• Anti slip, anti skid system
Electrical service brake: regenerative
Mechanical service brake: disc brake
Magnetic brake: 6 / 8 x 66 kN

Performance and Capacity

Maximum speed	70 km/h
Acceleration rate	1.1 m/s ²
Deceleration	1.2 m/s ²
• service brake	min. 2.2 m/s ²
• emergency braking rate	75 ‰
Maximum gradient	50 / 74
Seated passengers	128 / 176
Standing passengers (4 pass./m ²)	2
Bicycle, pram and wheelchair locations	

Bombardier Transportation

Hermann Gebauer Straße 5
A-1220 Vienna, Austria
Tel (43-1) 25 110-760
www.bombardier.com



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