



# VAL TROMPIA METROBUS

## Brescia - Italy, 2000

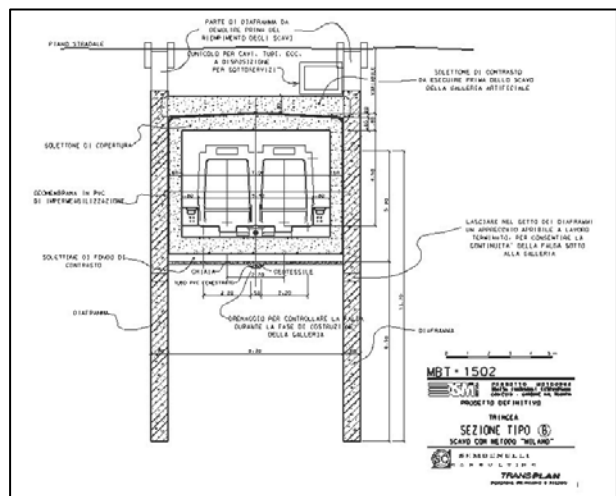
### PROJECT CHARACTERISTICS

**Works:** trunk line of an automatic LTR (Light Rapid Transit) railway. The line runs partly in a cut-and-cover section, partly in viaducts and partly in tunnel. Stations, both underground and surface, parkings, service buildings, lighting and ventilation systems.

**Purpose:** new public transport system for Trompia valley (Brescia), extension of the city system Metrobus, aimed at reducing the traffic of the National Road 345, the congested road axis of the valley, and shortening the distance between the cities along the valley.

### Dimensions:

- Line length: 14 km
- Length of tunnel: 1,40 km
- Tunnel cross section: 28.8 m<sup>2</sup>
- Length of cut-and-cover tunnel: 4,8 km
- Length of viaduct: 7,9 km
- Outdoor stations: 6
- Underground stations: 9
- Project cost: 325 000 000 US \$
- Passengers one-way: 7 600 to 12 000 passengers/hr
- Ave. speed: 45 km/h
- Train frequency: 90 seconds
- Train capacity: 230/300 passengers
- Depot: 2 900 m<sup>2</sup>



### PROFESSIONAL SERVICES SUPPLIED

Tender design for a design-and-build contract. The design included: analysis of population distribution, of traffic flows (carried out by TRANSPLAN), analysis of infrastructures and of the natural and artificial waterways. Lay-out selection optimizing the mobility offers and minimizing the interferences with the existing road system, with historical monuments, with archaeological pre-existences and with planned infrastructures. Aerophotogrammetric and celerimetric survey of the bottom of the valley. Location of the stations. Detailed design, structural and geotechnical computations of the major structures: tunnel, viaducts and bridges. Jobsite organization study, ventilation diagrams, quantities take-off, construction plan, cost evaluation. All drawings have been made using DTM and CAD 3D.

*The extra-urban Rapid Transit Line runs along a South-North axis from Concesio to Gardone Val Trompia. It begins at the North end of the METROBUS of Brescia designed by SC in 1999. The layout, chosen so as to have minimum impact on the valley, crosses the river flowing along the valley, with bridges having a central span of 80 m, making use of the same deck of the viaduct supported by external prestressing cables.*

*The metrobus will be double track, independent from normal traffic. Neither train staff nor station operators are requested to operate the LRT system. In order to guarantee reduced implementation times and minimum environmental impact construction processes have been the subject of special studies.*

