

Light metro opens this year



Photo: Stefan von Mach

CAF is supplying 17 100% low-floor cars for Line 1.

OCTOBER has been set as the opening date for the first section of the Sevilla metro, writes **Stefan von Mach**. Running from Cocheras to Nervión, it will be followed before the year ends by sections from Nervión to Ciudad Expo and from Cocheras to Condequinto. The final section of the 18 km line from Condequinto to Olivar de Quinto should be finished in 2009.

The story of Sevilla's metro is a long one. With 700 000 city residents and 1.76 million people living in the surrounding area, the city is anxious to improve its public transport. While the AVE high speed line has offered excellent connections to Madrid since 1992, urban transport still relies on buses — but passengers will soon have their first taste of what is perhaps best termed a light metro.

First attempt

The city's metre gauge tram network was dismantled in 1962. In 1968 the city council began studies for a three-line metro comprising a 10.5 km north-south line, a 9 km east-west route and a 9 km orbital line. Construction began in 1978, but after two years technical problems and a major cost increase brought the scheme into question. The Autonomous Region of Andalusia, set up in 1981, decided to halt the project, and tunnelling was abandoned in 1983. More than 15 years later, a new metro was to rise from the ashes of the old scheme.

Tussam (Transportes Urbanos de Sevilla SAM), the local bus operator, carried 87 million passengers in 2006, nearly 2% down on 2005. The commercial speed of bus services had fallen to just 11.3 km/h, while the number of private cars in the city had increased by 35% since 1995. These figures prompted the Region to take another look at a metro scheme in 1999, this time in conjunction with the city councils of Sevilla, Dos Hermanas, San Juan de Aznalfarache and Mairena de Aljarafe.

Fresh start

The project was restarted, and the aim was to open the first line in 2003. However, things sometimes take longer than expected, and it was not until that year that construction began. Completion is now finally in sight.

The first line will be marketed as Metro de Sevilla, which is also the name of the consortium that won a 35-year

concession worth around €600m to build and operate it (Table I). The consortium is formed of civil engineering companies Dragados, Sacyr and Gea 21, Sevilla's bus operator Tussam, vehicle supplier CAF and Zaragoza's public transport operator Tuzsa (Transportes Urbanos de Zaragoza SA).

Line 1 runs from east to west over a length of 18.1 km, linking Ciudad Expo with Olivar de Quinto and passing below the city centre in tunnel. The line makes use of the 3.5 km tunnel section that was built in the 1970s and 1980s but never used, and the underground segments account for 56% of the route, the deepest point being 26 m below the surface. A Lovat TBM from Canada has been used for the bored sections; other sections used cut-and-cover methods.

Away from the centre the route runs mainly on viaducts or on segregated street tracks, but there are some short tunnels. Maximum speed is 70 km/h, and trains are expected to achieve a commercial speed of 29 km/h, with traffic forecast to reach 20.4 million passengers a year.

EMTE supplied and installed the substations for the 750 V DC power supply, while Neopool and Lymi won the orders for overhead line equipment. The track contracts went to Neopool and Dorsalve, and Bombardier supplied ATP and ATO systems.

Three more lines

Sevilla plans to build a large metro network, and studies have already been made that would allow work to begin on further lines in 2010. The 12.5 km Line 2 will cross the city from Puerta Triana in the west to Torreblanca in the east; ridership is estimated at 20 million passengers a year. Line 3 will be 11 km long, linking Pino Montano in the north to Los Bermejales in the south. Line 4 is envisaged initially as a semi-circular route, with later extensions creating a full orbital line round the city carrying up to 19 million passengers a year. When completed, this line will be 19 km long with 19 stations.

Furthermore, three independent

Table I. Metro de Sevilla consortium shareholders

Dragados	31.1 %
Sacyr	31.1 %
Gea 21	11.8 %
Tussam	11.2 %
CAF	9.8 %
Tuzsa	5.0 %

Table II. Funding for Metro de Sevilla, €m

Junta de Andalucía	321.4
Municipality of Sevilla and other communities	107.1
Spanish government	218.9
Total	647.4*

*includes EIB loans worth €260m

