

## Guangzhou - Shenzhen - Hong Kong Express Rail Link (GZ-SZ-HK ERL)



The HKSAR Government announced the Railway Development Strategy 2000 (RDS2000) in May 2000, which identified a Regional Express Link (REL) as a new rail line to provide express train services between the urban area and the boundary providing the potential to connect to fast inter-city trains in Guangdong Province and beyond. Three preliminary ERL alignments within HKSAR were developed linking the existing Hunghom Station to the likely boundary crossing points at Shekou, Huanggang or Liantang. Hunghom Station was planned as a Mass Transportation Centre (MTC) for interchanging with other railway lines and modes of transport within the HKSAR.

The study objective was to provide expert technical advice on High Speed Rail (HSR) engineering and specific topical studies drawing Systra's extensive international experience of very fast train design, construction and operation. Key aspects were:

- ▶ To review the previous Study Reports and further develop the REL sections of the ERL, in particular to assess key feasibility, design and safety issues of HSR operation in very long tunnels through the HKSAR; and
- ▶ To carry out topical studies on specific issues of the ERL, in particular, the REL to establish further details of the REL and to enable more detailed planning to commence. These topical studies include a comparison of alternative wheel-on-rail and magnetic levitation based technologies.

Systra were responsible for the following work tasks:

### Engineering Review

- ▶ The feasibility construction and operation of an HSR line through the HKSAR in tunnel;
- ▶ Facilitating the proposed service criteria;
- ▶ Ensuring safe and reliable operation which meet international safety standards;
- ▶ Achievable construction programme; and

- ▶ Train service operations, station layouts, track layouts, crossovers/sidings, emergency operations, passenger handling/customs/immigration.

### Various Topical Studies

1. Tunnel Configuration
2. Use of New Technology

#### Development of high-speed wheel-on-rail systems in the World including:

- ▶ French TGV network
- ▶ Germany ICE network
- ▶ Spanish AVE network
- ▶ Italian High-Speed network
- ▶ North-European TGV network in UK, Netherlands and Belgium
- ▶ High-speed line in Belgium
- ▶ High-speed project in Netherlands : Amsterdam-Rotterdam-Belgium
- ▶ Trans-European High-speed network (TEN)
- ▶ Japanese Shinkansen network
- ▶ Taiwan's Taipei Kaohsiung project
- ▶ Korea's Seoul Pusan project.

#### Development of Maglev Technology in the World including :

- ▶ The German Transrapid Maglev
- ▶ The Japanese Superconducting Maglev

3. Traffic control and signaling
4. Assessment of Terminal Station Options at Hunghom and West Kowloon Station Concepts
5. Interchange Stations in the Mainland Huanggang and Guangzhou East
6. Maintenance Depot
7. Traction Power System
8. Telecommunication System
9. Time Frame for Implementation
10. Cost Estimates and Institutional Arrangement for Implementation



Authority :	Kowloon-Canton Railway Corporation
Client :	The Railway Development Office of Highways Department
Contract Value :	HK 0.7million
Contract Period :	2003 - 2004
Services to Client :	Technical and Institutional Study on ERL

#### Note :

The above - quoted figures are indicative only.

