

Hong Kong

A year of steady progress on a programme of system expansion

The citizens of Hong Kong still have a couple of years to wait before they reap the benefits of a significant expansion of the SAR's rail network. Five new rail projects are currently under construction. In 2014 the West Island will be the first of the new lines to become operational. 2015 will be a bumper year with three projects; South Island Line (East), Express Rail Link (HK Section) and the Kwun Tong Line Extension expected to open. The Shatin to Central Link will follow, opening in two phases in 2018 and 2020.

West Island Line

The West Island Line, which started construction in July 2009, is an underground extension of the existing MTR Island Line from Sheung Wan to Kennedy Town, with intermediate stations at Sai Ying Pun and University. It will operate with 8-car trains and 1500v DC power arrangement, which is in line with the existing MTR Island Line. Its route length will be about 3km with three new stations to be built underground - two by cavern construction and one by cut-and-cover-box construction.

Construction will be completed in 2014.

South Island Line (East)

The South Island Line (East) will be a medium-capacity railway connecting the MTR network at Admiralty to the Southern District of Hong Kong, via new stations at Ocean Park, Wong Chuk Hang, Lei Tung and South Horizons - a distance of approximately 7km. A train stabling and maintenance depot will be located in Wong Chuk Hang.

The scheme was gazetted under the Railways Ordinance in July 2009. Consultation with the public has continued since then, in parallel with

progress on the railway's design. Amendments to the scheme were gazetted under the Railways Ordinance in June 2010 to take account of changes arising from this consultation and from design development. Construction started in early 2011 and will be completed in 2015.

Express Rail Link (HK Section)

The XRL is a high speed rail system, with trains running up to 200 kph in the HK section. The XRL will cut the journey time from HK to Guangzhou from around 100 to just 48 minutes.

The journey time from HK to Futian in Shenzhen will take only 14 minutes.

The 26km Hong Kong Section of Guangzhou-Shenzhen-

Hong Kong Express Rail Link (XRL) starts from West Kowloon and will run to the boundary of Hong Kong and Shenzhen, where it will connect with the 16,000km National

High-speed Railway Network.

Construction works commenced in late January 2010, with target completion by 2015.

The XRL will run on a dedicated corridor. The option

of shared corridor with the existing West Rail Line (WRL) was considered, but eventually not adopted. This is because the shared corridor option will not be able to meet the service requirement envisaged by 2016 and extensive modifications to the existing railway line would unavoidably disrupt the daily operations of the West Rail Line.

In addition, operating constraints would be induced on both WRL and XRL that

would compromise the service level and operation efficiency of both lines.

The enhanced connectivity between Hong Kong and the mainland, created by the Express Rail Link will facilitate the social and economic integration of Hong Kong with cities in the Pearl River Delta, as well as other major cities in the mainland and thus will enhance Hong Kong's position as a regional hub.

It is estimated that the Express Rail Link will save approximately 42 million hours of travelling time annually, bringing up to HK\$87 billion in economic benefits over the next 50 years, based on the time savings of passengers alone.

Kwun Tong Line Extension

This is an underground extension of the existing Kwun Tong Line from Yau Ma Tei Station to Whampoa, via Ho Man Tin, which will be an interchange station with the East West Corridor of the Shatin to Central Link. The extension will be 2.6km long, with two new underground stations. Following the awarding of tunneling and station building contracts, totaling US\$491 m, to Nishimatsu and Chun Wo-Hip Hing JV, construction started in July 2011. The extension will operate with 8-car trains and 1500v DC power arrangement, which is in line with the existing Kwun Tong Line. Construction of the new extension is scheduled to finish in 2015.

Shatin to Central Link (Phases 1 and 2)

The Shatin to Central Link is the most recent rail project to start construction. Senior officials from Hong Kong Government and MTR officiated at the ground breaking ceremony on 22nd June. The SCL route is mainly underground and will be completed in 2 phases

- Phase 1 - Tai Wai to Hung Hom Section. This is an extension of the Ma On Shan Line from Tai Wai, via Hin Keng, Diamond Hill, Kai Tak, To Kwa Wan, Ma Tau Wai, Ho Man Tin to Hung Hom.

- Phase 2 - Cross Harbour Section. It will extend from Hung Hom Station on the existing East Rail Line to Admiralty, with one intermediate station at Exhibition.

Phase 1 will be 11 km, consisting of 10.6km underground tunnel and 0.4 km viaduct. Eight stations (six underground) and a stabling siding will be built. It will operate with 8-car trains and 25kV AC power supply system.

Phase 2 will be 6km, all underground tunnel, with 2 km of the tunnel running under Victoria Harbour. It will operate with 9-car trains and 25kV AC power supply system.

The railway scheme was gazetted on 26 November 2010 under the Railways Ordinance. The Tai Wai to Hung Hom Section is expected to be completed in 2018, while the Hung Hom to Admiralty Section will have to interface with other infrastructure projects, including Wan Chai Development Phase II and Central-Wan Chai Bypass and is expected to be completed in 2020.

Alstom contracts for MTRC

In April of this year Alstom was awarded three contracts by MTR to supply a fully-automatic signalling system, plus track and overhead line infrastructure systems for the

South Island Line (East) and track and overhead line

infrastructure systems for the Kwun Tong Line extension.

They also received confirmation of the option for a signalling system for the Kwun Tong Line extension.

The total value of these three contracts and option amounts to US\$90 million.

For the South Island Line (East), Alstom will provide its Urbalis CBTC (Communication-Based Train

Control) system, the contract includes system design,

supply, manufacture, installation, testing and commissioning.

The Urbalis CBTC system reduces intervals between trains and its fully redundant architecture allows for high availability for fully-automatic operations. Alstom will also supply, install and commission the tracks as well as design, supply, install and commission the overhead line system for both lines. It is the first time that Alstom has supplied track and overhead line systems in Hong Kong.

Project Funding

The funding model for all these new rail projects takes different forms.

- The West Island Line takes the capital grant model with claw-back mechanism.
- The Express Rail Link (HK Section) adopts a concession approach, under which its construction will be funded by the Government under the Public Works Programme
- The South Island Line (East) and the Kwun Tong Line Extension are still under detailed design stage funding mechanism using the Company's traditional "Rail and Property" approach, whereby property development rights are being explored with the government.
- The Shatin to Central Link will adopt a Service Concession model.

MTRC lines under construction

Conclusion

When completed these five lines will extend the network by approximately 56km and achieve three goals through; bringing rail transport to new areas of the SAR, improving interchanges within the existing system and providing quicker access to the network of high-speed rail lines beyond Hong Kong's border.

Reaching new areas, including the west and south of

Hong Kong Island can only increase MTR's market share of

the franchised public transport market, which has continued to grow from 44.6% in 2010 to 45.4% in 2011.

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