



ARTICLE

# MTRC “Rolls Out” the Future in Hong Kong

Hong Kong’s railway network is developed and operated by the MTR Corporation (“MTRC”). Prior to the Covid-19 pandemic the network carried over 4.5 million passengers every day and accounted for 40% of all public transport passenger trips within Hong Kong and approximately 60% of cross-boundary passenger land trips between Mainland China and Hong Kong.<sup>1</sup>

In 2020 MTRC commenced the design of the first of the Railway Development Strategy 2014 (RDS-2014)<sup>2</sup> railway extension projects, the Tung Chung Line Extension. Further projects have since moved into the design phase including the detailed planning and design of Hung Shui Kiu Station which commenced in May 2021. As MTRC embarks on this ‘roll-out’ of new railway extension projects for the future, this article is intended to provide readers with a brief outline of the scope, extent and timing of the portfolio of upcoming projects<sup>3</sup>.

The current tentative project timelines provided by MTRC indicate that the overall design stage for the projects will commence in 2021 and run through to 2025, with the construction stage commencing in 2023 and running out beyond 2030. The initial major procurement activities are targeted to commence in the first half of 2022 with others commencing progressively thereafter through to the end of 2023.

Given the early stage of the new projects, the details currently available from MTRC are intended to provide an outline indication only and may change as the projects develop.

## The Projects

The six new projects comprising the current phase of the overall development programme are:

- Tung Chung Line Extension (TUE);
- Airport Railway Extended Overrun Tunnel (ARO);
- Tuen Mun South Extension (TME);
- Northern Link -Phase 1 and Phase 2 (NOL);
- Siu Ho Wan Station and Siu Ho Wan Depot Development (SHD); and
- Hung Shui Kiu Station (HSK).

<sup>1</sup> Statistics according to RDS-2014 issued by the Government of the Hong Kong Special Administrative in September 2014.

<sup>2</sup> RDS-2014 is the Government of the Hong Kong Special Administrative Region’s Railway Development Strategy 2014 published in September 2014 by the Government’s Transport and Housing Bureau which sets out the Government’s framework for planning the future expansion of Hong Kong’ railway network up to 2031, which can be accessed at <https://www.thb.gov.hk/eng/psp/publications/transport/publications/rds2014.pdf>

<sup>3</sup> All figures, costs, durations and key project information set out in or referred to in this article have been obtained from official MTRC sources which are publicly available either on MTRC’s website, in MTRC publications or which have been divulged in public seminars conducted by MTRC. For further information on the new projects identified in this article contact [newprojects@mtr.com.hk](mailto:newprojects@mtr.com.hk)

The key features of each of these new projects are highlighted below:

### **Tung Chung Line Extension (TUE)**

The project scope comprises the extension of the existing Tung Chung Line westwards by 1.3km terminating at new underground Tung Chung West Station (TCW) and is intended to serve the incumbent residents and potential new housing developments including the Tung Chung New Town Extension (West) planning areas. In addition, a new at-grade Tung Chung East Station (TCE) will be constructed, together with modification of approximately 1.2km of the existing Tung Chung Line (TCL) as a key component of the transport infrastructure to support the New Tung Chung New Town Extension (East) development. In respect of TCW the specific project challenges include filling an existing subsea tunnel and deep excavation next to the existing Yat Tung Housing Estate. The works are also to be carried out next to the existing Ma Wan Chung village and the ecologically sensitive surrounding area. For TCE, the works are to be carried out adjacent to the Tung Chung Line and Airport Express Line on newly reclaimed land with complex project interfaces and non-operational working hours.

The design phase is currently underway and construction is slated to commence in 2023/2024 and be completed in 2029/2030. The current construction budget is HK\$18.7 million (based on December 2016 prices).

### **Airport Railway Extended Overrun Tunnel (ARO)**

This is the smallest of the new projects but one of the most technically challenging. The project extends the existing overrun tunnels for the Tung Chung Line and Airport Express Line by approximately 500m to the east of the existing Hong Kong Station. The works will comprise a cut and cover tunnel and involve major underground utility diversions, extensive traffic management arrangements and careful geotechnical monitoring. The project is anticipated to start in 2025 and be completed by 2032.

### **Tuen Mun South Extension (TME)**

The works extend the Tuen Ma Line by way of a viaduct from Tuen Mun Station southward by approximately 2.4km. A new elevated terminus, known as Tuen Mun South Station (TMS), will be constructed near the existing Tuen Mun Ferry Pier and a new intermediate elevated station A16 Station (which will ultimately be renamed) will also be constructed. The work will also extend to the re-provisioning of the existing Tuen Mun Swimming Pool, Pet

Garden and Tuen Mun Community Green Station.

The specific challenges include viaduct construction work in the Tuen Mun River with associated restrictions during the wet season and the requirement to re-provision the existing swimming pool prior to construction of the new A16 Station. The works are to be carried out in close proximity to dense residential areas, highly trafficked roads and existing footbridges, which will result in complicated project interfaces.

Construction is expected to start in 2023 with completion anticipated in 2030. The estimated total cost is HK\$11.4 billion (based on December 2015 prices).

### **Northern Link - Phase 1 and Phase 2 (NOL)**

The NOL comprises a new 10.7 km railway line connecting the Tuen Ma Line to the Lok Ma Chau Spur Line to be constructed in two phases. Phase 1 comprises the construction of the new underground Kwu Tung Station. Phase 2 is the construction of the main line with three new intermediate stations at San Tin, Ngau Tam Mei and Au Tau and a new terminus station at Kam Sheung Road. The works interface with the Kwu Tung North New Development Area and the San Tin New Development Area and with the existing operational railway lines. Upon completion of the project a loop will be formed in Northwest New Territories to enhance the transport network connecting the east and west of the New Territories. Specific challenges include the works passing through local villages and through environmentally and ecologically sensitive areas. The development also requires land to be acquired to accommodate the proposed works.

The overall estimated cost of the project is HK\$62 billion with Phase 1 estimated at HK\$3.5 billion and Phase 2 estimated at HK\$58.5 billion (based on December 2015 prices).

Design of the project commenced in 2020. The anticipated commencement and completion for construction of Phase 1 are in 2023 and 2027 respectively, whilst construction of Phase 2 is expected to commence in 2025 and be completed by 2034.

### **Siu Ho Wan Station and Siu Ho Wan Depot Development (SHD)**

The works include multiple phases of the Siu Ho Wan Depot rearrangement, podium and deck construction and property enabling works to support the proposed extensive Siu Ho Wan Topside Residential Development

comprising the provision of approximately 20,000 new residential units (approximately half of which will be public housing) in four phases from 2028 to 2037. The first 6,000 residential units are anticipated to be available by 2030. A new at-grade Siu Ho Wan Station (SHO) and associated railway facilities will also be constructed. The development will also incorporate a 30,000 square feet Shopping Mall amongst other facilities. The works will also require track modifications to the existing Tung Chung Line. Particular challenges include brownfield site development close to live railway lines with work to be carried out during non-operational hours and the need to maintain the operations of the existing Siu Ho Wan Depot throughout.

The work is anticipated to commence in 2022 and run beyond 2035.

### Hung Shui Kiu Station (HSK)

The works to be developed comprise the construction of a new station to be built on the existing Tuen Ma Line between Tin Shui Wai Station and Siu Hong Station along the Tuen Ma Line to serve the future Hung Shui Kiu (HSK)/ Ha Tsuen (HA) New Development Areas. The works will be programmed to match the first population intake at the HSK/HA New Development Area. This development will be the first time in Hong Kong that a new station has been constructed on an existing line while maintaining full line operation.

### Progress to Date

In April, May and December 2020, the Government of the HKSAR invited MTRC to proceed with the detailed planning

and design of the Tung Chung Line Extension (TUE), Tuen Mun South Extension (TME) and the Northern Link/Kwu Tung Station respectively. MTRC is currently progressing the detailed planning and design, ground investigation and environmental impact assessment studies for both TUE and TWE. In respect of the Northern Link project, MTRC awarded the detailed planning and design of Kwu Tung Station in April 2021 and the preliminary design consultancy for the main line and associated stations in July 2021.<sup>4</sup>

### Key Challenges

MTRC’s aggressive programme of proposed new railway projects will expand Hong Kong’s existing railway network by 25%.

Much of the proposed work is heavily integrated with the existing railway network and ensuring that the affected lines remain operational will be a considerable challenge. A number of the projects are to be constructed in densely populated urban areas and present significant challenges and complex construction interfaces with existing residential buildings, proposed new residential and commercial developments and to traffic management in the affected areas.

With the projects planned to be designed, procured and constructed concurrently and with an overall estimated cost of some HK\$120 billion<sup>5</sup> it is not difficult to envision that the projects will present a number of considerable challenges to the Hong Kong construction market going forward, not least ensuring that adequate skilled and non-skilled manpower is available. This will also extend to the supply of the various technical and professional disciplines for the design, procurement and construction phases.

<sup>4</sup>All information obtained from MTRC’s Interim Report 2021.

<sup>5</sup>MTRC estimate based on 2015 and 2016 pricing levels.

*This was excerpted from the December 2021 Edition of thePulse, our quarterly newsletter which provides interesting and topical articles from our Construction Solutions team and other leading industry and legal writers from around the APAC region. To receive quarterly updates, sign up for the email at [info-ap@fticonsulting.com](mailto:info-ap@fticonsulting.com).*

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