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Railway Development Strategy 2014

PURPOSE

This paper briefs Members on the gist of the Railway Development Strategy 2014 (RDS-2014) and seeks Members' view on the Strategic Environmental Assessment (SEA) report for the "Review and Update of the Railway Development Strategy 2000 (RDS-2U)".

BACKGROUND

2. The Railway Development Strategy 2000 (RDS-2000) was announced in May 2000, mapping out a plan for the expansion of Hong Kong's railway network up to 2016. It envisaged six passenger railway corridors and a potential Port Rail Line. Except for the Northern Link, North Island Line and Port Rail Line (which was shelved in 2009), the recommended railway projects have come into operation or are at different stages of implementation. In view of the public demand and development needs, the Government also decided to take forward two other railway projects that were not included in the RDS-2000, namely the South Island Line (East) and Kwun Tong Line Extension. In total, five new railway projects, namely the West Island Line, South Island Line (East), Kwun Tong Line Extension, Guangzhou-Shenzhen-Hong Kong Express Rail Link (Hong Kong Section) and Shatin to Central Link, are now under construction and expected to be commissioned in succession between the end of 2014 and 2020/ 2021.

3. The Government commissioned the consultancy study for the Review and Update of the Railway Development Strategy 2000 in March 2011 to update the long-term railway development blueprint for Hong Kong to cater for the latest development needs in the society. The study reviewed the railway schemes identified in the RDS-2000 which have not yet been implemented and other railway proposals suggested by the Government or members of the public. Two stages of Public Engagement (PE) exercise were conducted from April to July 2012 and from February to May 2013 to consult the public on the conceptual proposals of three major regional corridors and seven local enhancement schemes (namely the Northern Link, Hong Kong-Shenzhen Western Express Line and Coastal Railway between Tuen Mun and Tsuen Wan, as well as the North Island Line, Siu Sai Wan Line, South Island Line (West), Tuen Mun South Extension, Hung Shui Kiu Station, Tung Chung West Extension and Kwu Tung Station) respectively. The Executive Summary of the Final Consultancy Report is uploaded to the Highways Department's website (http://www.hyd.gov.hk/en/publications_and_publicity/publications/review_and_update_railway_development_strategy_2000_es/index.html).

RAILWAY DEVELOPMENT STRATEGY 2014

4. The RDS-2014 is an update of the RDS-2000, providing a framework for planning the expansion of Hong Kong's railway network up to 2031. It recommends that seven railway projects be completed in the planning horizon up to 2031 having regard to transport demand, cost-effectiveness and the development needs of New Development Areas (NDAs) and other new developments. The seven projects are –

(a) Northern Link and Kwu Tung Station;
(b) Tuen Mun South Extension;
(c) East Kowloon Line;
(d) Tung Chung West Extension;
(e) Hung Shui Kiu Station;
(f) South Island Line (West); and
(g) North Island Line.

Of these, the Northern Link and the Kwu Tung Station are combined as a single proposal, and the East Kowloon Line is a new proposal developed by

the consultant after considering the public comments and further examining the transport demand in East Kowloon. Details of these schemes are set out in the RDS-2014 document at **Annex A**.

BENEFITS OF THE EXPANDED RAILWAY NETWORK

5. When the seven recommended projects covered in the RDS-2014 are completed, the total length of the railway network would lengthen from 270 km in 2021 to over 300 km by 2031, and the number of stations would increase from 99 in 2021 to 114 by 2031. This level of rail coverage, plus the potential extensions beyond 2031, would be conducive to the fulfilment of our planning, development, transport and environmental objectives in the horizon of 2031 and beyond. The key benefits are highlighted below –

(a) Integrating land use and transport development – Taken together, upon the implementation of the recommended projects, the railway network is expected to cover areas inhabited by about 75% of the local population and about 85% of job opportunities. With proper integration of the planning for railway and land development, there will be synergy in broadening the living space for residents in Hong Kong. The expanded railway network will support NDAs and other new developments in the New Territories, release the development potential of peripheral areas and facilitate local rejuvenation, development and economic activities.

(b) Serving Hong Kong's transport demand – The expanded railway network will cover more areas and provide railway service to more people. It will improve the connectivity and accessibility of NDAs and other new developments, relieve the pressure on critical transport corridors, as well as boost operational robustness and reliability of the railway network. With the implementation of the railway projects, the rail share [1] would further rise from around 40% at present (and around 43% upon the completion of the five railway projects currently under construction) to between 45% and

1 Rail share is defined as the use of rail modes (heavy rails, Airport Express, Light Rail and trams) as a proportion of all public transport boardings (including public light buses, ferries, franchised and non-franchised buses, taxis and the above rail modes). It is about 40% at present.

50% by 2031, depending on a myriad of variables including transport policy, population and employment growth, as well as changes in economic conditions.

(c) **Providing a high level of transport service –** The expanded railway network will help shorten journey time and make travel easier across the territory. The railway schemes will provide adequate capacity and travel conditions to meet the forecast transport demand by 2031 and allow for further passenger growth.

(d) **Environmental Benefits –** Railways can save land, minimise the reliance on road travel and reduce the use of energy, thus curbing roadside pollutant emissions. With the implementation of the railway projects, the rail share in the public transport system would rise to some 45% to 50% of the total number of public transport trips by 2031, and a reduction in road-based transport is expected. This would translate into environmental benefits amounting to a reduction in roadside air pollutants by some 190 tonnes of nitrogen oxide per year and 143 000 tonnes of green house gases per year, i.e. reduction of about 2% to 4% of the roadside air pollutants and green house gases per year.

(e) **Economic benefits –** The expanded railway network would help improve the connectivity of Hong Kong and shorten the journey time of commuters, thereby enhancing the economic capacity of Hong Kong for meeting the long-term socio-economic needs. The railway projects are expected to bring the important, strategic benefits as referred to in (a), (b), (c) and (d) of this paragraph and to create job opportunities. These benefits are not easily quantifiable.

Meanwhile, the consultant estimates that, taken as a whole, the investment in the expanded railway network will bring direct economic benefits (mainly in terms of savings in the travelling time of public transport users) of $3 to $4 billion per annum by 2031 upon the operation of all the projects. The overall economic internal rate of return (as conventionally defined) of all the projects is estimated at about 2%.

IMPLEMENTATION

6. The proposed indicative implementation programme for planning purpose for the recommended railway projects is as follows –

Railway project	**Indicative implementation window for planning purpose**
Northern Link and Kwu Tung Station	2018 – 2023*
Tuen Mun South Extension	2019 – 2022
East Kowloon Line	2019 – 2025*
Tung Chung West Extension	2020 – 2024*
Hung Shui Kiu Station	2021 – 2024*
South Island Line (West)	2021 – 2026*
North Island Line	2021 – 2026

Note: Implementation of the schemes marked with an asterisk ("*") will be contingent upon the progress of the residential developments in the vicinity.

7. The taking forward of individual proposed railway projects set out in the RDS-2014 will be subject to the outcome of detailed engineering, environmental and financial studies relating to each project, as well as updated assessment of passenger transport demand and availability of resources at the time. The Government will have to carefully consider all relevant factors and strike a reasonable balance among various interests of the community when mapping out the way forward for each railway project. For instance, initiatives on land production and housing supply as well as hospitals and strategic roads may be equally, if not sometimes more, important to the community. In particular, we will critically examine the financial implications to the Government and consider the most appropriate implementation programme and financing arrangements for each project. Furthermore, for railway projects which are mainly intended to complement new residential developments, the implementation timetable for the development areas in question will be an important planning parameter. Prior to the finalisation of any new railway schemes, there will be further public consultation. Against the above background, the feasibility and viability of, as well as the indicative timetable for, implementing the

recommended projects may be adjusted with changes in circumstances subsequent to the release of the RDS-2014.

8. The implementation of individual railway projects encompasses a chain of activities before construction starts. These include preparation of a project proposal covering the detailed technical and financial estimates, scrutiny of the project proposal within the Government, consultation with the public and stakeholders and resolution of the comments received, pre-feasibility study, site investigation, project design and further public consultation, gazettal of railway scheme and handling of objections, Environmental Impact Assessment (EIA), seeking authorization of railway schemes, as well as preparation and signing of related agreements with the company responsible for the construction. In the process, the Government needs to seek the Executive Council's authorization for the design and construction of individual projects and the Legislative Council's approval for the funding concerned. When the project proceeds to the construction stage, there may be a need for land resumption and liaison with local stakeholders to settle claims. Furthermore, despite the pre-construction planning and preparations, we will still face the issue of the capacity of the construction industry and unforeseen engineering challenges. (For example, given the limited climbing capability of railways, some sections of the East Kowloon Line to be built along the hillside need to go deep underground. The consultant expects that the works will be technically very challenging, but the actual difficulties can only be verified or discovered upon site investigation and formulation of the railway design, or even as late as during the construction.) At this stage, our assessment of the implementation windows of the new railway projects is based on the experience of implementing railway projects in the past and the typical procedures involved. In view of various factors, the time required to implement the projects may be longer than presently estimated. Thus, the indicative implementation windows of the railway projects stated in the RDS-2014 are subject to adjustment as individual projects advance.

PROJECT COSTS

9. The preliminary cost estimate of all the seven recommended railway schemes is in the order of $110 billion (in 2013 prices). The preliminary cost estimates for the individual railway proposals are shown

below. These are only indicative and will need to be confirmed based on in-depth studies to be carried out at the detailed planning stage for the individual railway schemes.

Railway project	**Preliminary cost estimate ($ billion, in 2013 prices)**
Northern Link and Kwu Tung Station	23
Tuen Mun South Extension	5.5
East Kowloon Line	27.5
Tung Chung West Extension	6
Hung Shui Kiu Station	3
South Island Line (West)	25
North Island Line	20
Total	**110**

OUTCOME OF THE PUBLIC ENGAGEMENT (PE) EXERCISE

10. In the two-stage PE exercise, eight public forums and some 40 meetings were held with various committees and organisations, including the Subcommittee on Matters Relating to Railways of the Legislative Council Panel on Transport, Transport Advisory Committee, various District Councils, Heung Yee Kuk, professionals, academics and the business sector. In addition, over 11 600 written submissions were received through various channels, including the study website, post, email and fax. We also received many verbal comments at the aforementioned public forums, focus group meetings, and through the hotline.

11. The Government's initiative to review the railway development strategy and the railway proposals were generally welcomed by the public. Many looked forward to an early implementation programme. The majority agreed that land uses and railway development should be planned in an integrated manner, and that railways should continue to serve as the backbone of the passenger transport system in Hong Kong. There were mixed views on some of the individual proposals. We also received other railway

development suggestions from the public during the PE exercise. Subsequently, the consultant carried out a careful assessment to optimise the overall planning for the railway development. Among these, the suggestion of providing connection to the East Kowloon area, upon the consultant's review, has been incorporated in the East Kowloon Line proposal. For more details of the outcome of the PE exercise, please refer to the PE Report on the "Our Future Railway" website at http://ourfuturerailway.hk/.

ENVIRONMENTAL ASSESSMENT OF THE RAILWAY SCHEMES FORMING THE UPDATED RAIL DEVELOPMENT PLAN

12. In forming the railway network expansion plan, it is necessary to strike a balance between environmental considerations and other considerations to overcome the competing demands of various stakeholders and disciplines within the railway development process.

13. At this strategic level, the purpose of a SEA is to identify whether there are any potential "strategic" environmental implications that would make the scheme unattractive from an environmental perspective or would require particular attention during the future development of the railway. It is not the intention of a SEA to undertake detailed evaluation to a level commensurate with an EIA. The railway lines indicated in RDS-2014 are considered as preliminary "corridors" and are by no means fixed. When any railway project is taken forward for implementation, there will be detailed design and planning for the individual project (including public consultation), and the impact of such railway on a social, environmental, economic and other aspects will be assessed. Some of the major environmental implications of the proposed rail proposals as identified in the SEA are highlighted below –

(a) Environmental Benefit – Reduction of Greenhouse Gas - with the implementation of the railway proposals, there would be a reduction in roadside air pollutants by some 190 tonnes of nitrogen oxides per year, and 143 000 tonnes of green house gases per year with the expected reduction in road-based transport.

(b) Cumulative Noise Impacts - as the majority of the proposed railway proposals would be located underground, the potential operational noise impacts would be low. The assessment has

found that the elevated section of some railway schemes such as the Northern Line, Tuen Mun South Extension and sections of the South Island Line (West) would likely require direct (at source) mitigation measures to be developed.

In the past, noisy operational impact from above ground railway projects such as Ma On Shan Line and Lok Ma Chau Spur Line have been successfully implemented in the past through a variety of measures including noise barriers/enclosures. With appropriate noise mitigation measures adopted in the design, the noise impact resulting from the proposed elevated railways would be mitigated to within the required criteria.

(c) Cumulative Ecology and Fishery Impact - as the majority of the railway development proposals are to be located underground within an urban environment, the potential for ecological or fisheries impact is generally low. However, the currently proposed above ground alignments may affect some sensitive ecological habitats or other resources in a rough order of 5.6 hectares which will mainly arise from the implementation of the Northern Link and the Kwu Tung Station (4.4 hectares) and South Island Line (West) (1.0 hectares).

The preliminary railway alignments have generally, where practical avoided sensitive ecological habitats during the scheme's development process. Ecological concerns identified in this SEA will be addressed and further studied during the future planning and detailed design of the railway project, including the statutory EIA process. In the event that the railway scheme will affect any important ecological areas, the affected habitats will need to be fully assessed and mitigation will be proposed, commensurate with the significance and exact area.

For more details of the findings of the environmental impact, please refer to the SEA Executive Summary at **Annex B.**

14. The SEA conducted as part of the Review and Update of the "Railway Development Strategy 2000" concludes that none of the new railway schemes will present insurmountable environmental problems when some indicative corridors and alignments are used for strategic evaluation

purpose. Potential environmental impact of individual railway schemes will be addressed during their respective design and development process.

Transport and Housing Bureau
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