For discussion
on 15 December 2023

Legislative Council Panel on Transport

Hong Kong Major Transport Infrastructure Development Blueprint

PURPOSE

This paper briefs Members on the "Hong Kong Major Transport Infrastructure Development Blueprint" ("the Blueprint"), and seeks Members' views on the funding application for upgrading part of **6066TR** "Smart and Green Mass Transit System in East Kowloon" to Category A (i.e. **6067TR**) for engaging consultants to conduct investigation and design for the system.

HONG KONG MAJOR INFRASTRUCTURE DEVELOPMENT BLUEPRINT

2. A highly interconnected and accessible transport network opens up the connections of the city, effectively fosters economic development, improves quality of life and enhances social cohesion. The Government's vision is to build a livable, competitive and sustainable Hong Kong through "driving development by transport infrastructure" by adopting the planning principles of "infrastructure-led" and "capacity-creating", under the objective to drive development, effectively connecting the new development areas to existing or future transport infrastructure to unleash the development potential of areas along and adjacent to the alignment of transport infrastructure. Besides, we will enhance cross-boundary integration between Hong Kong and Mainland cities and the connections between districts, and expand the coverage of railway and major road networks to achieve a high level of resilience and increase commuting options. At the same time, we will improve efficiency by diverting existing railways and major roads, and hence improving overall transport efficiency and shortening journey time.

3. Transport infrastructure projects involve huge public resources and have significant socio-economic impacts. To continuously enhance the transport infrastructure networks, the Government has been timely carrying out topical studies on major transport infrastructure development and formulating a framework for the long-term development of such infrastructure, with a view to establishing a flexible and resilient transport strategy and implementing various transport infrastructure projects in an orderly manner.

Long-term Development Demand

4. Hong Kong's long-term development demand is mainly from the Northern Metropolis and the Harbour Metropolis. The Northern Metropolis covers Yuen Long District and North District spanning approximately 30 000 hectares of land, and would house a population of about 2.5 million and provide about 650 000 jobs. The area will become the foothold for Hong Kong's strategic development. The Harbour Metropolis, covering the existing metro area on the two sides of the Victoria Harbour and the proposed Kau Yi Chau Artificial Islands (KYCAI), is a metropolis with competitive edges in finance and business.

5. At the same time, Hong Kong has long been a premier international logistics hub and an important gateway for trade between the Mainland and the rest of the world. To continue to promote high-quality development of Hong Kong's logistics industry while making full use of the infrastructure such as the Hong Kong International Airport, the container terminals, the Hong Kong-Zhuhai-Macao Bridge and other land-based boundary control points (BCPs), we need to continuously improve the major road networks, coupled with multimodal logistics facilities to capitalise on Hong Kong's strengths as an international aviation hub and an international shipping centre.

Strategic Studies on Railways and Major Roads beyond 2030

6. In response to Hong Kong's long-term development demand, the Government commenced the "Strategic Studies on Railways and Major Roads beyond 2030" ("the Strategic Study") to review the capacity of existing road and railway networks to promote development, consider all the railway and major road projects under planning and construction, as well as carry out

technical analysis objectively to ascertain traffic bottlenecks, to holistically map out the required major transport infrastructure projects and their target completion dates in a forward-looking manner, and listened to various opinions via public consultation to optimise allocation of public resources for implementation.

7. The analysis results of the Strategic Study indicate that, following the completion of the railway and major road projects under planning and construction, coupled with enabling the existing railway network capacity to reach its limit through increasing number of trains and upgrading systems, it is anticipated that the railway and major road networks will substantially address the transport demand in short to medium term, as well as alleviate the majority of existing and anticipated traffic bottlenecks.

8. Looking ahead, there will be a significant transport demand for east-west connectivity within the Northern Metropolis and its cross-boundary connections, north-south connectivity between the Northern Metropolis and the Harbour Metropolis, and the external connectivity for Tseung Kwan O. Therefore, at the end of 2022, the Strategic Study preliminarily recommended taking forward three strategic railways and three major roads ("three railways and three major roads"), namely the Hong Kong-Shenzhen Western Rail Link (Hung Shui Kiu-Qianhai), the Central Rail Link, the Tseung Kwan O Line Southern Extension, the Northern Metropolis Highway, the Shatin Bypass and the Tseung Kwan O - Yau Tong Tunnel.

9. The Government conducted a public consultation on the preliminary findings of the Strategic Study from December 2022 to March 2023. During the public consultation, different sectors of the community actively expressed their opinions on the Strategic Study. The public generally supported the recommended major transport infrastructure projects, and expressed opinions on aspects including the alignment of the projects, the implementation and financial arrangements, etc. For the major views collected during the public consultation, please refer to **Annex I**.

10. After carefully studying the valuable views expressed by the public and stakeholders and carrying out technical analyses, the Strategic Study has comprehensively taken into account the transport benefits, coverage, potential impacts on the environment and cost-effectiveness, etc., of each project and

recommends enhancing the three railways and three major roads and adding two railways and one major road in the eastern part of the Northern Metropolis, namely the Northern Link Eastern Extension, the Northeast New Territories Line and the Northern Metropolis Highway (New Territories North (NTN) New Town Section). Some of the enhancements to the three railways and three major roads are briefly described below –

(a) Central Rail Link: to add intermediate stations at Northeast Tsuen Wan, Northeast Kwai Chung and Tsuen King Circuit to cater for the transport demand of local residents and future housing developments, and to extend the Tsuen Wan Line westward to connect to the Tsuen King Circuit Station, allowing interchange between the Central Rail Link and Tsuen Wan Line so as to enhance the coverage and benefits of the Central Rail Link;

(b) Northern Metropolis Highway: in addition to extending the Northern Metropolis Highway eastward by around 5 km and taking forward the Northern Metropolis (NTN New Town Section), interchanges will be added to connect with the San Tin Highway and the Fanling Highway of Route 9. There will also be provision of direct access to areas such as Ngau Tam Mei, San Tin Technopole, Kwu Tung North/Fanling North New Development Area (NDA), and NTN New Town (including Lo Wu/Man Kam To) to significantly improve transport efficiency of the strategic road network in the northern part of the New Territories;

(c) Shatin Bypass: to add a slip road to connect the major tunnel of the Shatin Bypass to Shing Mun Tunnels Road towards Tsuen Wan, establishing an efficient route for road users of northeast New Territories travelling to the New Territories West;

(d) Tseung Kwan O-Yau Tong Tunnel: in order to enhance connectivity between the Tseung Kwan O-Yau Tong Tunnel and Kowloon East and Hong Kong Island East, where technically feasible, the exit at Yau Tong will be linked to the Kwun Tong Bypass and the Eastern Harbour Crossing, facilitating road users commuting between Tseung Kwan O and other districts.

11. We anticipate that the three railways and three major roads and the newly-added two railways and one major road mentioned above, together with

the transport infrastructure projects that are under planning, design and construction will be sufficient to meet Hong Kong's transport and logistics demand up to 2046 and beyond.

Smart and Green Mass Transit Systems

12. In addition to large-scale transport infrastructure, the Government recommends the introduction of smart and green mass transit systems to serve as a light and green feeder service to nearby railways and major public transport interchanges in areas with limited space or lower transport demand, with a view to suitably and effectively utilising public resources to meet the transport demand arising from local developments. After conducting preliminary study on the technical and financial feasibility, the Government recommends the implementation of smart and green mass transit systems in East Kowloon, Kai Tak and Hung Shui Kiu/Ha Tsuen NDA. We will invite local and overseas suppliers and operators to submit Expressions of Interest (EOI) for the projects in East Kowloon and Kai Tak in 2024. By that time, we will have a better understanding of the technical specifications of the system, including system characteristics, operational arrangements, maintenance requirements, etc., which will enable us to further review the technical and financial feasibility of further expanding the projects in East Kowloon and Kai Tak. We will promptly engage consultants to conduct investigation and design for the systems. For the East Kowloon project, we will seek Members' views on funding application for engaging consultants for the project as detailed in paragraphs 20 to 34 below. As for the Kai Tak project, we will conduct the investigation and design for the project as a Category D item.

The Blueprint

13. We have consolidated all major transport infrastructure currently under planning, design and construction and promulgated the "Hong Kong Major Transport Infrastructure Development Blueprint" on 12 December 2023 (see **Annex II**), which formulates a planning framework for the city's future transport infrastructure development, and outlines the strategic railway and major road networks which can meet the transport and logistics demand up to 2046 and beyond.

II

14. Taking into account the available planning data on land development, the Blueprint has duly considered the transport and logistics demand brought about by population growth, employment and economic activities in the Northern Metropolis, KYCAI and other major planned development areas. The prioritisation of project implementation is determined based on traffic analysis. Upon the progressive commissioning of the major transport infrastructure projects, we anticipate that the transport infrastructure network will have sufficient capacity to drive territory-wide developments, deepen cross-boundary integration, offer more commuting options, improve traffic conditions, reduce journey time and bring about long-term socio-economic benefits.

15. To drive the development of the Northern Metropolis, the major transport infrastructure network will extend to various New Development Areas in the area, enhancing the connectivity between these areas with the Mainland, as well as other parts of Hong Kong, improving the overall traffic conditions in the Northern Metropolis. It will enable the public to easily access various land-based BCPs via major roads and railways, boosting the connectivity and synergy effect among these BCPs as well as the benefits of the cross-boundary infrastructure. Meanwhile, the improved major transport infrastructure network will also enhance the connection between the Northern Metropolis and the Harbour Metropolis, forming new transport corridors between the two Metropolis in the east, central and west of Hong Kong and creating sufficient capacity to meet the north-south transport and logistics demand arising from developments.

16. Upon completion of railway projects under construction and planning, the total length of the railway network is expected to increase from currently about 270 km to nearly 390 km, forming an extensive, interconnected and resilient rail system as the backbone of mass passenger transportation. Apart from travelling within different districts in Hong Kong, they can also conveniently travel to the Mainland and other parts of the world via the railway network connecting to the Hong Kong International Airport, the Guangzhou-Shenzhen-Hong Kong Express Rail Link, as well as various land-based and sea-based BCPs.

17. In terms of road network, the total length is currently about 2 200 km, of which about 260 km are major roads. Upon completion of the major

road projects under construction and planning, it is estimated that the length of major roads will increase to nearly 380 km to link and connect various districts in Hong Kong. Working alongside the passenger railway system which serves as the backbone, the major road network can effectively meet the logistics needs of various districts and increase the commuting options for the public and visitors. We expect that the continuously enhanced major road network will continue to provide efficient connectivity to the Hong Kong International Airport, all ports and land-based BCPs, facilitating smooth movement of people and goods, and supporting Hong Kong's ongoing development as a pivotal shipping, trading centre and an international aviation hub.

Implementation of Major Transport Infrastructure

18. The implementation of major transport infrastructure projects involves substantial financial and human resources. The society has expressed concern about the simultaneous implementation of multiple transport infrastructure projects in the future. The Government will conduct independent assessments of the economic benefits, implementation and financial arrangements for each major transport infrastructure project, taking into account construction and operational details (e.g. connectivity with existing railway network, passenger interchange arrangements, toll levels, etc.) and evaluate the pros and cons to ensure adopting the most suitable implementation model to take forward each project and achieving the anticipated transport and logistics benefits. In addition to the Capital Works Reserve Fund, the Government will also consider the appropriate utilisation of market forces to take forward the projects, including financing methods such as public-private partnerships.

19. For the implementation priority, the Blueprint outlines the target commissioning schedule for each of the major transport infrastructure projects. While we appreciate the public aspiration for the early commissioning of the major transport infrastructure projects, it is essential to pragmatically prioritise projects, carefully balancing many factors including local and cross-boundary transport and logistics demand and future growth projections, transport efficiency and cost-effectiveness, potential impacts on the local area and the environment, fiscal position, etc. The taking forward of the railway and major road projects will be subject to the outcome of

detailed engineering, environmental and financial studies relating to each project, as well as updated demand assessment, technical and technological application level and availability of resources. The Government will critically review the financial implications on public finance and the economic benefits of each project and consider the most appropriate implementation programme and financial arrangement for each project. Furthermore, in response to changes in planning parameters, individual projects may need to be reassessed, or with its implementation programme and alignment adjusted correspondingly. In progressively taking forward the relevant transport infrastructure projects, we will continue to actively engage various sectors of the community and consider their views to strike a balance between different factors. We will also suitably adopt advanced technologies and other feasible schemes, such as consideration of phased commissioning, with a view to enabling the public to enjoy a more interconnected, efficient and smooth railway system and road network as early as possible.

INVESTIGATION AND DESIGN OF SMART AND GREEN MASS TRANSIT SYSTEM IN EAST KOWLOON

20. As stated in paragraph 12 above, to effectively implement the Smart and Green Mass Transit System in East Kowloon, we propose to upgrade part of **6066TR** "Smart and Green Mass Transit System in East Kowloon" to Category A (i.e. **6067TR**) for engaging consultants to conduct investigation and design for the system.

Project Scope and Nature

21. Subject to the findings of the investigation and design, the preliminary scope of **6066TR** mainly comprises –

(a) construction of the Smart and Green Mass Transit System of about 7 km long from Choi Hung East near the existing MTR Choi Hung Station, via Choi Wan, Shun Lee, Shun On, Sau Mau Ping, Po Tat and Ma Yau Tong to Yau Tong East near the existing MTR Yau Tong Station;

(b) construction of the depot and system-wide facilities such as signalling system, operation control and monitoring facilities, charging facilities, passenger facilities and off-board fare collection system, etc.;

(c) construction of pedestrian linkage facilities between Po Tat/Ma Yau Tong Station and the Anderson Road Quarry Site; and

(d) implementation of associated civil, geotechnical, landscaping, road and drainage works, ancillary buildings, viaducts / elevated structures / tunnel sections, pedestrian connection facilities, charging facilities, passenger facilities, off-board fare collection system, traffic control and surveillance system, electrical and mechanical installations, reprovisioning of facilities affected by the proposed works and environmental mitigation measures.

22. The part of **6066TR** proposed to be upgraded to Category A (i.e., **6067TR**) comprises –

(a) review of the findings of preliminary technical feasibility study and examination of proposed project alignment and design, and assessment of the impact on the environment, traffic, heritage, land and other related aspects, as well as detailed financial assessment of the proposed project and proposals for other related financial arrangements;

(b) site investigation and associated supervision works;

(c) preparation works for gazettal of the proposed project and planning application for the proposed depot site;

(d) preparation for inviting EOI from suppliers and operators, tender documents preparation and assessment of tenders for the proposed project; and

(e) assistance to relevant government departments in formulating the operational requirements, as well as proposals on other related operation and management arrangements.

23. Subject to funding approval from the Finance Committee (FC) of the Legislative Council (LegCo), we plan to commence the proposed investigation and design ("the Study") so as to carry out and complete the relevant preparatory works and statutory procedures before tendering. The Study includes invitation of EOI from local and overseas suppliers and operators (about 3 months), Environmental Impact Assessment (about 18 months), gazettal and authorisation of scheme (about 9 months), planning application for the proposed depot site (about 12 months), and other preparatory works such as site investigation, design and preparation of tender documents, etc. Various tasks and procedures under the Study will be conducted in parallel whenever practicable with a view to expediting the delivery of the project. Upon completion of the above tasks, we will proceed to inviting tenders for the project.

Justifications

24. The East Kowloon Line (EKL) under the "Railway Development Strategy 2014" was originally proposed to be connected to Kwun Tong Line and Tseung Kwan O Line. Owing to the hilly topography along the corridor and the limited climbing capability of the heavy rail system, most of the railway sections need to go deep underground and the public has to take longer time to travel between the ground level and the station platforms, thus increasing the journey time. Due to various technical difficulties and unsatisfactory transport performance, the implementation of heavy rail system is not a sustainable and effective option for EKL.

25. However, the northern areas of Kwun Tong are densely populated. With the completion of On Tai Estate and On Tat Estate and the imminent population intake of the Development of Anderson Road Quarry Site, the transport demand in the northern uphill areas of Kwun Tong will continue to increase. At present, residents in Kwun Tong uphill areas who wish to take the railway need to use the road-based transport feeder services to gain access to the nearby railway stations. To address the commuting needs of residents in the northern uphill areas of Kwun Tong, it is considered necessary to provide a feeder transit system to connect the Kwun Tong uphill areas to the existing railway network.

26. In this connection, the Highways Department commenced a preliminary technical feasibility study on the Smart and Green Mass Transit System in East Kowloon in July 2022, in which reference was made to local and overseas smart and green mass transit systems, and various factors such as system characteristics, transport performance, technical feasibility and cost-effectiveness were critically assessed with a view to identifying a suitable transit system.

27. After a comprehensive review of the technical difficulties and transport benefits of the project, we propose to introduce the Smart and Green Mass Transit System in East Kowloon as an alternative to the underground heavy rail system. With a length of about 7 km, the Smart and Green Mass Transit System in East Kowloon will provide a convenient and fast feeder transport service in the uphill areas of Kwun Tong, facilitating access to MTR Choi Hung Station and Yau Tong Station via Choi Wan, Shun Lee, Shun On, Sau Mau Ping, Po Tat and Ma Yau Tong, as well as connecting Po Tat / Ma Yau Tong Station to the Development of Anderson Road Quarry Site through pedestrian linkage, thus providing convenient access and more commuting options for the public. In addition, to facilitate the usage of the proposed transit system by the public, we propose to provide additional lifts and pedestrian linkages at Shun On Station and Sau Mau Ping Station connecting with On Tai Estate and On Tat Estate, thereby allowing residents to gain direct access to the station platforms for taking the proposed system or to Shun On Road and Sau Mau Ping Road for taking other road-based transport. The proposal can also provide additional connections for the residents of On Tai and On Tat Estates to travel to and from Shun Tin and Sau Mau Ping areas. The proposed Smart and Green Mass Transit System in East Kowloon operates on a dedicated corridor, which is separated from road-based traffic along the corridor and would not be affected by traffic congestion. Depending on the green mass transit system to be adopted eventually, the journey time from Choi Hung to Yau Tong area is estimated to be about 15 to 20 minutes.

III 28. Please refer to **Annex III** for the preliminary alignment of the proposed Smart and Green Mass Transit System in East Kowloon.

29. Given that the proposed Smart and Green Mass Transit System in East Kowloon will be a new public transport system, the relevant design proposals, implementation approach, financial assessment and arrangement,

tendering approach, operation mode, etc. will need to be formulated. Besides, technical assessment of various aspects and planning application for the proposed depot site, etc. will need to be conducted. These tasks involve a wide range of professional disciplines and pose considerable challenges and therefore we need to engage professional consultants with relevant professional background and experience to carry out the associated tasks and to ensure that the project can be taken forward effectively such that the technical, financial and operational issues relating to the project can be identified and properly handled before proceeding to the tendering and construction stages.

Financial Implications

30. We estimate the cost of the Study to be $276.5 million in money-of-the-day prices, which includes (a) consultancy fee (about $166.0 million); (b) expenditure on the site investigation works (about $78.0 million); (c) expenditure related to supervision of site investigation works (about $8.0 million); and (d) contingencies (about $24.5 million).

Public Consultation

31. In the Policy briefing for LegCo Panel on Transport on 17 November 2023, the Secretary for Transport and Logistics conducted a briefing on the key transport-related policy initiatives in the Chief Executive's "2023 Policy Address", including the proposed Smart and Green Mass Transit System in East Kowloon. Members generally supported the construction of the system, and some Members suggested extending the system to different areas, including Lam Tin North, Po Lam and Tsz Wan Shan, etc. While understanding that based on the preliminary study on the relevant suggestions, considerable technical challenges including constraints posed by existing buildings or facilities, difficulties in finding space for the construction of the transit system on narrow roads in the districts, topography along the routes and the technical suitability of the system, as well as the impact of the extension proposals on the neighbouring stakeholders, etc. are anticipated, the Government should continue to explore the feasibility of the suggestions.

32. We plan to invite local and overseas suppliers and operators of smart and green mass transit systems to submit EOI in the second half of 2024, and will exchange views on the feasibility of expanding the system, and further review Members' views and suggestions in the context of the Study.

IV 33. Please refer to **Annex IV** for the environmental, heritage, land acquisition and tree implications arising from the Study and the associated site investigation works.

Way Forward

34. We plan to consult Kwun Tong District Council and Wong Tai Sin District Council on **6066TR** in early 2024, and to seek funding approval from the Public Works Sub-committee (PWSC) and FC of the LegCo to upgrade part of 6066TR to Category A in the first half of 2024. Upon obtaining funding approval, we plan to commence the investigation and design in mid-2024, and to invite local and overseas suppliers and operators of smart and green mass transit systems to submit EOI in the second half of 2024.

CONCLUSION

35. Members' views are welcomed.

Transport and Logistics Bureau
Highways Department
Transport Department
December 2023

Annex I

Strategic Studies on Railways and Major Roads beyond 2030
Major Views Collected during the Public Consultation

The Government conducted a public consultation on the preliminary proposals of the Strategic Study from December 2022 to March 2023 including consultation with the Legislative Council, the Transport Advisory Committee, the Heung Yee Kuk New Territories, and the District Councils. Focus group meetings were held with professional bodies, academia, think tanks, and green groups, while two public forums were organised to collect public opinions. The public generally supported the recommended major transport infrastructure projects and expressed their opinions about the planning and implementation of these projects. Approximately 1 300 views were received, among which about 80% were for the railway projects and about 20% for the major road projects. The main areas of concern raised by the public include the alignment of the projects, the implementation and financial arrangements, and the potential impacts on the environment and nearby stakeholders during the construction and operation stages, as detailed below –

General Views

	Category of Views	Summary of Views
1.	Financial arrangements, implementation mode and manpower resources	• Expressed concerns on the financial arrangements, implementation mode and manpower resources in the industry. • Suggested introducing professionals from the finance and surveying sectors to participate in projects, to explore different business and financing modes, including the possibility of project securitisation, and wider adoption of modes similar to "Rail plus Property", "Public-Private-Partnership" and "Build-Operate-Transfer". • Suggested exploring the introduction of mainland and foreign operators to foster competition.

2.	Needs, costs and economic benefits	• Generally recognised the need for "three railways and three major roads". • Concerned about the costs and economic benefits of the "three railways and three major roads" and other transport infrastructure.
3.	Implementation programme	• Concerned about the completion dates and implementation priority for the "three railways and three major roads" and other major transport infrastructure projects. • Suggested setting the implementation programme of the projects according to the growth in traffic demand, the progress of the major land development projects and associated projects. • Suggested setting out clearly in the "Hong Kong Major Transport Infrastructure Development Blueprint" the implementation priority of the infrastructure projects.
4.	Environmental issues	• Concerned about the potential ecological and environmental impacts caused by the transport infrastructure projects, and suggested avoiding or minimising environmental impacts by adjusting the alignments, design and construction methods, etc. • Concerned that the transportation infrastructure projects would expedite the land development causing damage to the environment.
5.	Alignment suggestions other than the "three railways and three major roads"	• Suggested railway extension to Sha Tau Kok. • Suggested railway extension to the Hong Kong University of Science and Technology and Sai Kung. • Suggested railway connection to Tuen Mun, Tsuen Wan, Kwai Chung and Shatin. • Suggested the addition of Ma Wan Station on Tung Chung Line.

		• Suggested the construction of north-south railway corridor to connect between New Territories North and urban areas. • Suggested the construction of the fourth road harbour crossing. • Suggested strengthening the road connections between Sai Kung, Lung Kwu Tan and So Kwun Wat, etc. and the urban areas. • Suggested improving the road network of Lantau Island South.

Views related to the Hong Kong Shenzhen Western Rail Link (Hung Shui Kiu-Qianhai)

	Category of Views	Summary of Views
6.	Railway operation	• Considered that if the Hong Kong-Shenzhen Western Railway (Hung Shui Kiu-Qianhai) is to be constructed and operated as a standalone line, it would be difficult to forecast a balance between revenue and expenditure. Suggested combining it with other railway projects to improve the situation. • Suggested that the railway be implemented and operated by railway companies from the Mainland.
7.	Design	• Suggested the addition of stations at Tin Shui Wai North and Yuen Long South Development Area. • Suggested extending the railway to the artificial island at the Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities, the Kau Yi Chau Artificial Islands and the Hong Kong Island. • Suggested connecting to other railways under planning, including Central Rail Link, Northern Link and Hong Kong Island West – Hung Shui

		Kiu Rail Link, to enhance the connectivity of railway network.
8.	Environmental issues	• The alignment might affect nearby wetland, and designated marine parks and marine reserve, and thus the marine ecosystem. Detailed environmental assessment should be conducted.
9.	Cross boundary arrangements	• Suggested implementing co-location arrangement to facilitate people commuting between the Mainland and Hong Kong.

Views related to the Central Rail Link

	Category of Views	**Summary of Views**
10.	Railway operation	• Suggested through-running operation between Central Rail Link and Northern Link.
11.	Design	*Station Locations* • Suggested the addition of more station locations at Northeast Tsuen Wan and Northeast Kwai Chung, such as Lei Muk Shue, Shek Yam, Shek Lei, On Yam, Shek Wai Kok, Cheung Shan. • Suggested the addition of station at Tsuen King Circuit. *Connectivity of Railway* • Suggested connecting to Tsuen Wan Line, and adding intermediate stations at locations along Tsuen Wan Line for interchange. • Suggested that Central Rail Link should not be connected to Kowloon Tong Station to avoid increasing the burden on the station capacity. *Railway Extension* • Suggested extending northward to Tin Shui Wai North and Yuen Long South Development Area.

	Category of Views	Summary of Views
		• Suggested extending southward to different areas, such as Kai Tak Cruise Terminal, other areas in East Kowloon, Tseung Kwan O and Hong Kong Island.
12.	Environmental issues	• Concerned that the alignment might encroach upon country parks, causing potential environmental impacts.

Views related to Tseung Kwan O Line Southern Extension

	Category of Views	Summary of Views
13.	Construction cost	• The railway involves reclamation works with high construction cost.
14.	Design	*Reclamation* • Objected the reclamation proposal near LOHAS Park, and considered that the proposal would pave the way for large-scale reclamation works in the waters off the industrial areas at Tseung Kwan O. • Suggested alternative non-reclamation methods, such as extension scheme by remodeling the LOHAS Park Station. • Requested to construct with immersed tube method to minimise the reclamation extent, or to construct with elevated railway or light rail system to avoid reclamation. *Railway Alignment and Extension* • Suggested alternative railway alignments for connection to Area 137. • Suggested that the railway should connect to Area 137 via Wan Po Road, Pak Shing Kok and/or Tseung Kwan O Innopark.

		• Suggested extending to Hong Kong Island East such as Siu Sai Wan, Chai Wan and Heng Fa Chuen. *Capacity of Tseung Kwan O Line* • Considered that the capacity of Tseung Kwan O Line was approaching its limit, and Tseung Kwan O Line Southern Extension would cause additional burden on Tseung Kwan O Line, and concerned about the frequency of train service after commissioning.
15.	Environmental issues	• Concerned about the air and noise pollution, as well as the damage to the sea due to construction works.

<u>Views related to Northern Metropolis Highway</u>

	Category of Views	**Summary of Views**
16.	Construction cost	• Concerned about the increased capital costs due to the need to avoid the environmentally and ecologically sensitive areas such as wetlands. • Suggested improving existing highway facilities as an alternative proposal.
17.	Design	*Extension* • Suggested eastward extension to connect different areas such as Ping Che, Ta Kwu Ling, Heung Yuen Wai Control Point and Sha Tau Kok Control Point, etc. • Suggested westward extension to connect Hung Shui Kiu New Development Area (NDA) and the Hong Kong-Shenzhen Western Highway, etc., and additional slip roads to connect to Yuen Long South.

	Category of Views	Summary of Views
		Connectivity • Suggested optimising the connectivity with the existing and planned road networks to divert traffic. • Suggested increasing the connections with various NDAs.
18.	Environmental issues	• The proposed alignment should be located as far away as possible from ecologically sensitive areas, including wetlands and fishponds in Nam Sang Wai and Fung Lok Wai, so as to minimise the impacts on various habitats.

Views related to Shatin Bypass

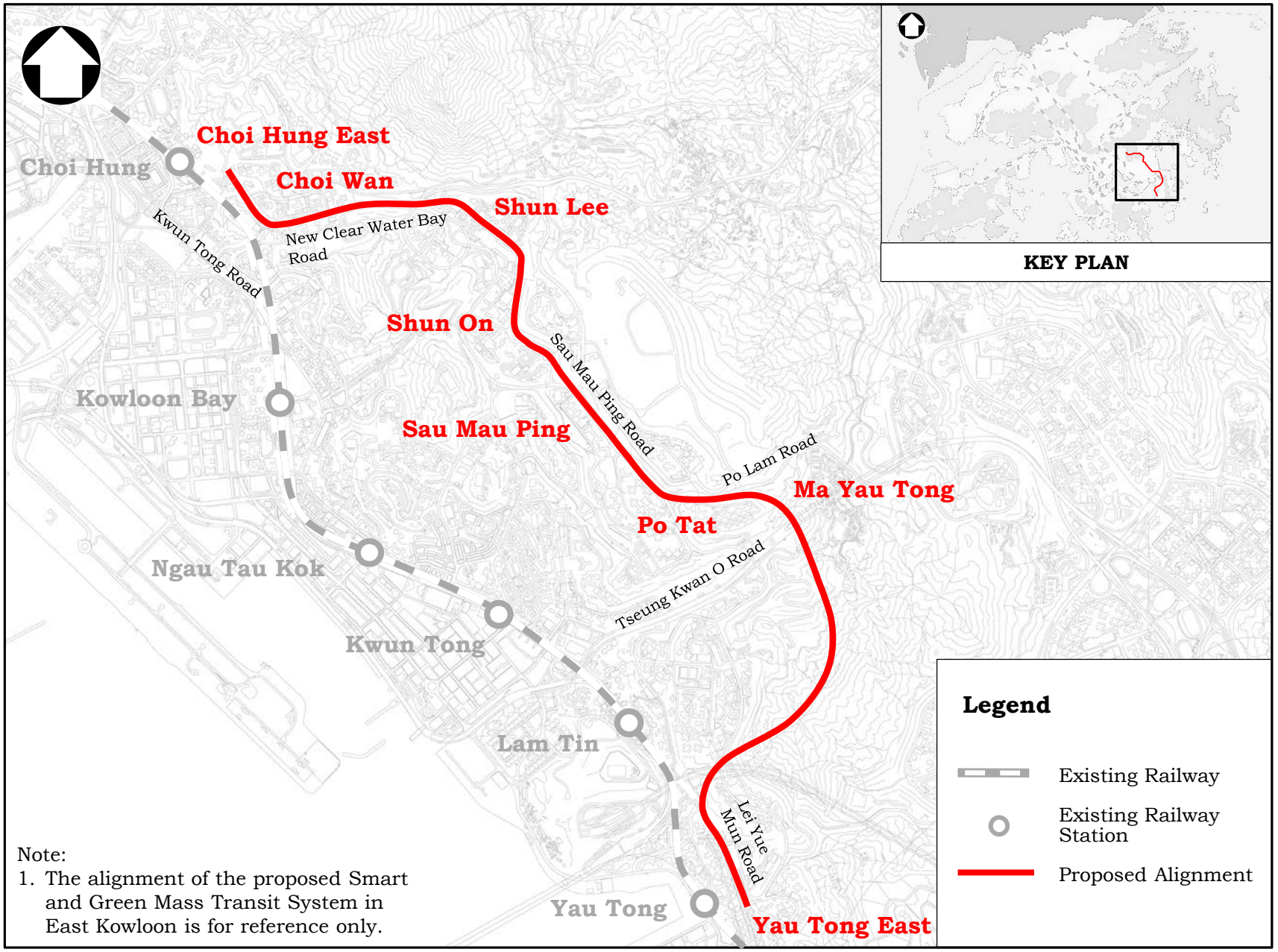
	Category of Views	Summary of Views
19.	Construction cost	• Suggested adopting alternative alignments or construction methods to minimise tunnel sections which are more costly.
20.	Design	• Suggested adding slip roads to connect with the Shing Mun Tunnels leading to Tsuen Wan, and exits at Sha Tin, Tai Wai or Fo Tan. • Suggested connecting to various districts, such as Tai Wai, Ma Liu Shui, Tai Po, Lam Tsuen and adjacent areas, and to the NDAs in the Northern Metropolis. • Concerned that the connection with Cheung Sha Wan at the southern end of the alignment would cause congestion to the existing major roads in the vicinity.
21.	Environmental issues	• Concerned that the construction works would affect the ecological environment at areas including Shing Mun and Kam Shan Country

		Parks, Tai Po Kau Nature Reserve and Lam Tsuen.

Views related to Tseung Kwan O-Yau Tong Tunnel

	Category of Views	Summary of Views
22.	Design	• Suggested connecting the existing and planned major roads, linking up Kowloon East and Hong Kong Island East. • Concerned about the increased traffic pressure in Yau Tong and Kwun Tong areas. • Suggested road harbour crossing in Area 137, connecting to Siu Sai Wan and Chai Wan.
23.	Environmental issues	• Concerned about the visual impacts to the green buffer zones, such as Devil's Peak and Black Hill. • Concerned about the air and noise pollution due to construction works, and the impacts on nearby schools and residents.

Annex III



Note:
1. The alignment of the proposed Smart and Green Mass Transit System in East Kowloon is for reference only.

Preliminary Scheme of Smart and Green Mass Transit System in East Kowloon

Annex IV

INVESTIGATION AND DESIGN OF SMART AND GREEN MASS TRANSIT SYSTEM IN EAST KOWLOON

ENVIRONMENTAL IMPLICATIONS

The proposed Smart and Green Mass Transit System in East Kowloon is a designated project under Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) (Chapter 499), which requires an environmental permit for its construction and operation. The Highways Department will conduct an EIA study to comply with the requirements of the EIAO. Nevertheless, the Study itself is not a designated project and will not cause any long-term adverse environmental impact. We have included in the project estimates the cost of implementing suitable pollution control measures to mitigate short-term environmental impact arising from the site investigation works under the Study.

2. The Study and the associated site investigation works will only generate minimal construction waste. We will require the consultants to fully consider measures to minimise the generation of construction waste and to reuse or recycle construction waste as much as possible in the future implementation of the construction works.

HERITAGE IMPLICATIONS

3. The Study and the associated site investigation works will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded heritage sites / historic buildings or structures, sites of archaeological interest, all newly proposed graded heritage sites / historic buildings or structures, and government historic sites identified by the Antiquities and Monuments Office. We will conduct cultural heritage impact assessment for the implementation of the proposed transit system under the EIA study of the Study and recommend appropriate mitigation measures if necessary.

LAND AQUISITION

4. The Study and the associated site investigation works will not require any land acquisition. The Study will examine the need and extent of land acquisition and/or clearance required for the implementation of the main works of the proposed transit system.

TREE IMPLICATIONS

5. The Study and the associated site investigation works will not directly involve any tree removal or planting proposals. The Study will examine the impact on trees during construction, the need for tree preservation and tree planting proposals.

Hong Kong Major Transport Infrastructure Development Blueprint

Transport and Logistics Bureau
The Government of the Hong Kong Special Administrative Region of the People's Republic of China

December 2023

Content

Chapter 1

Foreword

Vision and Objectives

1.1 Vision and Objectives

1.1.1 A highly interconnected and accessible transport network opens up the connections of the city, effectively fosters economic development, improves quality of life and enhances social cohesion. Hong Kong has a diverse and highly efficient public transport system, with railway as the backbone and an extensive road network, to cater for the public's and visitors' commuting demand and the city's development needs, promoting cross-boundary integration with the Mainland particularly with other Greater Bay Area (GBA) cities and linking up with the world.

1.1.2 The Government's vision is to build a livable, competitive and sustainable Hong Kong through "driving development by transport infrastructure" by adopting the planning principles of "infrastructure-led" and "capacity-creating". The objectives are as follows -

- **Drive Development:** to keep pace with the new development areas and effectively connect these areas to existing/future railway and major road networks to unleash the development potential of areas along and adjacent to the alignment of transport infrastructure and promote community revitalisation and high-quality development;

- **Strengthen Connection:** to further enhance cross-boundary integration between Hong Kong and Mainland cities and the connections between districts, and expand the coverage of railway and major road networks to achieve a high level of resilience and increase commuting options for the public; and

- **Improve Efficiency:** to divert existing railways and major roads, hence improving overall transport efficiency and shortening journey time.

Tuen Ma Line

1.1.3 In this connection, the Government published this Hong Kong Major Transport Infrastructure Development Blueprint, outlining the major transport infrastructure projects that could meet Hong Kong's long-term transport and logistics demand and achieve our vision and objectives in a pragmatic manner.

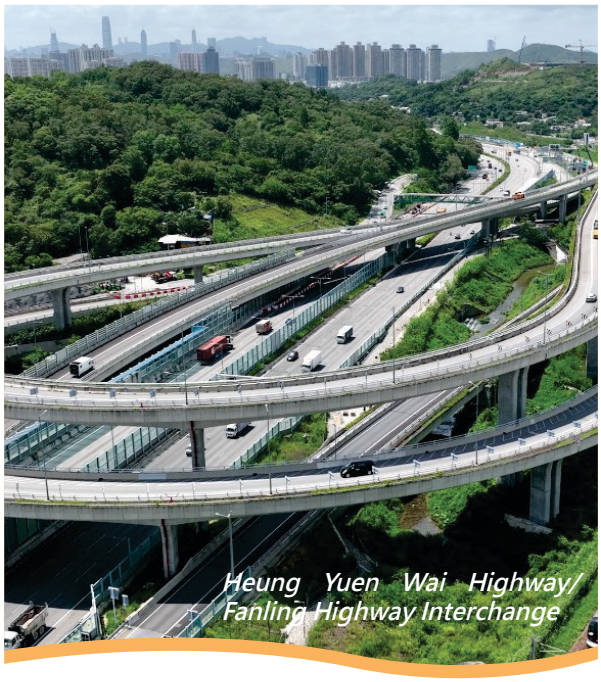
Lion Rock Tunnel Road

Chapter 2

Blueprint Formulation

Strategic Studies on Railways and Major Roads Beyond 2030

2.1 Strategy to Take Forward Transport Infrastructure Projects



Heung Yuen Wai Highway/ Fanling Highway Interchange

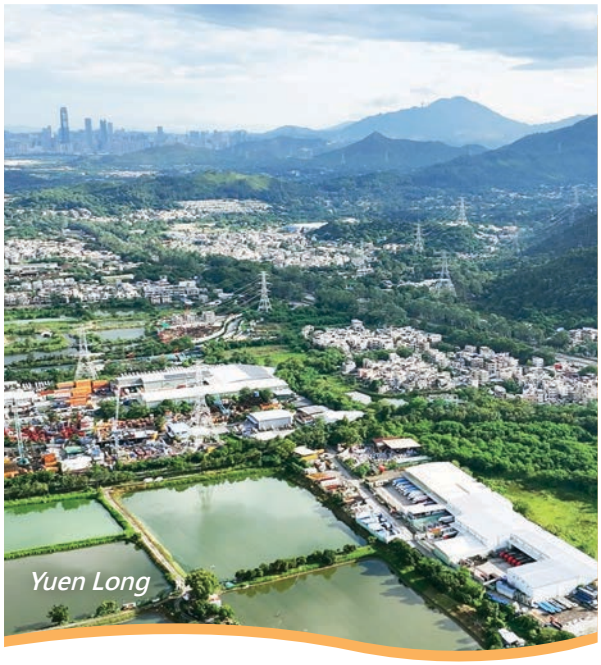
2.1.1 The Government has all along been adopting the "infrastructure-led" and "capacity-creating" planning principles in taking forward transport infrastructure projects with a view to unleashing the development potential of areas along and adjacent to the alignment of major transport infrastructure and fostering integration with other GBA cities. The Government has also been optimising the transport network against bottlenecks to provide public with more commuting options and to shorten journey time.

2.1.2 On "infrastructure-led", we have been proactively reviewing the required major transport infrastructure based on the preliminary planning intent at the initial stage of various land development projects to strive to commission major transport infrastructure in tandem with the major population intake in new development areas. On "capacity-creating", we have considered the long-term development of Hong Kong and made reference to the "high population projections" of the Census and Statistics Department to outline Hong Kong's future major transport infrastructure network. Meanwhile, we have allowed flexibility in the transport infrastructure proposals to cater for the evolving and unanticipated potential development needs.

2.1.3 Transport infrastructure projects involve huge public resources and have significant socio-economic impacts. In addressing the transport and logistics demand, for the sake of better utilisation of resources, the Government will first consider enhancing and expanding existing facilities, before implementing new infrastructure projects when there is a genuine need. In new development areas, a transport infrastructure project being completed too early may lead to underutilisation and misallocation of resources, while late completion of the project may cause inconvenience to the public's commuting and discourage individuals and businesses from moving into the new development areas. Detailed and careful planning is therefore essential to the implementation of transport infrastructure projects. Meanwhile, there will be divergent public opinions on the alignment and priority of different transport infrastructure. To continuously enhance the transport infrastructure networks, the Government has been timely carrying out topical studies on major transport infrastructure development and formulating a framework for the long-term development of such infrastructure, with a view to establishing a flexible and resilient transport strategy and implementing various transport infrastructure projects in an orderly manner.

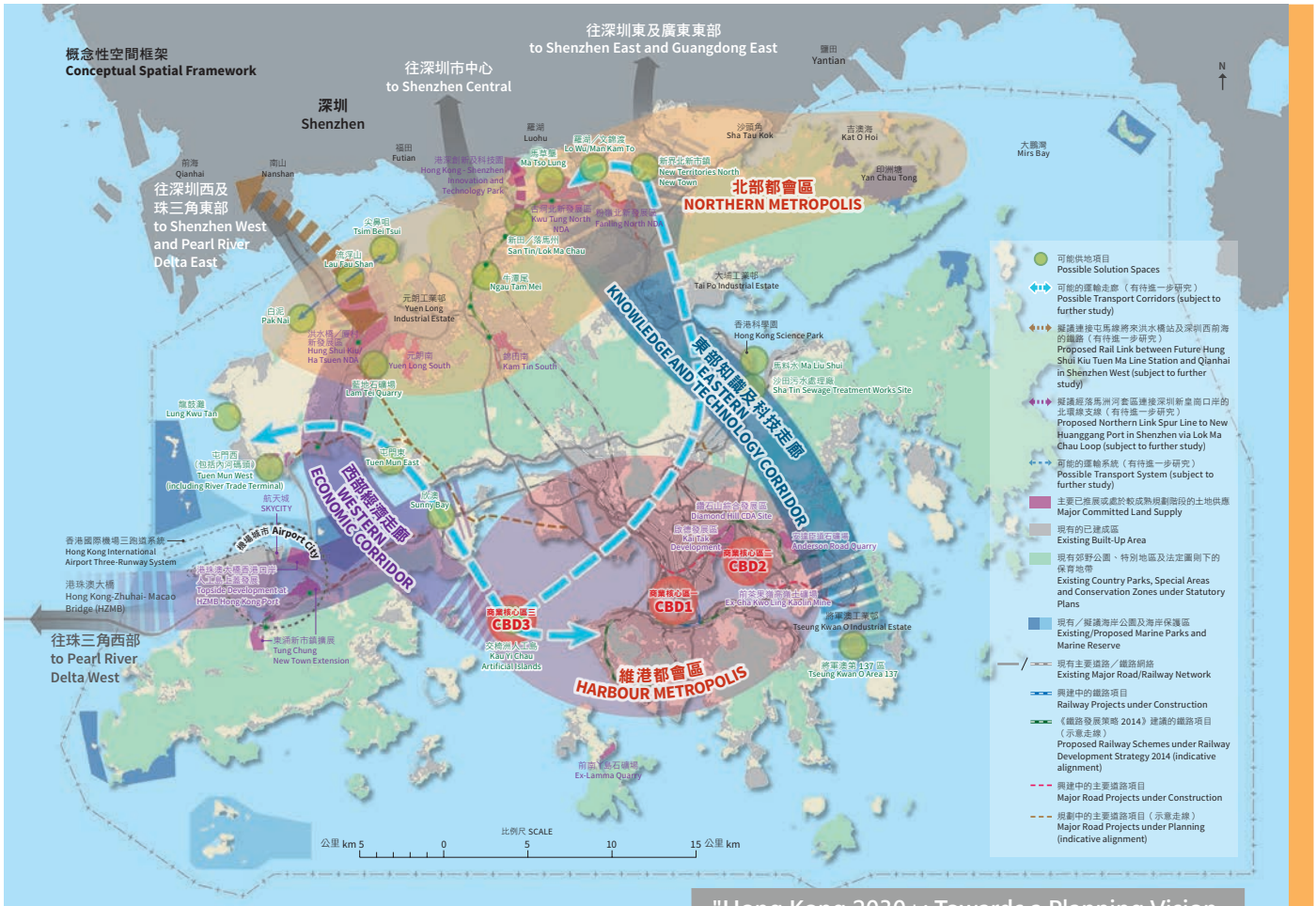
2.2 Long-term Development Demand

Conceptual Spatial Framework under "Hong Kong 2030+: Towards a Planning Vision and Strategy Transcending 2030"



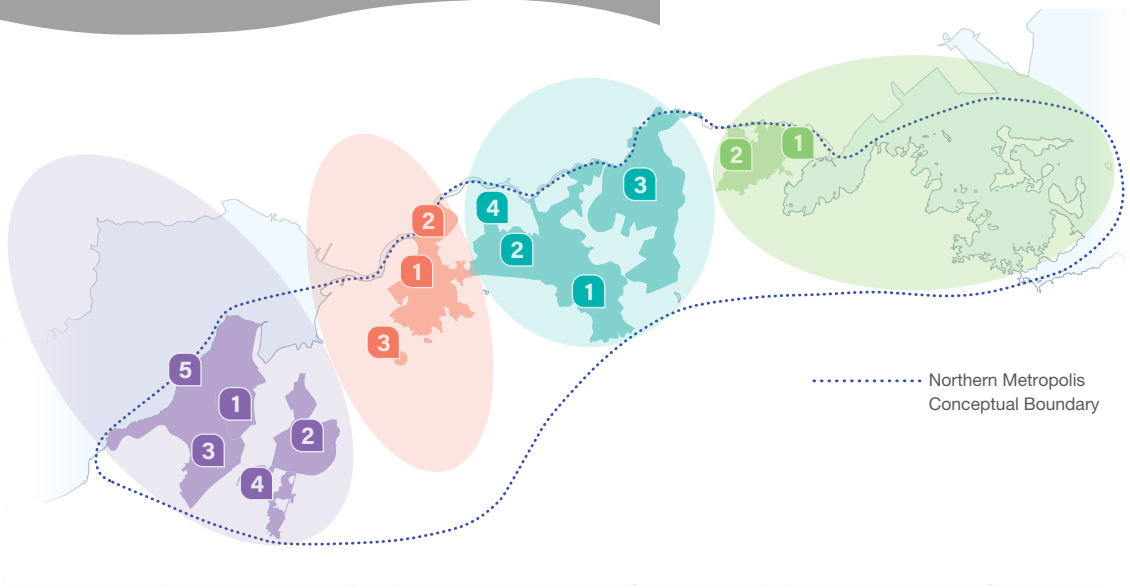
2.2.1 In 2021, the Government promulgated the final report of the "Hong Kong 2030+: Towards a Planning Vision and Strategy Transcending 2030" (Hong Kong 2030+), which proposes a conceptual spatial framework to showcase two metropolises (i.e. Northern Metropolis and Harbour Metropolis), two development axles (i.e. Western Economic Corridor and Eastern Knowledge and Technology Corridor) alongside a close-knit network of transport links. This framework also shows the Government's macro view on Hong Kong's long-term spatial development by defining "possible solution spaces" to prepare the city for future developments in the years to come.

2.2.2 The Northern Metropolis covers Yuen Long District and North District spanning approximately 30 000 hectares of land, encompassing existing new towns in Yuen Long, Tin Shui Wai, Fanling and Sheung Shui, etc., various New Development Areas (NDAs) at different planning and construction stages as well as their neighbouring areas. The Northern Metropolis is expected to house a population of about 2.5 million and provide about 650 000 jobs. The area will become the foothold for Hong Kong's strategic development, and the new engine for the city to scale new heights. The Government put forward the Northern Metropolis Development Strategy in October 2021 and the Northern Metropolis Action Agenda in October 2023. The Action Agenda provides a development blueprint for the Northern Metropolis, outlining the development positioning of the four major zones within the area, major developments and implementation timetable, etc. Adopting an "industry-driven and infrastructure-led" approach as its key planning axle, the Northern Metropolis will become a major hub for Hong Kong to integrate into the overall development of our country. Meanwhile, with the locational advantages of having seven boundary control points (BCPs), the Northern Metropolis will become an essential platform for our cooperation with other GBA cities.



"Hong Kong 2030+: Towards a Planning Vision and Strategy Transcending 2030" Announced by the Government in October 2021

Development Positioning of Four Major Zones under Northern Metropolis Action Agenda



High-end Professional Services and Logistics Hub

1. Tin Shui Wai
2. Yuen Long
3. Hung Shui Kiu / Ha Tsuen New Development Area
4. Yuen Long South New Development Area
5. Lau Fau Shan / Tsim Bei Tsui / Pak Nai

Innovation and Technology Zone

1. San Tin Technopole
2. Hong Kong-Shenzhen Innovation and Technology Park in the Loop
3. Ngau Tam Mei

Boundary Commerce and Industry Zone

1. Fanling / Sheung Shui
2. Kwu Tung North / Fanling North New Development Area
3. New Territories North New Town and Lo Wu / Man Kam To
4. Ma Tso Lung

Blue and Green Recreation, Tourism and Conservation Circle

1. Sha Tau Kok
2. Robin's Nest

2.2.3 On the other hand, the Harbour Metropolis, covering the existing metro area on the two sides of the Victoria Harbour and the proposed Kau Yi Chau Artificial Islands (KYCAI), is a metropolis with competitive edges in finance and business.

2.2.4 The KYCAI are strategically located in between the Hong Kong Island, Kowloon and Lantau Island, which will be only around 4 kilometres (km) from Hong Kong Island West. The Artificial Islands will provide 1 000 hectares of land to develop a core area of a new generation with a view to increasing public and private housing supply, while at the same time further enhancing Hong Kong's competitiveness as a financial, commercial and trade centre. It is estimated that the KYCAI will be capable of accommodating a population of 500 000 to 550 000 by providing about 190 000 to 210 000 housing units. Besides, the KYCAI will provide some 270 000 diversified employment opportunities, among which around 200 000 from the proposed third Central Business District (CBD3) complementing CBD1 in Central and CBD2 in Kowloon East. With the good linkage with the Hong Kong International Airport and the Hong Kong-Zhuhai-Macao Bridge, the KYCAI are well-positioned to tap economic opportunities from overseas and our country (particularly the GBA).

Logistics Hub at Sea, Land and Air

2.2.5 Hong Kong has long been a premier international logistics hub and an important gateway for trade between the Mainland and the rest of the world. In the "Outline of the 14th Five-Year Plan for the National Economic and Social Development of the People's Republic of China and the Long-Range Objectives Through the Year 2035", which was endorsed in March 2021, the Central Government has given its support for promoting Hong Kong's service industries for high-end and high value-added development, and to enhance Hong Kong's status as international maritime and trade centres as well as an international aviation hub.

Hong Kong International Airport

2.2.6 To continue to promote high-quality development of Hong Kong's logistics industry while making full use of the infrastructure such as the Hong Kong International Airport, the container terminals, the Hong Kong-Zhuhai-Macao Bridge and other land-based BCPs, we need to continuously improve the major road networks, coupled with multimodal logistics facilities to capitalise on Hong Kong's strengths as an international aviation hub and an international shipping centre.


Kwai Chung Container Terminals

2.3 Capacity and Expansion of Major Transport Infrastructure

2.3.1 In response to Hong Kong's long-term development demand, the Government commenced the "Strategic Studies on Railways and Major Roads beyond 2030" (the Study) to review the capacity of existing road and railway networks to promote development, consider all the railway and major road projects under planning/construction in Hong Kong, as well as carry out technical analysis objectively to ascertain traffic bottlenecks. The Government has holistically mapped out the required major transport infrastructure projects and their target completion dates in a forward-looking manner, and listened to various opinions via public consultation to optimise allocation of public resources for implementation with a view to driving development, bolstering inter-district connectivity, enhancing the overall efficiency of the transport network, and fostering cross-boundary integration with other GBA cities.

2.3.2 The analysis results of the Study indicate that following the completion of the railway and major road projects under planning/construction, coupled with enabling the existing railway network capacity to reach its limit through increasing number of trains and upgrading systems, it is anticipated that the railway and major road networks will substantially address the transport demand in short to medium term, as well as alleviate the majority of existing and anticipated traffic bottlenecks.

Admiralty Station


Route 3 and 5

2.3.3 Looking ahead, there will be a significant transport demand for east-west connectivity within the Northern Metropolis and its cross-boundary connections, north-south connectivity between the Northern Metropolis and the Harbour Metropolis, and the external connectivity for Tseung Kwan O (TKO). Therefore, at the end of 2022, the Study preliminarily recommended taking forward three strategic railways and three major roads (three railways and three major roads):

- strategic railway proposals: Hong Kong-Shenzhen Western Rail Link (Hung Shui Kiu-Qianhai), Central Rail Link and TKO Line Southern Extension; and
- major road proposals: Northern Metropolis Highway (Tin Shui Wai-Kwu Tung Section), Shatin Bypass and Tseung Kwan O-Yau Tong Tunnel.

2.3.4 The Government conducted a public consultation on the preliminary findings of the Study from December 2022 to March 2023 including consultation with the Legislative Council, the Transport Advisory Committee, the Heung Yee Kuk, and the District Councils. Focus group meetings were held with professional bodies, academia, think tanks, and green groups while two public forums were organised to collect public opinions. The public generally supported the recommended major transport infrastructure projects and they expressed their opinions about the planning and implementation of these projects. Approximately 1 300 views were received, among which about 80% were for the railway projects and about 20% for the major road projects. The main areas of concern raised by the public include the alignment of the projects, the implementation and financial arrangements, and the potential impacts on the environment and nearby stakeholders during the construction and operation stages.

2.3.5 After carefully studying the valuable views expressed by the public and stakeholders and carrying out technical analyses, the Study has comprehensively taken into account the transport benefits, coverage, potential impacts on the environment and cost-effectiveness, etc., of each project and recommends enhancing the three railways and three major roads and adding two railways and one major road in the eastern part of the Northern Metropolis, namely the Northern Link (NOL) Eastern Extension, the Northeast New Territories Line and the Northern Metropolis Highway (New Territories North (NTN) New Town Section) to drive the development of these areas, as set out in Section 2.5 below.

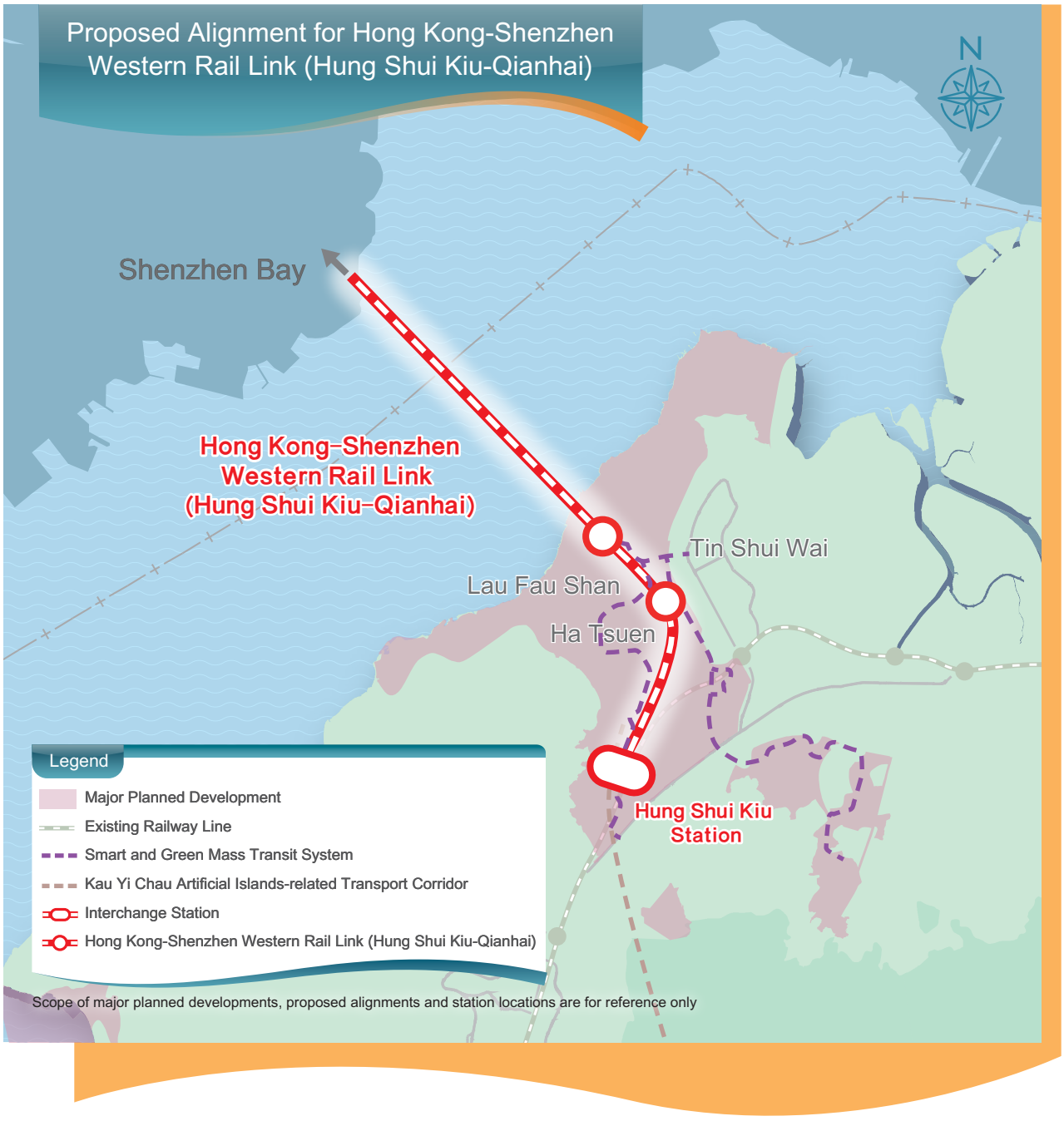
2.3.6 Upon carefully reviewing all technically feasible alignments and evaluating their effectiveness, we anticipate that the three railways and three major roads and the newly-added two railways and one major road, together with the transport infrastructure projects that are under planning, design and construction will be sufficient to meet the transport and logistics demand up to 2046 and beyond. During the public consultation, we received various suggestions involving other railways and major roads. Given the finite public resources, we consider that resources should be first placed on areas with more substantial demand and there is currently no urgent need to consider and take forward suggestions of other major transport infrastructure projects. Should there be significant changes in planning parameters or actual circumstances in the future, the Government will timely review.

Public Forum

2.4 Enhancement to Three Railways and Three Major Roads

Strategic Railway Proposals

Hong Kong-Shenzhen Western Rail Link (Hung Shui Kiu-Qianhai)



2.4.1 The Hong Kong-Shenzhen Western Rail Link (Hung Shui Kiu-Qianhai) (HSWRL) is approximately 18 km long, with the length of the Hong Kong section around 8 km. It will start from the area around Hung Shui Kiu Station on the Tuen Ma Line, pass through Ha Tsuen and Lau Fau Shan, and cross the Deep Bay to reach Qianhai through the Shenzhen Bay Port. Connecting to the transport networks in the Mainland, the railway will make Hong Kong and Shenzhen a strategic hub of the transport corridor on the east bank of the Pearl River, promoting integrated development of Hong Kong and other GBA cities.

2.4.2 The HSWRL will effectively improve the cross-boundary passenger railway network in Hong Kong. It will strengthen the connection between the northwest New Territories and the west of Shenzhen, accelerate the interconnection of infrastructure in the GBA and promote the efficient flow of people. Hong Kong's long-held advantages in high-end professional services will be fully utilised to elevate the function of the Qianhai Shenzhen-Hong Kong Modern Service Industry Cooperation Zone, which will also promote the long-term development of high-end professional services in Hong Kong.

2.4.3 Upon review of the preliminary recommended proposals and public opinions, the Government recommends the addition of stations at Ha Tsuen and Lau Fau Shan to serve the residents along the alignment. Furthermore, the Government proposes connecting the HSWRL with the planned Hong Kong Island West-Hung Shui Kiu Rail Link under KYCAI with a view to strengthening the connection among KYCAI, the Northern Metropolis and Qianhai.

2.4.4 The Government also recommends constructing the cross-bay section of the HSWRL in the form of tunnels and other suitable forms to minimise potential impact on the areas along the alignment and the ecosystem of the Deep Bay area.

Ha Tsuen, Lau Fau Shan and Shenzhen Bay

Central Rail Link

2.4.5 The Central Rail Link (CRL) is an approximately 17-km railway connecting Kam Tin in Yuen Long and Kowloon Tong via Kwai Chung. It will link the Northern Metropolis and the Harbour Metropolis while supporting the sustainable development of the Northern Metropolis. Connecting to the existing and proposed railways, including the Tuen Ma Line, the Tsuen Wan Line, the Kwun Tong Line, the East Rail Line, the NOL, the NOL Eastern Extension and the Northeast New Territories Line, the CRL will offer more direct and faster routes as well as an additional commuting option for travelling between the Northern Metropolis and different districts of Hong Kong Island and Kowloon. In addition, the CRL will connect to the Tuen Ma Line at Kam Sheung Road Station which is expected to help relieve the loading on the Tuen Ma Line. In response to public aspiration for more intermediate stations on the CRL,

we recommend the addition of intermediate stations at Tsuen King Circuit, Northeast Tsuen Wan and Northeast Kwai Chung to cater for the transport demand of local residents and future housing developments. Interchange with the Tsuen Wan Line will be enabled to enhance the coverage and benefits of the CRL.

2.4.6 Specifically, we recommend setting up a station of the CRL near Tseun King Circuit and extending the existing Tsuen Wan Line westward to connect to this station, allowing interchange between CRL and Tsuen Wan Line. The new station will benefit residents living in the vicinity of Tsuen King Circuit and areas distant from the Tsuen Wan Station, further enhancing the coverage, functionality and benefits of the CRL.

2.4.7 We also recommend setting up a station of the CRL near Lei Muk Shue Estate, and another station close to the housing estates in the area of Shek Yam and Shek Lei to provide more convenient railway services for residents and the planned public housing developments. It is anticipated that the two new stations will serve a total of over 130 000 residents.


Kwai Chung (Northeast)

2.4.8 The CRL will greatly enhance the connectivity and resilience of the railway network by connecting the Tuen Ma Line, the East Rail Line, the Kwun Tong Line, the Tsuen Wan Line and the NOL. Depending on the starting point and destination, passengers taking the CRL will significantly reduce the journey time. For instance, the journey time between Kam Sheung Road and Kowloon Bay is estimated to be reduced from currently about 43 minutes to around 32 minutes.

2.4.9 We have carefully studied the public suggestions about the different alignments of the CRL, including connecting the railway line to Tsuen Wan Station, Lai King Station or Mei Foo Station, instead of terminating at Kowloon Tong Station. The study findings indicate that connecting the southern end of the CRL to Kowloon Tong Station would be the most effective option for diverting passengers of the section of Kam Sheung Road Station to Tsuen Wan West Station on the Tuen Ma Line. It also allows the connection with the East Rail Line and the Kwun Tong Line which will strengthen the east-west and north-south connectivity and accessibility of the railway network, providing passengers with more commuting options. The study assessment also anticipates that Kowloon Tong Station, as the major interchange station, has sufficient capacity to accommodate the passengers transferring from the CRL.

Tseung Kwan O Line Southern Extension

2.4.10 The TKO Line Southern Extension, spanning approximately 4 km, aims to support the development of TKO Area 137 and provide a convenient and efficient mass transit system to the 135 000 new population. The Government recommends using the heavy rail system of the existing TKO Line as the basis, and extending the railway from the at-grade LOHAS Park Station southward to the underground station at TKO Area 137 via tunnels through the seabed outside the TKO InnoPark.

2.4.11 To address public concerns regarding the extent of reclamation required for the railway facilities, after a careful review of the proposal, the Government recommends adopting the cut-and-cover method and using tunnel boring machine to construct the undersea section of the railway extension to minimise the land area

required for the railway facilities and reduce the exposed areas. After the completion of the railway tunnels and relevant facilities, the concerned small area of newly reclaimed land could be used for greening and provision of open space.

2.4.12 Some members of the public are concerned that the TKO Line Southern Extension could overload the TKO Line. Under the Study, we have thoroughly considered the latest planning and land use information, including the potential new population in the Po Lam area and TKO Area 137. The assessment indicates that the cross-harbour section between Yau Tong Station and Quarry Bay Station of the TKO Line has the highest loading, while the loadings are relatively lower at sections between Po Lam Station/LOHAS Park Station and the TKO Station. Through upgrading the signalling system and increasing the number of trains, the train frequency and maximum carrying capacity of the TKO Line could meet the passenger demand to and from Po Lam Station as well as the increased train frequency to and from LOHAS Park Station/Area 137, meeting the transport demand arising from long-term development in TKO.

2.4.13 Besides, we have received some suggestions for constructing an additional cross-harbour railway and vehicular tunnel at TKO South extending to Hong Kong Island East. The assessment indicates that, following the progressive completion of various development projects at TKO, the transport demand during the peak hour will primarily involve commuting to and from the Harbour Metropolis, and that the existing and planned cross-harbour transport infrastructure will have sufficient capacity to meet the anticipated transport demand of TKO. The assessment also suggests that an additional cross-harbour transport infrastructure at the southern part of TKO could not effectively shorten the journey time for TKO residents travelling to the CBD on Hong Kong Island. Its transport benefit and coverage would be very limited. Meanwhile, factors such as the associated transport infrastructure on Hong Kong Island, engineering feasibility, and implications on the local community would have to be considered if an additional cross-harbour transport infrastructure at TKO South was to be explored. These factors involve various technical challenges, including the potential demolition of a number of offshore buildings and public facilities for the connection of the new transport infrastructure to the existing elevated railway and major roads. Based on the overall transport benefit and cost-effectiveness, as well as the impact on existing buildings and public facilities, the Government does not have plans at the present stage to construct new cross-harbour transport infrastructure at the southern part of TKO.

Tseung Kwan O (South)

Major Road Proposals

Northern Metropolis Highway

2.4.14 The original proposal of the Northern Metropolis Highway spans about 18 km. Starting from Tin Shui Wai in the west, the alignment is designed to connect east and west and link the core developments in NTN. In view of the latest development of the NTN New Town (including Lo Wu/Man Kam To), we recommend extending the Northern Metropolis Highway eastward by around 5 km and taking forward the Northern Metropolis Highway (NTN New Town Section) (Section 2.5.8 refers) with a view to enhancing the overall connectivity and coverage of the highway, which is also in line with the public expectation.

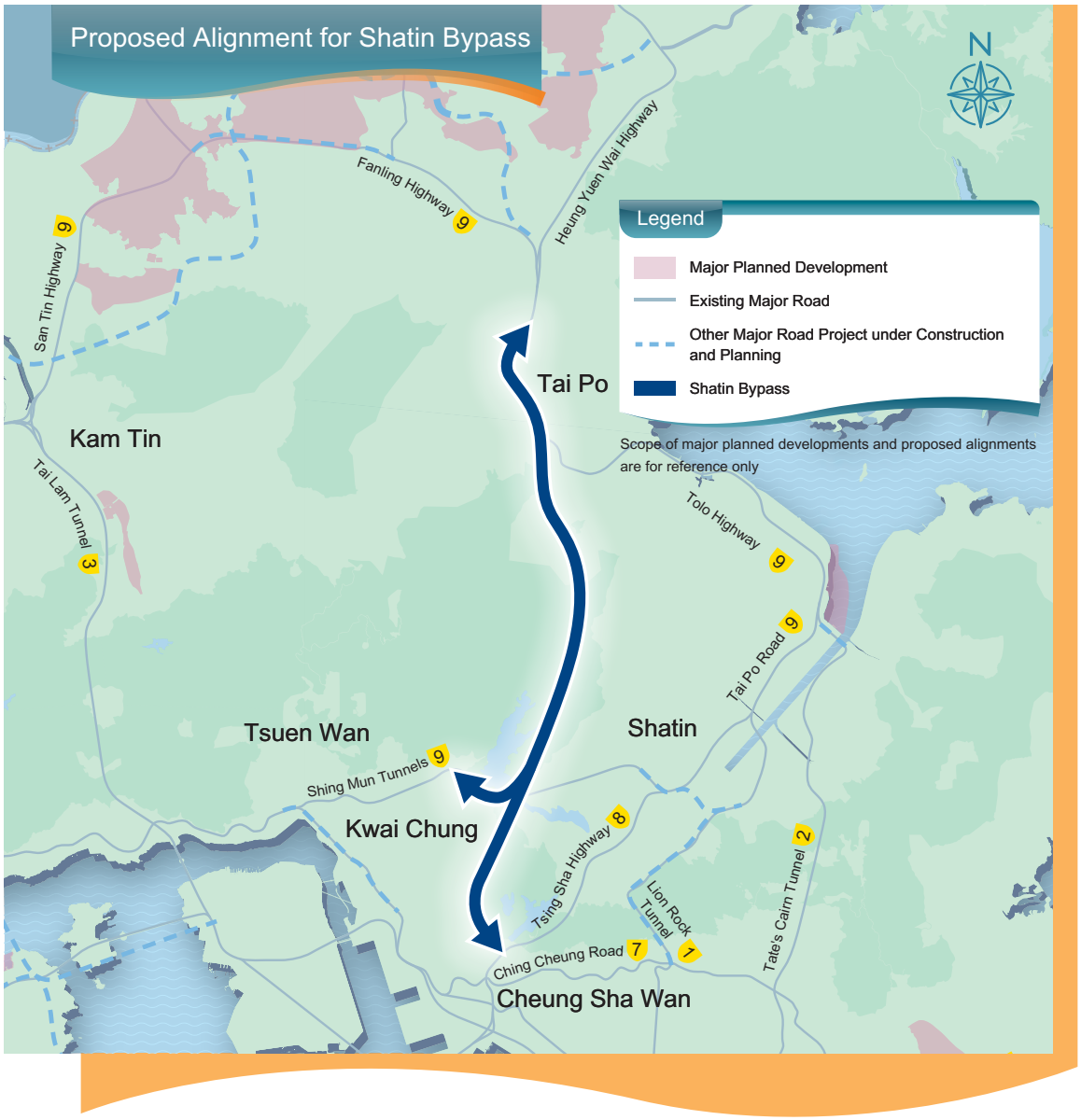
2.4.15 The enhanced Northern Metropolis Highway will consist of four sections, namely the Tin Shui Wai Section, San Tin Section, Kwu Tung Section and the NTN New Town Section, from west to east. Interchanges will be in place to connect with the San Tin Highway and the Fanling Highway of Route 9. There will also be provision of direct access to areas such as Ngau Tam Mei, San Tin Technopole, Kwu Tung North/Fanling North NDA, and NTN New Town (including Lo Wu/Man Kam To) to significantly improve transport efficiency of the strategic road network in the northern part of the New Territories while laying a solid foundation for transport infrastructure development in the NDAs. The accessibility to these NDAs will be enhanced, which in turn drives and expedites the implementation of development projects within these areas and fully unleashes the development potential.

2.4.16 To address public concerns regarding the potential environmental impacts, the alignment of the Northern Metropolis Highway will deliberately avoid ecologically sensitive areas such as distancing from Wetland Conservation Areas to minimise the impact on the foraging and flight routes of birds including egrets, or be constructed in the form of deep underground tunnels.

2.4.17 After the commissioning of the Northern Metropolis Highway, it is expected that driving distances within the Northern Metropolis will be greatly reduced. For example, the driving distance between Tin Shui Wai town centre and NTN New Town via the new major road will be reduced from approximately 32 km to about 23 km. Meanwhile, the Northern Metropolis Highway will provide an alternative option for travelling through the metropolis and will effectively share about 40% of the overall traffic volume between the New Territories East and West during peak hours, alleviating the traffic pressure on the Yuen Long Highway, the San Tin Highway and the Fanling Highway.

Fanling Highway

Shatin Bypass



2.4.18 The Shatin Bypass is approximately 15 km long. Compared with the existing Tolo Highway and the Tai Po Road, the Shatin Bypass will serve as a more direct north-south corridor, connecting the northeast New Territories with the urban areas of Kowloon. Its northern end will connect to the Fanling Highway in Tai Po, providing convenience not only for road users in the North District but also for residents in Tai Po, Tai Wo, Hong Lok Yuen, Lam Tsuen and Tai Hang. Its southern end will connect to the existing major road network near Cheung Sha Wan in Kowloon West. The Shatin Bypass primarily consists of tunnels passing through Tai Mo Shan and Kam Shan. Upon commissioning, it will facilitate the connectivity of various development projects in the northeast New Territories, including Kwu Tung North/Fanling North, Ma Tso Lung, and NTN New Town (including Lo Wu/Man Kam To).

2.4.19 The Shatin Bypass will enhance the existing north-south transport corridor on the eastern side of Hong Kong, which is mainly served by the Tolo Highway, and strengthen the resilience of the road network. Upon commissioning of the Shatin Bypass, the traffic pressure on the existing major roads such as the Tolo Highway will be relieved, facilitating road users to commute between the New Territories East, the northeast New Territories and the urban areas.

2.4.20 In response to the public expectation for enhancing connectivity and accessibility between the Shatin Bypass and the existing road network, after reviewing the proposal, the Government recommends adding a slip road to connect the major tunnel of the Shatin Bypass to Shing Mun Tunnels Road towards Tsuen Wan. This will establish a direct and efficient route for road users of northeast New Territories travelling to the New Territories West, enhancing the road connection between the two areas, expanding the coverage of the Shatin Bypass, making it more appealing to road users and enhancing the resilience of road network.

2.4.21 The Shatin Bypass will provide an express link between northeast New Territories and urban areas. It is estimated that upon commissioning, the Shatin Bypass will share around 40% of the overall traffic volume in the north-south direction of the eastern side of Hong Kong during peak hours, hence relieving the traffic pressure on the Tolo Highway. Taking an example of a journey between Fanling and Lai Chi Kok, the journey distance will be greatly reduced from approximately 30 km to around 22 km using the Shatin Bypass.

Tsing Sha Highway and Ching Cheung Road

Tseung Kwan O-Yau Tong Tunnel

2.4.22 The proposed development at TKO Area 137 is one of the major sources of land supply for Hong Kong's long-term development. Together with the potential subsidised housing developments at Po Lam Road South, the population at TKO will continue growing, hence continuously increasing demand for external transport links. In addition to the existing TKO Tunnel and Tseung Kwan O-Lam Tin Tunnel, the 3.5 km-long Tseung Kwan O-Yau Tong Tunnel, located close to Tiu Keng Leng in central TKO, will become the third external major connection. The new tunnel will unleash the overall development potential of TKO and provide an alternative commuting option, enhancing the connectivity between TKO and Kowloon East. The Tseung Kwan O-Yau Tong Tunnel is expected to share over 30% of overall external traffic volume of TKO during peak hours.

2.4.23 In response to the public expectation for enhancing connectivity between the Tseung Kwan O-Yau Tong Tunnel and Kowloon East and Hong Kong Island East, after reviewing the proposal, the Government recommends that, where technically feasible, the exit at Yau Tong be linked to the Kwun Tong Bypass and the Eastern Harbour Crossing, further facilitating TKO residents' commuting to different districts of Kowloon and Hong Kong Island.

2.4.24 Regarding the suggestion of adding a road harbour crossing at TKO South to extend to the eastern part of Hong Kong Island, the Government's assessment is highlighted in Section 2.4.13.

Kwun Tong Bypass and Eastern Harbour Crossing

2.5 Two Railways and One Major Road in the Eastern Developments of the Northern Metropolis

Heung Yuen Wai Control Point and Liantang

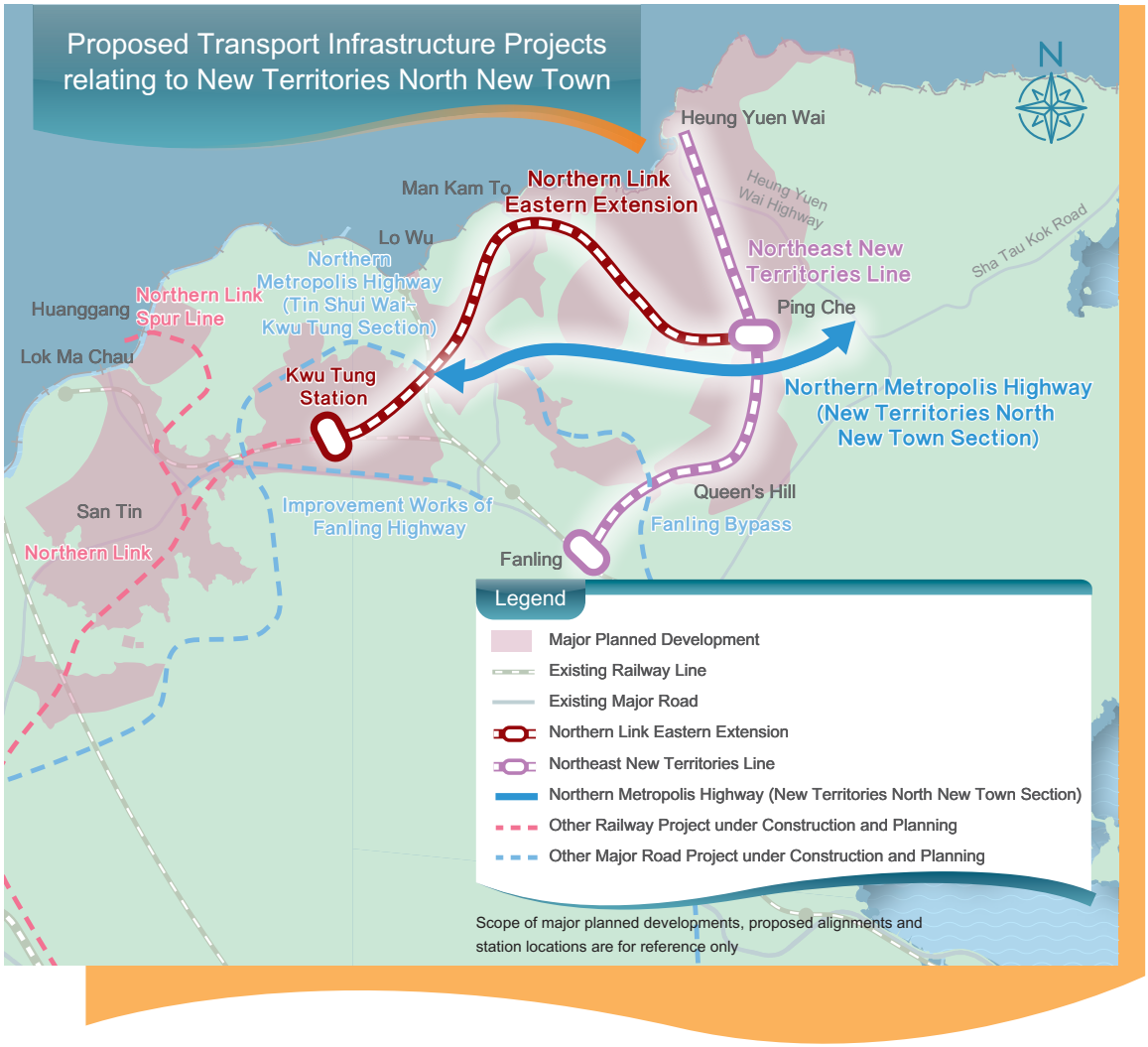
2.5.1 According to the Northern Metropolis Action Agenda, the NTN New Town (covering Ta Kwu Ling, Heung Yuen Wai, Ping Che, Hung Lung Hang, Queen's Hill, and Lo Wu/Man Kam To) under planning, the existing new towns in Fanling/Sheung Shui, and the Kwu Tung North/ Fanling North NDA under construction, will form the "Boundary Commerce and Industry Zone". The NTN New Town (including Lo Wu/ Man Kam To) under planning covers an area of approximately 1 500 hectares. There is a potential to develop various BCP-related economic uses or uses requiring larger land area for operation. It can be developed into a BCP business district and a base for emerging industries that can complement the innovation and technology industry in the San Tin Technopole and collaborate with the development of the Luohu District in Shenzhen. The Northern Metropolis Action Agenda also plans to develop the areas around Sha Tau Kok and Robin's Nest into "Blue and Green Recreation, Tourism and Conservation Circle". The Government is formulating the land use for NTN New Town, the proposal of which is expected to be announced in 2024.

2.5.2 To tie in with the above developments, we recommend taking forward new projects (i.e. two railways and one major road) at the eastern developments of the Northern Metropolis, namely the NOL Eastern Extension, Northeast New Territories Line, and Northern Metropolis Highway (NTN New Town Section) to enhance the connections within the new NDAs and with the major railway and road networks, driving the development of the area and meanwhile enhancing the connectivity between the various land-based BCPs.

2.5.3 As the planning and engineering study of the relevant development projects is still ongoing, the alignment of the two railways and one major road will be further refined in accordance with the proposed land use in order to provide the most suitable, convenient, and accessible major transport infrastructure to drive the development of the area.

2.5.4 According to the Northern Metropolis Development Strategy published in October 2021, the preliminary proposal of the NOL Eastward Extension involved connecting Kwu Tung Station and On Lok Tsuen in Fanling via the NTN New Town (including Lo Wu/Man Kam To). Taking into account the latest planning and having conducted a thorough analysis of the transport benefit of the railway alignment, we recommend taking forward two railway lines, i.e. the NOL Eastern Extension and the Northeast New Territories Line, in place of the preliminary proposal.

2.5.5 The NOL Eastern Extension and the Northeast New Territories Line are complementary and designed to jointly drive the development of the eastern part of the Northern Metropolis. In addition to facilitating convenient commuting between the Northern Metropolis and urban areas through the NOL, the CRL, and the East Rail Line, the implementation of these two new railways, along with the East Rail Line, the Lok Ma Chau Spur Line, the NOL Spur Line and the HSWRL will also enhance the railway connectivity across the land-based BCPs in NTN, further promoting cross-boundary integration and efficient flow of people.



Northern Link Eastern Extension

2.5.6 Spanning approximately 9.5 km, the east-west running NOL Eastern Extension will extend NOL eastward from Kwu Tung Station to Ping Che, passing through various development nodes in NTN New Town (including Lo Wu/Man Kam To). The extension will establish effective links between the NDAs and the railway network. It is planned to connect the proposed NOL Eastern Extension to the proposed Northeast New Territories Line at Ping Che.


Ping Che


Heung Yuen Wai

Northeast New Territories Line

2.5.7 The Northeast New Territories Line, spanning approximately 8.5 km, is a north-south railway that runs from Heung Yuen Wai, passing through areas such as Ping Che and Queen's Hill, and connects with Fanling Station of the East Rail Line. It will link the major development nodes in the NTN New Town and facilitate public access to the Heung Yuen Wai BCP as well as provide an interchange with the East Rail Line.

Northern Metropolis Highway (New Territories North New Town Section)

2.5.8 The Northern Metropolis Highway (NTN New Town Section) will extend the Northern Metropolis Highway eastward to Ping Che and connect it to the Heung Yuen Wai Highway and Sha Tau Kok Road. The extension will expand the coverage of the Northern Metropolis Highway. It does not only provide a direct connection to the key development nodes in the NTN New Town (including Lo Wu/Man Kam To), but also enhances connectivity between these NDAs and the rest of the Northern Metropolis. Meanwhile, the Northern Metropolis Highway (NTN New Town Section) will help relieve the traffic pressure on the Fanling Highway, hence improving traffic conditions on local roads in Fanling and Sheung Shui and enhancing the overall transport efficiency of the northeast New Territories.


Heung Yuen Wai Highway/Sha Tau Kok Road Interchange

2.6 Smart and Green Mass Transit Systems

2.6.1 In addition to large-scale transport infrastructure, the Government recommends the introduction of smart and green mass transit systems to serve as a light and green feeder service to nearby railways and major public transport interchanges in areas with limited space or lower transport demand. Compared to heavy rail system, smart and green mass transit system is characterised by its lightweight and convenient nature and generally carry fewer passengers. The system is capable of serving approximately 10 000 passenger trips per hour in a single direction. Furthermore, a smart and green mass transit system typically does not require the installation of overhead lines, and its electrical and mechanical supporting systems are relatively simple. Depending on factors such as the infrastructure of individual projects (including civil structures and depots) and the overall capacity of the system, it is expected that implementing a smart and green mass transit system in districts with lower transport demand would be more cost-effective than a heavy rail system.

2.6.2 The Government has been reviewing the development of smart and green mass transit systems in Hong Kong, the Mainland and around the world. These systems include green buses, modern trams, tracked and trackless trains, tracked buses, etc. The Government is actively considering the implementation of suitable mass transit systems to further enhance the efficiency, cost-effectiveness, and sustainability of the transport networks within specific districts in Hong Kong. When introducing a smart and green mass transit system, the Government will consider various factors, including the demand for public transport in specific districts, the capacity, sustainability, construction and operational cost-effectiveness of the systems, the space required for alignments, stations, depots, and other related infrastructure, as well as their impacts on stakeholders and the environment, with a view to suitably and effectively utilising public resources to meet the transport demand arising from local developments.

2.6.3 Having considered various smart and green mass transit systems such as "Skyshuttle", "Autonomous Rail Rapid Transit" and "Bus Rapid Transit", the Government has decided to implement smart and green mass transit systems in East Kowloon, Kai Tak and Hung Shui Kiu/Ha Tsuen NDA.

Kowloon East

East Kowloon

2.6.4 The Railway Development Strategy 2014 originally recommended the construction of the East Kowloon Line to connect to the Kwun Tong Line and the TKO Line. Given the hilly topography along the proposed alignment and the limited climbing capability of the heavy rail system, some railway sections under the original scheme will need to run deep underground. This will lead to a longer journey time as passengers will take a longer time to travel between the ground level and the station platforms. Having holistically reviewed the technical challenges and transport benefits, we will introduce a smart and green mass transit system in East Kowloon as an alternative to the underground heavy rail system. Spanning about 7 km long, the system in East Kowloon will provide convenient feeder service in Kwun Tong uphill areas, including Choi Wan, Shun Lee, Shun On, Sau Mau Ping, Po Tat and Ma Yau Tong, facilitating access to the Choi Hung Station and Yau Tong Station with a pedestrian walkway to the Anderson Road area, improving the overall traffic conditions in East Kowloon, unleashing development potential and serving some 300 000 population in the areas. The transit system will mainly operate on viaducts while the section extended from Ma Yau Tong to areas around Yau Tong is suggested to be in tunnel form according to preliminary technical feasibility study.

Kai Tak

2.6.5 The Government has previously considered to construct an Environmentally Friendly Linkage System at the former runway area of Kai Tak. However, constructing the proposed system in developed areas in East Kowloon would face technical constraints arising from the congested development in the vicinity. It is also not a sustainable and preferred option due to the high construction and operating costs. After reviewing the latest technology of smart and green mass transit system and the latest population and development in Kai Tak development area, we will introduce a 4 km-long smart and green mass transit system connecting the former runway area of Kai Tak to the Kai Tak Station to strengthen connectivity among the residential and commercial developments, facilities on tourism, culture and recreation, sports and community within the area, as well as the connection with the railway network. The system will serve visitors and a living and working population of around 50 000.


Proposed Alignment for Kai Tak and East Kowloon Smart and Green Mass Transit Systems
N
Choi Hung
Choi Wan
Shun Lee
Kowloon Tong
Kai Tak
Shun On
East Kowloon Smart and Green Mass Transit System
Sau Mau Ping
Ma Yau Tong
Po Tat
Kai Tak Smart and Green Mass Transit System
Kwun Tong
Tseung Kwan O
Yau Tong
Legend
Major Planned Development
Existing Railway Line
Railway Project under Construction and Planning
Smart and Green Mass Transit System
Scope of the major planned developments and proposed alignment are for reference only

Hung Shui Kiu / Ha Tsuen NDA

2.6.6 The Government plans to implement a 16 km-long smart and green mass transit system in Hung Shui Kiu/Ha Tsuen NDA, connecting the NDA with Yuen Long South. Serving the population of some 300 000 and an employment of around 160 000 in the area, the system will provide convenient feeder services and facilitate the use of the Tuen Ma Line, the Light Rail and major public transport interchanges for travelling to different districts of Hong Kong.

Room for Expansions

2.6.7 On different occasions, the Government has listened to opinions of local community and professional groups on the proposed smart and green mass transit systems. In particular, the Government appreciates the public expectation for a wider coverage of the projects in East Kowloon and Kai Tak, such as extending the project at East Kowloon eastward to Po Lam and westward to areas including Tsz Wan Shan, adding an intermediate station at Lam Tin North, extending the project at Kai Tak to areas around Kwun Tong and Yau Tong or connecting the two projects, etc. After preliminary analysis, the Government anticipates that these suggestions will involve many technical difficulties such as identifying sufficient area for constructing stations and viaducts in densely populated areas with insufficient space, or requiring large-scale construction works to bridge over existing major roads, etc. We must further study the technical feasibility of the suggestions and the implications on the implementation programme and overall cost effectiveness of the projects.

2.6.8 Taking into account that it would be the first time for us to introduce a smart and green mass transit system and the public aspiration for an early implementation of the systems, we plan to use the proposed alignments, mentioned in Sections 2.6.4 and 2.6.5 above, as a basis to invite local and overseas suppliers and operators to submit expressions of interest for the projects in East Kowloon and Kai Tak in 2024, and will exchange views on the feasibility to expand or adjust the alignments. We anticipate that by having a better understanding of the technical specifications of the system, including system characteristics, operational arrangements, maintenance requirements, etc., it will enable us to further review the technical and financial feasibility of further expanding the projects in East Kowloon and Kai Tak.

2.7 Formulation of Blueprint

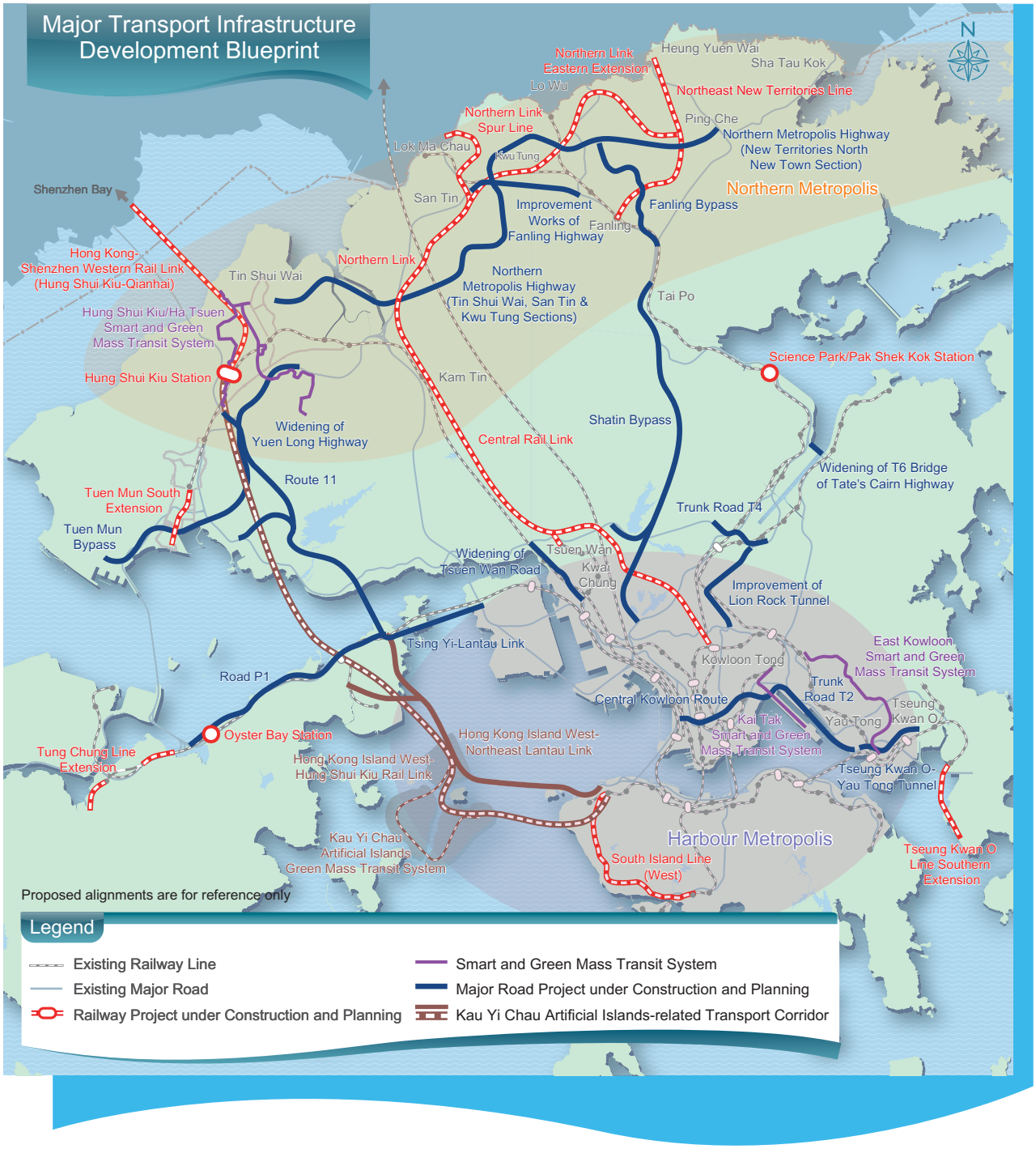
2.7.1 The Study has conducted a comprehensive and objective analysis of the supply and demand of major transport infrastructure in Hong Kong. In addition to projects that are currently under planning, design and construction, the Study has recommended the implementation of the enhanced three railways and three major roads, and the two railways and one major road which will serve the eastern developments of the Northern Metropolis. By organising and consolidating the Study's findings, a Hong Kong Major Transport Infrastructure Development Blueprint has been developed, which is elaborated in Chapter 3 below.


Shek Mun Interchange

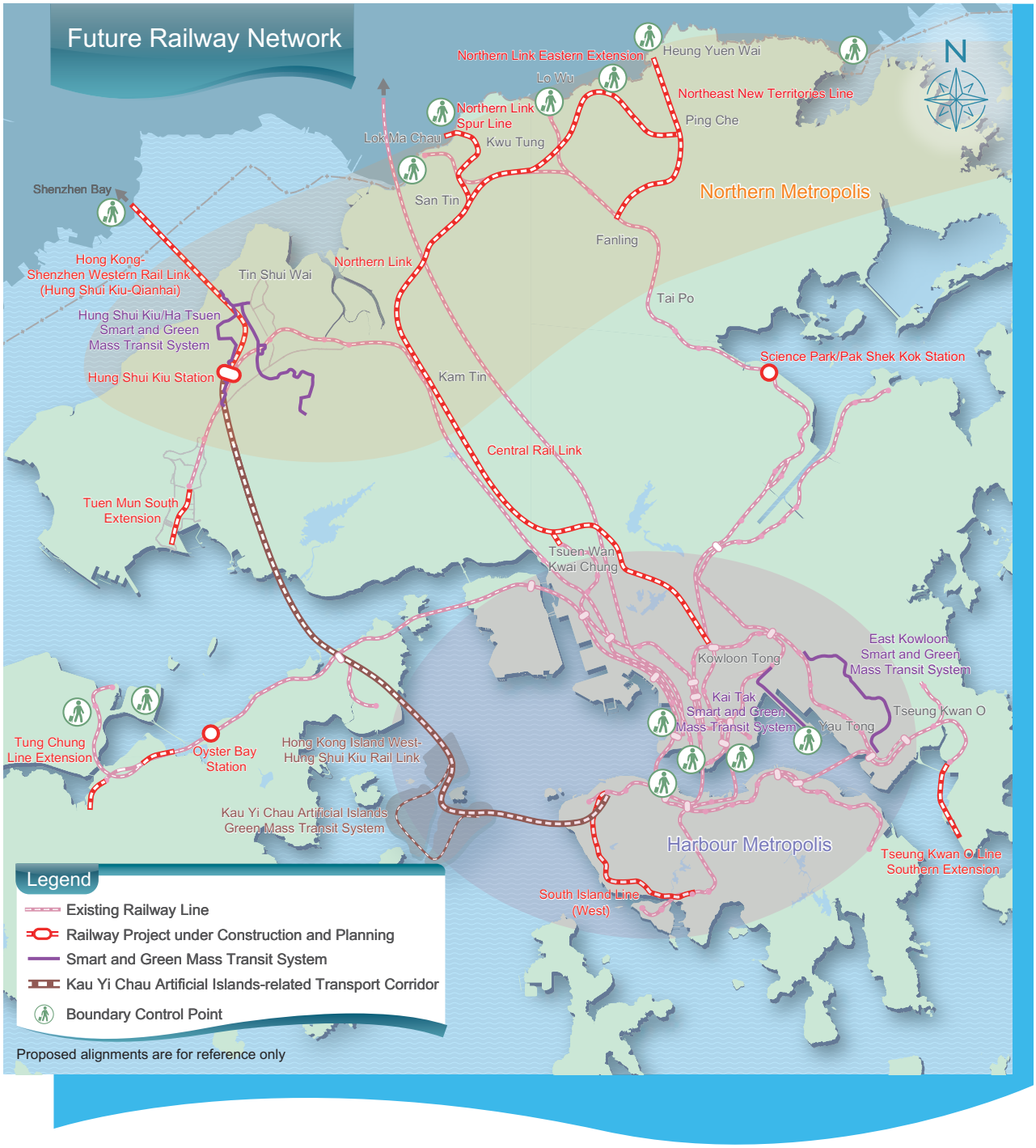
Chapter 3

Hong Kong Major Transport Infrastructure Development Blueprint

3.1 Overview of Blueprint

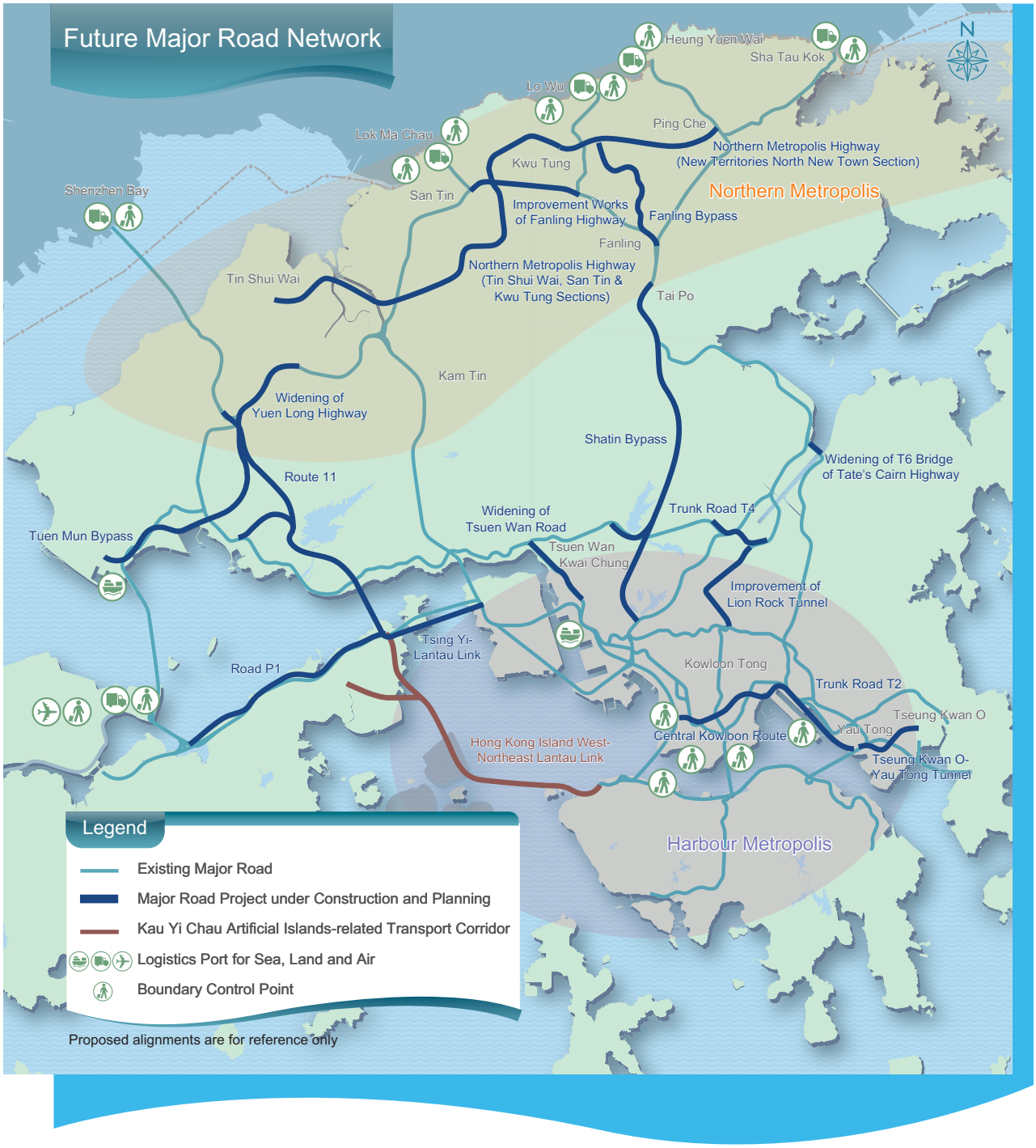


3.1.1 The Hong Kong Major Transport Infrastructure Development Blueprint formulates a planning framework for the city's future transport infrastructure development, creating sufficient transport and logistics capacity to support the long-term development goals outlined in the conceptual spatial framework of the Hong Kong 2030+. The Blueprint consolidates the implementation of all major transport infrastructure currently under planning, design and construction, providing a forward-looking vision for strategic railway and major road networks up to 2046 and beyond. Taking into account the available planning data on land development, the Blueprint has duly considered the transport and logistics demand brought about by population growth, employment and economic activities in the Northern Metropolis, KYCAI and other major planned development areas. The prioritisation of project implementation is determined based on traffic analysis. Upon the progressive commissioning of the major transport infrastructure projects, we anticipate that the transport infrastructure network will have sufficient capacity to drive territory-wide developments, deepen cross-boundary integration, offer more commuting options, improve traffic conditions, reduce journey time and bring about long-term socio-economic benefits.


Future Railway Network
N
Northern Link Eastern Extension
Heung Yuen Wai
Lo Wu
Northeast New Territories Line
Northern Link Spur Line
Ping Che
Lok Ma Chau
Kwu Tung
San Tin
Northern Metropolis
Shenzhen Bay
Fanling
Hong Kong-Shenzhen Western Rail Link (Hung Shui Kiu-Qianhai)
Tin Shui Wai
Northern Link
Tai Po
Hung Shui Kiu/Ha Tsuen Smart and Green Mass Transit System
Science Park/Pak Shek Kok Station
Hung Shui Kiu Station
Kam Tin
Central Rail Link
Tuen Mun South Extension
Tsuen Wan Kwai Chung
East Kowloon Smart and Green Mass Transit System
Kowloon Tong
Kai Tak Smart and Green Mass Transit System
Tseung Kwan O
Yau Tong
Tung Chung Line Extension
Oyster Bay Station
Hong Kong Island West-Hung Shui Kiu Rail Link
Kau Yi Chau Artificial Islands Green Mass Transit System
Harbour Metropolis
Tseung Kwan O Line Southern Extension
South Island Line (West)
Legend
Existing Railway Line
Railway Project under Construction and Planning
Smart and Green Mass Transit System
Kau Yi Chau Artificial Islands-related Transport Corridor
Boundary Control Point
Proposed alignments are for reference only

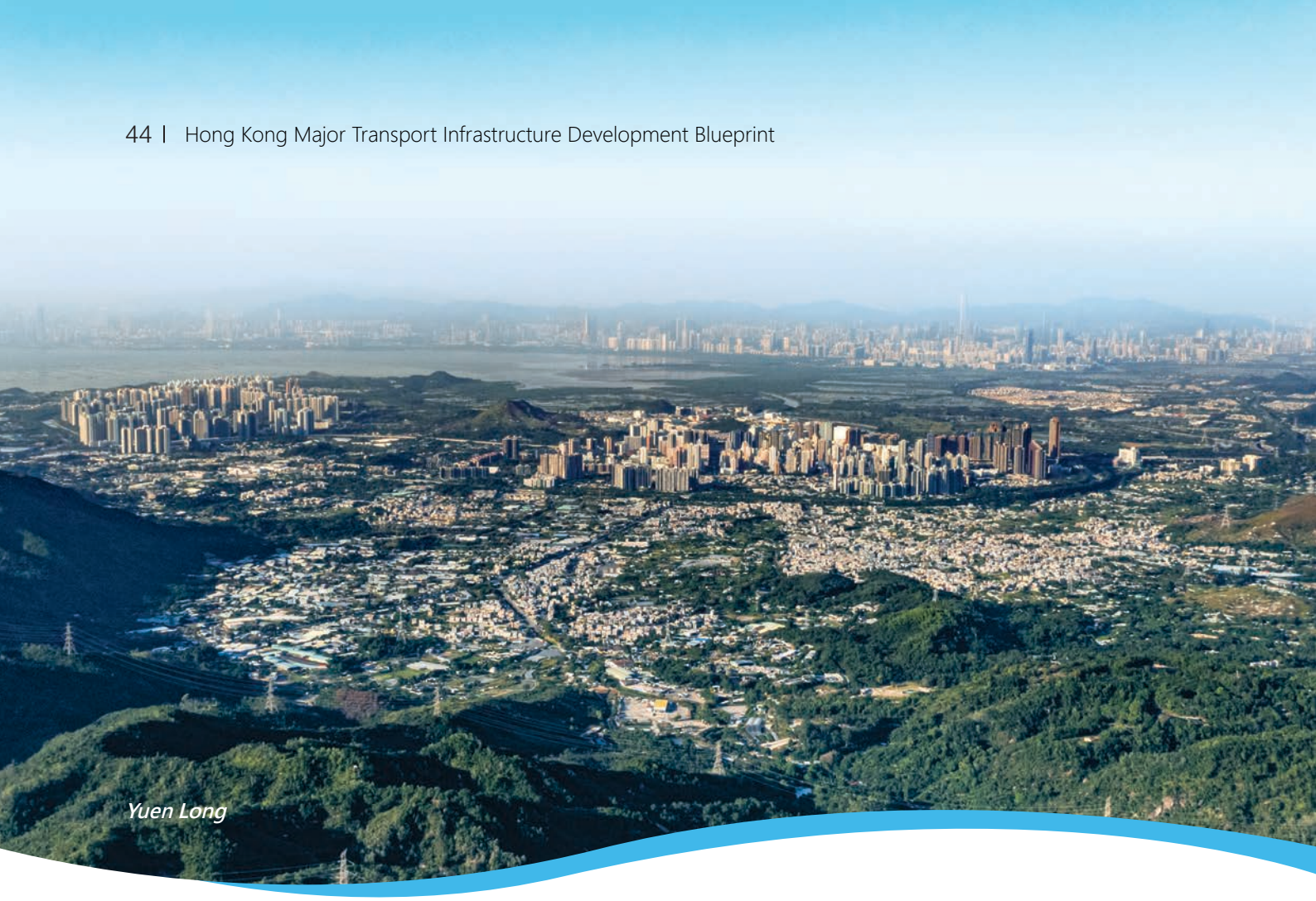
East Rail Line

3.1.2 Upon completion of railway projects under construction and planning, the total length of the railway network is expected to increase from currently about 270 km to nearly 390 km, forming an extensive, interconnected and resilient rail system as the backbone of mass passenger transportation. We expect that the efficient and reliable railway service will remain a prominent commuting option for the public and visitors. Apart from travelling within different districts in Hong Kong, they can also conveniently travel to the Mainland and other parts of the world via the railway network connecting to the Hong Kong International Airport, the Guangzhou-Shenzhen-Hong Kong Express Rail Link, as well as various land-based and sea-based BCPs.


Future Major Road Network
N
Heung Yuen Wai
Sha Tau Kok
Lo Wu
Ping Che
Lok Ma Chau
Kwu Tung
Northern Metropolis Highway
(New Territories North New Town Section)
Shenzhen Bay
San Tin
Northern Metropolis
Improvement Works
of Fanling Highway
Fanling Bypass
Fanling
Tin Shui Wai
Northern Metropolis Highway
(Tin Shui Wai, San Tin &
Kwu Tung Sections)
Tai Po
Kam Tin
Widening of
Yuen Long Highway
Shatin Bypass
Widening of T6 Bridge
of Tate's Cairn Highway
Route 11
Widening of
Tsuen Wan Road
Trunk Road T4
Tuen Mun Bypass
Tsuen Wan
Kwai Chung
Improvement of
Lion Rock Tunnel
Tsing Yi-
Lantau Link
Road P1
Kowloon Tong
Trunk Road T2
Tseung Kwan O
Yau Tong
Central Kowloon Route
Hong Kong Island West-
Northeast Lantau Link
Tseung Kwan O-
Yau Tong Tunnel
Harbour Metropolis
Legend
Existing Major Road
Major Road Project under Construction and Planning
Kau Yi Chau Artificial Islands-related Transport Corridor
Logistics Port for Sea, Land and Air
Boundary Control Point
Proposed alignments are for reference only

3.1.3 In terms of road network, the total length is currently about 2 200 km, of which about 260 km are major roads. Upon completion of the major road projects under construction and planning, it is estimated the length of major roads will increase to nearly 380 km to link and connect various districts in Hong Kong. Working alongside the passenger railway system which serves as the backbone, the major road network can effectively meet the logistics needs of various districts and increase the commuting options for the public and visitors. We expect that the continuously enhanced major road network will continue to provide efficient connectivity to the Hong Kong International Airport, all ports and land-based BCPs, facilitating smooth movement of people and goods, and supporting Hong Kong's ongoing development as a pivotal shipping, trading centrer and an international aviation hub.

3.1.4 Taking into account the functions and characteristics of the projects, we will elaborate the vision upon completion of the future transport infrastructure network in the following three sections, including: connectivity within the Northern Metropolis and with the Mainland, connectivity between the Northern Metropolis and the Harbour Metropolis, and other major transport infrastructure projects.



Yuen Long

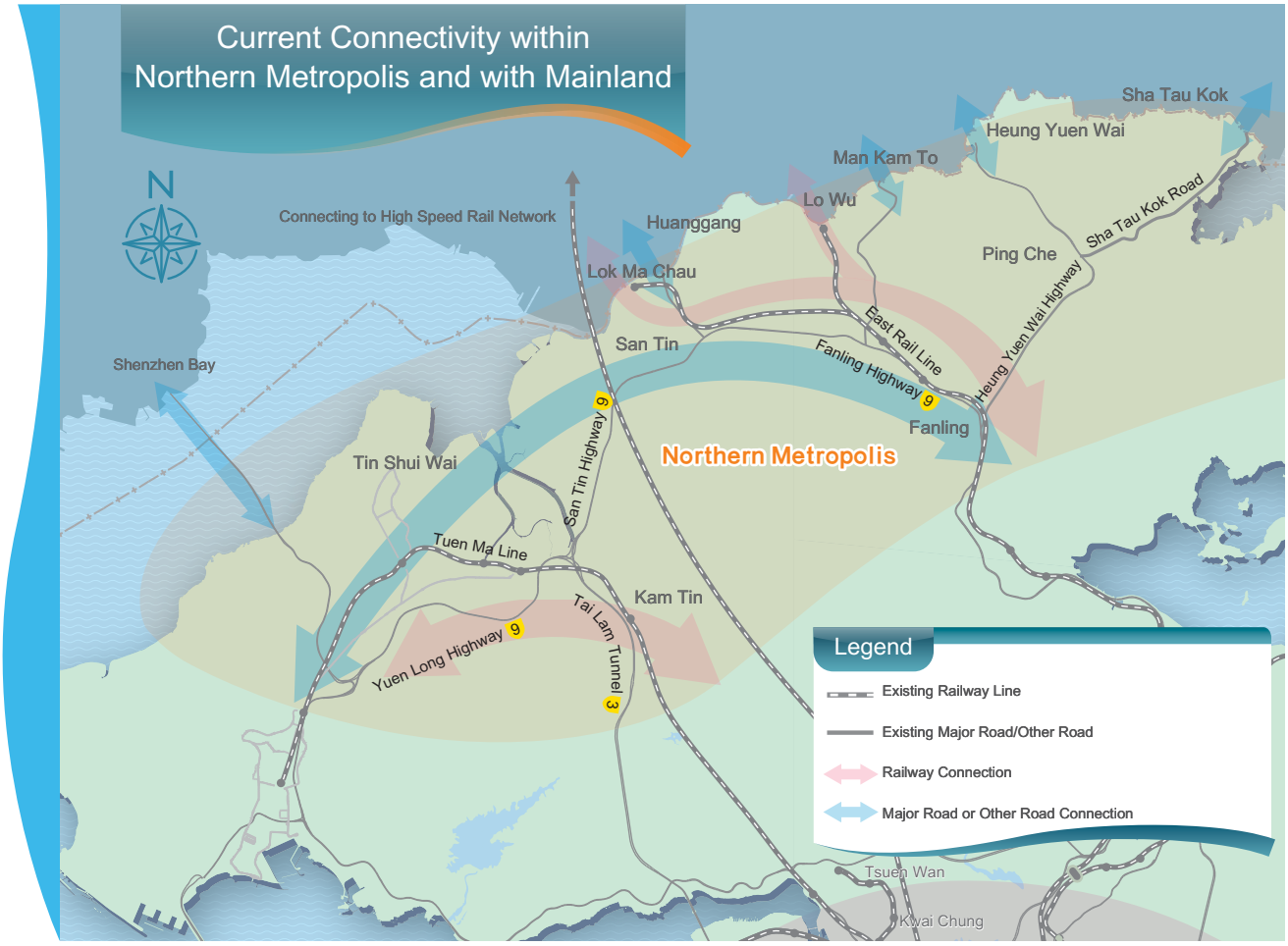
3.2 Connectivity within the Northern Metropolis and with the Mainland

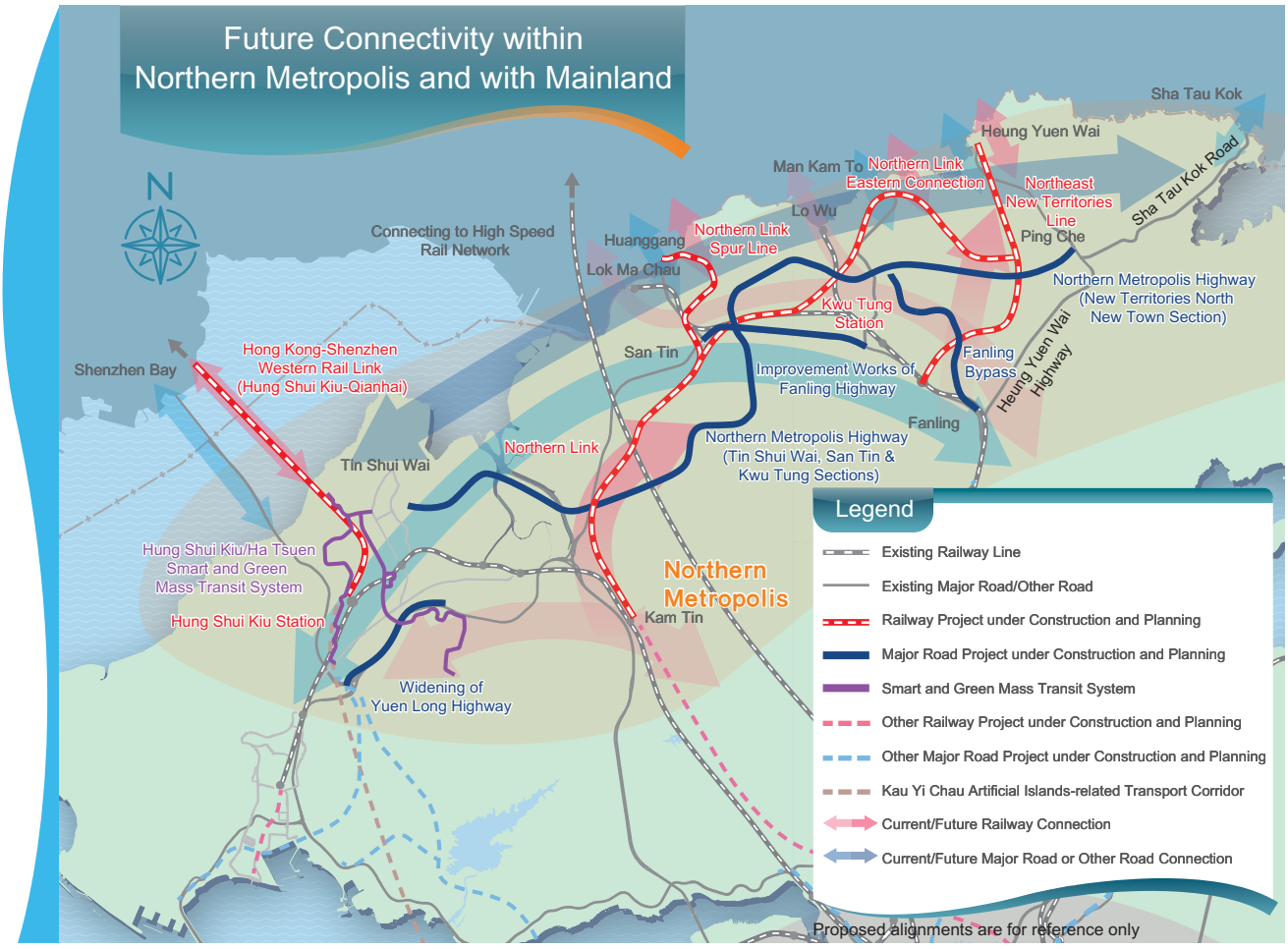
3.2.1 The Northern Metropolis, a new engine for Hong Kong to scale new heights, can provide over 500 000 new residential units, create 500 000 new jobs and accommodate a population of 2.5 million upon full development. Embracing an "industry-driven and infrastructure-led" approach as its key planning axle, the metropolis will forge a major hub for the city to integrate into the overall development of our country.

3.2.2 With a number of land-based BCPs, the Northern Metropolis is the most important area in Hong Kong that facilitates integrated development with Shenzhen and connection with other areas within the GBA. Currently, there are seven land-based BCPs between Hong Kong and Shenzhen from west to east. Two of them are rail-based (i.e. Lok Ma Chau Spur Line and Lo Wu), while the other five are road-based (i.e. Shenzhen Bay, Lok Ma Chau (Huanggang), Man Kam To, Heung Yuen Wai and Sha Tau Kok). These BCPs have laid a solid foundation for a high degree of close interaction and driving rapid socio-economic developments in the two areas over the years. According to the figures in October 2023, the daily average throughput of passengers at the seven land-based BCPs in the Northern Metropolis was about 440 000, mainly via the two rail-based BCPs at Lo Wu and Lok Ma Chau Spur Line. The average daily number of cross-boundary private car trips and cross-boundary goods vehicle trips were about 14 000 and 10 000 respectively, mainly via the two road-based BCPs at Shenzhen Bay and Lok Ma Chau (Huanggang).

3.2.3 To drive the development of the Northern Metropolis, the major transport infrastructure network will extend to various NDAs in the area, enhancing the connectivity between these areas with the Mainland, as well as other parts of Hong Kong. This will unleash the land development potential and meanwhile enhance the efficiency of the existing railway and major road networks in the Northern Metropolis, improving the overall traffic conditions in the Northern Metropolis.

3.2.4 The transport infrastructure network will make full use of the advantages of the Northern Metropolis' proximity to the hinterland to enhance the transport infrastructure at the seven land-based BCPs to promote cross-boundary integration and integrated development at the port areas. The improved transport infrastructure network will enable the public to easily access various land-based BCPs via major roads and railways, boosting the connectivity and synergy effect among these BCPs as well as the benefits of the cross-boundary infrastructure. Besides, the "Action Plan on Modern Logistics Development" published in October 2023 announced that the Government has reserved logistics land of about 37 hectares in the new development areas of the Northern Metropolis and will continue to plan for more logistics land for developing modern logistics clusters. The improved transport infrastructure network can support the sustainable development of modern logistics, enhancing the operational efficiency of the logistics industry.


Current Connectivity within
Northern Metropolis and with Mainland
N
Connecting to High Speed Rail Network
Huanggang
Lok Ma Chau
Shenzhen Bay
San Tin
Man Kam To
Lo Wu
Heung Yuen Wai
Sha Tau Kok
Sha Tau Kok Road
Ping Che
Heung Yuen Wai Highway
East Rail Line
Fanling Highway
9
Fanling
Northern Metropolis
Tin Shui Wai
San Tin Highway
9
Tuen Ma Line
Kam Tin
Tai Lam Tunnel
3
Yuen Long Highway
9
Tsuen Wan
Kwai Chung
Legend
Existing Railway Line
Existing Major Road/Other Road
Railway Connection
Major Road or Other Road Connection


Future Connectivity within
Northern Metropolis and with Mainland
N
Connecting to High Speed
Rail Network
Huanggang
Lok Ma Chau
Shenzhen Bay
Hong Kong-Shenzhen
Western Rail Link
(Hung Shui Kiu-Qianhai)
San Tin
Man Kam To
Lo Wu
Northern Link
Eastern Connection
Northeast
New Territories
Line
Ping Che
Sha Tau Kok
Sha Tau Kok Road
Heung Yuen Wai
Northern Link
Spur Line
Kwu Tung
Station
Northern Metropolis Highway
(New Territories North
New Town Section)
Fanling
Bypass
Heung Yuen Wai
Highway
Improvement Works of
Fanling Highway
Fanling
Northern Metropolis Highway
(Tin Shui Wai, San Tin &
Kwu Tung Sections)
Northern Link
Tin Shui Wai
Hung Shui Kiu/Ha Tsuen
Smart and Green
Mass Transit System
Hung Shui Kiu Station
Northern
Metropolis
Kam Tin
Widening of
Yuen Long Highway
Legend
Existing Railway Line
Existing Major Road/Other Road
Railway Project under Construction and Planning
Major Road Project under Construction and Planning
Smart and Green Mass Transit System
Other Railway Project under Construction and Planning
Other Major Road Project under Construction and Planning
Kau Yi Chau Artificial Islands-related Transport Corridor
Current/Future Railway Connection
Current/Future Major Road or Other Road Connection
Proposed alignments are for reference only

Railways and Smart and Green Mass Transit Systems


Lo Wu Port

3.2.5 Currently, there are two railway lines, i.e. the East Rail Line and the Tuen Ma Line within the Northern Metropolis, as well as the Light Rail which serves the areas around Tin Shui Wai and Yuen Long. The East Rail Line mainly provides a north-south connection in the northeast New Territories and direct access to the two land-based BCPs, namely Lo Wu and Lok Ma Chau, and travels to the urban areas via Sheung Shui/ Fanling. The Tuen Ma Line provides effective east-west connection around Yuen Long, and travels to the urban areas via Kam Tin. The Light Rail facilitates commuting by serving as a local transport service and interchanging with the Tuen Ma Line.

3.2.6 Following the progressive completion of new development projects in the Northern Metropolis, the influx of population and businesses will bring about a rise in economic activities, leading to a significant increase in transport and logistics demand in the area. Therefore, an east-west railway as the backbone of the Northern Metropolis will be constructed to enhance the railway coverage, carrying capacity and circulation within the metropolis.

3.2.7 Specifically, the Government will take forward the Hung Shui Kiu Station, the NOL, the NOL Eastern Extension and the Northeast New Territories Line to improve the railway connections between New Territories East and West and unleash the development potential of Hung Shui Kiu/Ha Tsuen NDA, Kwu Tung North/ Fanling North NDA, San Tin Technopole, NTN New Town (including Lo Wu/Man Kam To), as well as their neighbouring areas.

3.2.8 Upon commissioning of the relevant railways and coupled with the existing East Rail Line and Tuen Ma Line, a railway loop will be formed in NTN. The public will be able to travel between Tuen Mun and Ping Che via the Tuen Ma Line, the NOL and the NOL Eastern Extension, passing through both existing and planned development nodes in the NDAs and also travel to and from urban areas via the Tuen Ma Line, the East Rail Line and the CRL at Kam Tin, Kwu Tung and Fanling.

3.2.9 To make full use of the advantages of the Northern Metropolis' proximity to the hinterland, the Government will take forward the NOL Spur Line and HSWRL to provide direct cross-boundary railway services at the central and northwest New Territories to connect with the new Huanggang Port and Shenzhen Bay Port respectively. This will offer more commuting options to the public and visitors travelling to and from the GBA. Meanwhile, the public and visitors could access the Man Kam To Port and Heung Yuen Wai Port via the NOL Eastern Extension and Northeast New Territories Line. After the commissioning of the relevant railway lines, the number of land-based BCPs covered by railway services will greatly increase from two (Lo Wu and Lok Ma Chau) to six. It is expected to effectively divert the public and visitors to each BCP, thus making the best use of the resources of various BCPs and fostering cross-boundary integration of Hong Kong and Shenzhen.

3.2.10 Besides, as mentioned in Section 2.6.6 above, the Government plans to implement a smart and green mass transit system in Hung Shui Kiu/Ha Tsuen NDA, connecting the NDA with Yuen Long South and providing convenient feeder services to the public. The Government is also exploring the feasibility of a green transport corridor from Tsim Bei Tsui to Pak Nai.

Major Roads

3.2.11 At present, the Yuen Long Highway, San Tin Highway and Fanling Highway serve as the east-west major roads in the Northern Metropolis. Residents in the area can travel to the urban areas via the Tolo Highway, Tai Lam Tunnel and Tuen Mun Road at Fanling, Kam Tin and Tuen Mun respectively.

3.2.12 To meet the passenger and logistics demand and provide more commuting options to the public, on top of the east-west passenger railway backbone, the Government will enhance the capacity and coverage of the major roads in the Northern Metropolis. The enhanced major roads will cater for the transport and logistics demand, increase commuting options, reduce journey time and effectively divert the traffic pressure on the existing major roads.

3.2.13 The Government will take forward the Fanling Bypass and Northern Metropolis Highway, which is divided into four sections, namely Tin Shui Wai Section, San Tin Section, Kwu Tung Section and NTN New Town Section, to link the development nodes in the Northern Metropolis, directly connecting Kwu Tung North/Fanling North NDA, San Tin Technopole, and NTN New Town (including Lo Wu/Man Kam To) to the major road network.

3.2.14 On improving the existing major roads, the Improvement Works of Fanling Highway and Widening of Yuen Long Highway (section between Lam Tei and Tong Yan San Tsuen) under planning, as well as the relevant road and interchange improvement works, will improve the overall road network of Kwu Tung North/ Fanling North NDA, Yuen Long South and areas in the northwest New Territories, expand the capacity of and relieve the pressure on the existing major roads.

3.2.15 Upon commissioning of the above road works, the east-west connection in the Northern Metropolis will be significantly enhanced with the capacity of the roads doubled or more, which is anticipated to be sufficient to meet the demand for long-term development. As the new major roads are alternative routes to the existing ones, the provision of sufficient interchanges will effectively complement the major roads and divert traffic, enhancing the stability and resilience of the road network in the NTN. Meanwhile, the public and visitors could make use of the improved major road network to conveniently travel to the various land-based BCPs in the Northern Metropolis.

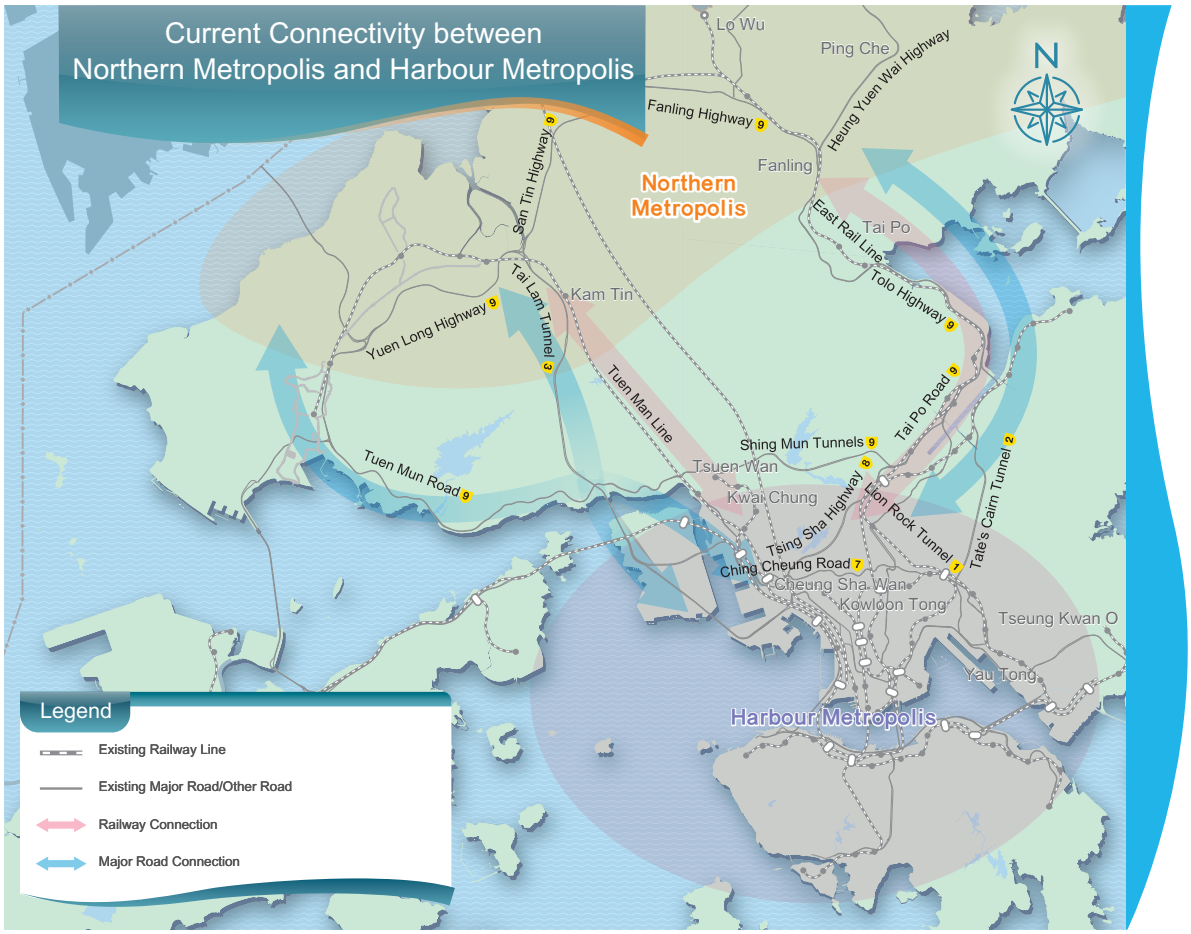
Lo Wu South

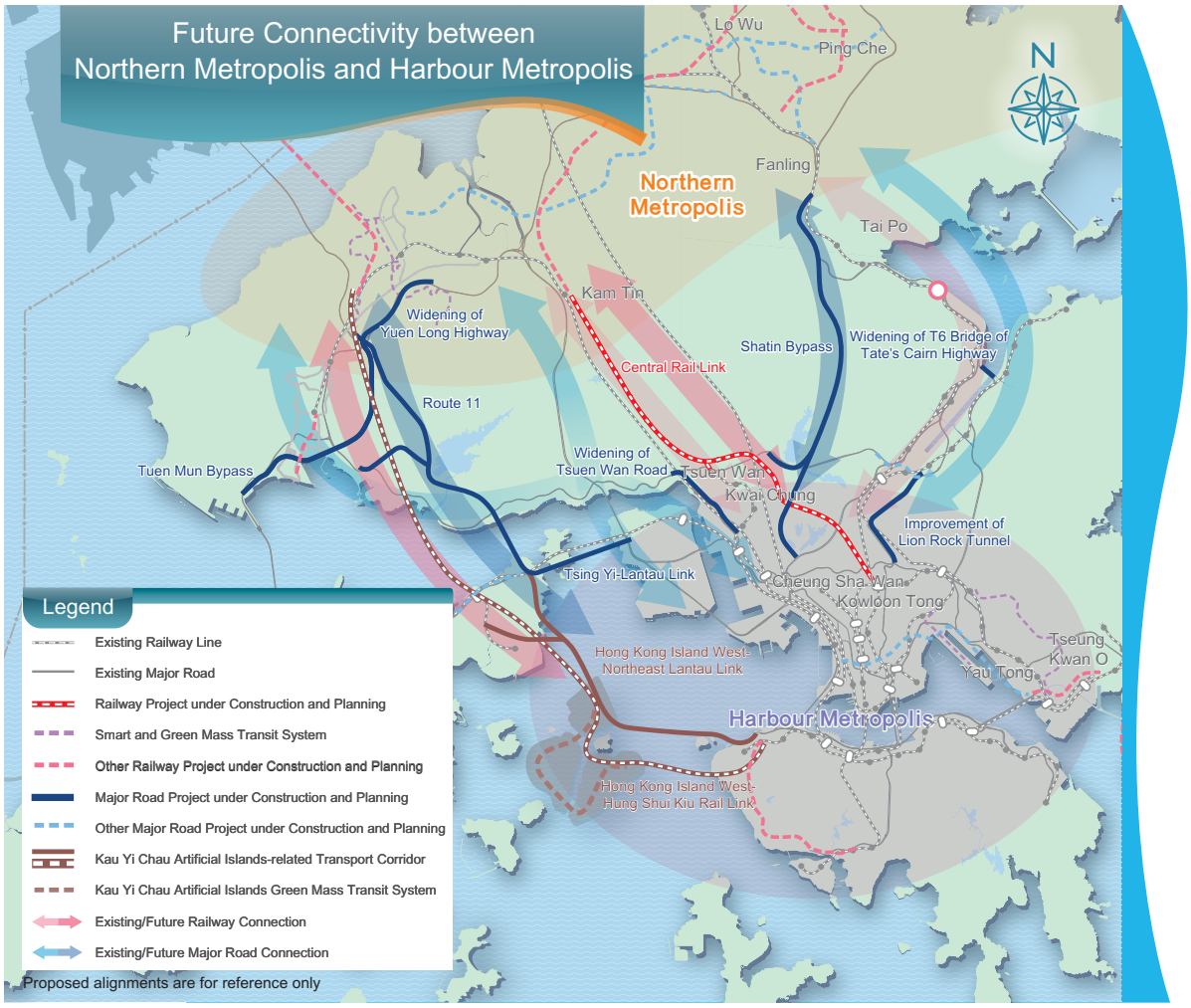
3.3 Connectivity between the Northern Metropolis and the Harbour Metropolis

3.3.1 The Harbour Metropolis covers existing metropolis on both sides of the Victoria Harbour and the proposed KYCAI. Together with the Northern Metropolis, Hong Kong will be supported in establishing a new industry pattern of "South-North dual engine (finance-innovation and technology)". Given the continuing large amount of employment opportunities and frequent economic and commercial activities in the Harbour Metropolis, the transport and logistics demand between the Northern Metropolis and the Harbour Metropolis is expected to increase.

3.3.2 In view of this, the improved major transport infrastructure network will enhance the connection between the Northern Metropolis and the Harbour Metropolis, forming new transport corridors between the two metropolises in the east, central and west of Hong Kong and creating sufficient capacity to meet the north-south transport and logistics demand arising from developments.

Lai King


Current Connectivity between
Northern Metropolis and Harbour Metropolis
Lo Wu
Ping Che
Heung Yuen Wai Highway
Fanling Highway 9
Fanling
San Tin Highway 9
Northern Metropolis
East Rail Line
Tai Po
Tolo Highway 9
Tai Lam Tunnel 3
Kam Tin
Yuen Long Highway 9
Tuen Mun Road 9
Tuen Mun Line
Shing Mun Tunnels 9
Tai Po Road 9
Tsuen Wan
Kwai Chung
Tsing Sha Highway 8
Lion Rock Tunnel 1
Tate's Cairn Tunnel 2
Ching Cheung Road 7
Cheung Sha Wan
Kowloon Tong
Tseung Kwan O
Yau Tong
Harbour Metropolis
N
Legend
Existing Railway Line
Existing Major Road/Other Road
Railway Connection
Major Road Connection


Future Connectivity between
Northern Metropolis and Harbour Metropolis
Lo Wu
Ping Che
Fanling
Northern Metropolis
Tai Po
Kam Tin
Widening of
Yuen Long Highway
Shatin Bypass
Widening of T6 Bridge of
Tate's Cairn Highway
Central Rail Link
Route 11
Widening of
Tsuen Wan Road
Tuen Mun Bypass
Tsuen Wan
Kwai Chung
Improvement of
Lion Rock Tunnel
Tsing Yi-Lantau Link
Cheung Sha Wan
Kowloon Tong
Tseung
Kwan O
Hong Kong Island West-
Northeast Lantau Link
Yau Tong
Harbour Metropolis
Hong Kong Island West-
Hung Shui Kiu Rail Link
N
Legend
Existing Railway Line
Existing Major Road
Railway Project under Construction and Planning
Smart and Green Mass Transit System
Other Railway Project under Construction and Planning
Major Road Project under Construction and Planning
Other Major Road Project under Construction and Planning
Kau Yi Chau Artificial Islands-related Transport Corridor
Kau Yi Chau Artificial Islands Green Mass Transit System
Existing/Future Railway Connection
Existing/Future Major Road Connection
Proposed alignments are for reference only

Railways

Tsuen Wan (Northeast)

3.3.3 The existing railway lines connecting the Northern Metropolis and the Harbour Metropolis include the East Rail Line and the Tuen Ma Line. The East Rail Line directly connects the northeast New Territories to the core business areas in central Kowloon and on Hong Kong Island, while the Tuen Ma Line connects the New Territories to Kowloon East and West, allowing the public to travel between the New Territories and different districts of Hong Kong Island and Kowloon by transferring to the East Rail Line at Tai Wai and Hung Hom, to the Tsuen Wan Line at Mei Foo and East Tsim Sha Tsui, to the Kwun Tong Line at Ho Man Tin and Diamond Hill, and to the Tung Chung Line at Nam Cheong.

3.3.4 Although the above railway network is interconnected, some of the journeys are relatively circuitous with longer journey time. For example, passengers travelling between the northwest New Territories and central Kowloon, as well as the New Territories South will be required to first pass through Kowloon West, or travel on the future NOL in NTN before transferring to the East Rail Line. These detours reduce the efficiency and attractiveness of the journey and increase the loading on the existing railway network along the way.

3.3.5 Following the influx of population and employment opportunities into the Northern Metropolis and KYCAI, both the northbound and southbound transport demand during peak hours are anticipated to increase. To meet the demand, the CRL and the Hong Kong Island West-Hung Shui Kiu Rail Link will be taken forward in the central and western part of Hong Kong respectively.

3.3.6 The CRL will provide a direct and fast alternative railway route in the central part of Hong Kong. The public will be able to use the CRL to travel between the Northern Metropolis and the Harbour Metropolis, and transfer to the Tsuen Wan Line, the East Rail Line and the Kwun Tong Line to reach different districts of Hong Kong Island and Kowloon. Meanwhile, the Hong Kong Island West-Hung Shui Kiu Rail Link will provide a direct connection amongst the Northern Metropolis, KYCAI and Hong Kong Island West. It will not only effectively enhance the strategic position of the KYCAI but also facilitate transfers to the Island Line, the Tung Chung Line and the Tuen Ma Line, enabling convenient travel between northwest New Territories and the urban areas. The two new railway lines are expected to effectively divert passenger flow on the East Rail Line and the Tuen Ma Line, alleviating the anticipated loading pressure on these railway lines, thereby effectively enhancing the overall efficiency and resilience of the railway network.

3.3.7 Upon commissioning of the above new railway lines, the number of north-south railway lines running between the Northern Metropolis and the Harbour Metropolis will increase from two to four, significantly increasing the carrying capacity of the railway network.

Major Roads

3.3.8 The current major roads connecting the Northern Metropolis and the Harbour Metropolis include the Tolo Highway, the Tai Lam Tunnel and the Tuen Mun Road.

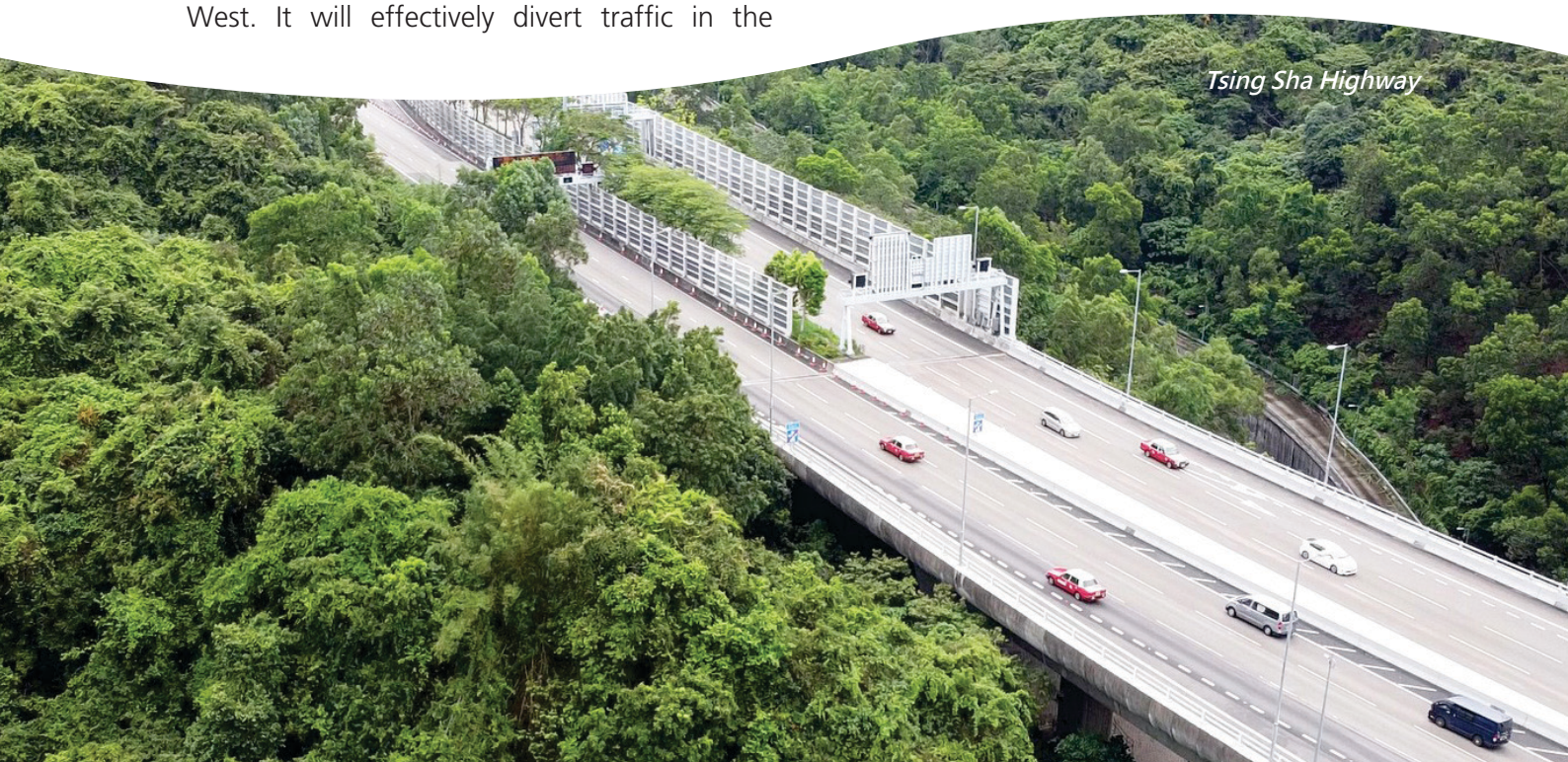
3.3.9 The Tolo Highway primarily serves road users in the northeast New Territories. Upon reaching Ma Liu Shui via the Fanling Highway and Tolo Highway of Route 9, they can continue their journey on Route 9 to travel to Tsuen Wan via the Shing Mun Tunnels, or opt for Route 1 to travel to Central Kowloon via the Lion Rock Tunnel, Route 2 to travel to Kowloon East via the Tate's Cairn Tunnel, or Route 8 to travel to Kowloon West via the Eagle's Nest Tunnel, thereafter reaching the Hong Kong Island via the three road harbour crossings.

3.3.10 The Tai Lam Tunnel and the Tuen Mun Road primarily serve road users in the northwest New Territories. Upon reaching Ting Kau via Tai Lam Tunnel and Tuen Mun Road, they can opt for Route 3 to travel to Kowloon West via the Ting Kau Bridge and Stonecutters Bridge or Route 9 to travel to the New Territories South via the Shing Mun Tunnels, thereafter commuting to different districts of Hong Kong Island and Kowloon.

Pak Shek Kok

3.3.11 Following the influx of population and employment opportunities into the Northern Metropolis and KYCAI, both the transport and logistics demand of northbound and southbound travel during peak hours are anticipated to increase. To meet the passenger and logistics demand and offer more commuting options to the public, on top of the four north-south passenger railways, the Government will enhance the capacity and coverage of the major road network connecting the Northern Metropolis and the Harbour Metropolis. Specifically, the Government will take forward the Sha Tin Bypass, Tuen Mun Bypass, Route 11, Tsing Yi-Lantau Link and Hong Kong Island West-Northeast Lantau Link, as well as the related major road improvement works to meet the transport and logistics demand arising from long-term development, provide more commuting options, reduce journey time, and effectively alleviate the pressure on existing major roads.

3.3.12 The Shatin Bypass will provide a direct major road connecting Tai Po and Kowloon West. It will effectively divert traffic in the northeast New Territories and significantly relieve the traffic pressure on the Tolo Highway, the Lion Rock Tunnel, the Tate's Cairn Tunnel, the Eagle's Nest Tunnel and the Shing Mun Tunnels, enhancing the efficiency of the overall transport network in the area. The Shatin Bypass will offer the public with another option for travelling between northeast New Territories and Kowloon, enhance the connections between the Northern Metropolis and the Harbour Metropolis and create capacity to drive the developments including Kwu Tung North/Fanling North NDA and NTN New Town (including Lo Wu/Man Kam To). Meanwhile, in view of the possible congestion at the Tate's Cairn Highway and the Lion Rock Tunnel during peak hours, the Government needs to take forward the Widening of T6 Bridge of Tate's Cairn Highway and Improvement of Lion Rock Tunnel in order to enhance the capacity of the relevant road sections. Upon commissioning of the above works, the Shatin Bypass and the Tolo Highway will become the two main north-south transport corridors on the eastern side of Hong Kong.



Tsing Sha Highway

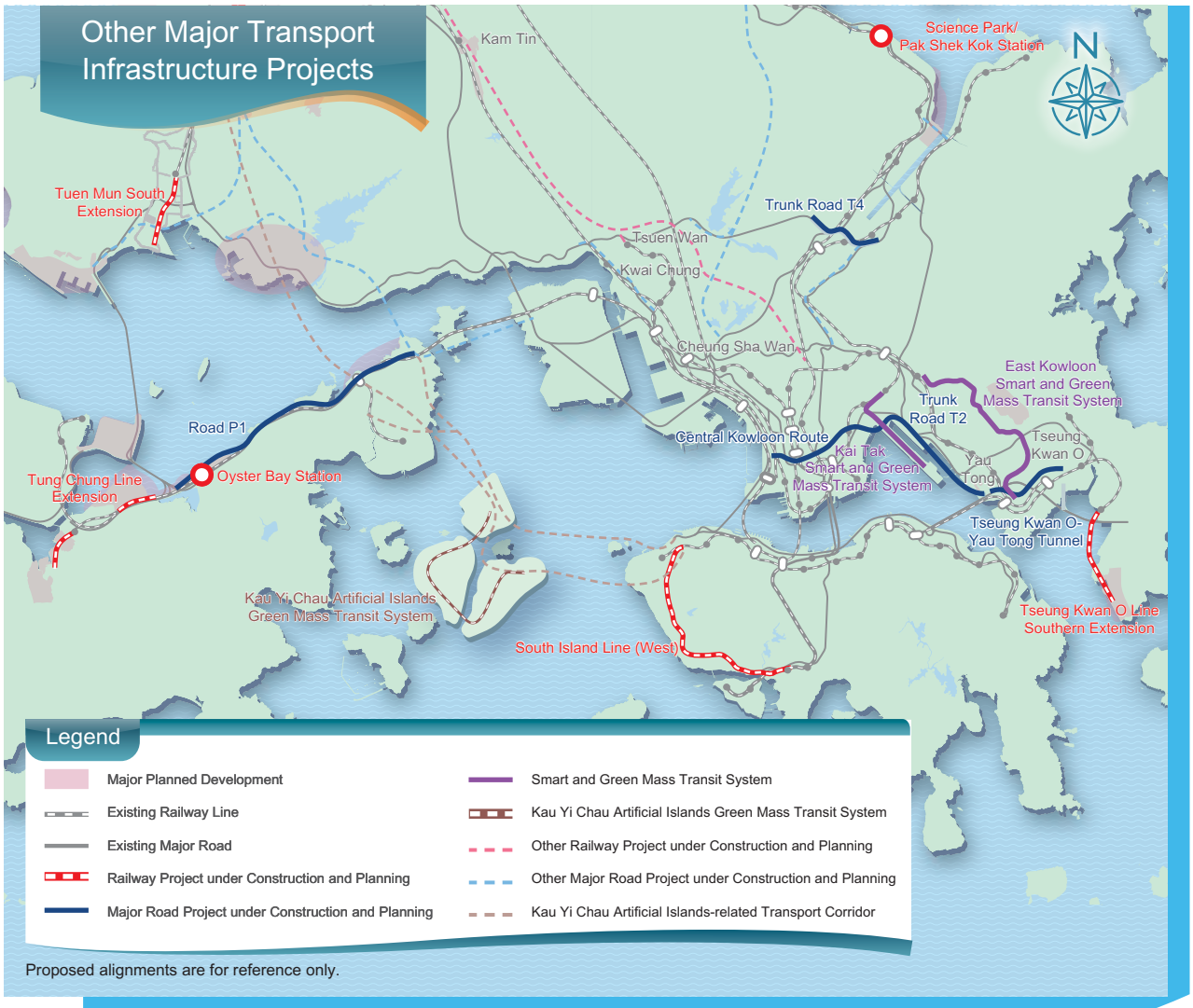
Photomontage of Route 11

3.3.13 On the northwest New Territories, the Tuen Mun Bypass, Route 11, Tsing Yi-Lantau Link and Hong Kong Island West-Northeast Lantau Link will form a group of direct major roads connecting Lam Tei to different districts of Hong Kong Island and Kowloon as well as to Lantau Island. The traffic pressure on the Tai Lam Tunnel and the Tuen Mun Road will be significantly relieved, and the connectivity between the northwest New Territories and the Harbour Metropolis will be improved. Sufficient capacity will be created to drive the proposed developments in areas such as Hung Shui Kiu/ Ha Tsuen NDA, Yuen Long South and Tuen Mun West, as well as Lantau Island and KYCAI. Upon commissioning, Route 11, Tsing Yi-Lantau Link and Hong Kong Island West-Northeast Lantau Link will directly connect the Northern Metropolis and the Harbour Metropolis with the latter becoming the fourth road harbour crossing connecting to the Hong Kong Island which will help relieve the pressure on the existing three road harbour crossings. The Tuen Mun Bypass, together with the existing Tuen Mun-Chek Lap Kok Link, will attract vehicles travelling between northwest New Territories and Lantau Island/western side of the Pearl River estuary, fostering cross-boundary connection and integration. This set of new major roads will enhance the external connectivity for Lantau Island and the Hong Kong International Airport, benefitting the public and visitors. Meanwhile, to further improve the capacity of the existing road network, the Government has taken forward the Widening of Tsuen Wan Road and the Associated Junction Improvement Works and Widening of Yuen Long Highway (section between Lam Tei and Tong Yan San Tsuen) to increase their respective capacity. Upon completion of the above works, the Tai Lam Tunnel, Tuen Mun Road, and Route 11 together with Tsing Yi-Lantau Link and Hong Kong Island West-Northeast Lantau Link will become the three major north-south transport corridors on the western side of Hong Kong.

3.3.14 Upon commissioning of the above new major roads and completion of the related road improvement works, the overall capacity of the north-south major road between the Northern Metropolis and the Harbour Metropolis on the eastern side of Hong Kong will increase by around 60% to 70% while for the western side, depending on the road section, the overall capacity of the north-south major road will increase by around 60% to 100%.

3.4 Other Major Transport Infrastructure Projects

3.4.1 Apart from the above projects, the Government will also take forward other major transport infrastructure projects in different areas of Hong Kong, with propelling view to driving development, enhancing connection and improving efficiency, as well as to further enhancing the transport infrastructure network and meeting the travelling needs of the public.

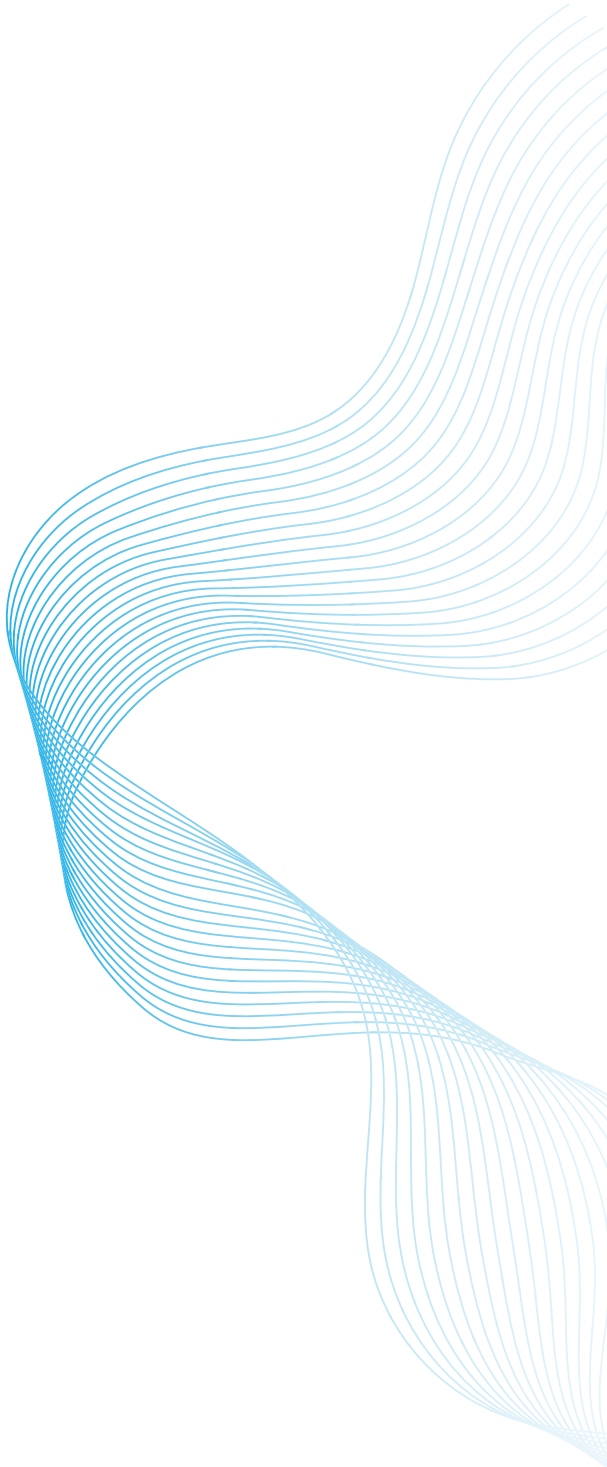


Railways and Smart and Green Mass Transit Systems

3.4.2 In line with the developments at Siu Ho Wan Depot Site, Science Park/Pak Shek Kok, and TKO Area 137, the Government is taking forward the corresponding railway projects in accordance with the timelines of the respective development project. Sufficient capacity will be created to drive related developments. The transport infrastructure in these areas will be enhanced to fuel the planned developments.

3.4.3 The Government is also taking forward the Tung Chung Line Extension and the Tuen Mun South Extension to expand the coverage of the railway network, provide convenient railway services to more areas as well as enhance mobility in the community.

3.4.4 On the other hand, the Government is actively taking forward the planning of the South Island Line (West) to connect areas around Aberdeen, Wah Fu and Cyberport to Wong Chuk Hang Station on the South Island Line and HKU Station on the Island Line. Given the hilly terrains and constrained by the climbing capability of heavy rail, some sections of the South Island Line (West) have to be built deep underground. The transport benefit and cost effectiveness are both unsatisfactory. In view of this, we are exploring suitable alternative transit systems which could meet the transport demand along the alignment as well as improve the technical feasibility and overall cost effectiveness of the project. We will continue to take forward the relevant planning and target to firm up a suitable technical solution in 2024 for implementing the South Island Line (West).



3.4.5 Regarding the North Island Line, another railway project proposed under the "Railway Development Strategy 2014", the capacity of the Island Line will be increased through the upgrading of the signalling system, and large-scale planned developments, such as the KYCAI and the Northern Metropolis, will have a long-term impact on the distribution of Hong Kong's residential and employment populations. After review, the Government anticipates that the future Island Line will be capable of meeting the demand and, up to 2046, there is no imminent need to take forward the North Island Line. However, should there be significant changes in planning parameters or actual circumstances in the future, we will timely review the need of the North Island Line.

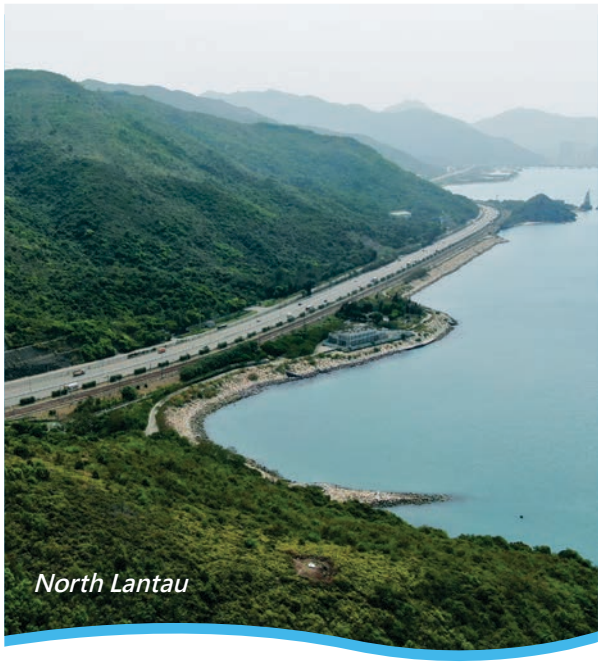
3.4.6 On smart and green mass transit system, as mentioned in Sections 2.6.4 and 2.6.5, the Government plans to implement smart and green mass transit systems in East Kowloon and former runway area of Kai Tak as a feeder service to railway stations nearby.

3.4.7 In order to cope with the planning and development of the KYCAI, the Government initially proposes to use the Green Mass Transit System to connect the three proposed artificial islands. The relevant details, including the mode of system and the alignment, will be subject to results of the ongoing planning study and further detailed study in the next stage.

Kai Tak

Major Roads

3.4.8 Following the recent rapid developments in areas like East Kowloon, TKO and Tung Chung, utilisation of some major roads and local roads are gradually rising. To further improve the major road network and enhance its resilience, we will continue to take forward the Central Kowloon Route, Trunk Road T2 and Cha Kwo Ling Tunnel and Road P1 (Tai Ho-Sunny Bay Section). These major road projects aim to enhance the capacity of the road network and divert traffic from existing congested road sections in order to relieve the traffic pressure and enhance traffic efficiency. For example, upon commissioning of the entire Route 6 (including the Tseung Kwan O-Lam Tin tunnel commissioned in December 2022, the Central Kowloon Route, Trunk Road T2 and Cha Kwo Ling Tunnel expected for completion in 2025 and 2026 respectively), it is estimated that the journey time during peak hours between Tseung Kwan O Town Centre and Yau Ma Tei Interchange along Route 6 will be substantially reduced from about 65 minutes currently to about 12 minutes. The route will increase commuting options between Kowloon East and West while effectively alleviating traffic pressure on the existing major roads.



North Lantau

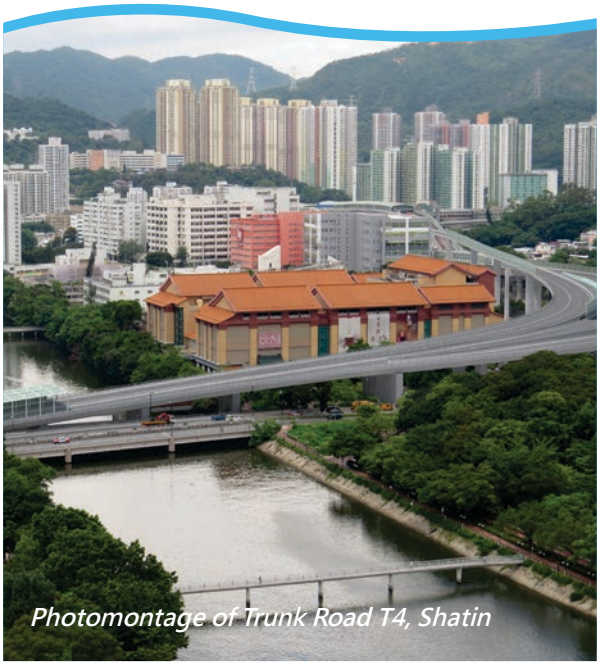
Kowloon East

3.4.9 At present, the external road connection for TKO mainly comprises the TKO Tunnel and Tseung Kwan O-Lam Tin Tunnel. As the Government plans to develop TKO Area 137 into a new community with primary purpose of housing supply, along with the potential developments to the south of Po Lam Road and other developments in TKO, it is expected that they will bring about additional transport and logistics demand in the area, overloading the existing TKO Tunnel and Tseung Kwan O-Lam Tin Tunnel. Hence, the Government will take forward the Tseung Kwan O-Yau Tong Tunnel, located at the central part of TKO, to drive the developments in the area and to further enhance the external connectivity of TKO.

Tseung Kwan O

3.4.10 Besides, to meet the transport demand arising from the future housing developments in the area of Ma On Shan, the Trunk Road T4 currently underway will play its important role of a bypass, allowing direct traffic between Shatin East/Ma On Shan and Tsuen Wan/Kowloon West to avoid the local roads in Shatin, hence relieving the traffic pressure in the area.

3.4.11 Furthermore, the Government will carry out a planning and engineering study for the proposed reclamation at Lung Kwu Tan and the re-planning of Tuen Mun West. The study will consider transport infrastructure required and connectivity with the existing and planned road and railway networks to meet the demand arising from the developments in the area.



Photomontage of Trunk Road T4, Shatin

Chapter 4

Implementation of Major Transport Infrastructure

4.1 Implementation Mode, Financial Arrangements and Manpower Resources

4.1.1 The implementation of major transport infrastructure projects involves substantial financial and human resources. The society has expressed concern about the simultaneous implementation of multiple transport infrastructure projects in the future. The Government will conduct independent assessments of the economic benefits, implementation and financial arrangements for each major transport infrastructure project, taking into account construction and operational details (e.g. connectivity with existing railway network, passenger interchange arrangements, toll levels, etc.) and evaluate the pros and cons to ensure adopting the most suitable implementation model to take forward each project and achieving the anticipated transport and logistics benefits. In addition to the Capital Works Reserve Fund, the Government will also consider the appropriate utilisation of market forces to take forward the projects, including financing methods such as public-private partnerships.

4.1.2 Regarding the railway projects, the Government will consider suitable financial arrangements taking into account the actual circumstances of the project such as the construction and operation costs. "Rail plus Property" is one of the financial arrangements for the Government to take forward new railway projects. Under the current "Rail plus Property" model, the Government will grant property development right to the railway operator and, based on the financial estimates of the railway project when reaching an agreement with the operator, deduct a fixed lump sum amount from the full market value of the property development sites to bridge the funding gap of the railway project. With the funding support from the Government, the railway operator assumes full responsibility for the design, construction, operation, and maintenance of the new railway, as well as all associated commercial risks. This financial model unleashes the development potential along the railway lines, expedites housing supply, and meanwhile creates synergy to facilitate the implementation of works by smoothening works interfaces among stations, depots, and property development. If the "Rail plus Property" model is not practical for a particular project, we will also consider other financial arrangements such as capital grants, etc.

4.1.3 In relation to the operator, when taking forward a new and independent railway line, the Government will consider introducing different railway operators to foster competition and enhance overall service level. We will take into account the pros and cons of various implementation modes, including factors such as construction cost, construction period, the capability of the company to undertake the project, the interface with the existing railway network, and the robustness of the entire railway network in terms of hardware and operations. We will proceed with the proposed railway projects in accordance with this framework. For example, we are actively considering inviting tenders for the construction and operation of HSWRL and planning to invite local and overseas suppliers and operators of smart and green mass transit systems for expressions of interest for the projects in East Kowloon and Kai Tak in 2024 so as to finalise the details of implementation and tender requirements.

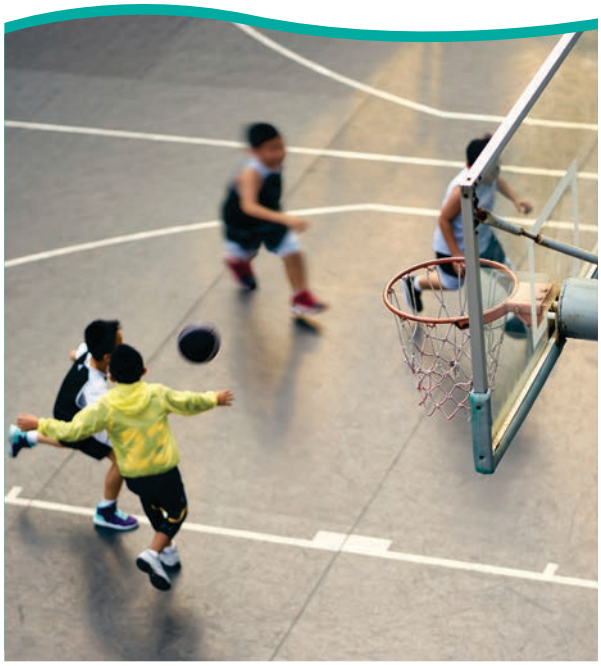
4.1.4 On major roads, the Government has been primarily implementing projects through the "Public Works Programme". Apart from this, the "Build-Operate-Transfer" model was adopted in previous cases such as the Tai Lam Tunnel and the Western Harbour Crossing under which the private sector is responsible for financing the project while designing and constructing the facilities according to the Government's specified specifications and requirements. Throughout the operational stage, the private sector collects tolls from road users in accordance with the conditions under the franchise and pays franchise fee to the Government. However, in view of the large scale of the proposed major road projects, it is believed to be challenging to achieve financial viability while maintaining tolls at a reasonable level if the projects were to be solely implemented on a "Build-Operate-Transfer" model.

4.1.5 Regarding manpower resources, in order to facilitate the industry to get prepared and allocate resources in advance to cope with future large-scale development, the Government and the Construction Industry Council will continue to disseminate to the industry and the public regularly relevant information and maintain close contact with the industry and stakeholders, so as to closely monitor the supply of and demand for manpower of the construction industry with a view to better preparing for the anticipated surge in workload. Meanwhile, the Government will continue to promote the application and adoption of advanced technology, such as Building Information Modelling, digital site supervision, Design for Manufacturing and Assembly, Multi-trade Integrated Mechanical, Electrical and Plumbing, and the adoption of robots and artificial intelligence to more effectively utilise manpower resources and uplift productivity.

4.2 Implementation Priority

4.2.1 The Government appreciates the public aspiration for the early commissioning of the major transport infrastructure projects. However, it is essential to pragmatically prioritise projects, carefully balancing many factors, including

- land use and the residential, employment and economic activities associated with the development;
- local and cross-boundary transport and logistics demand and future growth projections;
- condition of the existing transport network and system;
- financial requirements, economic returns, transport efficiency and cost-effectiveness of the project;
- the Government's fiscal position and the use of public resources;
- complexity and technical considerations of the works, expected implementation programme, site handover, project interfaces and other engineering considerations and the capacity of the industry; and
- potential impacts on the local area and the environment, as well as public and community views.



4.2.2 The taking forward of the railway and major road projects will be subject to the outcome of detailed engineering, environmental and financial studies relating to each project, as well as updated demand assessment, technical and technological application level and availability of resources. The Government will critically review the financial implications on public finance and the economic benefits of each project and consider the most appropriate implementation programme and financial arrangement for each project. Furthermore, in response to changes in planning parameters, individual projects may need to be reassessed, or with its implementation programme and alignment adjusted correspondingly.

4.2.3 We are grateful for the invaluable opinions provided by different sectors of the community throughout the Study. These insights have allowed us to tap into the collective wisdom and continuously improve our transport infrastructure network. In progressively taking forward the relevant transport infrastructure projects, we will continue to actively engage various sectors of the community and consider their views to strike a balance between transport benefits, potential impacts on local community and the environment, fiscal position and other factors. We will also suitably adopt advanced technologies and other feasible schemes, such as consideration of phased commissioning, with a view to enabling the public to enjoy a more interconnected, efficient and smooth railway system and road network as early as possible.

4.2.4 The diagram below shows the commissioning targets of each major transport infrastructure project:

Remarks

1. The implementation programme of the two cross-boundary projects, viz. the Hong Kong-Shenzhen Western Rail Link (Hung Shui Kiu-Qianhai) and the Northern Link Spur Line, is subject to the discussion outcomes between the Hong Kong and Shenzhen governments.

2. The implementation timing of the new railway and major road projects in support of the eastern developments of the Northern Metropolis (namely the Northern Link Eastern Extension, the Northeast New Territories Line and the Northern Metropolis Highway (New Territories North New Town Section)) will be subject to the land use planning and works schedule of the New Territories North New Town (including Lo Wu/Man Kam To). The relevant development proposals are expected to be announced in 2024.

3. The Government is carrying out the planning study of the transport infrastructure projects under the Kau Yi Chau Artificial Islands project (namely the Hong Kong Island West-Northeast Lantau Link, the Hong Kong Island West-Hung Shui Kiu Rail Link and the Kau Yi Chau Artificial Islands Green Mass Transit System). The relevant implementation programme will be subject to results of the planning study and further study in the next stage. The Government's target is to strive for commissioning of the Hong Kong Island West-Hung Shui Kiu Rail Link by phases starting from 2038 the earliest to its full commissioning before the full population intake on the Kau Yi Chau Artificial Islands.

- Northern Link
- Northern Link Spur Line[1]
- South Island Line (West)
- Hong Kong Island West-Hung Shui Kiu Rail Link[3]
- Hong Kong-Shenzhen Western Rail Link (Hung Shui Kiu-Qianhai)[1]
- Tseung Kwan O Line Southern Extension
- East Kowloon Smart and Green Mass Transit System
- Kai Tak Smart and Green Mass Transit System
- Hung Shui Kiu/Ha Tsuen Smart and Green Mass Transit System (Remaining Phase)
- Kau Yi Chau Artificial Islands Green Mass Transit System[3]
- Central Rail Link
- Northern Link Eastern Extension[2]
- Northeast New Territories Line[2]

2034-2038

- Improvement of Lion Rock Tunnel
- Northern Metropolis Highway (San Tin Section)

Complete in 2039 and beyond

- Tseung Kwan O-Yau Tong Tunnel
- Northern Metropolis Highway (Tin Shui Wai, Kwu Tung and New Territories North New Town Sections[2])
- Shatin Bypass

4. The Government is also exploring the feasibility of a green transport corridor from Tsim Bei Tsui to Pak Nai. This project is not included in the diagram above.

5. The names of the lines and stations are provisional. The official names of the major transport infrastructure projects will be determined prior to commissioning.

Transport and Logistics Bureau
The Government of the
Hong Kong Special Administrative Region
of the People's Republic of China