

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 706 – HIGHWAYS

Transport – Railways

53TR – Hong Kong Section of Guangzhou–Shenzhen–Hong Kong Express Rail Link – construction of railway works

Members are invited to recommend to Finance Committee the upgrading of **53TR** to Category A at an estimated cost of \$55,017.5 million in money-of-the-day prices for the construction of the railway works for the Hong Kong section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link.

PROBLEM

We need to undertake the construction of the railway works of the Hong Kong section (HKS) of the Guangzhou–Shenzhen–Hong Kong Express Rail Link (XRL).

PROPOSAL

2. The Director of Highways, with the support of the Secretary for Transport and Housing, proposes to upgrade **53TR** to Category A at an estimated cost of \$55,017.5 million in money-of-the-day (MOD) prices for the construction of the railway works of the HKS of the XRL.

/ **PROJECT**

PROJECT SCOPE AND NATURE

3. The HKS of the XRL is a 26-kilometre (km) long underground rail corridor. It will run from the terminus in West Kowloon, going north passing Yau Tsim Mong, Sham Shui Po, Kwai Tsing, Tsuen Wan, Yuen Long to the boundary south of Huanggang, where it will connect to the Mainland section of XRL seamlessly for through train services. Boundary control facilities (BCF) of Hong Kong will be provided at the West Kowloon Terminus (WKT). Moreover, space has been reserved inside WKT for accommodating future Mainland's BCF under the co-location scenario. Along the whole tunnel alignment, there will be eight ventilation buildings and one emergency access point. An emergency rescue station (ERS) and stabling sidings (SSS) will be located at Shek Kong of Yuen Long. A plan showing the proposed alignment of the HKS of the XRL is at Enclosure 1.

4. The scope of **53TR** comprises –
- (a) construction of the railway works for the HKS of the XRL, which include –
 - (i) railway facilities at the WKT, including station concourse, passenger waiting areas, platforms, control and signal systems, etc.;
 - (ii) approximately 26 km long tunnel from WKT to the boundary at Huanggang;
 - (iii) a below ground ERS and at-grade SSS in Shek Kong with necessary facilities to provide emergency rescue, passenger evacuation, as well as maintenance of rolling stock and infrastructure; and
 - (iv) eight ventilation buildings, one emergency access point and the associated ventilation shafts and adits/accesses for the tunnel;
 - (b) procurement of rolling stock, railway systems, as well as safety, operation and maintenance equipment; and

/(c)

- (c) fees for consultants appointed by the Government for monitoring and vetting the work of the MTR Corporation Limited (MTRCL) relating to the railway works under the HKS of the XRL.

5. Detailed design work has been substantially completed. Subject to the approval of the Finance Committee (FC), construction of the railway works of the HKS of the XRL is expected to commence in December 2009 for completion in 2015. Separate funding applications will be made for the construction cost of the non-railway works (PWSC(2009-10)69) and the cost of a special ex-gratia rehousing package exclusively for residents affected by land resumption and clearance for the XRL project (PWSC(2009-10)72).

JUSTIFICATION

Strategic value of the XRL to Hong Kong

6. The HKS of the XRL is one of the priority railways recommended for implementation in the Railway Development Strategy 2000¹. It is also one of the Ten Major Infrastructure Projects announced in the 2007-08 Policy Address. Upon completion, it will provide express rail service between Hong Kong and Guangzhou, with intermediate stations at Futian, Longhua and Humen (Enclosure 2). The travelling time between Hong Kong and Guangzhou by trains will be reduced significantly from about 100 minutes to 48 minutes. Through the stations in the Mainland section, XRL passengers can interchange with the wider urban metro, regional and national railway lines in the Mainland. Thus, the XRL will greatly enhance Hong Kong's connectivity with various parts of the Mainland and is of great strategic importance to Hong Kong.

7. On the national level, the HKS of the XRL will become part of the 16 000-km national high-speed rail network now being developed full steam. (Enclosure 3). The train journey times between Hong Kong and the Central and Southern Mainland and various major Mainland cities will be greatly shortened. For example, XRL passengers from Hong Kong will take only four hours to arrive at Changsha and Xiamen, five hours to Wuhan and Fuzhou, and eight and ten hours to Shanghai and Beijing respectively without changing trains.

/8.

¹ The Railway Development Strategy 2000 maps out the railway network expansion plan for Hong Kong up to 2016.

8. Within the Pearl River Delta (PRD) region, the XRL provides high frequency shuttle services up to the New Guangzhou Passenger Terminus at Shibi in Guangzhou. The Terminus will be extensively served by high-speed railway routes, inter-city rapid transit routes, urban metro lines of Guangzhou and Foshan and major highways and various public transport services. Through interchanging with the PRD Rapid Transit System at Humen of Dongguan, the XRL will also put Hong Kong within easy reach of major PRD cities.

9. Works on the Mainland section of the XRL commenced in December 2005. The section from Shibi to Longhua is now scheduled for commissioning by early 2010, while the remaining section between Longhua and Futian in 2011/12. As for the HKS, our aim is to start construction in 2009 for completion in 2015.

Economic benefits and patronage forecast

10. Under the current planning, in initial years of commencement of the HKS of the XRL, there will be 90 and 24 daily train pairs for shuttle services to the Shenzhen and Guangzhou areas respectively. These translate into an average 15-minute headway to Shenzhen (Longhua) and 30-minute headway to Guangzhou for most hours. Subject to the development of the national railway schedules, there will be 24 daily train pairs to 15 Mainland cities in initial years, which will gradually increase to 33 daily pairs to 16 cities near 2031.

11. With this level of service, the XRL will effectively enhance Hong Kong's connectivity with major cities in the PRD and beyond, and will bring significant economic benefits to Hong Kong, which can be broadly categorized into –

- (a) direct benefits to passengers – value of time savings, reduction in road accidents, etc;
- (b) direct, indirect and induced benefits– value-added and employment by the rail operators and major system and service suppliers to the rail operators, and household spending of their employees; and
- (c) catalytic benefits – facilitation of tourism, trade, professional services and other sectors, etc. Such spillover benefits cannot be captured by merely tracing the flows of cash from passengers to the rail operator, its suppliers, and their employees.

12. While the direct benefits to passengers in (a) above can be readily quantified, the benefits of other categories in (b) and (c) above are less quantifiable. However, these benefits are believed to be generally much larger than the direct benefits to passengers. This is particularly the case for Hong Kong, a service based economy in the PRD region. The commissioning of the HKS of the XRL will further accelerate the economic integration in the Greater PRD, thereby paving the way for more opportunities for our economy in the long run.

13. We have examined the direct economic benefits based on a patronage forecast, which comprises: (a) shuttle services (from West Kowloon to Shenzhen/Humen/Guangzhou)²; and (b) long haul services (from West Kowloon to cities beyond PRD area). The forecast patronage in 2016 and direct economic benefit mainly in terms of passenger time saving over 50 years of operation are summarized in Table 1 below.

Table 1 – Key forecast parameters

Forecast 2-way Daily Patronage (2016)	
• West Kowloon – Shenzhen / Humen / Guangzhou	84 000
• West Kowloon – beyond Guangzhou	15 000
Total	99 000
Economic Internal Rate of Return (EIRR) in real terms	6%
Average time saving over 50 years of operation per annum	42 million hours
Discounted economic benefits ³ over 50 years (in 2009 prices) (in terms of time savings to passengers)	\$87 billion

/14.

² Including passengers interchange with inter-city rapid transit routes and urban metro lines at Shenzhen/Humen/Guangzhou, with destinations in cities beyond the PRD region.

³ Social discount rate at 4% per annum.

14. Our economic benefit forecast has focused mainly on direct benefits to passengers only, simply because this alone is already sufficient to establish the cost-effectiveness of the HKS of the XRL. That said, we are also mindful of the greater economic contribution of the XRL project to Hong Kong as explained above.

15. The patronage forecast is sensitive to the XRL fare level. We have assumed the XRL fares at a level comparable to other transport modes, which are set out in **Table 2** –

Table 2 – Assumed fare (per trip) of various transport modes

Destination	XRL	Boundary/ Through Trains	Buses
Shenzhen	\$45 (Futian) – \$49 (Longhua)	\$34 - 41	\$10 - 45
Dongguan	\$131 (Humen)	\$145	\$100
Guangzhou	\$180 (Shibi)	\$190 - 210	\$80 - 100

Sensitivity analysis

16. It should be noted that the base case scenario above represents a practical, yet conservative, scenario. For example, Hong Kong businessmen working in the Mainland may choose to return to Hong Kong more frequently for business or family reunion thanks to a much shorter travelling time after the implementation of the HKS of the XRL. Some PRD residents may have more day-trips to Hong Kong which are otherwise impossible. These additional trips are not included in the forecast.

17. In order to have a full picture, we have established a high case scenario by adopting more optimistic assumptions. We have assumed a higher, yet still reasonable, annual GDP growth in Guangdong and Hong Kong (details of the GDP growth assumptions are summarised in **Table 3**). The estimated patronage in 2016 for the high case can go up to 116 000, with discounted economic benefits over 50 years of \$106 billion, representing an EIRR of 7%.

18. On the other hand, we have also considered a low case scenario. We have assumed a lower GDP growth for Guangdong of 7.6% to 9.8% between 2009 and 2015. Even so, the estimated patronage in 2016 would be around 89 000, with discounted economic benefits over 50 years of \$78 billion, representing an EIRR of 5%. This demonstrates that the HKS of the XRL is economically viable.

/Table 3.....

Table 3 – Summary of GDP growth assumptions for patronage forecast

	Low			Base			High		
GDP Growth per annum (%)									
	Short Term (2009-2015)	Medium Term (2015-2020)	Long Term (2020-2031)	Short Term (2009-2015)	Medium Term (2015-2020)	Long Term (2020-2031)	Short Term (2009-2015)	Medium Term (2015-2020)	Long Term (2020-2031)
Hong Kong	2.0 – 2.5	2.0		2.0 – 3.5	2.0		2.5 – 4.0	3.0 – 4.0	2.0 – 3.0
Guangdong	7.6 – 9.8	7.1	3.4	9.6 – 11.8	9.0	4.4	11.6 – 13.8	11.0	6.4
Estimated patronage in 2016									
	89 000			99 000			116 000		
Discounted economic benefits over 50 years (\$ billion, in 2009 prices)									
	78			87			106		
EIRR in real terms									
	5%			6%			7%		

19. Moreover, the high-speed rail provides environmentally friendly train services compared with other cross-boundary transport modes. In the United Kingdom, on a per passenger-kilometre basis, the carbon emission on an Eurostar journey is only about 15% and 25% of that by plane and bus/coach respectively⁴. It also consumes less energy and emits fewer pollutants by a similar magnitude⁵. Building the full length of the XRL alignment in tunnel also minimises the impact to the environment and local communities. Such values have not been quantified and taken into consideration in the economic benefit analysis above.

Project Cost

20. In the Legislative Council (LegCo) Brief for the HKS of the XRL presented to the Railways Subcommittee on 2 May 2008, the then estimated capital cost for the HKS of the XRL covering the design and construction of both railway works and non-railway works was \$39.5 billion in 2009 prices or \$44 billion in MOD prices. A comparison on railway works cost and non-railway works cost between that estimate and the latest estimate in September 2009 is set out in **Table 4** below –

/Table 4.....

⁴ Information from the Department for Environment, Food and Rural Affairs, UK

⁵ Information from “Recent Experience of and Prospects for High-Speed Rail in Korea: Implications of a Transport System and Regional Development from a Global Perspective” by Dong-Chun Shin, Director General, Ministry of Transport of Korea in the University of California, Berkeley in 2005.

Table 4 – comparison of project cost estimates (including design cost)

All figures in 2009 prices	Estimate announced in April 2008 (\$billion)	Project enhancements (\$billion)	Price escalation (\$billion)	September 2009 estimate (\$billion)
(a) Railway works cost	35.4	7.7	10.6	53.7
(b) Non-railway works cost	4.1	5.0	2.4	11.5

21. The cost estimate for the railway works of the HKS of the XRL has risen from \$35.4 billion to \$53.7 billion, representing an increase of \$18.3 billion. Price escalation (\$10.6 billion) accounts for more than half of the increase. The estimate announced in April 2008 adopted a relatively conservative set of assumption on the inflation factors (5% in 2007, 4.5% in 2008 and 3.5% in 2009). Such inflation factors prepared by the MTRCL, though already higher than the Government Economist's corresponding forecast at that time, are still far lower than the actual inflation in the construction sector during the recent years.

22. Construction prices surged rapidly in the past three to four years and the HKS of the XRL is no exception. For the HKS of the XRL, the latest estimate reflects an overall escalation of the project cost of some 42% between 2006 and 2009, which is in line with the relevant magnitude of 48% of the MTR West Island Line project. In view of the current downward trend of the relevant construction prices, the 42% of the increase is considered reasonable.

23. Enhancements to railway works (\$7.7 billion) account for the rest of the cost increase which are required to improve the railway scheme, overcome unforeseen site constraints and meet Mainland interface requirements. Improvements to the railway scheme include optimizing the use of underground station area in the WKT so that the ground area can be turned into a public open space which will facilitate better interface and connectivity with the West Kowloon Cultural District. Unforeseen site constraints have led to the adjustment of tunnel alignment and additional ground treatment. To match the Mainland's latest passenger comfort standards, our tunnel for the HKS of the XRL would be larger in diameter.

24. The design cost approved at \$2,782.6 million in MOD prices by FC in July 2008, covering both railway and non-railway works, has been included under **52TR**. Excluding the sum, the construction costs of the railway and non-railway works of the HKS of the XRL are set out in **Table 5** below-

Table 5 – construction cost of railway and non-railway works of the HKS of XRL

	Estimate (\$billion) (in September 2009 prices)	Estimate (\$billion) (MOD)
Construction of railway works	51.4	55.0
Construction of non-railway works	11.0	11.8

Project Management Cost

25. On 22 April 2008, the Executive Council (ExCo) decided that the HKS of the XRL would be undertaken under the concession approach. Under this approach, the construction of HKS of the XRL will be funded by the Government under the Public Works Programme. In July 2008, the FC approved a sum of \$2,782.6 million in MOD prices for the design and site investigation of the project, which has been entrusted to MTRCL for implementation. On 20 October 2009, the ExCo decided that the MTRCL should be asked to proceed with the construction, testing and commissioning of the HKS of the XRL under the concession approach.

26. The works to be entrusted to MTRCL (under this **53TR**) covers the construction, testing and commissioning of the railway works, including all civil, architectural, building services, fire safety provisions, railway, electrical and mechanical (E&M) systems, trackwork and procurement of rolling stock, equipment and systems. MTRCL's project management cost⁶ under **53TR**, is estimated at \$3,261 million (in September 2009 prices).

/ **Vetting**.....

⁶ Project management cost for the project includes staff, accommodation and corporate costs for the project team and project headquarters team, as well as other support services for the teams. The project team provides support for project planning and management, and construction supervision; while the project headquarters team provides support for project control, planning and programming, procurement, and contract administration etc. Support services cover human resources, legal services, public relations, finance and information technology etc.

Vetting by independent engineering consultants

27. In the PWSC Note (PWSCI(2008-09)6) prepared to facilitate Members' consideration on the funding application for design and site investigation of the HKS of the XRL project, we undertook to employ independent consultants to assess the cost estimate for the project, including the project management cost. The Highways Department (HyD) engaged two independent engineering consultants (IECs) to assess the reasonableness of the construction cost and project management cost of the HKS of the XRL respectively.

28. One IEC has reviewed the rates and quantities of the cost items of the project and checked against the latest construction price trends and scope of the proposed works. It considers the estimate of construction costs reasonable. Furthermore, under the project entrustment arrangement, the Government will pay for the actual costs of the construction works based on prices established from appropriate tendering processes, and HyD will closely monitor the payment process.

29. Having reviewed and analyzed the manpower budget data given by MTRCL in the light of the nature and scale of the project and benchmarked against the relevant costs of other railway projects, the other IEC considered the estimate of project management cost reasonable. The entire project management cost for the design and construction of both railway and non-railway works represents about 7.38% of the cost of the relevant works entrusted to MTRCL plus contingency. It is lower than the relevant rate of the recent West Island Line (9.8%). As a general reference, the project management cost for entrustment works between the Government and the MTRCL is capped at 16.5% of the total cost of the entrustment works.

FINANCIAL IMPLICATIONS

30. We estimate the cost of **53TR** to be \$55,017.5 million in MOD prices, broken down as follows –

/\$ million.....

		\$ million	
(a) construction of railway works		43,615	
(I) civil works	31,596		
- Terminus	9,454		
- Tunnel and associated structures	18,985		
- ERS and SSS	3,157		
(II) architectural works		1,900	
(III) building services		2,500	
(IV) railway electrical and mechanical works		5,714	
(V) rolling stock		1,905	
(b) project management cost payable to the MTRCL for planning, management and supervision of the project, covering overheads and management expenses of the MTRCL		3,261	
(c) fees for consultants appointed by the Government for monitoring and vetting MTRCL's work including cost of the project		95	
(d) contingencies		4,445.5	
	Sub-total	51,416.5	(in September 2009 prices)
(e) provision for price adjustment		3,601.0	
	Total	55,017.5	(in MOD prices)

31. Subject to approval, we will phase the expenditure as follows –

Year	\$ million (Sep 2009)	Price adjustment factor	\$ million (MOD)
2009 – 2010	102.9	1.00000	102.9
2010 – 2011	6,060.9	1.02000	6,182.1
2011 – 2012	12,848.6	1.04040	13,367.7
2012 – 2013	12,681.2	1.06121	13,457.4
2013 – 2014	9,682.3	1.08243	10,480.4
2014 – 2015	5,187.3	1.11220	5,769.3
2015 – 2016	3,624.1	1.14557	4,151.7
2016 – 2017	699.1	1.17993	824.9
2017 – 2018	203.4	1.21533	247.2
2020 – 2021	326.7	1.32802	433.9
	51,416.5		55,017.5

32. We have derived the MOD estimate on the basis of the Government's latest forecast of trend rate of change in the prices of public sector building and construction output for the period 2009 to 2021. The MTRCL will tender the proposed works with price adjustments where appropriate. We will engage consultants to undertake the service described in paragraph 30(c) above on a lump sum basis with the provision for price adjustment.

33. Subject to execution of the concession agreement with the MTRCL, the recurrent expenditure in relation to operation of the railway will be borne by MTRCL. Taking this into account and according to the preliminary estimate based on the latest patronage forecast, the service concession payment from MTRCL is about \$28.1 billion over 50 years of operation.

PUBLIC CONSULTATION

34. Extensive public consultation has been carried out on the HKS of the XRL project since May 2008 upon the ExCo's decision to proceed with the planning and design of the project. We have consulted seven relevant District Councils (Yau Tsim Mong, Sham Shui Po, Tsuen Wan, Sha Tin, Kwai Tsing, Yuen Long and Tuen Mun) and/or their subcommittees, the Heung Yee Kuk, and the relevant Rural Committees. We also held individual meetings, public fora and briefings with the local communities and concerned parties. Views and comments collected have been considered in refining the project details.

35. We gazetted the HKS of the XRL scheme covering both the railway and non-railway works under the Railways Ordinance (Cap. 519) (the Ordinance) on 28 November and 5 December 2008, and its amendments and corrections on 30 April and 8 May 2009. We received a total of 119 objections to the scheme and its amendments. The objectors were concerned about various issues such as the overall planning and the need of the railway project, alignment selection, location of the XRL HKS terminus, site selection for the ERS and SSS, resumption of land and underground strata and associated re-housing and compensation arrangement, provision of an intermediate station and environmental impacts during construction and operation. After the Administration's explanation of the considerations made for the scheme and responses to concerns on the above issues, nine objectors withdrew their objections unconditionally⁷ and the remaining objections remained unwithdrawn.

36. Villagers of Choi Yuen Tsuen (CYT) are one of the most affected groups as the village has to be vacated and cleared for building the ERS and SSS. We had extensive communication with the villagers. The Secretary for Transport and Housing visited CYT meeting different groups of villagers and listening to their concerns. The Under Secretary for Transport and Housing has also made many visits to CYT and met the villagers. The HyD, Lands Department, other concerned departments and MTRCL regularly met with CYT villagers, either individually or in small groups, to understand their concerns and explain to them details of the HKS of the XRL scheme.

/37.

⁷ Under the Railways Ordinance, an objection that is withdrawn unconditionally is treated as if the objector had not lodged the objection. An objection which is not withdrawn or withdrawn with conditions is treated as an unresolved objection which will then be submitted to the Chief Executive-in-Council for consideration.

37. We consulted the Subcommittee on Matters Relating to Railways of the LegCo Panel on Transport (the Subcommittee) on 14 May, 17 and 23 September 2009. At the meeting on 14 May 2009, there were 51 deputations/individuals expressing their views on the HKS of the XRL project. Deputations from the residents of CYT and their supporters expressed objection to the proposed land resumption and clearance at CYT. Some deputations proposed alternative locations for building the ERS and SSS, and requested for an intermediate station in the New Territories (NT) North for the HKS of the XRL. Deputations from conservation groups commented that the project would bring adverse impacts on the environment and upset ecological balance. Members expressed concern on the clearance for CYT and urged the Government to provide reasonable compensation with flexibility to cope with the needs of CYT villagers. Throughout the processes, we maintained close liaison with the CYT residents and some of the concerned deputations to address their concerns. We have explained to them that their proposals on alternative locations of the ERS and SSS would either bring more disturbances to the neighbouring community or be infeasible. As for the setting up of an intermediate station, we responded to them that this would lower the strategic values of the HKS of XRL. On the other hand, the environmental impact assessment (EIA) of the project already addressed the construction and operation impacts and the MTRCL would implement mitigation measures as recommended in the EIA report to minimise the environmental impacts.

38. After considering the unresolved objections and the proposed modifications, the Chief Executive-in-Council authorized the HKS of the XRL scheme, and the amendments and corrections to the scheme with modifications under the Ordinance on 20 October 2009. The notice of authorization was gazetted on 30 October 2009. Details of the unresolved objections are reported in the LegCo Brief on the HKS of the XRL Authorization of Scheme issued on 21 October 2009. We also briefed the Subcommittee on 22 October 2009 on the railway scheme. The Subcommittee also received deputations on 6 November and 13 November 2009.

39. We further consulted the Subcommittee on the funding application for the HKS of the XRL project in the form of draft submissions to the PWSC on 16 and 17 November 2009. The Subcommittee has no objection for the XRL project to proceed with seeking funding from PWSC and FC. Some Members requested the Administration to provide more detailed information to PWSC about the increase in project cost, economic benefits, patronage forecast and operational viability of the XRL project. We will submit the additional information separately for Members' consideration.

ENVIRONMENTAL IMPLICATIONS

40. The HKS of the XRL project is a designated project under Schedule 2 of the EIA Ordinance (Cap. 499) and an environmental permit (EP) is required for the construction and operation of the HKS of the XRL. The Director of Environmental Protection issued the EP for the HKS of XRL on 16 October 2009. The EIA report concluded that the environmental impacts of the HKS of the XRL project can be controlled to within the criteria under the EIA Ordinance and its Technical Memorandum.

41. The MTRCL will implement the measures recommended in the approved EIA report for the HKS of the XRL project and comply with relevant conditions under the EP and other statutory requirements for environmental protection.

42. The MTRCL has considered measures in the planning and design stages to reduce the generation of construction waste where possible. Such measures include the use of bored/mined tunnelling method instead of cut-and-cover method to reduce the amount of excavation works; reduction of the size and number of offline plant rooms; and minimisation of the overall size of the plant buildings and tunnel section through effective structural scheming for plant building and tunnel layout. In addition, the MTRCL will require the contractors to reuse inert construction waste (e.g. excavated rock and soil materials) on site or in other suitable construction sites as far as possible, in order to minimise the disposal of inert construction waste to public fill reception facilities⁸. The MTRCL will encourage the contractors to maximise the use of recycled or recyclable inert construction waste, as well as the use of non-timber formwork to further minimise the generation of construction waste.

/43.

⁸ Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of inert construction waste in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

43. The MTRCL will also require the contractors to submit for approval plans setting out the waste management measures, which will include appropriate mitigation means to avoid, reduce, reuse and recycle inert construction waste. The MTRCL will ensure that the day-to-day operations on site comply with the approved plan. The MTRCL will require the contractors to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. The MTRCL will control the disposal of inert construction waste and non-inert construction waste at public fill reception facilities and landfills respectively through a trip-ticket system.

44. The MTRCL estimates that the HKS of the XRL project will generate in total about 20 215 200 tonnes of construction waste. Of these, the MTRCL will reuse about 1 444 500 tonnes (7.1%) of inert construction waste on site and 7 348 700 tonnes (36.4%) of inert construction waste on other construction sites, and deliver 11 349 400 tonnes (56.1%) of inert construction waste to public fill reception facilities for subsequent reuse. The MTRCL will dispose of the remaining 72 600 tonnes (0.4%) of non-inert construction waste at landfills. The total cost for accommodating construction waste at public fill reception facilities and landfill sites is estimated to be \$316 million for this project (based on a unit cost of \$27 per tonne for disposal at public fill reception facilities and \$125 per tonne⁹ at landfills).

HERITAGE IMPLICATIONS

45. The MTRCL will appoint a licensed archaeologist to conduct further investigation in Tai Kong Po and Shek Kong and conduct excavation to preserve any archaeological remains with detailed records should such be discovered. Potential vibration impact on the former Lai Chi Kok Hospital (a Grade III Historical Building) will be controlled through the implementation of vibration monitoring. The project would not result in any direct adverse impact on historical buildings with mitigation measure implemented except the earth shrines at Nam Hing Lei, Leung Uk Tsuen and Tai Kong Po, which will be affected by the project. Consultation with the local villagers was made and it was agreed that the earth shrines will be relocated by themselves.

/LAND

⁹ This estimate has taken into account the cost for developing, operating and restoring the landfills after they are filled and the aftercare required. It does not include the land opportunity cost for existing landfill sites (which is estimated at \$90 per m³), nor the cost to provide new landfills (which is likely to be more expensive) when the existing ones are filled.

LAND ACQUISITION

46. About 24 hectares (ha) of private land and about 19 ha of underground strata of land will be resumed for the construction of the entire XRL project. We will also create rights of temporary occupation for about 8 ha of land and for about 0.7 ha of underground strata. About 226 ha of government land in Yuen Long, Tsuen Wan and Kwai Tsing in the New Territories and Kowloon will be affected. The land resumption and clearance will affect about 160 households involving about 520 residents, about 43 commercial/industrial undertakings.

47. We have proposed a special ex-gratia rehousing package for households (including those from CYT) residing at the sites to be resumed and cleared under the XRL project. The details of the scheme, which is estimated to cost about \$86 million, are set out in a separate submission (PWSC(2009-10)72).

48. We have reviewed the design of the project to minimise the land acquisition and clearance cost. Excluding the above special ex-gratia rehousing package, the compensation cost for land acquisition and clearance for the XRL project is estimated at \$1,843.5 million. Funds will be made available under **Head 701** – Land Acquisition of the Capital Works Reserve Fund. A breakdown of the land acquisition and clearance costs is at Enclosure 4.

BACKGROUND INFORMATION

49. We upgraded **52TR** “Hong Kong Section of Guangzhou-Shenzhen-Hong Kong Express Rail Link – design and site investigation” in July 2008 at an estimated cost of \$2,782.6 million in MOD prices. We have substantially completed the planning and design for the HKS of the XRL.

50. We upgraded **53TR** “Hong Kong Section of Guangzhou-Shenzhen-Hong Kong Express Rail Link – construction of railway works” to Category B in November 2009.

51. Of the 11 800 trees within the project boundary, 5 500 trees will be felled and 5 200 trees preserved. The proposed works will involve transplanting 1 100 trees within or outside the project site. All of them are not classified as “important trees”¹⁰. We will incorporate planting proposals as part of the project, including no less than 5 500 new trees and around 74 000 m² of grassed area.

52. According to the MTRCL’s assessment, the HKS of the XRL will create about 11 000 jobs (9 200 for labourers and another 1 800 for professional/technical staff) during the peak period, providing a total employment of 377 800 man-months.

Transport and Housing Bureau
November 2009

¹⁰ “Important trees” refer to trees in the Register of Old and Valuable Trees, or any other trees that meet one or more of the following criteria –

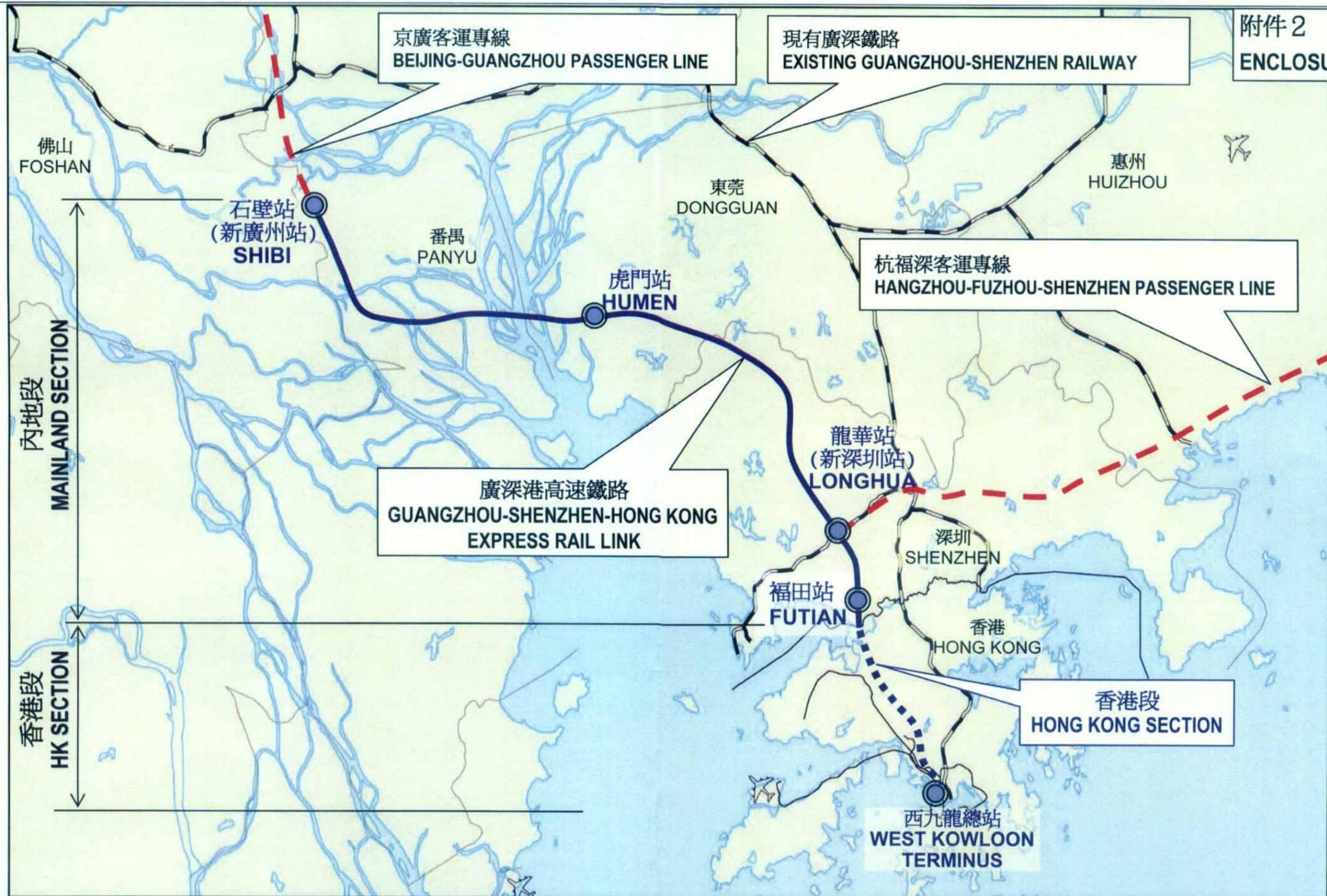
- (a) trees of 100 years old or above;
- (b) trees of cultural, historical or memorable significance e.g. Fung Shui trees, trees as landmark of monastery or heritage monument and trees in memory of important persons or events;
- (c) trees of precious or rare species;
- (d) trees of outstanding form (taking account of overall tree size, shape and any special features) e.g. trees with curtain like aerial roots, trees growing in unusual habitat; or
- (e) trees with trunk diameter equal or exceeding 1.0 metre (measured at 1.3 metre above ground level), or with height/canopy spread equal or exceeding 25 metres.



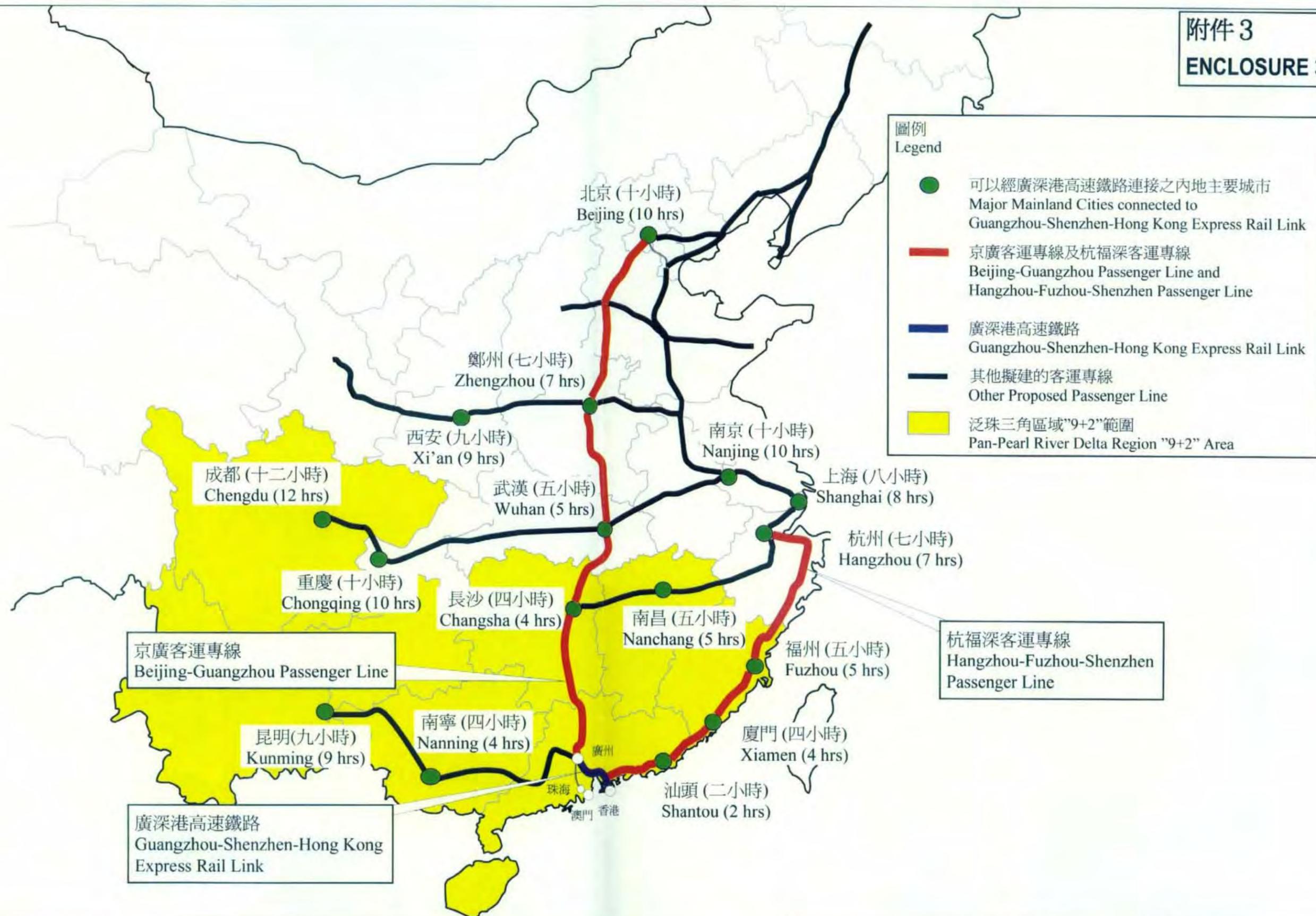
圖例
LEGEND

- + - 特別行政區界
BOUNDARY OF SPECIAL ADMINISTRATIVE REGION
- 現有鐵路路線
EXISTING RAIL LINE
- 擬建廣深港高速鐵路香港段
PROPOSED HONG KONG SECTION OF THE GUANGZHOU-SHENZHEN-HONG KONG EXPRESS RAIL LINK
- - - 擬建廣深港高速鐵路內地段
PROPOSED MAINLAND SECTION OF THE GUANGZHOU-SHENZHEN-HONG KONG EXPRESS RAIL LINK
- 通風大樓
VENTILATION BUILDING (VB)
- 大江埔緊急救援入口
TAI KONG PO EMERGENCY ASSESS POINT

<p>圖則名稱 drawing title 工務計劃項目第53TR號 廣深港高速鐵路香港段 — 鐵路建造工程 香港段位置圖 PWP ITEM NO. 53TR HONG KONG SECTION OF GUANGZHOU-SHENZHEN-HONG KONG EXPRESS RAIL LINK - CONSTRUCTION OF RAILWAY WORKS LOCATION PLAN OF HONG KONG SECTION</p>	<p>設計 designed K. K. LEI 23/11/09 繪圖 drawn Y. L. MA 23/11/09 核對 checked K. K. LEI 23/11/09 核准 approved C. W. YUNG 23/11/09</p> <p><i>Lantau</i> 23/11/09 S. H. LAM 總工程師 CHIEF ENGINEER</p> <p>日期 DATE</p>	<p>圖號 drawing no. HRWXRL002-SP0009 版權所有 COPYRIGHT RESERVED 鐵路拓展處 RAILWAY DEVELOPMENT OFFICE 路政署 HIGHWAYS DEPARTMENT</p>
--	---	---



<p>圖則名稱 drawing title 工務計劃項目第53TR號 廣深港高速鐵路香港段 - 鐵路建造工程 廣深港高速鐵路全段位置圖 PWP ITEM NO. 53TR HONG KONG SECTION OF GUANGZHOU-SHENZHEN-HONG KONG EXPRESS RAIL LINK - CONSTRUCTION OF RAILWAY WORKS LOCATION PLAN OF GUANGZHOU-SHENZHEN-HONG KONG EXPRESS RAIL LINK</p>	<p><i>Lam Ho</i> S. H. LAM 總工程師 CHIEF ENGINEER</p>	<p>設計 designed K. K. LEI 繪圖 drawn Y. L. MA 核對 checked K. K. LEI 核准 approved C. W. YUNG</p>	<p>圖號 drawing no. HRWXRL002-SP0016 版權所有 COPYRIGHT RESERVED 鐵路拓展處 RAILWAY DEVELOPMENT OFFICE 路政署 HIGHWAYS DEPARTMENT</p>
---	--	--	---



圖則名稱 drawing title
工務計劃項目第53TR號
廣深港高速鐵路香港段 — 鐵路建造工程
內地主要城市的連接
PWP ITEM NO. 53TR
HONG KONG SECTION OF GUANGZHOU-SHENZHEN-HONG KONG EXPRESS RAIL LINK – CONSTRUCTION OF RAILWAY WORKS
CONNECTIONS WITH MAJOR MAINLAND CITIES

設計 designed
K. K. LEI
繪圖 drawn
Y. L. MA
核對 checked
K. K. LEI
核准 approved
C. W. YUNG

S. H. LAM
總工程師
CHIEF ENGINEER

日期 DATE
23/11/09

23/11/09

圖號 drawing no.
HRWXRL002-SP0017
版權所有 COPYRIGHT RESERVED
鐵路拓展處 RAILWAY DEVELOPMENT OFFICE
路政署
HIGHWAYS DEPARTMENT

53TR – Hong Kong Section of Guangzhou–Shenzhen–Hong Kong Express Rail Link

Breakdown of the Estimated Land Resumption and Clearance Costs

	\$ million
(I) Estimated Resumption Cost	1,600.95
(a) Agricultural land ex-gratia compensation	1338.27
- 352 agricultural lots and 1 mixed lot in the New Territories [see Note 1] (a total area of 236 008.8 square metres (m ²)) will be resumed (236 008.8 m ² x \$5,670.43 per m ²) [see Notes 2 & 3 below]	
(b) Building land compensation	
(i) Building land ex-gratia compensation	28.34
- 5 building lots and 1 mixed lot in the New Territories [see Note 1] (a total area of 2 528.8 m ²) will be resumed (2 528.8 m ² x \$11,205.23 per m ²) [see Notes 2 & 3 below]	
(ii) Valuation on land	40.15
- 5 building lots and 1 mixed lot in the New Territories and a portion of land with area of 249.3m ² in Kowloon	
(c) Underground Stratum Resumption	194.19
- underground stratum with a total area of about 19 hectares (ha) will be resumed [see Notes 4 below]	

(II) Estimated Clearance Cost		29.55
(a) Ex-gratia allowance for crops compensation	11.00	
(b) Ex-gratia allowance for farm structures and miscellaneous permanent improvements to farms and fishery undertakings	2.46	
(c) Ex-gratia allowance for miscellaneous indigenous villager matters e.g. Tun Fu ceremonies, removal of grave/urns and shrines	2.86	
(d) Ex-gratia allowance for domestic occupiers and business undertakings	13.23	
 (III) Compensation for Creation of Rights of Temporary Occupation of Land	28.30	28.30
[see Notes 4 and 5 below]		
 (IV) Disturbance Compensation	30.00	30.00
[see Notes 4 below]		
 (V) Interest and Contingency Payment		154.65
(a) The interest payment on various ex-gratia compensations for private land	102.12	
(b) Contingency on the above costs	52.53	
	<hr/> <hr/>	
	TOTAL	1,843.45
	(say	\$1,843.5
		million)

Notes:

1. One mixed lot with both ex-gratia land compensation for agricultural land and ex-gratia land compensation for building land.
2. There are four ex-gratia compensation zones, namely Zones A, B, C and D, for land resumption in the New Territories as approved by ExCo in 1985 and 1996. The boundaries of these zones are shown on the Zonal Plan for Calculation of Compensation Rates. The land to be resumed in the project “53TR – Hong Kong Section of Guangzhou – Shenzhen – Hong Kong Express Rail Link” has been upgraded from Zone C to Zone A.
3. In accordance with G.N. 5982 dated 15.9.2009 on the revised ex-gratia compensation rates for resumed land, the ex-gratia compensation rate of agricultural land for “Zone A” is \$526.8 per ft² (or \$5,670.43 per m²) and the ex-gratia compensation rate of building land for “Zone A” is \$1,041 per ft² (or \$ 11,205.23 per m²). The above figures may be subject to adjustment following the review of the rates.
4. This is a provisional estimate based on current information available and subject to valid statutory claims being received.
5. Rights of temporary occupation will be created for about 8 ha of land and for about 0.7 ha of underground strata.