

## ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

### HEAD 706 – HIGHWAYS

#### Transport – Roads

#### 844TH – Hong Kong–Zhuhai–Macao Bridge Hong Kong Link Road

Members are invited to recommend to Finance Committee the upgrading of **844TH** to Category A at an estimated cost of \$16,189.9 million in money-of-the-day prices for the detailed design and construction of the Hong Kong–Zhuhai–Macao Bridge Hong Kong Link Road.

### PROBLEM

We need to construct the Hong Kong Link Road (HKLR) to connect the Hong Kong–Zhuhai–Macao Bridge (HZMB) Main Bridge from the Hong Kong Special Administrative Region (HKSAR) boundary to the Hong Kong Boundary Crossing Facilities (HKBCF).

### PROPOSAL

2. The Director of Highways, with the support of the Secretary for Transport and Housing, proposes to upgrade **844TH** to Category A at an estimated cost of \$16,189.9 million in money-of-the-day (MOD) prices for the detailed design and construction of the HKLR.

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**PROJECT SCOPE AND NATURE**

3. The HZMB is a cross-boundary cross-sea road infrastructure project providing direct land transport connection between the two shores of the Pearl River Delta (PRD), linking Hong Kong in the east to Macao and Zhuhai in the west. A brief background of the project is set out in Enclosure 1. Structurally, the HZMB comprises two parts: (i) the HZMB Main Bridge; and (ii) the respective link roads and boundary crossing facilities of the three places.

4. **844TH** (the Project) involves the construction of the HKLR, which is dual three-lane road of about 12 kilometres (km) connecting the HZMB Main Bridge at the HKSAR boundary with the proposed HKBCF at the north-east of the Airport Island, the scope of which comprises the following –

- (a) construction of a dual three-lane viaduct of approximately 9.4 km long, connecting the HZMB Main Bridge from the HKSAR boundary to the Scenic Hill at the Airport Island;
- (b) construction of a dual three-lane tunnel (with an additional climbing lane for the west bound traffic) of approximately 1 km long, passing through the Scenic Hill and underneath the existing Airport Road and Airport Express Line, and daylighting at a new reclamation (see item (d) below), plus construction of associated tunnel operation and maintenance facilities for the tunnel;
- (c) construction of a dual three-lane at-grade road of approximately 1.6 km long, along the east coast of the Airport Island between the tunnel exit and the HZMB HKBCF;
- (d) construction of a seawall of approximately 2.3 km long and reclamation of approximately 17 hectares (ha) of land, along the east coast of the Airport Island for the construction of the proposed HZMB HKLR and the proposed associated tunnel operation and maintenance facilities;

/ (e) .....

- (e) reprovision of an existing weather station located at east coast of Airport Island, upgrading and modification of an existing wind profiler station at the northern shore of Lantau Island near Sha Lo Wan, and provision of anemometers on the HKLR viaduct and the Airport Island; and
- (f) associated ancillary works, including civil, structural, building, electrical and mechanical (E&M), geotechnical, site investigation, marine, environmental protection, slope, landscaping and drainage works, fire services, environmental mitigation measures, and traffic control and surveillance systems (TCSS).

Site plans and artist's impressions of the proposed works are at Enclosure 2.

5. Subject to the funding approval by the Finance Committee (FC), we will commence the detailed Design and Build (D&B) contracts as soon as possible. We plan to complete the HKLR in tandem with other HZMB-related projects to dovetail with the commissioning of the HZMB in end 2016. Tenders for the detailed D&B contracts of the HKLR have already been invited to enable works to commence as early as possible after funds are approved (please refer to footnote 3 for details).

## JUSTIFICATION

### Strategic Importance of HZMB

6. The HZMB is strategically important. It will facilitate the further economic development of Hong Kong, Macao and Western PRD. The construction of the HZMB will significantly reduce transportation costs and time for travellers and goods on roads<sup>1</sup>, but the benefits go far beyond this. With the connection by the / HZMB .....

<sup>1</sup> The HZMB will result in a significant reduction in relevant travelling time between Hong Kong and the Western PRD. For instance, as illustrated by the table below, the travelling time between Zhuhai on the one hand, and the Kwai Chung Container Port and the Hong Kong International Airport on the other, will be reduced by more than 60% and 80% respectively.

Origin – Destination	Current Distance and Travelling Time	Distance and Travelling time with HZMB	Reduction in Distance and Travelling Time
Zhuhai – Kwai Chung Container Port	about 200 kilometres about 3.5 hours	about 65 kilometres about 75 minutes	more than 60%
Zhuhai – Hong Kong International Airport	over 200 kilometres about 4 hours	about 40 kilometres about 45 minutes	more than 80%

HZMB, the Western PRD will fall within a reachable three-hour commuting radius of Hong Kong. This would enhance the attractiveness of the Western PRD to external investment, which is conducive to the upgrading of its industry structure. Hong Kong will benefit from this new economic hinterland, the vast human and land resources in Western PRD will provide ample opportunities for Hong Kong businesses to expand their operation in the Mainland. The commissioning of the HZMB will also benefit various sectors in Hong Kong, such as tourism, finance and commerce. In particular, it will enhance Hong Kong's position as a trade and logistics hub as goods from the Western PRD and Western Guangdong, Guangxi, etc., can better make use of the airport and container ports in Hong Kong. Overall speaking, the HZMB will accelerate the economic integration of the PRD and its neighbouring provinces and enhance its competitiveness vis-à-vis countries of the Association of Southeast Asian Nations and other economic zones such as the Yangtze Delta region. Hong Kong will stand to gain in this process.

### **Need for Construction of HKLR**

7. The HZMB Main Bridge will require construction of the HKBCF and HKLR. Together with the TM-CLKL and Tuen Mun Western Bypass, the HZMB project will enable the formation of an important road network linking up Hong Kong, Zhuhai, Macao and Shenzhen, thereby further enhancing the transportation and aviation hub status of Hong Kong.

### **Development of HKLR during Investigation and Preliminary Design**

8. Having secured the funding approval from the Legislative Council (LegCo) in December 2003, we commenced the investigation and preliminary design consultancy in March 2004. In the course of the study, the HZMB Task Force<sup>2</sup> decided that the three governments should set up their own boundary crossing facilities within their respective territories. On this basis, we recommended the alignment design of the HKLR to be in the form of a sea viaduct along the Airport Channel, given the proposed location of the HKBCF at the waters off the north-east of the Airport Island. We briefed the Panel on Transport of LegCo on this development in April 2008 (please refer to details in LegCo Paper No. CB(1)1317/07-08(04)).

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2 The Task Force was formed by the National Development and Reform Commission (NDRC) in 2007 to implement the project. The Task Force was led by the NDRC, with representatives from the Ministry of Transport, the Hong Kong and Macao Affairs Office of the State Council, and the governments of HKSAR, Guangdong and Macao Special Administrative Region as members. We reported to LegCo Panel on Transport in March 2010 regarding the management framework after works commencement of HZMB Main Bridge. (refer to details in Legislative Council Paper No. CB(1)1354/09-10(01).)

9. In end 2008, we conducted a series of public consultations in respect of the HZMB local projects and subsequently further fine tuned the design of the road to address public concerns. On the basis of the preliminary design as recommended by the investigation and the preliminary design consultancy completed in October 2010, the HKLR will be a dual three-lane highway of about 12 km long that links the HZMB Main Bridge at the HKSAR boundary and the HKBCF located at the northeastern waters of the Airport Island.

10. The HKLR, starting from the HKSAR boundary, will be in the form of a sea viaduct running across the western waters of Hong Kong to reach Lantau Island. The viaduct then spans over the headland between San Shek Wan and Sha Lo Wan of Lantau Island without physical contact with Lantau Island. It continues to run along the southern side of the Airport Channel with long span structures to avoid disturbance to the natural shoreline and to minimize visual impact. To reduce impact on water flow in the Airport Channel, the pile caps of the viaduct within the Airport Channel will be buried under the seabed. The viaduct lands at the Airport Island after passing the landing point of the southern runway and the Government Flying Services helicopter base, and from there onward its columns and foundations are to be put on the sloping seawall of the Airport Island without touching the Airport Channel.

11. To address the concerns expressed by Tung Chung residents over visual impact, the HKLR will adopt an alignment passing through the Scenic Hill in the form of an approximately 1-km long tunnel which daylight at the new reclamation of approximately 17 ha formed to the east coast of the Airport Island after passing under the Airport Road and Airport Express Railway. The HKLR continues to connect to the HKBCF in the form of an at-grade highway of approximately 1.6 km long running on reclamation along the east coast of the Airport.

### **Proposed Detailed Design and Construction Contract**

12. The construction of the Main Bridge of the HZMB within Mainland waters and the Zhuhai Macao Boundary Crossing Facilities commenced in December 2009 and are progress well for opening in 2016. In order to ensure the opening of the Bridge, the related projects of the three places must be completed within the same timeframe with the Main Bridge. Our carefully considered view is that the HKLR works should be delivered under D&B contracts.

13. Under the proposed D&B contracts<sup>3</sup>, the contractors will carry out the detailed design and perform the works in appropriate sequences to suit their works programme to meet the tight and compressed programme of the project (the commencement date of the HZMB-related local projects was revised from the original date of before end 2010 to end 2011). For example, site work and construction works can proceed before completion of detailed design so that the overall time required for the works could be reduced. Moreover, the contractors could make use of their expertise in design and related construction methods to allow smoother works process and better control of the works programme. Time can be saved as a result. Smooth transition between the work stages is particularly important in deciding the overall works arrangements for this mega-sized multi-discipline construction project, which must be completed on time for the commissioning of the HZMB by end 2016. D&B contracts have also been adopted in other major infrastructure projects in Hong Kong, such as Ting Kau Bridge and Kap Shui Mun Bridge.

## FINANCIAL IMPLICATIONS

14. We estimate the capital cost of **844TH** to be \$16,189.9 million in MOD prices (please see paragraph 28 below), broken down as follows –

		<b>\$ million</b>
(a)	Viaduct structures	7,137.3
	(i) sea viaduct of about 7.2 km long from HKSAR boundary to Airport Island	6,005.3
	(ii) land viaduct of about 2.2 km long along Airport Island to Scenic Hill	1,132.0
(b)	Tunnel construction works	1,473.0
	(i) tunnel of about 0.5 km long passing through Scenic Hill and underneath Airport Road and Airport Express Line	825.1
		<b>/\$ million.....</b>

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3 There will be two D&B contracts for HKLR. The first one covers the section from Scenic Hill to HKBCF and the second one covers the section from HKSAR Boundary to Scenic Hill. Tenders for both contracts have already been invited and are targeted to commence in early 2012 and in April 2012.

		<b>\$ million</b>
(ii)	tunnel of about 0.5 km long underneath the new reclamation area	647.9
(c)	Seawall of about 2.3 km long along the east coast of the Airport	752.5
(d)	reclamation of about 17 ha at the east coast of the Airport	387.3
(e)	At-grade roads within the reclamation	312.9
(f)	Drainage works for HKLR (including box culverts, pipe works and pump sumps)	139.7
(g)	Building	201.9
(i)	tunnel portal ventilation building	44.8
(ii)	administration building	147.9
(iii)	other buildings	9.2
(h)	Building services	65.6
(i)	tunnel portal ventilation building	23.2
(ii)	administration building	40.7
(iii)	other buildings	1.7
(i)	Landscaping works	46.2
(j)	E&M works for viaduct, tunnel and at-grade roads	482.1
(k)	TCSS	169.0
(l)	Reprovisioning/ relocation/ provision of existing weather station, wind profiler station and anemometers	16.7
		<b>/ \$ million....</b>

	<b>\$ million</b>
(m) Environmental mitigation measures including environmental monitoring and auditing	241.6
(n) Consultants' fees	62.4
(i) detailed design and contract administration	32.5
(ii) management of resident site staff (RSS)	26.5
(iii) independent Environmental Project Office (ENPO) <sup>4</sup> and independent environmental checker services	3.4
(o) Remuneration of RSS	841.4
(p) Electrical and Mechanical Services Trading Fund (EMSTF) charges <sup>5</sup>	10.8
(q) Contingencies	1,234.0
Sub-total	<u>13,574.4</u> (in September 2011 prices)
(r) Provision for price adjustment	<u>2,615.5</u>
Total	<u>16,189.9</u> (in MOD prices)

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4 The Environmental Permit for the HKLR project requires the setting up of an independent ENPO before the commencement of the HKLR construction to oversee the cumulative environmental impacts arising from the HKBCF project and other concurrent projects in the adjoining area and to liaise closely with the Mainland project teams for the HZMB Main Bridge.

5 Since the establishment of the EMSTF on 1 August 1996 under the Trading Funds Ordinance (Cap. 430), the EMSTF charges government departments for design and technical consultancy services for E&M installations provided by Electrical and Mechanical Services Department (EMSD). The services rendered for this project include checking consultants' submissions on all E&M installations and providing technical advice to the Government on all E&M works and their impacts on the project.



15. In respect of paragraph 14(a), the estimated cost of \$7,137.3 million (in September 2011 prices) for constructing the viaduct structures covers an approximately 7.2 km-long sea viaduct from HKSAR boundary to the Airport Island (with span length from 75 metres (m) to 180 m), and an approximately 2.2-km long land viaduct founded on the existing seawall of the Airport Island to the Scenic Hill (with span length of around 60 m). The costs cover foundations, superstructures, and ship impact protection works. The estimate has also taken into account difficult access for the construction of viaduct in the marine environment.

16. In respect of paragraph 14(b), the estimated cost of \$1,473 million (in September 2011 prices) for the tunnel construction works covers the construction of an approximately 0.5-km long tunnel passing through the Scenic Hill and underneath the Airport Road and Airport Express Line, and an approximately 0.5-km long tunnel within the new reclamation area. The estimate has taken into account the adoption of a trenchless construction method underneath the Airport Express Line and the need to maintain the existing number of traffic lanes along the Airport Road during construction in order to ensure smooth traffic to the Airport.

17. In respect of respect of paragraphs 14(c) and (d), the estimated cost of \$752.5 million (in September 2011 prices) for the seawall covers the construction of an approximately 2.3-km long seawall, while the estimated cost of \$387.3 million (in September 2011 prices) for reclamation covers the reclamation of approximately 17-ha of land along the east coast of the Airport Island for the construction of tunnel, at-grade roads, the Tunnel Operation and Maintenance Area and ancillary works. The estimate has taken into account the adoption of the non-dredge reclamation method (see paragraph 37 below).

18. In respect of paragraph 14(e), the estimated cost of \$312.9 million (in September 2011 prices) for at-grade roads covers the construction of approximately 1.6-km long at-grade roads along the east coast of the Airport Island and roads within the Tunnel Operation and Maintenance Area, paving of roads, street furniture, traffic signs, road marking, street lighting, utilities and temporary traffic arrangement measures etc.

19. In respect of paragraph 14(f), the estimated cost of \$139.7 million (in September 2011 prices) for drainage works mainly includes modification of existing box culverts and drainage outfalls in the reclamation.

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20. In respect of paragraphs 14(g) and (h), the estimated cost of \$201.9 million (in September 2011 prices) for building structures and \$65.6 million (in September 2011 prices) for building services covers the construction of a tunnel portal ventilation building and a two-storey high administration building and other buildings including control rooms for TCSS for the entire HKLR, tunnel operation and maintenance facilities, workshops, storerooms, vehicle retention sites and associated facilities, in addition to accommodation for Tunnel/Control Area staff, in the Tunnel Operation and Maintenance Area.

21. In respect of paragraph 14(i), the estimated cost of \$46.2 million (in September 2011 prices) for landscaping works covers the construction of landscaping area of approximately 7 ha including planting at the columns of the land viaduct along Airport Island, tunnel portals, along at-grade roads and within the Tunnel Operation and Maintenance Area.

22. In respect of paragraph 14(j), the estimated cost of \$482.1 million (in September 2011 prices) for E&M works covers works for viaduct, tunnel, at-grade roads and the Tunnel Operation and Maintenance Area.

23. In respect of paragraph 14(k), the estimated cost of \$169 million (in September 2011 prices) for TCSS covers works for installing TCSS at the viaduct, tunnel, at-grade roads and the Tunnel Operation and Maintenance Area.

24. In respect of paragraph 14(n) and 14(o), the detailed breakdown of the estimates for the consultants' fees and RSS costs by man-months is at Enclosure 3.

25. For the HZMB-related Hong Kong projects<sup>6</sup>, we originally scheduled to commence the construction before end 2010. The works commencement date for the HZMB-related local projects has been affected by the legal proceedings of a judicial review (JR) case<sup>7</sup>, as a Tung Chung resident filed an application with the Court of First Instance (CFI) for leave for JR against the decisions of the Director of Environmental Protection (DEP) as regards the approval of the Environmental Impact Assessment (EIA) Reports and the granting of Environmental Permits (EPs) relating to the HKBCF and HKLR projects. Therefore, we now plan to submit the funding application of the HZMB-related local projects to the FC in November 2011. Subject to funding approval, the construction of these projects will commence by end 2011. As there is now a difference of about one year compared to the original construction timetable, we estimate this has led to an overall cost increase of about \$6.5 billion in MOD prices for the HZMB-related local projects. Main reasons include: (i) adjustment in construction method to compress the construction timetable in order to ensure the timely commissioning of the HZMB in end 2016 (associated cost increase is about \$4.15 billion); and (ii) increase in construction price levels (associated cost increase is about \$2.35 billion). If the works are not implemented immediately, we anticipate that the cost will continue to rise significantly. If the construction of HKLR could not commence in early 2012, we also need to adjust the construction method to catch up the delay and this will lead to cost increase.

26. The HZMB project is a major cross-boundary transport infrastructure project that has been adequately discussed in the community and under planning for a long time. It has very important strategic value in terms of further enhancement of the economic development between Hong Kong and the Mainland. In respect of the works programme of the Bridge itself, works of the Main Bridge within Mainland waters and the Zhuhai Macao Boundary Crossing Facilities are progressing well. As regards the bridge section of the Main Bridge, contracts for the detailed design of bridges were signed in March 2011 and works have been formally commenced. Works for the Main Bridge are anticipated to be completed in 2016.

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<sup>6</sup> Including the HKBCF, HKLR, and advance works for the TM-CLKL.

<sup>7</sup> On 22 January 2010, a Tung Chung resident filed an application with the CFI for leave for JR against the decisions of the DEP as regards the approval for the EIA Reports and the granting of EPs relating to the HKBCF and HKLR projects. The CFI handed down its judgement on 18 April 2011 quashing the EPs and therefore their construction could not commence. DEP appealed against the court's judgment. The Court of Appeal handed down its judgment on 27 September 2011, unanimously allowing DEP's appeal and therefore the EIA reports and EPs of HKBCF and HKLR projects are maintained valid.

27. The HZMB connects Hong Kong, Zhuhai and Macao. The HZMB Hong Kong local projects would connect the HZMB Main Bridge located in Mainland waters at the HKSAR boundary. The road leading to the eastern artificial island in the Mainland waters has to connect the HKLR in Hong Kong waters in order to complete the entire traffic network. Therefore, apart from the HZMB Main Bridge, the associated Hong Kong projects need to be completed in tandem for connection to enable the commissioning of the HZMB. If the local projects cannot be completed on time making it not possible for HZMB to be commissioned by end 2016, there would be direct financial loss and indirect economic loss not only to Hong Kong, but also to the Mainland and Macao. Therefore, we hope that the funding approval can be obtained from LegCo as soon as possible so that construction can commence early. We will also endeavour to adopt different methods to compress the construction period so that the HZMB Hong Kong projects can be completed in tandem for the commissioning of the HZMB by end 2016.

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

<b>Year</b>	<b>\$ million (September 2011 prices)</b>	<b>Price Adjustment Factor</b>	<b>\$ million (MOD)</b>
2011 – 2012	1.7	1.00000	1.7
2012 – 2013	1,447.5	1.05375	1,525.3
2013 – 2014	3,048.6	1.11171	3,389.2
2014 – 2015	3,845.6	1.17285	4,510.3
2015 – 2016	2,752.5	1.23736	3,405.8
2016 – 2017	1,221.1	1.30541	1,594.0
2017 – 2018	836.7	1.37721	1,152.3
2018 – 2019	420.7	1.45296	611.3
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	13,574.4		16,189.9
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29. We have derived the MOD estimate on the basis of the Government's latest assumptions on the trend rate of change in the prices of public sector building and construction output for the period 2011 to 2019. Subject to funding approval, we will deliver the detailed design and construction of the HKLR under D&B contracts on a lump sum basis because we can clearly define the scope of works in advance. Moreover, we will also engage a consultant to provide independent ENPO and independent environmental checker services on a lump sum basis. All relevant contracts will provide for price adjustments.

30. We estimate the annual recurrent expenditure arising from the Project to be \$151.4 million.

## **PUBLIC CONSULTATION**

31. We have commenced our public consultation and engagement activities on the HZMB HKBCF and HKLR projects since 2003. In gist, we have consulted LegCo, the Advisory Council on the Environment (ACE), and engaged various professional institutions, the relevant District Councils and Rural Committees, public transport trades, trade associations, fishermen groups, marine industry, green groups and local communities through meetings and public workshops. The details of these consultation and engagement activities are set out in Enclosure 4.

### **Latest Consultation in respect of EIA Reports**

32. We exhibited for public inspection the Environmental Impact Assessment (EIA) reports for the HKBCF, HKLR and TM-CLKL between 14 August and 12 September 2009. On 8 September 2009, we briefed the Island District Council (IDC) on the EIA findings. On 21 September 2009, we consulted the EIA Subcommittee of the ACE. On 12 October 2009, the ACE endorsed the EIA reports with conditions. The DEP approved the EIA reports with conditions on 23 October 2009 and issued the EPs on 4 November 2009. After the legal procedures of the judicial review and appeal, the Court of Appeal confirmed the validity of the EPs. Refer to footnote 7 for details.

/ **Objection.....**

**Objection-handling Process in respect of Amendment to Chek Lap Kok Outline Zoning Plan and Road Works**

33. We gazetted on 12 and 19 June 2009 the draft Chek Lap Kok Outline Zoning Plan (OZP) No. S/I-CLK/11<sup>8</sup> under the Town Planning Ordinance (Cap. 131). We also gazetted the HKLR road scheme and plans (cover both the roads and reclamation works) on 7 and 14 August 2009 under the Roads (Works, Use and Compensation) Ordinance (Cap. 370). During the statutory objection period, 789 representations on the draft Chek Lap Kok OZP and 611 objections to the road scheme were received. Most of the objections and representations are in the form of standard emails / letters / forms and concerns on the proposed works for their perceived negative impacts to Tung Chung residents, environment and ecology, and requesting alternative solutions. More detailed descriptions of the objections / representations are in Enclosure 5. Despite our effort in resolving the objections, 567 objections to the road scheme still remain unresolved. In respect of the draft Chek Lap Kok OZP, after giving consideration to the valid representations under the Town Planning Ordinance on 13 November 2009, the Town Planning Board decided not to uphold the representations under the Ordinance.

34. In respect of the unresolved objections and representations as mentioned in paragraph 33 above, we submitted the project together with objections to the Chief Executive-in-Council (CE-in-C) for consideration. On 18 October 2011, after considering the unresolved objections and representations, the CE-in-C approved the amendment of the Chek Lap Kok OZP under the Town Planning Ordinance and authorised the road scheme of the HKLR project without modification under the Roads (Works, Use and Compensation) Ordinance. The notices of authorisation for the road schemes of the HKLR project and the Chek Lap Kok OZP were gazetted on 21 October 2011.

35. We briefed the LegCo Panel on Transport on the latest progress of the HZMB and related local projects and consulted it on our plan to submit the funding applications for the projects (including the HKLR) on 26 October 2011. The Panel supported the submission of funding applications to PWSC. We will separately write to the Transport Panel to provide supplementary information requested by Members, and will copy the same to the PWSC Secretariat for onward submission to PWSC Members for reference.

/ ENVIRONMENTAL .....

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8 The major amendments incorporated in the draft Chek Lap Kok OZP No. S/I-CLK/11 are mainly to incorporate the transport infrastructures and land use proposals on the proposed reclamation areas for the HKBCF, HKLR, the southern landfall of TM-CLKL.

**ENVIRONMENTAL IMPLICATIONS**

36. The HKLR project is a designated project under Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) (Cap. 499) and EP is required for the construction and operation of the HKLR. An EIA was conducted for the HKLR to evaluate possible environmental impact of the project during both construction and operational phases, including potential impacts on air quality, noise, water quality, ecology such as Chinese White Dolphins, waste management, fisheries, landscape and visual etc., with mitigation measures recommended. The EIA report concluded that the environmental impacts arising from the proposed project would be acceptable with the implementation of the recommended mitigation measures. Key findings of the EIA study and some major mitigation measures recommended are listed at Enclosure 6. The DEP approved the EIA report under the EIAO with conditions on 23 October 2009 and issued the EP on 4 November 2009 for the HKLR project.

37. During the review of the necessary reclamation, the Highways Department (HyD) developed a new non-dredge reclamation method, which can reduce dredging by about 87% (about 5.2 million cubic metres); sandfilling by about 70% (about 2.7 million tonnes); the release of marine suspended solids by about 60%; and frequency of marine traffics by about 45%. The environmental impact is greatly reduced by the non-dredge reclamation method.

38. At the planning and design stages, we have considered measures to reduce the generation of construction waste where possible (e.g. using site hoardings and signboards so that they can be recycled and reused in other projects, and adopting repetitive / modular design to enable reuse of formwork). In addition, we will require the contractors to reuse inert construction waste (e.g. excavated 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 facilities<sup>9</sup>. We will encourage the contractors to maximise the use of recycled or recyclable inert construction waste, and the use of non-timber formwork to further reduce the generation of construction waste.

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9 Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N). Disposal of inert construction waste in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

39. During construction, we will control noise, dust and site run-off nuisances to the levels within established standards and guidelines through the implementation of mitigation measures in the relevant contracts. These include the use of silencers, mufflers, acoustic lining or shields for noisy construction activities, frequent cleaning and watering of site, and provision of wheel-washing facilities as well as other relevant measures recommended in the HKLR EIA report. In particular, underwater percussive piling method will be forbidden to avoid disturbance to Chinese White Dolphins.

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

41. We estimate that the project will consume in total about 2.24 million tonnes of inert construction waste (soft public fill) during the reclamation process; however will generate in total about 1.81 million tonnes of construction waste. Of these, we will reuse about 0.49 million tonnes (27%) of inert construction waste on site and about 0.65 million tonnes (35.8%) of inert construction waste on other construction site(s) and deliver about 0.67 million tonnes (37%) of inert construction waste to public fill reception facilities for subsequent reuse. We will dispose of the remaining about 4 000 tonnes (0.2%) 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 \$18.46 million for this project (based on an unit cost of \$27 per tonne for disposal at public fill reception facilities and \$125 per tonne<sup>10</sup> at landfills).

42. We estimate that the construction works will generate about 0.75 million cubic metres (m<sup>3</sup>) of marine mud. We will dispose of the dredged marine mud at respective designated disposal sites to be allocated by the Marine Fill Committee or other disposal sites to be agreed by the Marine Fill Committee and the Environmental Protection Department.

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10 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 m<sup>3</sup>), nor the cost to provide new landfills (which is likely to be more expensive), when the existing ones are filled.



43. We will set up an independent ENPO before the commencement of construction of the project to oversee the cumulative environmental impacts arising from the project and other concurrent projects in the adjoining area and to liaise closely with the Mainland project teams for the HZMB Main Bridge.

44. We have included the costs of implementing the environmental mitigation measures, including an environmental monitoring and audit programme, (\$241.6 million), in the overall project estimate.

### **HERITAGE IMPLICATIONS**

45. This Project will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites/buildings, sites of archaeological interest and Government historic sites identified by the Antiquities and Monuments Office.

### **LAND ACQUISITION**

46. We have reviewed the design of the project to minimise the extent of land acquisition. We need to resume about 11 707.3 square metres (m<sup>2</sup>) of private land, and create easements and other permanent rights of about 80 622.3 m<sup>2</sup> and rights of temporary occupation of about 147 314.6 m<sup>2</sup> of private land. We will also clear about 47 740.8 m<sup>2</sup> of Government Land. No structure will be affected due to land resumption and clearance. Ex-gratia allowance, e.g. “Tun Fu” ceremonies, will also be paid where appropriate. Under the established policy, ex-gratia allowance will be offered to fishermen affected as a result of the loss of their habitual fishing ground caused by the project. We will charge the cost of land resumption and clearance estimated at \$99.63 million to **Head 701 – Land Acquisition**. A breakdown of the land resumption and clearance costs is at Enclosure 7.

### **BACKGROUND INFORMATION**

47. In October 2002, we engaged consultants to undertake a Preliminary Environmental Review (PER) at an estimated cost of \$1.3 million under **Subhead 6100TX** “Highways works, studies and investigations for items in Category D of the Public Works Programme”. The consultants completed the PER in December 2002.

48. In September 2003, we engaged consultants to undertake an Ecological Baseline Survey at an estimated cost of \$1.3 million under **Subhead 6100TX** “Highways works, studies and investigations for items in Category D of the Public Works Programme”. The consultant completed the survey in June 2004.

49. We upgraded **787TH** – Hong Kong–Zhuhai–Macao Bridge Hong Kong Section and North Lantau Highway Connection – investigation and preliminary design to Category A in December 2003 at an estimated cost of \$58.9 million in MOD prices. We engaged consultants in March 2004 to undertake the investigation and preliminary design study for the project. The consultants completed the associated investigation and the preliminary design in October 2010.

50. We engaged consultants in September 2010 to undertake the tender documentation of the project at an estimated cost of \$18.4 million in MOD prices under **Subhead 6100TX** “Highways works, studies and investigations for items in Category D of the Public Works Programme”.

51. We engaged consultants in December 2010 to undertake the detailed design for the superstructures and infrastructures of the HKBCF under **839TH** – Hong Kong–Zhuhai–Macao Bridge Hong Kong Boundary Crossing Facilities – detailed design and site investigation, which included the TCSS works for the HKLR project. The part of the TCSS works for the HKLR will be funded by **844TH**, after the funding application is approved.

52. We invited the tenders for procuring consultants for the independent ENPO and independent environmental checker services in September 2011.

53. We originally scheduled to commence the construction of the HZMB-related local projects before end 2010. We therefore set out the estimated costs for the HKLR in the Estimates for 2011-12. Apart from considering the estimates prepared at that time, we have also considered in this funding application the cost increases due to the deferral in works commencement of about one year due to the JR proceedings, the adoption of the more environmentally friendly non-dredge reclamation method as well as the additional costs caused by factors such as design development, and anticipated increase in material and construction costs, etc..

54. Of the 8 481 trees within the project boundary, 7 783 trees will be preserved. The proposed construction works will involve the removal of 698 trees, including 576 trees to be felled and 122 trees to be replanted within the project site subject to finalization of design. All trees to be removed are not important trees<sup>11</sup>. We will incorporate planting proposals as part of the project, including about 900 trees and 5 000 shrubs, as well as 37 000 m<sup>2</sup> of grassed area.

55. We estimate that the proposed works will create about 4 580 jobs (860 for professional/technical staff and 3 720 for labourers) providing a total employment of 174 100 man-months.

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Transport and Housing Bureau  
November 2011

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11 An “important tree” refers 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) tree of cultural, historical or memorable significance e.g. Fung Shui tree, tree as landmark of monastery or heritage monument, and trees in memory of an important person or event;
- (c) trees of precious or rare species;
- (d) trees of outstanding form (taking account of overall tree sizes, shape and any special features) e.g. trees with curtain like aerial roots, tree growing in unusual habitat; or
- (e) trees with trunk diameter equal or exceeding 1.0 metre (m) (measured at 1.3 m above ground level), or with height/canopy spread equal or exceeding 25 m.

**Background of**  
**Hong Kong-Zhuhai-Macao Bridge Project**

Compared to the linkage with other parts of the Pearl River Delta (PRD), transport link between the Hong Kong Special Administrative Region (HKSAR) and the Western PRD has been weak, relying primarily on waterborne traffic. A study on “Transport Linkage between Hong Kong and Pearl River West”, jointly commissioned by the National Development and Reform Commission (NDRC) and the HKSAR Government in 2003, confirmed the urgent need for the construction of a land transport link connecting Hong Kong and Western PRD.

2. With the approval of the State Council to proceed with the preparatory work for the Hong Kong-Zhuhai-Macao Bridge (HZMB), the governments of Guangdong Province, the HKSAR and the Macao Special Administrative Region (the three governments) in 2003 established an HZMB Advance Work Coordination Group (AWCG) to commence the preparatory work for the HZMB. In 2004, the AWCG commissioned the China Highway Planning and Design Institute (HPDI) to conduct a feasibility study of the HZMB. The NDRC also formed an HZMB Task Force in 2007 to push forward the project. The Task Force was led by the NDRC, with representatives from the Ministry of Transport, the Hong Kong and Macao Affairs Office, and the three governments as members. At its meeting on 7 January 2007, the Task Force recommended that the the three governments should set up boundary crossing facilities (BCF) within their respective territories.

3. The Central People’s Government approved the Feasibility Study Report of the project in October 2009. In respect of the works programme of the Bridge itself, works of the Main Bridge within Mainland waters and the Zhuhai Macao Boundary Crossing Facilities, commenced in end 2009 as scheduled and are expected to be completed by 2016 as planned.

4. To facilitate the works of the HZMB Main Bridge, the three governments jointly signed an Inter-governmental Agreement in late February 2010, which specifies the partnership arrangements between the three governments as well as their rights and responsibilities in respect of the construction, operation, maintenance and management of the HZMB Main Bridge. The three governments also established the Joint Works Committee of the Three Governments (the Committee) on 24 May 2010, comprised representatives of the three governments. The Committee plays a supervisory role over the implementation of the HZMB project, and is responsible for decision-making on major issues concerning the project. On the basis of the Articles of Association signed by the three governments, they also established the

managing body of the HZMB Main Bridge (the HZMB Authority)<sup>1</sup>. The HZMB Authority is responsible for co-ordinating the construction, operation, maintenance and management of the HZMB Main Bridge, and implementing various policies of the Committee.

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<sup>1</sup> The HZMB Authority is the project's legal person, which operates as a non-profit-making public institution legal person.

## 844TH – Hong Kong – Zhuhai – Macao Bridge Hong Kong Link Road

Breakdown of Estimates for Consultants' Fees and Resident Site Staff Costs  
(in September 2011 prices)

			Estimated man- months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee (\$ million)
<b>Consultants' fees for</b>						
(a)	Detailed Design of TCSS (Note 2)	Professional	–	–	–	2.0
		Technical	–	–	–	1.4
(b)	Contract administration (Note 3)	Professional	–	–	–	22.5
		Technical	–	–	–	6.6
(c)	Independent Environmental Protection Office and independent environmental checker services (Note 4)	Professional	18.5	38	2.0	2.3
		Technical	25	14	2.0	1.1
					Sub-total	35.9
<b>Resident site staff cost (Note 5)</b>						
		Professional	3 239	38	1.6	323.4
		Technical	16 071	14	1.6	544.5
					Sub-total	867.9
Comprising –						
(i)	Consultants' fees for management of resident site staff					26.5
(ii)	Remuneration of resident site staff					841.4
					<b>Total</b>	<b>903.8</b>

\* MPS = Master Pay Scale

## Notes

1. A multiplier of 1.6 is applied to the average MPS salary point to estimate the cost of resident site staff supplied by the consultants. A multiplier of 2.0 is applied to the average MPS point to estimate the cost of staff employed in the consultants' offices. (As at now, MPS pt. 38 = \$62,410 per month and MPS pt. 14 = \$21,175 per month).
2. The consultants' staff cost for the detailed design of TCSS works is calculated in accordance with the existing consultancy Agreement No. CE 13/2010 (CE) "HZMB HKBCF (Superstructures and Infrastructures) – Design and Construction" (including the HKBCF superstructures and infrastructure works under **845TH**, TCSS works (except civil works provision and power supply) of the HKLR under **844TH**, and TCSS works (except civil works provision and power supply) of the TM-CLKL southern connection under **825TH**). The construction phase and completion phase of the assignments will only be executed subject to Finance Committee's approval to upgrade **825TH**, **844TH** and **845TH** to Category A.
3. The consultants' staff cost for the contract administration is calculated in accordance with the following existing consultancies –
  - (a) Agreement No. CE 36/2009 (HY) "Tender and Construction of HZMB Hong Kong Link Road – Design and Construction" (including the HKLR works under **844TH**, and some road and reclamation works of the HKBCF in the Airport under **845TH**) and;
  - (b) Agreement No. CE 13/2010 (CE) "HZMB HKBCF (Superstructures and Infrastructures) – Design and Construction" (including the HKBCF superstructures and infrastructure works under **845TH**, TCSS works (except civil works provision and power supply) of the HKLR under **844TH**, and TCSS works (except civil works provision and power supply) of the TM-CLKL southern connection under **825TH**).

The construction and completion phases of the assignments will only be executed subject to Finance Committee's approval to upgrade **825TH**, **844TH** and **845TH** to Category A.
4. We will only know the actual costs after the consultants have been selected.
5. We will only know the actual man-months and actual costs after the completion of the construction works.

**Hong Kong-Zhuhai-Macao Bridge (HZMB) Hong Kong Link Road (HKLR)  
and Hong Kong Boundary Crossing Facilities (HKBCF)**

**Public Consultation and Engagement since 2003**

We have briefed the Panel on Transport of the Legislative Council (the Panel) on the progress of the HZMB project from time to time since 2003. On 25 June 2004, we briefed the Panel on the commissioning of the investigation and preliminary design study for the HKLR (the then Hong Kong Section of HZMB and Connection with North Lantau Highway).

2. In April 2005, we consulted the Advisory Council on the Environment (ACE) and the representatives of green groups (including World Wide Fund, Friends of the Earth, Green Power, Conservancy Association, Green Lantau Association, Living Islands Movements and Save Our Shorelines), on the alignment options of the HKLR and the landing point of the HZMB.

3. The ACE members and representatives of the green groups gave useful suggestions on the scope of the environmental impact assessment (EIA) study. We also briefed the Panel, Island District Council (IDC) and Town Planning Board in May and June 2005. From September 2005 to April 2006, we carried out further consultation with the IDC, ACE, Rural Committees of Tung Chung, Tai O and Mui Wo, Lantau Area Committee, Antiquities Advisory Board, Port Operations Committee, Provisional Local Vessels Advisory Committee, Country and Marine Park Board, as well as the green groups mentioned in paragraph 2 above. In general, the western alignment along the Airport Channel was supported because of the smaller impact to the environment and the existing facilities. However, for the eastern alignment (the Connection with North Lantau Highway), there was no majority support on either the sea viaduct or tunnel options. In response to the suggestions from various parties, such eastern alignment has not been pursued. The alignment has been adjusted to the current alignment along the Airport Island to connect with the HKBCF.

4. In July 2007, we also consulted environmental concern groups and fishermen representatives on their views on the possible HKBCF site locations. Most of the environmental concern groups agreed that a reclamation to the north-east of the Airport would have a smaller environmental impact than the other options and thus would be worthy of further consideration. Some however expressed objection to reclamation, irrespective of location, as a matter of principle. The fishermen representatives also expressed their objection to any reclamation for fear that it would affect their fisheries production.



5. We consulted the IDC on the possible options for the location of the HKBCF on 19 September 2007. Some members supported the option of locating the HKBCF at the waters off the north-east of the Airport due to its potential synergy benefits with the Airport and the overall economic benefits to the whole of Hong Kong. Some members however indicated their preference to locating the HKBCF near San Shek Wan to help boost the local development and economy. Nevertheless, we do not recommend the San Shek Wan option due to its adverse impact on Chinese White Dolphins and its significant adverse noise, air, visual and landscape impacts, including significant hill cutting, removal of woodland with landscape value and clearance of an archaeological site.

6. From September 2008 to October 2008, we conducted a series of public engagement on the HKLR, HKBCF, Tuen Mun – Chek Lap Kok Link (TM-CLKL) and Tuen Mun Western Bypass (TMWB) including ten focus group meetings with Chairmen of the Islands, Tuen Mun and Yuen Long District Councils, professional institutions, Heung Yee Kuk, Lantau Area Committee, Area Committees in Tuen Mun, trade associations, fisherman groups, marine industry and green groups; and held two public workshops concerning the Hong Kong-Shenzhen-Zhuhai corridor<sup>1</sup> at Tung Chung and Tuen Mun. To further engage views concerning the Hong Kong-Shenzhen-Zhuhai corridor from local residents, 13 meetings with Tung Chung residents, Tai O Rural Committee and Tung Chung Rural Committee were held in early 2009.

7. During these public engagement exercises, some Tung Chung residents expressed concerns over the environmental and visual impacts that might be caused by the HKBCF proposed to be located at the waters off the north-east of the Airport Island, and expressed their preference of locating the HKBCF at the west side of the Airport Island instead. Furthermore, some residents, particularly the rural community represented by Tai O Rural Committee, expressed their preference of locating the HKBCF at San Shek Wan to help boost the local development and economy as well as improving the vehicular access to Tai O and San Shek Wan. We have explained that these two alternatives are not considered suitable, primarily on grounds that they pose significant problems in hydraulics and environmental conservation, and in the case of the San Shek Wan options, noise and air quality impact on Sha Lo Wan (SLW) and San Shek Wan. We also explained that these options could not achieve a road network with synergistic effect as strategic as the gazetted HKBCF location. That said, we have modified the viaduct portion at SLW by increasing the span length so that visual impact caused by the HKLR to SLW residents could be reduced. During the public consultation, the Tung Chung residents also showed great concern over the visual impact due to the HKLR sea viaduct option in front of Tung Chung. We have replaced this option by the tunnel-cum-at-grade road scheme.

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<sup>1</sup> Hong Kong - Shenzhen - Zhuhai Corridor comprises: (i) HZMB HKLR and HKBCF; and (ii) TM-CLKL and TMWB.

8. On 17 April 2009, the IDC was consulted on our proposed HKBCF at the waters off the north-east of the Airport, as well as on the HKLR and TM-CLKL projects. Although some IDC members had indicated their preference for a HKBCF west of the Airport Island, most of the IDC members supported the implementation of the HZMB project with the HKBCF at the above-proposed location. The Administration will continue to explore the appropriate means for taking forward the suggestion of “bridgehead economy”.

9. We consulted the Panel in April and May 2008 regarding our plan to seek funding for the investigation and preliminary design of the HKBCF. We also consulted the Panel in April 2009 regarding our plan to seek funding for the detailed design and associated site investigation of the HKBCF. The Panel supported the funding applications. In June 2008 and May 2009, the Finance Committee approved the funding for the two proposals respectively.

10. With the commissioning of the detailed design study for the HKBCF superstructures, we briefed the various public transport trade representatives<sup>2</sup> on the HZMB and related local projects between February and April 2011. In general, they supported the early construction of the HZMB. At the same time, they raised a number of enquiries / suggestions on the future operation of the HZMB and the public transport interchange at the HKBCF. The Administration will take the above suggestions into account when deciding on the various public transport services to be provided on the bridge and the HKBCF in due course.

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<sup>2</sup> Including the non-franchise bus operators, franchise bus operators, taxi trades, goods vehicle trades, green mini bus operators.

**Details of Objections and Representations of  
Hong Kong-Zhuhai-Macao Bridge Hong Kong Link Road**

**A. Representations under Town Planning Ordinance (Chapter 131) in respect of Draft Chek Lap Kok Outline Zoning Plan No. S/I-CLK/11 Gazetted on 12 and 19 June 2009**

During the exhibition of the draft Chek Lap Kok Outline Zoning Plan No. S/I-CLK/11, a total of 789 representations were received. Subsequently, 7 representations were withdrawn and one representation was considered invalid as the subject of representation was not related to the amendment. Excluding these, the number of valid representations was 781. The details of the representations are described as follows.

Group I

2. There are 780 representations which were concerned with the proposed Hong Kong Boundary Crossing Facilities (HKBCF), Hong Kong Link Road (HKLR) and Tuen Mun-Chek Lap Kok Link (TM-CLKL), and the related supporting facilities and the proposed rezoning of natural coastline of Chek Lap Kok Island. Among them, 777 were submitted by individuals of the public in the form of standard emails. The remaining three of them were submitted by three conservation organisations. The major grounds of representations are summarized as follows:

Site Selection of the HKBCF and alignment of the HKLR

- (a) there were general concerns on the location of the HKBCF and the alignment of the HKLR such that the project would bring traffic pollution to the Area. There were also concerns on the proximity of the facilities to the existing and future residents of Tung Chung and that the long security road (for users before and after going through Hong Kong customs, immigration and quarantine) should be reduced significantly;

Public Engagement

- (b) there were concerns that there was no comprehensive assessment on all feasible alternatives for detailed public consideration including locating the HKBCF to the south-west and the HKLR to the north and as part of the Airport Island. The proposal should include freight and passenger rail lines connecting to the container port and Lok Ma Chau to avoid container trucks passing through the urban areas. There was also concern on a lack of engagement with Tung Chung residents; and

Impacts on the Natural Coastline and Damage to the Natural Hillside

- (c) the natural shore, zoned “Costal Protection Area (CPA)”, was originally a partial compensation for the loss of headland and its coastline at Sha Lo Wan during the construction of the Chek Lap Kok airport (Airport). There were concerns that the proposed removal of the natural coastline would set a negative precedent on the reliability of the environmental mitigation measures and the Government’s ability and willingness to respect them. Such proposal would contravene the original planning intention for the “CPA” zone. The proposed amendments failed to minimize the impact on hydrodynamics, particularly the water movement between north and south of the proposed HKBCF and the water channel between the Airport and Lantau Island.
3. Some representers put for the following proposals:
- (a) to reassess the overall scheme and further evaluate other alternative solutions;
  - (b) to locate the HKBCF to the west of the Airport to avoid the reclamation of the “CPA”, “Other Specified Uses” (“OU”) annotated “(Highways Maintenance Area)” and “OU (Amenity)” zones;
  - (c) to adopt a viaduct option along the eastern coast in order to protect the water body and the natural shoreline along the “CPA” zone if HKBCF had to be located on the northeastern water of the Airport; and
  - (d) to preserve the remaining natural features such as the natural coast on the eastern shore of Chek Lap Kok.
4. The Board decided not to uphold the above representations for the following reasons:
- (a) the main purpose of the HKBCF was to provide facilities for cross-boundary cargo processing and passenger clearance. Together with the HZMB Main Bridge and the HKLR as well as the Tuen Mun Western Bypass (TMWB) and TM-CLKL, the proposed HKBCF site as shown on the draft Chek Lap Kok OZP No. S/I-CLK/11 would enable the formation of a strategic road network linking Hong Kong, Zhuhai, Macao and Shenzhen, thereby further enhancing the transportation and aviation hub status of Hong Kong. The synergy effect would be considerable. With its proximity to the Hong Kong International Airport, the HKBCF would serve as a strategic multi-modal transportation hub, and air / land transit of passengers could easily switch to different modes of transport;

- (b) the present proposed location and configuration of the HKBCF and the Southern Landfall of TM-CLKL, and the alignment of the HKLR were considered appropriate in technical, environmental and engineering terms, as confirmed by a series of consultancy studies;
- (c) the HKLR and HKBCF were located about 700 metres (m) and 2 kilometres (km) respectively from the residential developments at Tung Chung waterfront. Also, maximum building height restrictions had been stipulated on the draft Chek Lap Kok OZP to regulate the development height profile of the HKBCF. Furthermore, the environmental implications of the HKBCF, HKLR and TM-CLKL had already been assessed and the respective Environmental Impact Assessment (EIA) studies concluded that with appropriate mitigation measures implemented, the potential environmental impacts would be acceptable. The respective EIA reports had been approved with conditions by Director of Environmental Protection (DEP) under the EIA Ordinance on 23 October 2009;
- (d) extensive consultation and public engagement exercises had been conducted by the Highways Department (HyD), and the alignment of HKLR amended to address the concern of some Tung Chung residents. The rationale of adopting the present proposals had also been fully explained to the residents and relevant stakeholders;
- (e) a representer's suggestion to locate the HKBCF and HKLR at the southwest and north of the Airport was not supported as there was inadequate information to demonstrate that such suggestion was technically and environmentally feasible and was better than the presently proposed location;
- (f) a representer's suggested viaduct option for the HKBCF southwest reclamation and HKLR along the east coast of the Airport was considered less favourable than reclamation as it would involve massive amount of columns which might trap rubbish underneath, jeopardise tree planting alongside for visual enhancement, and non provision of suitable habitat for ecological species to establish; and
- (g) railway provision in HZMB had not been included in the territorial railway planning and development. The representer's suggestion was not consistent with the current infrastructure planning and also not viable from engineering and financial viability view points.

Group II: Another Representation

5. Another representer (being an organisation formed by professionals in the field of transport policy and planning) opined that the draft Chek Lap Kok Outline Zoning Plan (OZP) had not fully taken account of the requirements of air logistics development when logistic industry was one of the four pillars driving and sustaining the economy of Hong Kong. Flexible land use zonings should thus be provided to facilitate air logistics development. To cater for evolution of freight forwarding and logistics industry and the increase in container vehicles delivering goods to the airport, it was proposed that the relevant OZP Notes of the Commercial” (“C”), “OU” annotated “Airport Services Area” and “OU” annotated “Business Park” zones should be amended. The representer also requested for information on the breakdown of the site area for the proposed “OU” annotated “Highways Maintenance Area” zone and to be informed of the mitigation measures for the rezoning of the “CPA” which was the coastline of the original Chek Lap Kok Island. However, the Town Planning Board decided not to uphold this representation for the following reasons:

- (a) there was ample space at the Airport Island reserved for air logistics development. A total of 137.99 hectares (ha) and 44.74 ha of land for “OU (Airport Service Area)” and “OU (Business Park)” zones respectively had been designated on the draft Chek Lap Kok OZP in which various ‘Cargo Handling and Forwarding Facility’ uses, including cargo handling facility, cargo working area, logistics centre and freight forwarding services centre uses were always permitted in those two zones. In addition, distribution centre use was always permitted;
- (b) the reclamation area proposed for highways maintenance area was essential for the provision of backup area for operation and maintenance of the HKLR and to form protection for the HKLR’s tunnel and its portal on the eastern coast of Chek Lap Kok. There was no strong planning justification for using the site for distribution centre and / or logistics centre uses; and
- (c) environmentally sensitive design for the new sea frontage could be adopted to mitigate the loss of the natural coast so as to provide a suitable habitat for the existing species to re-establish in the new location. Greening could also be provided along the new seawall to enhance the environment.

Other representations which were withdrawn unconditionally or considered invalid

6. 7 representations were withdrawn and one representation was considered invalid as the subject of representation was not related to the amendment.

**B. Objections under Roads (Works, Use and Compensation) Ordinance (Chapter 370) in respect of Hong Kong Link Road's Road Scheme and Plans Gazetted on 7 and 14 August 2009**

7. During the statutory period for objection, 613 objections were received. Out of these objections, 44 have subsequently been withdrawn unconditionally. Among the remaining 569 objections, 20 contain incorrect contact details / did not provide contact details, 5 have offered conditions for withdrawal (but we could not fully meet the conditions) and 544 objections were maintained. These 569 objections were thus considered unresolved. The details of the objections are described as follows.

Group I

8. These 198 objections were lodged in the form of standard letters. These objectors are mostly residents of Sha Lo Wan (SLW) Village who objected to both the HKBCF project covered by the Scheme and the HKLR project covered by the road scheme separately gazetted under the Ordinance. In the five types of standard letters involving similar concerns, the objectors disagreed to the gazetted HKBCF location as well as the HKLR alignment and raised concerns on the environmental and "Fung Shui" impacts. 71 objectors also requested for transportation improvement for SLW. The Administration has responded that the robust and comprehensive EIA studies for the HKBCF and HKLR projects showed that the projects would meet the requirements under the EIAO fully when mitigation measures in specified areas are taken. The Administration has also explained the advantages of the gazetted layouts and that a slip road from HKLR to SLW could not be arranged due to road operation, traffic management and safety considerations. However, the Government would pay close attention to development of the relevant areas to review and consider the possibility to provide a separate link to SLW.

9. Upon completion of the objection resolution exercise, 12 objections were withdrawn unconditionally. Of the remaining 186 objections, no responses were received from 89 objections, 78 objections were maintained, while 19 objections were received with incorrect contact details or did not provide contact details and follow up was not possible. These 186 objections are considered unresolved.

Group II

10. There were 125 objections lodged in the form of one of the five types of standard letters described in paragraph 7 above. These objectors, objecting against the HKBCF and HKLR projects, are also mostly SLW villagers. On top of the common concerns (as set out in paragraph 7), they raised additional or further concerns – either in the objection notices, in subsequent correspondence / contacts with HyD, or at objection-handling meeting(s) – including the possible adverse

impact on marine traffic along Airport Channel due to the HKLR and insufficient publicity and consultation regarding the project. Some objectors also suggested that the HKLR should adopt tunnel form instead of viaduct at Airport Channel or to build the HKLR at north of the Airport.

11. Apart from those responses set out in paragraph 7 above, the Administration has explained that marine access to SLW would be maintained as far as possible during the construction stage and would be maintained at the operation stage of HKLR; that extensive public consultation had been conducted; and the reasons why their suggested tunnel or alignment options were not feasible. Upon completion of the objection resolution exercise, 3 objections were withdrawn unconditionally. Of the remaining 122 objections, 1 objection has offered condition for withdrawal (the condition could not be met) while 121 objections were maintained. Therefore, the 122 objections are considered unresolved.

### Group III

12. One objector is a representative of SLW Villagers and one objector is the Chairman of the Tai O Rural Committee, both of whom joined at least one of the objection-handling meetings arranged for handling objections against both the HKLR and HKBCF projects. They disagreed to the gazetted HKLR alignment and raised concerns on the proximity of HKLR to SLW and the associated environmental and “Fung Shui” impacts. They also requested for transportation improvement by building a connecting road to SLW. The objectors opined that there had been insufficient consultation on the project, and suggested to adopt tunnel form instead of a viaduct form for HKLR at the Airport Channel or to build the HKLR at north of the Airport.

13. We responded that EIA for the HKLR showed that the project would meet the requirements under the EIAO when mitigation measures in specified areas are taken. We explained the reasons for adopting the gazetted alignment and why their suggested tunnel or alignment options would not be feasible, and that extensive public consultation had been conducted. We also explained that the requested connecting road is not possible due to road operation, traffic management and safety considerations, but the Government would pay close attention to the development of the relevant areas and review and consider the possibility to provide a link to SLW. The objectors maintained their objections and did not respond to further response provided by HyD. Hence these objections are considered unresolved.



Group IV

14. These 237 objections in the form of a standard e-mail template were against the HKBCF, HKLR and TM-CLKL projects gazetted under the Ordinance. A number of objectors have additional comments which were in line with or similar to the content of the standard e-mail template. About half of these objectors are Tung Chung residents. The objectors raised concerns on the failure of the Administration to develop alternative solutions and the possible negative impacts arising from the projects on the residents of Tung Chung and the environment, the natural hillside and coastline of Lantau Island and the CPA at the east of Chek Lap Kok Island. They suggested integrating the HKBCF and HKLR at the south-west and north of the Airport Island respectively.

15. In response, the Administration has explained that the robust and comprehensive EIAs had been conducted for the three projects and that different site and alignment options had been considered before the gazetted schemes were recommended. The Administration has also explained the reasons why their suggested location / alignment options for the HKBCF / HKLR were not considered feasible. The Administration has also explained that the proposed scheme for the HKBCF and HKLR projects would not touch the natural hillside and coastline of Lantau Island. The Administration has further explained that the terrestrial and marine ecology found at the CPA was common species in Hong Kong and that the natural habitat thereat could easily be re-colonized on the rock amours along the future seawall.

16. Upon completion of the objection resolution exercise, 26 objections were withdrawn unconditionally. As for the remaining 211 objections, no responses were received from 165 objections and 45 objections were maintained, while 1 objection was received with incorrect contact details and follow-up was not possible. These 211 objections are considered unresolved.

Group V

17. There were 47 objections lodged via the same standard e-mail template as that mentioned in paragraph 13 above. These objectors also raised additional concerns or further suggestions via various means (either in the objection notices, in subsequent correspondence / contacts with HyD, or at objection handling meeting(s) and our responses were as follows –

- (a) Some objectors opined that the HZMB should not be built. Some suggested marine transport in lieu of HZMB. Some raised concern about adverse impact on the values of their coastal properties due to the projects. In response, the Administration has explained the strategic importance of the HZMB to the further economic development of Hong Kong, Macao and the Western Pearl River Delta region.

- (b) Some objectors provided various suggestions regarding the alignments or forms of the three projects (such as landing HZMB at Tuen Mun, putting more roadworks in the form of tunnels) or considering them together with the future third airport runway or Tung Chung developments. The Administration has explained the various drawbacks of their proposed options and the reasons why their proposed options were not feasible, and that the future Tung Chung or third runway development would be subject to further studies and hence could not be considered in one go.
- (c) Some objectors raised various concerns on sustainability and environmental issues, including that assessment of air quality impact should not be based on the existing Air Quality Objectives (AQOs) which were outdated and would be revised, the impact of the projects on human health, noise and visual impact, and light glare problem, and that the impact and prejudice to the health and well-being of the community had not been addressed in the EIA reports, etc. There were also concerns on global warming and peak oil crisis. In response, the Administration has explained that the Government was committed to sustainable development and has conducted robust EIAs for the three projects. Regarding the concerns on AQOs, the Administration has responded that the AQOs were derived from scientific analyses of the relationship between pollutant concentrations in the air and the associated adverse effects of the polluted air on the health of the public. HyD's assessments had taken into account all the comments and requirements of the authority. The Administration has also responded that the health aspect had been addressed by detailed impact assessment during the EIA study on various relevant aspects, including air quality, noise, water quality etc. The EIA confirmed that the project would meet the current requirements under the EIAO fully when mitigation measures in specified areas are taken. Regarding the light glare problem, the Administration has responded that the HKLR and the HKBCF were in fact located well away from residential premises and the lights on the HKBCF would not be directly shining at them. The Administration would also study this issue in the detailed design stage and provide corresponding mitigation measures.
- (d) Some objectors raised particular concerns on CWD and impacts on wildlife habitat, worrying that the HZMB project would contribute to the extinction of these species. The Administration has explained that various mitigation measures, such as setting up of dolphin protection zone and dolphin monitoring plan, would be in place to protect the CWD. The Government has also made a firm commitment to seek designation of the waters around the Brothers Islands as a marine park in accordance with the statutory process. Moreover, the projects have also avoided all the ecological sensitive areas – for instance the HKLR alignment at Scenic Hill would be in tunnel form to avoid the habitat of

Romer's tree frogs and the projects have avoided the nursery sites of horseshoe crabs in the area.

- (e) One objector raised particular concern on the geological heritage and natural coastline in the area and requested for public access to the relic and new artificial coastlines. The Administration has explained that the EIA report had considered landscape, visual impacts, and value of natural coastline according to the requirements under the Technical Memorandum under the EIAO. The objector offered to withdraw her objection if a few conditions could be met. Though the Administration will endeavour to minimize the impact in the detailed design stage, the Administration are unable to meet the conditions in full.
- (f) One objector raised concern on the public fairness of the EIA process. He complained about the logistics and meeting arrangement of the ACE. In response, the Administration has explained that the processing of the EIA reports followed the mechanism established under the EIAO and also by ACE which is a non-governmental organisation. Another objector opined that the approval of the EIA reports and issuance of the Environmental Permit are unlawful and irrational. In response, the Administration has explained that the DEP was satisfied that the EIA reports met the requirements of the EIA study brief and the Technical Memorandum under the EIAO, the ACE had discussed and endorsed the three EIA reports after thorough discussion at its meeting on 12 October 2009, and it was only after such stringent scrutiny that the EIA reports were approved by DEP on 23 October 2009.

18. Upon completion of the objection resolution exercise, 2 objections were withdrawn unconditionally. Among the remaining 45 objections, 4 have offered conditions for withdrawal (the conditions cannot be fully met), no responses were received from 25 objections and 16 objections were maintained. Therefore, these 45 objections are considered unresolved.

#### Other unresolved objections

19. A fishermen group raised concern on the loss of fishing grounds due to the proposed works of the HKLR and HKBCF, which, as claimed, will seriously affect the fishermen's living. Reasonable compensation was requested. In response, we explained that with the implementation of mitigation measures, the sediment plumes would be confined to areas close to the construction sites. The projects will not cause significant impact on the water quality at the fish culture zones and the major capture fisheries areas. That said, in accordance with current Government policy, an one-off ex-gratia allowance payment will be made to eligible fishermen who will be affected by the proposed works. Notwithstanding our explanation in

our written response and at the subsequent objection-handling meeting, the objector did not respond to the correspondence sent by the Administration to it after the meeting. Therefore, the objection is considered to be maintained and unresolved.

20. Another objector is a conservation organisation. Its main concern is that the proposed works of the HKLR and HKBCF would likely bring considerable negative impacts on the environment, including the marine environment, marine ecology (Chinese White Dolphin (CWD)), fisheries, water quality and the hydrodynamics at and near the proposed construction site, and it is inappropriate to gazette the projects until the environmental concerns are fully addressed with potential damages being proven to be acceptable or sufficiently mitigated. The objector also separately lodged objection to the TM-CLKL project on similar grounds. The Administration explained that the project met the requirements under the EIAO. To further enhance preservation on dolphin ecology, the Administration will seek to designate the Brother Islands as a marine park in accordance with the Marine Parks Ordinance (Cap.476) upon completion of the HKBCF project. The Administration further explained to the objector the various reasons why their suggested alternative proposals (including integrating the HKBCF with the Airport at its west side and integrating HKLR with the Airport at its north side; to adopt a viaduct option to replace the at-grade road on reclamation for HKLR along the Airport east coast; and to remove the southwest reclamation of the HKBCF) were not considered feasible. The objector attended an objection-handling meeting. He did not respond to the further responses from HyD which were sent to him further to the meeting. Hence the objection is considered to be maintained and thus remains unresolved.

21. Another objector is a non-profit making organisation. Its main concern is similar to those described in paragraph 13. The organisation also objected the construction of the toll plaza of TMCLKL. It suggested to adopt mandatory electronic toll payment or territory-wide electronic road pricing so as to avoid or significantly reduce the size of the toll plaza of TM-CLKL. The objector had further stated that the health impact on people, in addition to other environmental impacts, due to the projects had not been assessed in the EIAs. The Administration has responded that the health aspect had been addressed by detailed impact assessment during the EIA study on various relevant aspects (see paragraph 16(c) above). The EIA confirmed that the projects comply with the requirements under the EIAO fully. The Administration has also explained that mandatory electronic tolling or territory-wide electronic road pricing scheme was not feasible at the present stage in view of controversial issues such as personal privacy and public acceptability. Notwithstanding our explanation in our written response and at the subsequent objection-handling meeting, the objector did not respond to the further responses from the Administration after the meeting. Therefore, the objection is considered to be maintained and unresolved.

Other objection which was withdrawn unconditionally

22. The objector's major concern was that the building of HZMB would cause environmental damage, particularly to dolphins and horseshoe crabs. The objector also suggested that the HZMB should not be built. In response, the Administration has explained the urgent need to construct HZMB and the findings of EIA that had been carried out for the HZMB projects. Moreover, a series of mitigation measures would be implemented to minimize the impact on dolphins and horseshoe crabs. After considering the responses, the objector withdrew his objection unconditionally, and the objection, as recorded, is considered resolved.

## 844TH – Hong Kong – Zhuhai – Macao Bridge Hong Kong Link Road

Environmental Concerns and Mitigation Measures

<b>Environmental Concerns</b>	<b>Key Findings of Environmental Impact Assessment</b>	<b>Major Mitigation Measures</b>
Air quality and noise impacts	<ul style="list-style-type: none"> <li>• The assessment results indicate that the air quality and noise impacts brought about by the project on Tung Chung will be minimal (The distance between HKLR and Tung Chung is about 700 m).</li> <li>• The Environmental Impact Assessment (EIA) on the project shows that the air and noise impacts fully comply with the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO) requirements.</li> </ul>	<ul style="list-style-type: none"> <li>• Carry out regular watering on all exposed soil.</li> <li>• Carry out regular monitoring of air quality and noise levels during construction.</li> </ul>
Water quality impact	<ul style="list-style-type: none"> <li>• The EIA shows that with suitable mitigation measures, impacts on water quality during construction stage will be limited to the vicinity of the site and fully comply with EIAO requirements.</li> </ul>	<ul style="list-style-type: none"> <li>• Undertake the bored piling within metal casing.</li> <li>• Provide silt curtains closely surrounding the dredging point at all time throughout the dredging operation to minimize dispersion of sediment plumes.</li> <li>• Install perimeter silt curtain around the reclamation site and second layer of silt curtain around stone column installation to control plumes of suspended</li> </ul>

Environmental Concerns	Key Findings of Environmental Impact Assessment	Major Mitigation Measures
		<p>solids.</p> <ul style="list-style-type: none"> <li>• Complete leading seawall section before reclamation filling.</li> <li>• Control the number of filling barge trips and daily filling rate.</li> <li>• Carry out regular monitoring of water quality.</li> <li>• With adoption of the non-dredge reclamation method, the water quality impacts will be further significantly reduced.</li> </ul>
<p>Impact on Chinese White Dolphins (CWD)</p>	<ul style="list-style-type: none"> <li>• The waters to the west of the Airport feature two areas of dolphin-conservation importance, viz the Sha Chau/Lung Kwu Chau Marine Park, and the water near Tai O Peninsula to Fan Lau. The HKLR alignment passes between the two high dolphin-density areas. Impacts to CWD along this alignment can be expected to be less significant than if the alignment is to pass directly through either of the high dolphin-density areas.</li> </ul>	<ul style="list-style-type: none"> <li>• Install perimeter silt curtains around the site and set up a dolphin exclusion zone of 250 m around the Project during the installation of the perimeter silt curtains and re-deployment of the perimeter silt curtains. If dolphins are observed in the exclusion zone, the installation/re-deployment works will be suspended until the dolphins have left the area.</li> <li>• Implement dolphin watching plan including regular checking of the silt curtain and monitor the waters outside the silt curtain.</li> </ul>

Environmental Concerns	Key Findings of Environmental Impact Assessment	Major Mitigation Measures
	<ul style="list-style-type: none"> <li>● The construction and operation of the HKLR would cause marine habitat loss and potential water quality impacts, but the reclaimed area is not highly used by dolphins and is of very low coverage of common gorgonians.</li> </ul>	<ul style="list-style-type: none"> <li>● Carry out regular dolphin monitoring and monitor underwater noise from bored piling activities.</li> <li>● Suspension of formation of underwater sockets into rock for the marine bored piles in May and June which is the peak calving season of Chinese White Dolphins.</li> <li>● Banning of underwater percussive piling.</li> <li>● Enforcement of vessel speed limit within the work areas to within 10 knots.</li> </ul>
Impact on fisheries	<ul style="list-style-type: none"> <li>● Loss of fishing ground is not significant and fisheries impact is acceptable.</li> </ul>	<ul style="list-style-type: none"> <li>● Additional and re-provision of artificial reefs (AR) as mitigation and enhancement measure for affecting the existing ARs inside a Marine Exclusion Zone.</li> </ul>
Landscape and visual impacts	<ul style="list-style-type: none"> <li>● Loss of landscape resources of coastal water and inshore and offshore water landscape characters at the southwest, south and east of Hong Kong International Airport. However, the quantity of loss of the seawater resources and characters is relatively small in comparison to the large extent of adjacent</li> </ul>	<ul style="list-style-type: none"> <li>● Landscape impacts would be largely mitigated by tree preservation measures and compensatory planting and enhancement landscaping. Residual impact is considered negligible after the reinstated vegetation has matured. These measure will also improve the visual quality of the newly formed shoreline.</li> </ul>



Environmental Concerns	Key Findings of Environmental Impact Assessment	Major Mitigation Measures
	<p>seawater landscape resource/character within inshore and offshore of Airport Island.</p> <ul style="list-style-type: none"> <li>● The semi-natural rocky shoreline along the southeast shoreline of Airport Island will be affected by the proposed reclamation for the at-grade section of HKLR.</li> <li>● Vegetation loss at Scenic Hill due to construction of the HKLR tunnel portal.</li> </ul>	<ul style="list-style-type: none"> <li>● The HKLR would adopt a section of tunnel and at-grade road in the vicinity of Tung Chung urban area which effectively reduces the level of potential residual visual impact to the residents in the urban areas.</li> </ul>

**844TH – Hong Kong – Zhuhai – Macao Bridge Hong Kong Link Road**

**Breakdown of Land Resumption and Clearance Costs**

	<b>\$ million</b>
<b>(I) Estimated Land Resumption and Clearance Costs</b>	<b>83.673</b>
● Compensation on resumption of portions of a lot with a total area of 11 707.3 m <sup>2</sup>	
● Compensation on creation of easements and other permanent rights in, under or over portions of a lot with a total area of 80 622.3 m <sup>2</sup>	
● Compensation on creation of rights of temporary occupation of portions of a lot with a total area of 147 314.6 m <sup>2</sup>	
● Ex-gratia allowance for miscellaneous indigenous villager matters e.g. “Tun Fu” ceremonies	
● Ex-gratia allowance payable to eligible fishermen	
<b>(II) Interest and contingency payment</b>	<b>15.959</b>

**Total = 99.632**  
**(Say 99.63)**