This subject paper is intended to be a research paper delving into different views and analyses from various sources. The views and analyses as contained in this paper are intended to stimulate public discussion and input to the planning process of the "HK2030 Study" and do not necessarily represent the views of the HKSARG.

WORKING PAPER No.37
ADDITIONAL CROSS-BOUNDARY LINK TO THE EASTERN PART OF GUANGDONG PROVINCE - EASTERN CORRIDOR

Purpose

1. This paper aims at the following:-

   (a) to review the existing transport linkages between Hong Kong and the Pearl River Delta (PRD) Region;

   (b) to present a broad-brush assessment of the traffic demand for the proposed Eastern Corridor; and

   (c) to set out the key issues relating to the provision of the proposed Eastern Corridor and its broad timing of development.

Background

Future Demand for Additional Cross-boundary Link

2. In connection with the Mainland’s adoption of open door policy, the past two decades have witnessed increasing socio-economic interactions between Hong Kong and PRD Region. A corollary of this phenomenon is a spate of the number of cross-boundary passengers and vehicles. In response, both Hong Kong and the Mainland authorities have initiated actions to improve the existing control point facilities as well as to develop and plan new cross-boundary links (e.g. Lok Ma Chau (LMC) Spur Line, Shenzhen Western Corridor (SWC), Hong Kong-Zhuhai-Macao Bridge (HZMB) and Guangzhou-Shenzhen-Hong Kong Express Rail Link (ERL)) to cope with the increasing demand. Whilst limelight is on the HZMB Bridge concerning the provision of a new land transport link with PRD west, we also need to study in parallel the future demand for any new cross-boundary road link to PRD east having regard to the projected growth of cross-boundary traffic flow in the context of HK2030 Study.
Shenzhen’s Planning Intention and Proposal

3. The Eastern Corridor was firstly put forward by Shenzhen in its Comprehensive Plan (深圳市城市總體規劃) 1996-2010. According to the Shenzhen side, the main problem of the existing road-based crossings is that Man Kam To (MKT) and Sha Tau Kok (STK) can hardly be expanded to cope with the increasing cross-boundary traffic due to land constraint. In addition, cross-boundary traffic, particularly container and goods vehicles, via MKT to the eastern region of Guangdong has to pass through the developed area of Luohu, and the secondary crossing points of Buji (布吉) and Shawan (沙萬), resulting in adverse environmental impact on the city centre and increasing the traffic pressure of the secondary crossings at Buji and Shawan. To reduce the potential environmental and traffic problems, an “East in East out, West in West out” (東進東出、西進西出) principle for the cross-boundary traffic and a new crossing point at Liantang to the east of MKT was proposed in the Shenzhen Comprehensive Plan. In brief, Shenzhen targets to divert the existing cross-boundary traffic via MKT to Liantang which could provide additional crossing facilities between Hong Kong and Guangdong east. The function of this new crossing point would be to cater for the movement of container trucks and goods vehicles with MKT and STK crossings for private cars and coaches (Plans 1 & 2) thereby resolving the environmental and traffic problems created by the container and goods vehicles going through the city centre of Shenzhen. In terms of the overall transport network and land use planning of Shenzhen, selection of Liantang as a location for the new crossing point offers the following merits to the Shenzhen side:

(a) Liantang is a small township (with a planned population of about 60,000) away from the existing built-up Luohu and Futian districts. Development of a new crossing point here would help divert cross-boundary traffic, especially container and goods vehicles, away from the city centre and minimise disturbance to the city centre;

(b) Development of a new crossing point at Liantang would not be incompatible with development there which comprises mainly medium-density residential uses and some industrial uses; and

(c) Being situated between MKT and STK, Liantang enjoys a favourable location to cater for the cross-boundary road-based traffic to/from the Guangdong east. Besides, selection of Liantang by Shenzhen has been dictated by the topography of the Hong Kong-Shenzhen boundary from STK to MKT. As shown on Plan 2, to the east of Liantang is Wu Tong Shan (梧桐山), the hilly terrain of which makes it difficult to develop any new control point facilities whereas areas to the west of Liantang are too close to the existing MKT control point and could not achieve the purpose of re-diverting the cross-boundary traffic away from the city centre of Shenzhen.

4. In accordance with the latest plan published by Shenzhen2 the proposed Eastern Corridor is an integral part of the city’s “Two Horizontals, Five Verticals” (“兩橫五縱”) expressway network (Plans 1 & 3) comprising the following:-

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1 深圳市羅湖區城市規劃 1998-2010
2 深圳市幹線道路網規劃 (簡要報告) (深圳市規劃與國土資源局、深圳市交通局 2003 年 8 月)
Two Horizontals (兩橫)

(a) Ji-He Expressway (機荷高鐵): to function as an east-west link connecting the Baoan Airport and Longgang industrial area in the east;

(b) Yan-Ba Expressway (鹽壠高鐵): to serve the traffic flow (including the tourists) to the east (including Yantian, Huizhou and areas beyond);

Five Verticals (五縱)

(c) Hong Kong-Shenzhen Western Corridor (SWC) and Coastal Expressway (沿江高鐵): to cater for the traffic flow, mainly container and goods vehicles from Hong Kong to Shenzhen, Dongguan (west) and Guangzhou;

(d) Guang-Shen Expressway (廣深高鐵): to serve the cross-boundary traffic from Hong Kong to Shenzhen, Dongguan (west) and Guangzhou;

(e) Huanggang Crossing and Mei-Guan Expressway (皇崗過境通道-梅觀高鐵): to serve the cross-boundary container traffic from Hong Kong to Shenzhen (central), Dongguan (east and central);

(f) Eastern Corridor and Shen-Hui Expressway (東部走廊-粵惠高鐵): to serve cross-boundary traffic from Hong Kong to Shenzhen (east), Huizhou, and Shantou as well as Shenzhen’s intra-city traffic between Futian/Luohu and Yantian; and

(g) Yan-Pai Expressway (鹽排高鐵): to cope with the vehicular flow (mainly goods and containers) between Yantian Port and Dongguan (east and central) and areas beyond.

5. According to Shenzhen's plan, the aforesaid expressway network will link up major development areas within Shenzhen and connect the business and administrative centres in Luohu and Futian districts with the port, airport and industrial centers in Yantian, Shekou, Baoan and Longgang. Amongst others, the Eastern Corridor will function as an expressway for cross-boundary traffic to the Guangdong east via Shen-Hui Expressway and also serve the Longgang new town, which comprises residential and hi-tech development.

Economic Development in East Bank of PRD and Guangdong East

6. In considering the need and demand for a new cross-boundary link to Shenzhen and Guangdong east, it is necessary to have an overview of the economic development of PRD east and areas beyond.

Cities of the PRD

7. The PRD Region covers 9 municipal cities (地級市) with a total area of approximately 41,596 km² (see Plan 4), excluding the Hong Kong and Macao Special Administrative Regions. According to Mainland’s National Census 2000, the PRD Region has a total population of about 42.9 million (or 50% of the total population of Guangdong Province). In 2002, the GDP of the PRD Region totals RMB 957 billion (or 73% of the Guangdong total).

8. The population and GDP of the individual cities within the PRD Region are summarised in the following table.

<table>
<thead>
<tr>
<th></th>
<th>2000 Population (million)</th>
<th>2002 GDP (RMB billion)</th>
<th>2005 GDP (RMB billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>East Bank Cities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guangzhou</td>
<td>9.9</td>
<td>300</td>
<td>488</td>
</tr>
<tr>
<td>Dongguan</td>
<td>6.4</td>
<td>67</td>
<td>95</td>
</tr>
<tr>
<td>Shenzhen</td>
<td>7.0</td>
<td>226</td>
<td>300</td>
</tr>
<tr>
<td>Huizhou*</td>
<td>3.2</td>
<td>53</td>
<td>81</td>
</tr>
<tr>
<td><strong>Sub-Total</strong></td>
<td>26.5</td>
<td>646</td>
<td>964</td>
</tr>
<tr>
<td><strong>West Bank Cities</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zhongshan</td>
<td>2.4</td>
<td>42</td>
<td>51</td>
</tr>
<tr>
<td>Zuhai</td>
<td>1.2</td>
<td>41</td>
<td>66</td>
</tr>
<tr>
<td>Foshan#</td>
<td>5.3</td>
<td>118</td>
<td>146</td>
</tr>
<tr>
<td>Zhaoqing*</td>
<td>3.4</td>
<td>45</td>
<td>75</td>
</tr>
<tr>
<td>Jiangmen#</td>
<td>4.0</td>
<td>66</td>
<td>100</td>
</tr>
<tr>
<td><strong>Sub-Total</strong></td>
<td>16.3</td>
<td>311</td>
<td>438</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>42.8</td>
<td>957</td>
<td>1,402</td>
</tr>
</tbody>
</table>

*Only part of Huizhou and Zhaoqing are included in the PRD Region but the figures cover the whole of the two municipal cities.  
#Foshan includes Nanhai & Shunde and Jiangmen includes Xinhui

9. Of the 9 PRD municipal cities, 4 are located on the east bank and 5 on the west bank. As noted from the above table, the east bank at present has 63% more population than that of the west bank (26.5 million vs 16.3 million), and its GDP is double that of the west bank (RMB 646 billion vs RMB 311 billion).

10. Amongst the east bank cities which thrive on export-oriented manufacturing

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4 PRD Region covers 9 municipal cities (地級市), including Guangzhou, Shenzhen, Zuhai, Foshan, Jiangmen, Dongguan, Zhongshan, parts of Huizhou (i.e. urban district of Huizhou, Huiyang Country, Huidong County and Bolou County) and Zhaoqing (i.e. urban district of Zhaoqing, Gaoyao and Sihui)
5 Total population includes resident population (户籍人口) and temporary population (暂住人口).
7 Total population of the PRD cities in the National Census 2000
9 Tenth Five-Year Plans for individual PRD cities (珠三角洲個別地級市第十個五年計劃)
activities, Shenzhen and Guangzhou account for the lion share of both the population and GDP, and could be considered as the main growth engines of the PRD Region. Both cities have export-oriented economic structure and their FDI (actually used) totals US$7.6 billion in 2002, accounting for half of the PRD Region. Their respective Tenth Five-year Plans target at further enhancing their status as the regional centres of Guangdong.

11. Dongguan targets to develop itself as an international manufacturing city (國際加工制造業基地). According to its Tenth Five-Year Plan, its major focus in the years ahead is to increase investment on hi-tech and electronic information, which will make up about 70% of the total industrial production value in 2005. Its main production and manufacturing bases are located in the urban area and other urban clusters (一城多支點) at Humen (虎門), Changping (常平) and Dongxia (橋夏). Though being classified as one of the east bank cities, Dongguan is located to the north of Hong Kong and Shenzhen and therefore, its cargoes to be exported will be carried to Hong Kong and Shenzhen via the Central Corridor through LMC along Zengguanshen Expressway (i.e. Meiguan Expressway in Shenzhen).

12. Comparatively speaking, Huizhou is on the periphery of the PRD Region and accordingly, its economic growth is less marvelous as compared with Shenzhen and Guangzhou. For example, its FDI (actually used) in 2002 is only about US$1.3 billion as compared with Shenzhen’s US $4.9 billion. Moreover, its projected GDP growth in 2005 will lag behind Shenzhen whilst the main growth engine of its economic activities are related to heavy industrial production. An example is the joint-venture development of petrochemical plant with a total investment of US$4.3 billion. According to its Tenth Five-Year Plan, Huizhou will further increase its industrial production and export trade which will grow at annual rate of 14% and 10% respectively. Plan has also been drawn up to develop a total of 15 new berths up to 2005 and its annual throughput will reach 20 million tonnes. Yet, it should be noted that Huizhou Port is largely a feeder port, relying on other container ports e.g. Shenzhen and Hong Kong for export purpose. Its throughput in 2002 totals about 9.6 million tonnes.

13. According to published Mainland information, it is forecast that the future development of the east bank would be continuously ahead of the west bank. It is estimated that by 2005, the east bank GDP could be more than double that of the west bank (RMB 964 billion vs RMB 438 billion).

Area East of PRD Region (Guangdong East)

14. Road-based transport has the “door-to-door” advantage of a secure, direct and quick delivery from the origin to the destination. According to a previous study commissioned by the then Port and Maritime Board, travelling distance by road-based transport can cover areas within a radius of some 300km to 400km, which in effect covers the whole Guangdong Province (see Plan 5). In this regard, the proposed Eastern Corridor may help improve Hong Kong’s connectivity with the area to the east of the PRD Region (or known as

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10 Ming Pao, 6.1.2003
11 Study to Strengthen Hong Kong’s Role as the Preferred International and Regional Transportation and Logistics Hub (2001), Port and Maritime Board
12 For reference, travelling by road-based transport from HK (city centre) to Shantou (city cente) will take
Guangdong east) and it is therefore relevant to appreciate the development of Guangdong east for the purpose of assessing the potential demand for the Eastern Corridor.

15. Guangdong east comprises six municipal cities including Heyuan (河源), Meizhou (梅州), Shanwei (汕尾), Jieyang (揭阳), Shantou (汕头) and Chaozhou (潮州). Located on the periphery of the province, these cities, having a total population of some 21 million, only attract a margin of the total foreign investment in Guangdong. Of the 11,701 projects invested by foreign capital in Guangdong in 2002, only 423 (i.e. 3.6%) are within Guangdong east. The GDP of these six cities (i.e. RMB 163 billion) in 2002 accounts for about 13% of the Guangdong total, as compared to PRD Region’s 73% share (i.e. RMB 957 billion). In 2002, the primary and secondary sectors of Guangdong east command over 60% of the total GDP (i.e. RMB 103 billion out of RMB 163 billion). Their total export in 2002 amounts to US$3.4 billion, i.e. about 3% of the Guangdong total whereas PRD cities account for 95%.

16. According to the Tenth Five-Year Plan, the Guangdong Provincial Government has set a strategy to improve the economy and development of Guangdong east to reach a “well-off level” by 2005. Focus will be to speed up urbanization and upgrade industrial production level. Key economic sectors are agriculture, industry and tourism.

17. According to the Tenth Five-Year Plan, Shantou is planned as the central city of Guangdong east. Major road and port projects proposed for Guangdong east under the Tenth Five-Year Plan include:

(a) Tong-San Line (同三線) - Shantou to Fenshuiguan (汕頭至汾水關段) 68km;

(b) Jieyang to Shantou Expressway (揭陽至汕頭高速公路) of 69km to be completed in 2007;

(c) Jieyang to Puning Expressway (揭陽至普寧高速公路) of 44.5km to be completed in 2003;

(d) Puning to Huilai Expressway (普寧至惠來高速公路) of 41km (completed in 2001);

(e) Heyuan to Meizhou Expressway (河源至梅州高速公路) of 178km to be completed in 2005; and

(f) Shantou Port to complete seven 20,000-tonne berths in 2004/05 and become a hub port in Guangdong east. Works will also be carried out to provide Shantou Port with a water depth of –11m.

18. Shantou is a seaport city and a Special Economic Zone in Guangdong east. In 2002, the total throughput of Shantou Port is about 13.8 million tonnes and plan to increase to 30 million tonnes in 2010.

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15 廣東省綜合運輸體系“十五”計劃 (The Tenth Five-Year Transport Development Plan of Guangdong)
16 Existing depth of Shantou Port is about –4.5 to 6m.
has been drawn up under the Tenth Five-Year Plan to further expand its port facilities serving the import and export trade in Guangdong east. Besides, Shantou would strengthen its role as a secondary regional centre within Guangdong (省城次中城市) and become regional information, logistics and cultural centers and bases focusing on hi-tech and advanced industries, special sectors and traditional industries, export processing and manufacturing industries, and modern eco-agriculture ("三経中心，四個基地")\(^{17}\).

19. Chaozhou is a newly industrialized city. Under the Tenth Five-Year Plan, Chaozhou would move towards basic modernization (率先基本實現現代化) by enhancing its manufacturing industries including garment, mechanics, food processing and ceramics. It would further upgrade the secondary industry with emphases on information technology, new materials, bio-technology, optics, mechanics and electronics products.

20. Jieyang has been transformed from an agricultural production base to a manufacturing city. Its development strategy is to further industrialize by promoting small and medium enterprises through the establishment of economic testing zones and industrial parks. The Tenth Five-Year Plan would focus on upgrading the secondary industries such as textiles and garment, food and beverage, metal and mechanics. High value-added industries such as information and technology, finance and tourism would also be promoted to speed up the transformation of industries.

21. Shanwei is a coastal and tourism city. It is undergoing transformation from a traditionally agricultural base to a city of manufacturing industry. Apart from upgrading its primary sector by introducing new technologies in farming and fishing, it would further industrialize focusing on light industries such as electronics, furniture, garment, footwear, plastics and food processing. Capitalizing on its natural beaches and cultural heritage, Shanwei would further promote tourism to speed up the development of the tertiary industry.

22. Heyuan is situated in the mountain area of Guangdong. It is basically an agricultural city rich in natural resources. Under the Tenth Five-Year Plan, its development objectives are to fight against poverty and strive for a basically “well-off” society. Apart from modernizing the agricultural sector by adopting new technologies in the production process, Heyuan would further develop its secondary sector focusing on industries with comparative advantages such as mining, electricity generation and food processing.

23. Meizhou is an agricultural city in Guangdong east. Development strategy of Meizhou is to enhance its agricultural sector with emphases on forestry, animal husbandry and aquaculture farm. By improving infrastructure facilities, it would enlarge the secondary sector focusing on electronic appliances, textile and garment, mould and machine components. Promotion of tourism has been considered as one of the means to increase the income of the city.

\(^{17}\) 2003 年汕頭市政府工作報告
Cross-boundary Socio-economic Interactions

24. Our close relationship with the PRD Region is reflected in the large volume of people and goods crossing the boundary every day. The following paragraphs set out the broad pattern of the movements of people and goods between Hong Kong and the PRD Region and the existing transport linkages to facilitate assessment of the proposed Eastern Corridor.

Cross-Boundary Passenger Movements

25. In 1986, only some 25.7 million cross-boundary passenger trips were recorded. Cross-boundary trips grew rapidly between then and 1996, at an average rate of about 10% per annum. Up to 2002, there was a total of 128 million trips (both ways). According to the results of the Cross-boundary Travel Survey 2001, the majority of these trips were made by Hong Kong residents, of which 82% were made by Hong Kong residents living in Hong Kong, and about 10% by Hong Kong residents living in the Mainland.

26. The Cross-boundary Travel Survey 2001 revealed that Shenzhen is the most popular destination, accounting for some 61% of all the trips. Dongguan and Guangzhou have a share of about 13% and 7.8% respectively whilst Huizhou accounts for 1.9%. The share of the cities in Guangdong east (including Shanwei, Heyuan, Shantou, Meizhou, Jieyang and Chaozhou) only totals 1.3%.

27. Over 80% of the cross-boundary trips to Shenzhen and Dongguan, and some 61% to Guangzhou used boundary trains (i.e. East Rail). Only about 2% of the trips to Dongguan and 16% to Guangzhou used through trains. The rest were mainly undertaken by either coaches, private vehicles or ferries. This is somehow determined by the availability of the mode of transport, transport interchange facilities and accessibility of the destinations.

Cross-Boundary Vehicle Movements

28. In 1990, there were some 4.9 million vehicular trips (both ways) recorded at the boundary crossing points. The number of trips had grown to some 12.3 million in 2002. Of these, some 78.6% were trips made by goods vehicles including container trucks. Owing to the implementation of cross-boundary vehicle quota system\(^\text{18}\) almost all of the trips were made by vehicles registered in Hong Kong.

29. According to the Cross-boundary Travel Survey 2001, about 54% of the trips were destined to or originated from Shenzhen, about 31% Dongguan, 6% Guangzhou and 4% Huizhou. Cities in Guangdong east, principally Shanwei, Jieyang, Heyuan and Shantou, generated/attracted very little cross-boundary road traffic, about 1.3% of the cross-boundary vehicular trips. Less than 1% of the cross-boundary vehicular trips are to/from areas outside Guangdong.

\(^\text{18}\) The cross-boundary vehicle quota system is a regulatory mechanism currently adopted to confine the use of boundary control points by cross-boundary vehicles in accordance with the quotas allocated. The system is meant to ensure smooth cross-boundary traffic flow, especially for freight traffic.
Sources of Goods

30. In 2002, our container port handled some 19.1 million TEUs of containers, making it the world’s busiest port for the year. The container port is vital not only for Hong Kong but also for south China, particularly the PRD Region. It is roughly estimated that of the total throughput handled by the container port in 2002, some 70% of these cargoes originated from or were destined to south China. For these south China cargoes, about three quarters were to/from the east bank comprising Shenzhen, Dongguan and Guangzhou.

31. In addition to the containerised cargoes, our port in 2002 also handled some 35 million tonnes of bulk cargoes transported to/from south China. It is roughly estimated that some 63% of these cargoes are transported from/to Shenzhen, Guangzhou and Dongguan (see footnote 19 below). Source from Guangdong east tends to be on a very low side.

Cross-boundary Transport Links

Road and Rail Links

32. At present, there are three road crossing points between Hong Kong and the Mainland, at LMC, MKT and STK, from where major cities in the PRD Region can be accessible through the highway network comprising, inter alia, the Guangzhou-Shenzhen Expressway, Zengguanshen Expressway, National Highway (国道) 107, Hua-Nan Expressway (华南快速) (via Humen Bridge (虎門橋)) and Guangzhou-Zhuhai Expressway (港珠澳大橋) (part of Beijing-Zhuhai Expressway) (via Humen Bridge). (Plan 6).

33. There are several major highways linking Hong Kong via Shenzhen with PRD east and areas to the further east:

(a) Tong-San Line (同三线) - At the national level, the road network comprises the “five north-south and seven east-west” (五縱七橫) corridors. Of particular relevance to Hong Kong and Guangdong east is the Tong-San Line (同三线) which runs along the coastal provinces from Tongjiang (同江) in Heilongjiang (黑龍江) to Sanya (三亞) in Hainan (海南). In Guangdong east, Tong-San East Line (or known as Shenzhen-Shantou Expressway (深汕高速)) provides a direct linkage from Shenzhen to Shantou along the coastal area. Vehicles departing from Hong Kong can take a direct access to Guangdong east via the eastern part of Shenzhen. Section of Tong-San East Line (Shantou to Fenshuiguan) has been completed during the Tenth Five-Year Plan period.

(b) National Highway 205 (NH205) (山深線) – This is one of the major north-south highways within the Mainland highway network. With a total length of about 2,755km, NH205 links Shahaiguan (山海關) with Shenzhen

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19 Data sources – Figures from Census & Statistics Departments, PlanD’s Cross-boundary Travel Survey and PCF 2000/01 Study.
20 In 2002, Huizhou only accounts for about 4% of the total road cargo to/from HK (i.e. 39.6 million tonnes) whilst the river cargo to/from Huizhou is less than 0.1% of the total (i.e. 54.2 million tonnes).
via Nanjing (南京). Within Guangdong, this NH connects Shenzhen with Huizhou, Heyuan and Meizhou. In Meizhou, NH205 links up with NH 206 leading to Shantou and Chaozhou in the coastal area.

(c) National Highway 324 (NH324) (福昆线) – This is another major east-west highway within the Mainland highway network. With a total length of about 2,200km, NH324 links Fuzhou (福州) with Kunming (昆明) via Guangzhou. This NH with a similar alignment as Tong-San Line in Guangdong east provides an indirect linkage as vehicles departing from Hong Kong need to take NH 205 first before taking NH 324 in Huizhou for Guangdong east.

(d) Yanba Expressway (鹽壩高速) – This expressway provides another alternate link between Shenzhen and Aotou of Huizhou.

(e) Shenhui Expressway (深惠高速) – This is an expressway connecting Shenzhen with Huizhou and also joining with Tong-San Line at Longgang in Shenzhen. The planned development of Huihe (惠河高速) and Hemei (河梅高速) Expressways as an extension of Shenhui Expressway will further improve the Hong Kong's connectivity with Guangdong east via Shenzhen.

34. The Guangzhou-Shenzhen Railway (广深铁路) provides frequent services between Guangzhou, Dongguan and Shenzhen, through which Hong Kong is provided with a direct railway linkage with Guangzhou. Hong Kong is also connected to Shenzhen by the Kowloon-Canton Railway (KCR) with a boundary crossing located at Lo Wu. Three types of cross-boundary services are provided on this railway including a domestic service between Hung Hom and Lo Wu. In addition, the KCR Corporation also operates inter-city through train services from Hong Kong to cities in Guangdong (Changping (常平) in Dongguan, Guangzhou, Foshan and Zhaqing) as well as to Shanghai and Beijing. Fourth line of Guangzhou-Shenzhen (广深四线) has been planned as an improvement work of Beijing-Kowloon Railway Corridor.

35. On the Mainland side, the Guangzhou-Shenzhen Railway provides frequent rail services between Guangzhou, Dongguan and Shenzhen (as well as services to other cities in Guangdong Province and cities nationwide). However, cities in Guangdong east are currently served by the Guangzhou-Meizhou-Shantou Railway (广梅汕铁路) which is hooked up with the Beijing-Kowloon Railway (京九铁路) at Longchuan (龍川). According to the Guangdong Plan (广东省综合运输体系“十五”计划 (The Tenth Five-Year Transport Development Plan of Guangdong)) there is another railway to connect the coastal cities of Guangdong east under the Eleventh Five-Year Plan Period.

36. A major railway linking Guangzhou with Beijing is Beijing-Guangzhou Railway Corridor (京广通道). Pursuant to the promulgation of the Tenth Five-Year Plan, it has been reported that the Mainland is contemplating to develop a new Beijing-Guangzhou Railway Corridor (新京广通道) for passenger services in order to convert the existing Beijing-Guangzhou Railway for freight services. The new railway targets to upgrade the existing passenger services and reduce travelling time.

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21 Sections A and B of the expressway from Yantian to Kuichong (葵涌) of Shenzhen have been completed but there is no information on the programme for completing the remaining section.
22 Huihe and Hemei Expressways are due for completion in 2003 and 2005 respectively.
23 廣東省綜合運輸體系“十五”計劃 (The Tenth Five-Year Transport Development Plan of Guangdong)
24 The new railway will have a total length of about 2,000km with a maximum speed of about 300km/hour.
time between Beijing and Guangzhou from 27 hours to 10 hours. This project is now under planning stage and no development programme has been announced yet.

**Waterborne Transport**

37. At present, there are cross-boundary ferry services to 19 Mainland ports and Macao operated from the HK China Ferry Terminal and the HK Macao Ferry Terminal. The HK China Ferry Terminal, located in Tsim Sha Tsui, has 13 berths; whilst the HK Macao Ferry Terminal, located in Sheung Wan, has 12 berths.

38. In contrast to road and rail transport having more direct linkages to the east bank cities, ferry services are mainly provided to the PRD west cities (Plan 7). In 2002, the passenger throughput by ferries for Mainland ports totalled 7 million and constituted a small share of the total cross-boundary trips (i.e. 5.5% out of a total of 128 million trips). It should be noted that passenger trips to PRD east are only confined to Shenzhen, Dongguan and Guangzhou whereas areas beyond Shenzhen, i.e. Huizhou or cities in Guangdong east, are not served by ferry services.

**Demand for a Eastern Corridor**

39. Owing to locational and economic reasons, our relationship with the east bank, particularly Shenzhen and Dongguan, is not only “intimate”, but also growing stronger than ever before. As noted from the preceding paragraphs, both the movements of people and goods indicate that the industrial and commercial areas in Shenzhen and Dongguan are truly the ‘economic partners’ of Hong Kong. They are not only the key sources of cargoes for our port, but also places where most of the Hong Kong people go. As to Huizhou which is on the periphery of PRD east and the Guangdong east cities (including Shanwei, Heyuan, Shantou, Meizhou, Jieyang and Chaozhou), their existing socio-economic ties with Hong Kong are relatively weaker with regard to the current vehicular and passenger flows.

40. Hence, to meet the increasing demand for cross-boundary transport facilities, both the Hong Kong SARG and Mainland authorities are pursuing plans for additional road and rail links, including the SWC, LMC Spur Line, and the latest proposals for HZMB and ERL between Guangzhou and Hong Kong. These new projects are geared towards strengthening the transport network between Hong Kong and the PRD Region.

**Factors Affecting Demand**

41. There is a host of factors relating to the demand for a new road-based cross-boundary link. Essentially, demand would be created by growth in both goods and passenger vehicles across the boundary, which could be a result of:-
(a) economic growth in terms of South China/PRD Gross Domestic Product and in particular growth in export;
(b) Hong Kong-Mainland trade growth, including export;
(c) increase in Mainland tourists and population growth of Hong Kong and the Mainland; and
(d) road and rail network development and policy assumptions such as the quota system for cross-boundary vehicles.

**Demand Assessment**

42. Forecasts of total cross-boundary vehicle trips have been made for the two development options under the Reference Scenario (viz. decentralisation and consolidation) in the HK2030 Study. In both development options, forecasts under the two scenarios are within the same broad order as follows:-

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Cross-boundary Vehicle Trips (Average Weekday Daily)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>141,000*&lt;sup&gt;28&lt;/sup&gt; (48,000 to/from west bank&lt;sup&gt;29&lt;/sup&gt; (34%) and 93,000 to/from east bank&lt;sup&gt;30&lt;/sup&gt; (66%))</td>
</tr>
<tr>
<td>2030</td>
<td>181,000*&lt;sup&gt;28&lt;/sup&gt; (69,000 to/from west bank (38%) and 112,000 to/from east bank (62%))</td>
</tr>
</tbody>
</table>

*Figures are rounded up/down to the nearest 500.

43. The above forecasts indicate that in terms of cross-boundary vehicle flow, east bank will continue to be the major origin and destination of vehicle trips, accounting for over 60% of the total up to 2030. Such a growth pattern should be ascribed more to the continuous growth of the PRD east cities (including Shenzhen and Dongguan) which will remain as close economic partners with Hong Kong in the years ahead. With the HZMB, a more rapid growth of the PRD west cities is anticipated and will result in more west bank oriented cross-boundary traffic. However, the economic growth of the east bank is expected to be stronger in PRD east cities than in the six Guangdong east cities. Nonetheless, as the majority of the cross-boundary vehicles will continue to be to/from east bank, the crux of the issue is to assess whether our existing and planned crossing points via Shenzhen will suffice to cope with this projected flow and if not, whether new crossing facilities will be required.

44. The total handling capacity of our existing and committed road-based crossing points for east bank would be 86,500 (2-way vehicles daily) by 2006 and 130,500 (2-way vehicles daily) by 2016.

45. Assuming no further improvement works to the above road-based control points, the projected vehicle flow of 112,000 vehicles/day to/from the east bank can be

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<sup>27</sup> For details of the Reference Scenario, please refer to Working Paper No. 26 on HK2030 website.
<sup>28</sup> Existing quota system for cross-boundary vehicles is assumed to be maintained.
<sup>29</sup> West bank includes areas covered by PRD west and Guangdong west.
<sup>30</sup> East bank includes areas covered by PRD east and Guangdong east.
<sup>31</sup> Please refer to Working Paper No. 26 on HK2030 website.
handled by the four control points up to 2030. In this regard, any proposed new crossing will only be required beyond 2030. For testing purpose, we have assumed the Eastern Corridor in 2030. Its presence would attract about 28,000 vehicle trips (2-way) per day with redistribution of traffic at other control points.

46. For testing purpose, we have also constructed a scenario assuming a higher growth of 50% on Guangdong east as a result of the proposed Eastern Corridor. The results show that there is an insignificant increase in the total cross-boundary vehicle trips of less than one thousand. Again, the cross-boundary vehicle trips to/from the east bank would not exceed the total handling capacity of the existing and committed road crossings, though some of the vehicles from Guangdong east may need to pass through the central or western part of Shenzhen to access to LMC and SWC crossings. There would be implications on the domestic road network of Shenzhen e.g. Ji-He Expressway and Bei-Huan Road.

47. In summary, based on the currently available information and projections, the proposed Eastern Corridor cannot be justified purely on traffic demand ground within the study period.

Other Possible Functions of Eastern Corridor

48. Despite the insufficient projected flow of freight and passenger transport from areas of Huizhou and Guangdong east, the need for a new cross-boundary link in a long-term perspective could be considered with regard to the following two aspects, though we should also be mindful of the various costs that would be incurred:

(a) to broaden our potential catchment area to areas east of Guangdong; and

(b) to rationalise the functions of Hong Kong and Shenzhen’s road-based control points.

Enhancing closer economic co-operation

49. In the light of the objectives to achieve closer economic co-operation with the Mainland and to anticipate the increasing cross-boundary traffic in terms of vehicle and passenger trips, the proposed Eastern Corridor may have its own merits in broadening our potential catchment area to the coastal provinces east of Guangdong. According to Shenzhen’s plan as described earlier, the proposed Eastern Corridor is to be linked with the Shen-Hui Expressway and Shen-Shan Expressway which in will turn connect with the eastern part of Guangdong. For the former connection, Shen-Hui Expressway will join up with Hui-He Expressway, Yue-Gan Expressway (嶺海高速) and He-Mei Expressway (Plan 6) (scheduled for completion in 2003, 2005 and 2005 respectively) providing access to Jiangxi and Fujian. For the linkage with Shen-Shan Expressway, the proposed Eastern Corridor will allow a direct access to the coastal cities in Guangdong east (e.g. Shanwei, Jieyang, Shantou and Chaozhou) via Shen-Shan Expressway and Pun-Hui Expressway.

32 The handling capacities of the new crossing are assumed to be similar to SWC, i.e. initial 44,000 vehicles/day with a final design of 88,000 vehicles/day.
50. As such, the proposed Eastern Corridor may help enhance the competitive edge of the whole PRD Region in that it would on one hand ensure better connectivity of the new crossing with our port and airport, with advanced crossing facilities and improved services to ensure smooth delivery of container cargo across the boundary and on the other hand induce investment and development in Guangdong east and areas further beyond to take advantage of this new road corridor which could join with Tong-San Line. However, it would require concerted efforts of the PRD cities and Hong Kong in working out a strategic plan for the development of transport infrastructure. In addition, the cost implication of providing good connectivity of the new crossing with our port and airport should be examined.

51. According to the consultancy study commissioned by the Port, Maritime Logistics Development Unit of EDLB, logistics pipelines could be created to facilitate movement of freight between logistics platforms and provide transportation links to and from targeted catchment areas, thus enhancing Hong Kong’s status as a logistics hub. Given the committed development of SWC and the future development of the HZMB, it is considered that the proposed Eastern Corridor could serve as another convenient cross-boundary link for time-critical or time-definite movement of goods and container vehicles. It may argue that the potential cargo from Guangdong east and areas further beyond could be easily “intercepted” by Yantian Port with shorter distance and cheaper services. Moreover, Shantou will also plan to develop seven 20,000-tonne berths in 2004/05 whereas in 2010, Shantou Port's projected cargo throughput will reach 33 to 35 million tonnes, of which container throughput will be 1 million TEUs and in 2020, the cargo throughput will be up to 60 million tonnes, of which container throughput will be around 2.5 million TEUs. However, if there is a faster pace of growth in Guangdong east or areas beyond, the proposed Eastern Corridor would be an advantage to Hong Kong by ensuring good connectivity to these cities. An assessment of the long-term positioning and throughput of Hong Kong and Shenzhen ports would be required to ascertain the development potential of the Eastern Corridor.

Rationalisation and redistribution of cross-boundary traffic and replanning of crossing point facilities

52. With the completion of the SWC in 2005 and LMC Spur Line in 2007, the planned capacities of our control points will be greatly enhanced. The introduction of 24-hour passenger clearance at LMC on 27.1.2003 is another immediate measure to facilitate cross-boundary passenger flow. As mentioned earlier, there is no demand for an additional crossing point to the east within the study period. Nonetheless, we may consider the proposed Eastern Corridor as a potential opportunity to provide more room for rationalizing the use of our existing and committed crossing facilities. On this basis, goods and container vehicles currently using MKT and STK control points could be diverted to use the proposed Eastern Corridor, leaving potential for us to re-plan the former two control points which can be geared to serving passenger vehicles. As such, better interchange

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33 Competitive Strategy and Master Plan for HK as the Preferred International and Regional Transportation and Logistics Hub – Master Plan Bridging Project, December 2002.
34 Phase 3A of Yantian Port providing a total of four berths with a handling capacity of 1.6million TEUs will be completed in 2004 whereas Phase 3B providing six to seven berths, each with a handling capacity of 0.5million TEUs, has been submitted to the Central Government for approval (source: 18-10-2003).
35 廣東建設信息網，7-4-2003
and services could be provided for the cross-boundary passengers. We could also reserve the existing STK control point for private vehicles and coaches for visitors to and from Shenzhen’s tourist spots at Daxiaomeisha with a view to creating a tourist attraction belt along Mirs Bay.

53. According to Shenzhen’s current plan, Phase I of the Shenzhen MTR (i.e. Lines 1 and 4 to connect with Luohu and LMC control points respectively) will be completed in 2004. Besides, Shenzhen will further extend Lines 1 and 4 to Shenzhen airport and Longhua district in 2010, and plans to extend the network to Liantang, the timing of which however remains to be confirmed. If the future extension of Shenzhen MTR to Liantang can be tied in with the development of Eastern Corridor, the functions of this new crossing control could be hooked up with the Shenzhen MTR which in turn will be connected with the planned PRD inter-city rapid transit linking all the PRD cities within one-hour travelling time.

54. In consideration of a possible linkage with Shenzhen MTR at Liantang, the proposed Eastern Corridor may provide multi-modal transport facilities so as to facilitate and expedite cross-boundary passenger flow, which are less likely to be provided by the existing MKT and STK control points due to:-

(a) Insufficient space within the boundary control compound for further expansion; and

(b) Insufficient capacities of STK Road and MKT Road to cope with increasing cross-boundary traffic.\(^\text{36}\) Improvement of STK Road and MKT Road will inevitably affect existing villages along the roads and would also bring the cross-boundary container and goods vehicular traffic too close to the existing residential areas.

Other Issues Relating to the New Crossing

55. Apart from the aforesaid issues, we are at present uncertain of a welter of issues which will also have implications on the future demand, need and implementation of the proposed Eastern Corridor.

Cross-boundary Vehicle Quota System

56. The current cross-boundary vehicle quota system is to regulate traffic flows at the existing control points with regard to their handling capacities. Apart from goods vehicles, all other cross-boundary vehicles e.g. private cars and coaches registered in Hong Kong or Mainland are subject to quota restrictions as agreed between Hong Kong and Mainland. All vehicles are allocated with closed road permits to control their access to specified control points.

57. The potential traffic demand and usage of cross-boundary roads would need to be revisited should the cross-boundary vehicle quota system be abolished or relaxed. This may call for re-assessment of the need and timing to develop a new transport link to PRD east and Guangdong east. In the assessment, the road

\(^\text{36}\) Increasing the handling capacities of the control points at STK and MKT call for corresponding improvement to their feeder road network. For STK, dualling of STK Road from Lung Yeuk Tau to Ping Che Road formed part of the development of the North-east NT Landfill completed in 1998 but dualling of the remaining section from Ping Che Road to the boundary crossing facility will be required.
infrastructure and capacity of transportation system within Hong Kong as well as environmental implications are required to be assessed.

Mainland Tourists

58. Another issue that needs to be further delved into is the potential continuing increase of Mainland visitors in the years ahead. In assessing the growth of Mainland visitors, consideration has been given to the abolition of quota system on Mainland tourists in January 2002, the expected growth resulting from the opening of the Disneyland in 2005 and a gradual leveling out in the growth pattern for the longer term. According to our estimate, the number of Mainland tourists will grow as follows:-

<table>
<thead>
<tr>
<th>Year</th>
<th>Estimated No. of Mainland Tourists</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>23M</td>
</tr>
<tr>
<td>2016</td>
<td>31M</td>
</tr>
<tr>
<td>2020</td>
<td>38M</td>
</tr>
<tr>
<td>2030</td>
<td>53M</td>
</tr>
</tbody>
</table>

59. Recently, the Central Government has also relaxed travel restrictions so as to facilitate Mainland residents visiting HK, including allowing residents within Guangdong Province and of Beijing and Shanghai to visit in their personal capacity. The Individual Visit Scheme was introduced on 28 July 2003 and over 400,000 Mainland visitors have arrived towards the end of November 2003. The Scheme will be extended to the whole Guangdong Province in 2004. We expect further growth of Mainland visitors in future which will in turn increase cross-boundary traffic.

60. In the light of the above, the two aforementioned issues pertaining to the cross-boundary vehicle quota system and Mainland tourists will call for further assessment taking account of the Mainland information. Regular monitoring of the growth pattern is required to facilitate further assessment of cross-boundary travel pattern.

Potential constraints at Heung Yuen Wai and land resumption

61. A preliminary assessment indicates that there are constraints to provide new connecting road and/or rail network to link up with the new boundary crossing point at Heung Yuen Wai:-

(a) A large part of NENT comprises hilly area with designated country parks, green belt and other conservation areas. Building a major highway/railway may not be supported by green groups. If it is intended for container and goods vehicles, noise and air pollution created by the cross-boundary vehicular traffic will likely cause adverse impact on the existing environment of the rural area. Besides, a long connecting road with our existing port in Kwai Chung or planned port facilities in the western part of Hong Kong also means that vehicles heading for our port facilities have to run through our urban area causing adverse environmental impact;
(b) Liantang on Shenzhen side does not have a large area to provide crossing facilities. Similarly, on Hong Kong side, it would be equally difficult to form a large site without incurring resources for land resumption and site formation;

(c) Whilst Heung Yuen Wai on Hong Kong side could possibly provide a connecting point for the proposed Eastern Corridor, most of the land here are held under private ownership and therefore, development of a new cross-boundary link cutting through the area will incur resumption of private land, the extent of which would need to be further studied; and

(d) Heung Yuen Wai is largely an untouched area due to the current restrictions of Frontier Closed Area policy. According to a consultancy study on the Development of Tourism in the Northern New Territories of Hong Kong commissioned by the Tourism Commission, village clusters within Heung Yuen Wai are found to have significant cultural and heritage tourism value. Development of new cross-boundary link or drawing up of the alignment of connecting road needs to take account of these village clusters to avoid hampering the tourism value.

**Development of Frontier Closed Area (FCA)**

62. Subject to further studies and assessments, areas on the Hong Kong side (or known as Heung Yuen Wai) opposite to Liantang has been identified as an area with development potential in the long run according to a review recently conducted by the Planning Department. This area within the FCA may be integrated with the proposed Eastern Corridor with a view to capitalizing on the advantages of the new crossing. However, according to our study of the development potential of the FCA, it has been found that there is no immediate need to develop Heung Yuen Wai which instead presents a development opportunity in the long term. In this regard, the broad development timing of Heung Yuen Wai needs to be considered in a long-term perspective.

**Environmental Issues**

63. The possible impact of additional traffic generated by the Eastern Corridor on the air quality needs to be further studied. Air pollution in Hong Kong is a complicated issue affected by both regional and local factors. How much additional cross-boundary traffic should penetrate through our domestic network is an issue that needs to be investigated in more details.

64. A pertinent environmental issue is the potential impact on the local environment due to the building of connecting roads within Hong Kong. Though no major conservation or environmentally sensitive areas are identified in Heung Yuen Wai and its immediate vicinity, there are ecologically sensitive areas in the adjoining areas such as Lin Ma Hang. Therefore, care should be exercised to ensure that detailed EIA will identify potential areas that need to be conserved, particularly within the FCA where restricted access over the past few decades have resulted in the development of a rich bio-diversity.

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37 Existing Huanggang control point (Shenzhen) has an area of about 70 ha and the new control point of Shenzhen Western Corridor at Shekou totals about 103 ha.
Changes in Development Direction on the Mainland Side

Repositioning of Shenzhen

65. It is gathered from the news reports\(^{38}\) that a study team comprising officials from several central government agencies has been sent to Shenzhen to explore ways to reposition the border city and make it more competitive. It is gathered from the news report that different options have been proposed:-

(a) Twin-city/Free-trade Zone: This concept is to establish a regional alliance between the special economic/administration zones of Shenzhen and Hong Kong so as to capitalize on the new opportunities provided by CEPA. Under the proposal, Hong Kong and Shenzhen would be developed as a free-trade zone to ease the flow of goods and people between the two cities;

(b) Municipality under the direct administration of Central People’s Government: With such a status, Shenzhen can have higher administrative status and more flexibility to establish closer economic partnership with Hong Kong; and

(c) Expansion to include Dongguan and Huizhou: To secure more land for future expansion, it is proposed to expand the geographic boundary of Shenzhen to include a major part, and perhaps the whole, of adjacent Dongguan and Huizhou.

66. Shenzhen’s new development strategy may have great implications on the relationship and the boundary control between Hong Kong and Shenzhen in the longer term. If a more porous boundary is to be established between the two cities, a comprehensive review on the number and function of the crossing points is unavoidable.

Pan PRD Development Concept

67. The Pan PRD Development Concept (泛珠三角) is mooted by the Party Secretary of Guangdong to establish a much greater economic region in south China by strengthening Guangdong’s linkage with the eight adjoining provinces and regions including Fujian\(^{39}\). To support this development concept, more highway projects connecting the municipal cities within Guangdong as well as linking Guangdong with the neighbouring provinces and regions would be built in the coming years. It is also planned that by 2007, the highway network within PRD Region will enable the completion of a return trip within half a day (半日工作圈)\(^{40}\). For example, Shan-Fen Expressway (汕-汕) connecting Shantou with Zhangzhou (漳州) in Fujian, as part of the Tong-San Line (East) was completed in 2001. Construction of another expressway known as Mei-Long Expressway (梅-龙) linking Meizhou in Guangdong with Longyan (龙岩) in Fujian will commence

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\(^{38}\) 大公报 2003-09-04, 東方日報 2003-08-25, 中國商報 2003-09-02, 成報 2003-08-18

\(^{39}\) The Pan PRD Region includes nine provinces and regions (viz. Guangdong (粵東), Fujian (福建), Jiangxi (江西), Guangxi (廣西), Hainan (海南), Hunan (湖南), Sichuan (四川), Yunnan (雲南) and Guizhou (貴州)) plus Hong Kong and Macao (27-11-2003)

\(^{40}\) 南方日報 15-11-2003

\(^{41}\) Mei-Long Expressway (梅-龙) starts at Meizhou in Guangdong, and runs through Jiaoling (蕉岭) in Meizhou and connects with Shanghang (上杭) and Longyan (龍岩) in Fujian. (南方日報 27-11-2003)
68. In the light of this development, we need to keep in view the evolution of the Pan PRD Concept and Guangdong’s development of transport network with its neighboring provinces/regions which will enable us to review our need to plan for new cross-boundary links (e.g. the proposed Eastern Corridor) in order to strengthen our connectivity with Guangdong and areas beyond.

Possible Alignments

69. As discussed earlier, though the proposed Eastern Corridor is not justified purely on traffic demand ground within the study period and a number of issues also need to be resolved in connection with this new cross-boundary link, it may be worthy to undertake a broad-brush assessment of possible connecting roads that could be drawn up to connect with the new crossing point at Liantang and also flag its major implications that could be observed at this initial stage.

Shenzhen side

70. At present, according to Shenzhen’s plan 42, Shenzhen has mapped out the broad alignment of the Eastern Corridor which will join up with the following Plan 8:-

(a) Direct connection with the Longgang Road (南) which will link up Shenzhen with Aotou (澳頭) in Huizhou;

(b) To the south, the new crossing could be connected with the Yanba Expressway (鹽場高速) leading to Aotou in Huizhou; and

(c) To the north, the Eastern Corridor could be connected with the planned Yanpai Expressway (鹽排高速公路) and Boshen Expressway (薄深高速公路) leading to Dongguan (and then Bulou) or with the existing Shenzhen-Shantou Expressway (汕高速公路) which forms part of the Tongsan East Line leading to Shantou or further east to Fujian.

71. At present, the road network in Guangdong east is yet to be mature and takes time to be completed. Apart from Tong-san Line and the NH 205 and 324, other expressways (e.g. He-Mei and Shan-Mei Expressways) are still under various stages of development or planning and therefore, further studies need to be initiated to look into how the proposed Eastern Corridor could tie in with the overall development of the transport network in Guangdong east.

Hong Kong side

72. On Hong Kong side, as mentioned earlier, we have not worked out possible connection with our internal road network. Heung Yuen Wai has largely maintained its rural character and fung shui woods with conservation interest could be found behind the villages. Besides, other areas in the adjoining areas within the NENT are also characterized by green belt, rural villages and Country Park. Development of new connecting road with a new boundary crossing would therefore have major impacts on the area’s environment. It is important to carry

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42 深圳市幹線道路網規劃 (簡要報告) (深圳市規劃與國土資源局、深圳市交通局 2003年 8月)
out further studies to examine the potential environmental impact of the proposed Eastern Corridor if we are to proceed further with this cross-boundary link. Meanwhile, consideration could be given to delineate a preliminary route through Heung Yuen Wai joining possibly with the proposed Fanling By-pass or the proposed Eastern Highway which is only assessed to be required by 2030 Plan 8):

(a) **Linkage with the proposed Fanling By-pass:** As part of the development of the Fanling North New Development Area, the Fanling By-pass has been proposed to be developed as a strategic route to resolve the heavy traffic flow along Fanling Highway. The proposed connecting road could be linked up with this Fanling By-pass which will provide options for the users to go for the Tolo Highway or San Tin Expressway. Yet, we need to examine the possible impact of additional traffic from the new crossing on Tolo Highway and San Tin Expressway.

(b) **Connection with the Eastern Highway:** Another possible alternative is to expand the proposed Eastern Highway to connect with the new crossing point. The Eastern Highway is planned to relieve traffic congestion on the Tolo Highway and Fanling Highway and also there will be interchanges with some major routes leading to Kwai Chung. However, the Eastern Highway will only be required by 2030 or beyond to serve Tseung Kwan O, Sai Kung, Sha Tin, Tai Po and Fanling/Sheung Shui to urban areas. The original planning in the CTS-3 is to connect the Eastern Highway to Sha Tau Kok and therefore, the feasibility to connect it with the proposed Eastern Corridor is subject to further studies on all relevant and related areas in future.

73. To determine the alignment of the connecting road for the proposed Eastern Corridor, further studies on the engineering, capital costs, environment, traffic, planning and lands issues will be required.

**Further Studies**

74. Although the preliminary assessment of this paper shows that the proposed Eastern Corridor is not justified purely on demand ground up to 2030, there are some other important issues that must be addressed before we could confirm its need and programme. The benefits of Eastern Corridor could be realized depend on its alignment and provision of an extensive connecting infrastructure. In the absence of a cost-benefit analysis, the cost effectiveness of Eastern Corridor could not be ascertained. Further studies are necessary and the focus should be on the following:

(a) the functions of the new cross-boundary link at Liantang;

(b) the development potential (e.g. population growth, socio-economic factors and new policies) and future growth of Guangdong east and areas further beyond in order to set out an overall view on the need and potential for developing the Eastern Corridor. This will include sensitivity testing of relaxation of current regulatory measures e.g. cross-boundary vehicle quota system and policies on Mainland tourists to Hong Kong;

(c) the overall planning and development of transport infrastructure and public transport services on Mainland side, particularly PRD and Shenzhen, and its
interface with Hong Kong;

(d) more in-depth assessment of the possible alignment options for the connecting road system within Hong Kong;

(e) feasibility studies on the cross-boundary link and connecting road within Hong Kong e.g. engineering studies on drainage and other impact assessments and EIA study on environmental impacts including the increase in traffic generation on air quality; and

(f) cost-benefit analysis.

PLANNING DEPARTMENT
DECEMBER 2003