

Special Paper

Planning for Regional Mobility and Connectivity – a Key for Strengthening Hong Kong’s Competitiveness

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Abstract

With the emergence of the Greater Pearl River Delta region as a city-region of global significance and the intensified regional socio-economic interactions between Hong Kong and the PRD cities, strategic planning consideration for Hong Kong is extending spatial horizon beyond the territory across the boundary towards the GPRD region. This is also stretching the time horizon from the imminent future to a more far-sighted perspective under which the overall vision of the territory and the regional development trend and direction are in the picture. Cross-boundary transport infrastructure is not merely about hardware construction that would reduce the monetary cost of an ever-increasing regional mobility. Town planners perceive it as the key to promote convenience, safety and comfort of cross-boundary activities that could meet the rising public aspirations. Within the strategic planning context, through capitalising on the development opportunities while addressing environmental constraints, provision of cross-boundary transport infrastructure could be instrumental to achieving vibrant economy, social progress, quality environment and global competitiveness.

Keywords

Cross-boundary transport infrastructure, Greater Pearl River Delta region, HK2030 Study regional mobility, Territorial Development Strategy

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1. Planning Framework

1.1 The Regional Planning Context

In the era of globalisation, regional interaction and connectivity plays an important role in face of keen global competition. Establishment of a vibrant region depends heavily on how well the constituent cities interact to facilitate regional mobility of people and goods. While the constituent city may harness the opportunities arising from enhanced regional mobility by extending its economic hinterland and securing its regional position, it also has to cope with the rising cost associated with increasing regional mobility.

Geographically, Hong Kong Special Administrative Region (HKSAR) adjoins the Guangdong (GD) Province and forms part of the Greater Pearl River Delta (GPRD)² region (**Figure 1**). Since the economic reform and opening up of China in 1978, the socio-economic interaction between Hong Kong (HK) and the region have been growing over the years.

Figure 1: The Greater Pearl River Delta Region



(Source: Planning Department, the HKSAR Government)

² The Greater Pearl River Delta region comprises Hong Kong SAR, Macao SAR, and the nine cities in the Pearl River Delta, viz. Guangzhou, Shenzhen, Zhuhai, Foshan, Dongguan, Zhongshan, Jiangmen, and the urban areas of Huizhou and Zhaoqing, with a total land area of about 42,800 km² (Governments of GD, HKSAR and Macao SAR 2009).

The emergence of the GPRD region is now coming into shape. It is indeed more than a geographical unit. Nationally, it is one of the foci of China coastal development and the most developed city-region (Governments of GD, HKSAR and Macao SAR 2009). Internationally, it is well-acclaimed as the “factory of the world” and developing into a world-class metropolitan cluster with enhanced competitiveness. With a view to developing the world-class metropolitan cluster, the National 12th Five-year Plan advocates to strengthen the planning and coordination of a comprehensive transportation system in the region. A well-planned cross-boundary transport infrastructure is considered instrumental to enhancing the comprehensive competitiveness of the entire GPRD region to the benefit of HK.

1.2 Socio-economic Interaction between Hong Kong and the Mainland

Social Ties

Historically, HK has long had very strong social ties with the Mainland, particularly GD. Recent statistics evidenced that such strong social ties have been sustained. In 2011, about 31% of HK resident population were born in the Mainland³, with a noticeable growth in the proportion of younger population or middle-aged women born in the Mainland over the past ten years. This situation may be related to the large number of cross-boundary marriages (i.e. with either the husband or the wife being a Mainlander) in the last three decades, resulting in a large number of qualified Mainland wives, husbands and children coming to HK for reunion under the one-way permit scheme. From 2001 to 2011, about 510 000 one-way permit holders entered HK⁴ and there were around 272 000 cross-boundary marriages between HK residents and Mainlanders⁵.

In 2010, around 234 800 HK residents were living in the Mainland⁶, including 177 400 living in the GD Province. A survey⁷ conducted by the Census and Statistics Department in 2010 also showed some 175 100 HK residents were working in the Mainland, representing about 5% of the HK workforce. Among these workers, 89% usually worked in the GD Province, including 33% in Shenzhen (SZ), 30% in Dongguan and 12% in Guangzhou (GZ).

³ Source: Census and Statistics Department, Government of the HKSAR

⁴ Sources: Home Affairs Department and Immigration Department, Government of the HKSAR

⁵ Source: Census and Statistics Department, Government of the HKSAR. The numbers of cross-boundary marriages (either the brides or the grooms are Mainlanders but their spouses are Hong Kong residents) were estimated from the number of cross-boundary marriages registered in HK and the number of Certificate of Absence of Marriage Records (CAMR) issued in HK. Applicants of CAMR would normally use it for the purpose of registering marriages in the Mainland. However, CAMR holders may not get married eventually. Therefore, the figures are only crude estimates of the total number of cross-boundary marriages.

⁶ Source: 6th National Population Census results published by the National Bureau of Statistics of China in April 2011 and July 2012

⁷ An enquiry on Hong Kong residents working in the Mainland was conducted via the General Household Survey by Census and Statistics Department during July to September 2010.

Economic Interaction

Regarding the economic links, HK continues to be the Mainland's largest source of foreign direct investment and vice versa in 2011⁸. The Mainland has long been HK's largest trading partner, and HK was the Mainland's fourth largest trading partner in 2011. Furthermore, HK is a major funding centre for Mainland enterprises. A total of 640 Mainland enterprises were listed on the HK stock market as at the end of 2011. As at mid-2011, Mainland companies have established 248 regional headquarters or regional offices and 557 local offices in HK, up from 242 and 160 respectively ten years back.

The Mainland is the largest trading partner of HK in terms of merchandise trade, with values of HK\$3,444 billion⁹ (or almost half of the total merchandise trade) in 2011. In particular, HK is also a significant trading partner of the GD Province, with values of US\$193 billion¹⁰ in 2011. These strong economic bonds between HK and the GD Province also stimulate cross-boundary cargo movements. The Mainland is also the largest services trading partner of HK, with values at HK\$479 billion (or about 38% of total trade in services) in 2011. Among various components of exports of services to the Mainland, travel was the largest component with value at HK\$153 billion (or about two-thirds of total export service value). Manufacturing services were the largest component of imports of services from the Mainland, with value at HK\$140 billion (or about 56% of total import service value).

1.3 Surge in Cross-boundary Travel Movements

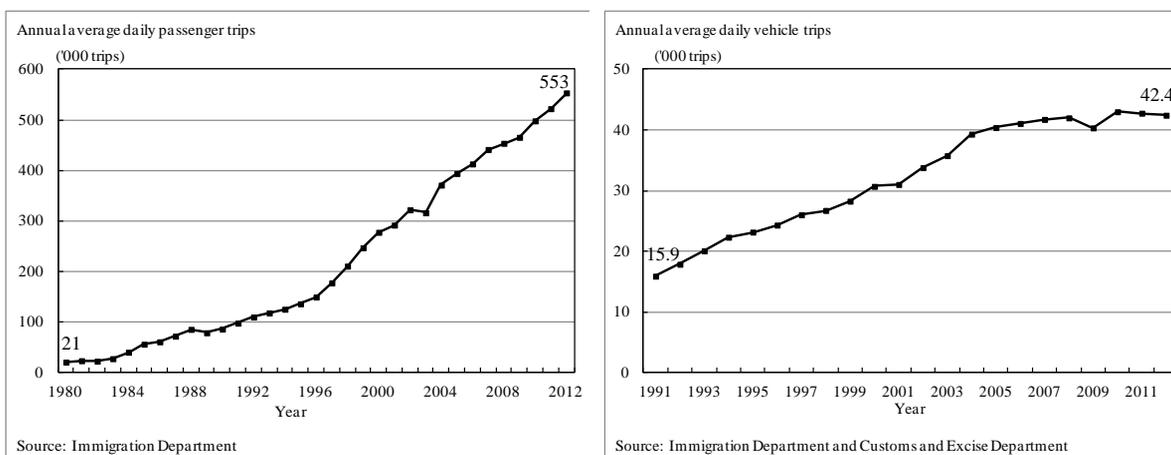
The high growth of socio-economic ties between HK and the Mainland in the past three decades has led to a tremendous growth in the cross-boundary travel activities between HK and the Mainland. A worth noting phenomenon is that cross-boundary passenger movements have increased at a much faster rate than cross-boundary vehicle flows. In 1980, there were 21 000 average daily land-based cross-boundary passenger trips between HK and the Mainland, but the number soared to 553 000 in 2012 (average growth rate of 10.7% p.a.). In comparison, the number of daily land-based cross-boundary vehicle trips have only increased with an annual growth rate of 4.8% from 15 900 in 1991 to 42 400 in 2012 (**Figure 2**).

⁸ According to the Census and Statistics Department, the cumulative value of HK's direct investment in the Mainland reached HK\$3,346 billion at end-2011. The market value of direct investment from the Mainland to HK amounted to HK\$3,043 billion at end-2011, accounting for 36% of HK's total inward direct investment.

⁹ Source: Census and Statistics Department, Government of the HKSAR

¹⁰ Source: Guangdong Statistical Yearbook 2012, Statistics Bureau of Guangdong Province

Figure 2: Average Daily Land-based Cross-boundary Passenger and Vehicle Trips between Hong Kong and the Mainland



(Sources: Immigration Department and Customs and Excise Department, the HKSAR Government)

According to the Cross-boundary Travel Survey (CBTS) 2011 conducted by the Planning Department, cross-boundary passenger trips between HK and the Mainland made by people living in HK took up the largest share, constituting 61% of all trips. Another 24% were made by visitors from the Mainland, 13% by HK residents living in the Mainland and 2% by people living in other places. The strong social interactions between HK and the Mainland as mentioned before can also be reflected from the trip purposes of the cross-boundary travellers. Of the cross-boundary trips made by people living in HK in 2011, the majority of them were for leisure and visiting relatives and friends, and in fact the proportion of the travellers making trips for these two purposes has increased from around 60% in the early 2000s to 71% in 2011.

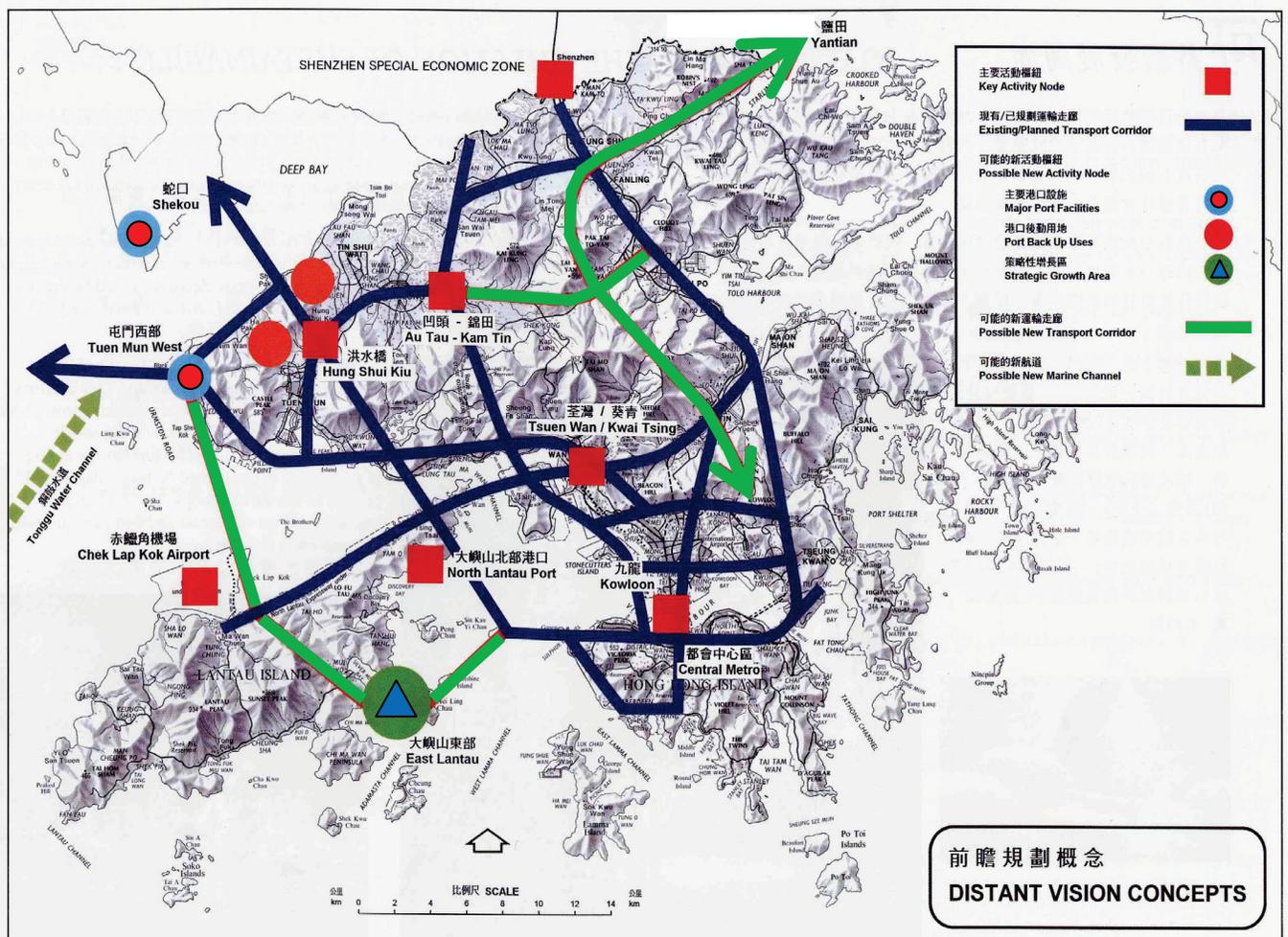
2. Strategic Planning Initiatives

2.1 Territorial Development Strategy and Territorial Development Strategy Review

In HK, as early as the 1980s, strategic planning has extended its perspective beyond the territory. One of the principal goals of the Territorial Development Strategy (TDS), which established the first long-term integrated land use-transport planning framework for the growth of HK, was to ensure that necessary physical infrastructural facilities were provided to support the primary roles of HK at the time, as an entrepot for South China (HK Government 1990). During the formulation of the TDS, the need to improve cross-border transport links was already recognised having regard to the interaction with development in SZ (HK Government 1984).

In the 1990s, the Territorial Development Strategy Review (TDSR) made a breakthrough by making closer reference to the increasingly significant developments in the Pearl River Delta (PRD) region. The Study of Development Trends in GD Province (the GD Study) was commissioned by the Planning Department to produce a framework of probable growth scenarios for the PRD region and identify their spatial and infrastructure implications for development of HK (HK Government 1993). The findings of the GD Study were incorporated into the assessment of flexibility of options in the TDSR, which put forward recommendations in respect of economic land uses and transport systems to respond positively to trends in GD and to retain key economic roles of the territory. The TDSR also set out distant vision concepts which were mainly about enhancing HK's accessibility to the PRD region and capitalising development opportunities along the regional transport axes for further consideration in future (Figure 3).

Figure 3: Distant Vision Concepts of the Territorial Development Strategy Review (1998)



(Source: Planning Department, the HKSAR Government)

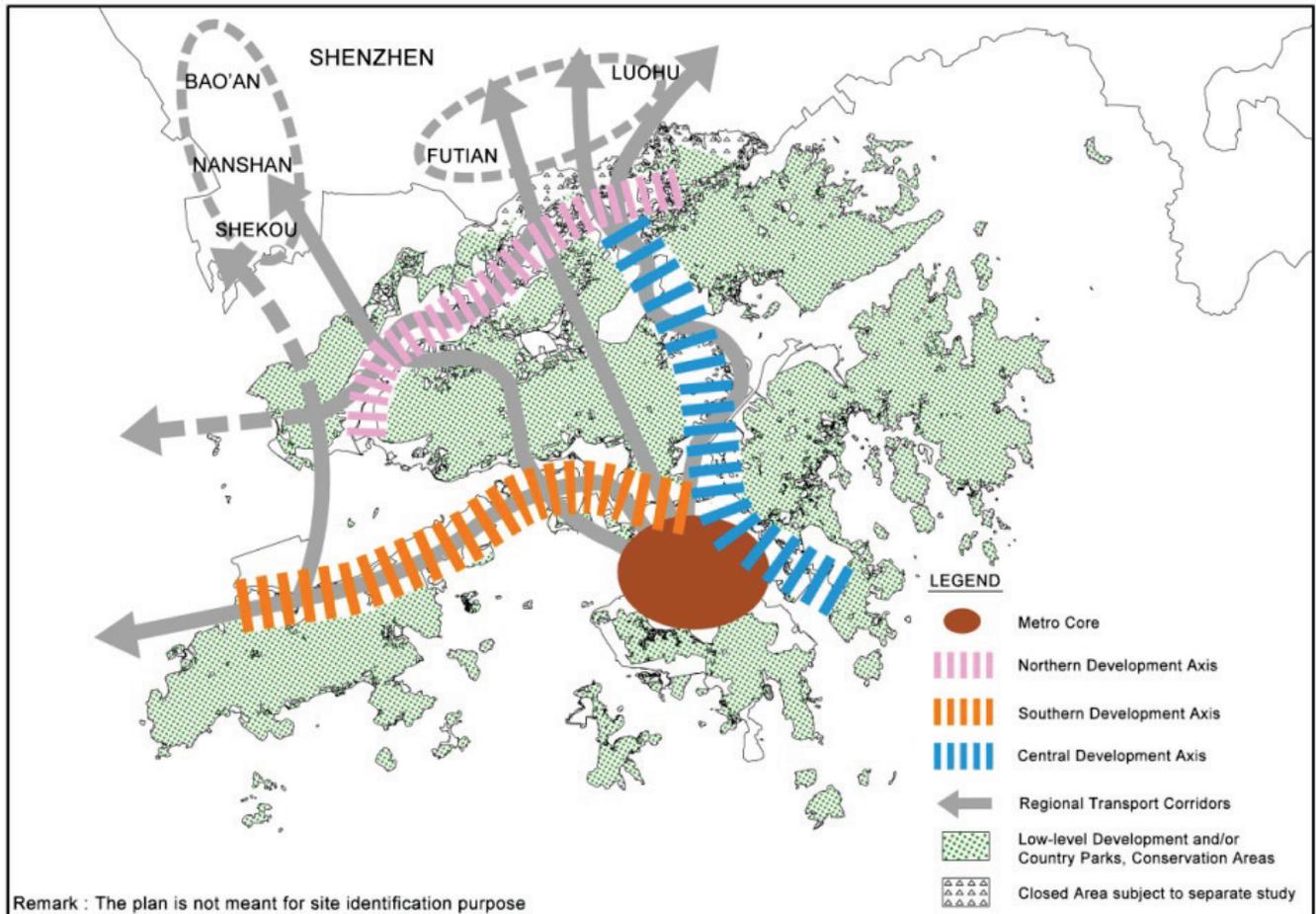
2.2 Hong Kong 2030: Planning Vision and Strategy

The Study on Hong Kong 2030: Planning Vision and Strategy (HK2030 Study) was undertaken in 2000-2007 to update the TDS. In HK2030 Study, more studies about the Mainland and surveys on cross-boundary planning matters, including cross-boundary travel activities and HK people living in the Mainland were conducted. As a step forward, the HK2030 Study added a chapter on the national dimension. The study suggested that the future of HK would rely heavily on how well the city could position itself to capitalise on the Mainland's rapid development. In this regard, maintaining smooth and unimpeded flows of people, vehicles and goods would be pivotal to the development of HK (HKSAR Government 2007).

The HK2030 Study explicitly set out to strengthen links with the Mainland as one of the three broad directions for the territorial development, along with enhancing economic competitiveness and providing a quality living environment. Specifically, effective connections to Mainland's transport networks and transportation system were proposed to strengthen HK's position as a gateway to China and China's springboard to the world. A number of cross-boundary transport infrastructure projects mentioned in the HK2030 Study are either under construction or planning, viz. the HK-Zhuhai-Macao Bridge (HZMB), the HK Section of the GZ-SZ-HK Express Rail Link (XRL) and the Liantang/Heung Yuen Wai Boundary Control Point (LT/HYW BCP).

Development opportunities arising from the existing and planned cross-boundary links can be capitalised in devising the spatial development axes for HK. In this regard, the HK2030 Study has formulated a Strategic Concept Plan to take full advantages of the opportunities (**Figure 4**). Whilst development axes are proposed along the regional transport corridors, the Northern Development Axis is primarily proposed for technology and business zones, and the Southern Development Axis is specifically designated for logistics and major tourism facilities. Besides, a new cluster of prime offices is also proposed in West Kowloon, adjoining the terminus of the future HK Section of XRL.

Figure 4: Strategic Concept Plan of the HK2030 Study (2007)



(Source: Planning Department, the HKSAR Government)

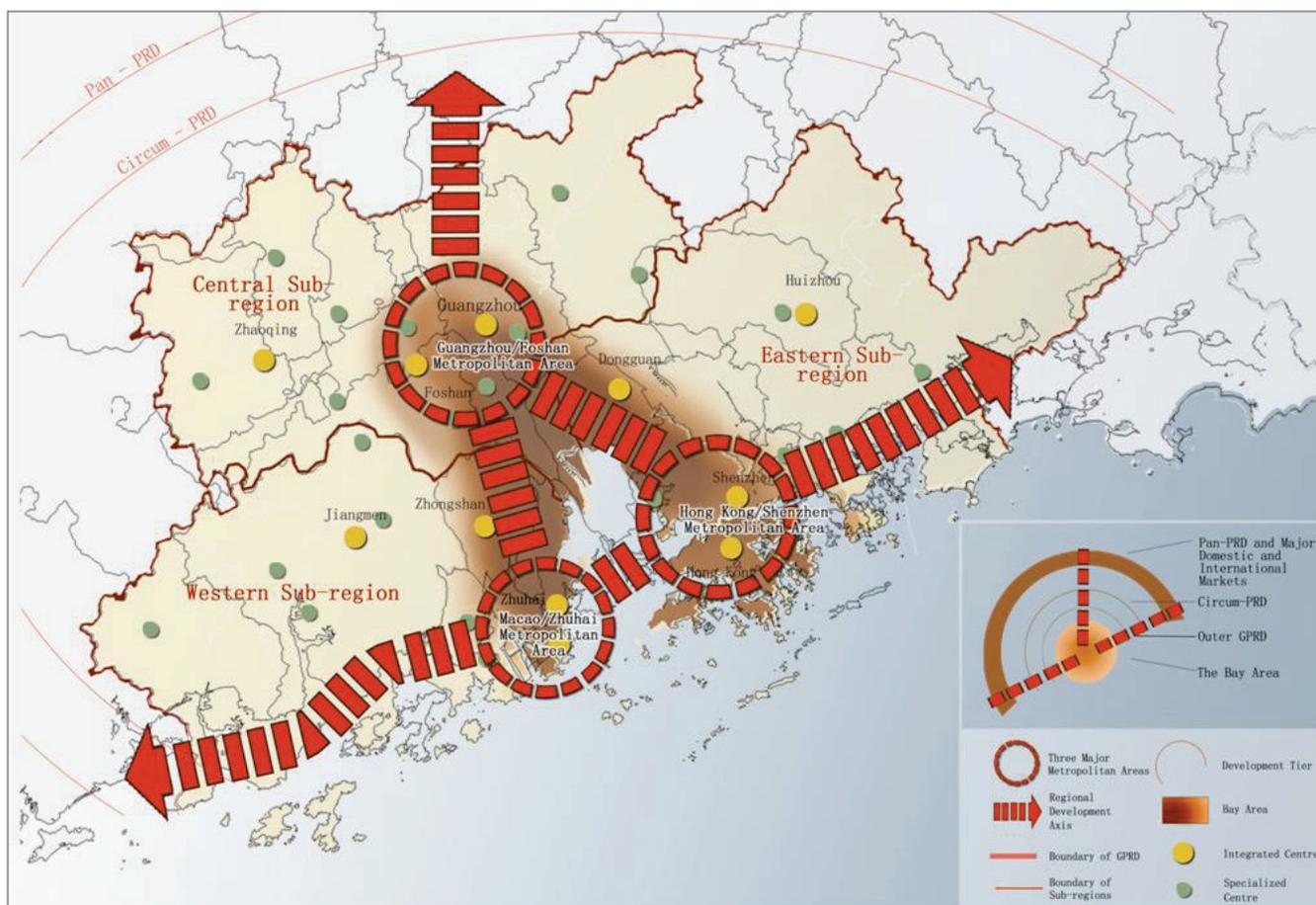
2.3 Planning Study on the Co-ordinated Development of the Greater Pearl River Delta Townships (GPRD Study)

As a step forward from previous studies, the GPRD Study, promulgated in 2009, was the first strategic regional planning study undertaken jointly by planning authorities of GD, HK and Macao with the aim at formulating a regional development strategy by taking a forward-looking perspective to consider the opportunities and constraints of the GPRD region under the “One Country, Two Systems” framework. This Study served as a platform for HK to understand more about the strategic planning vision and proposals of the GD Province and cities in PRD as well as a valuable arena for cross-fertilisation of planning ideologies amongst the parties involved.

Three major development strategies for optimising spatial structure, high accessibility and quality of environment were devised with the ultimate objective to develop the GPRD region into a coordinated and sustainable world-class city-region, which is vibrant, energetic and

globally competitive (Figure 5). Three metropolitan areas were identified in the GPRD Study, with (i) HK-SZ Metropolitan Area that aimed to consolidate HK’s status as Asia’s World City and SZ as one of China’s economic centres; (ii) GZ-Foshan Metropolitan Area with the view to strengthening GZ’s status as a key city, an integrated gateway and a regional centre of culture and education of China; and (iii) Macao-Zhuhai Metropolitan Area that made full use of Macao’s status as an international leisure and tourism centre, a regional trading and commercial service platform, and Zhuhai as the key city on the west bank of PRD. Amongst the strategies for high accessibility recommended in the GPRD Study, cross-boundary “seamless connections” were concluded as essential in reducing the time and cost spent on crossing boundaries and increasing the overall traffic efficiency in the GPRD region.

Figure 5: Spatial Structure of the GPRD City-region under the GPRD Study (2009)



(Source: Planning Department, the HKSAR Government)

2.4 Evolving Approach in Strategic Planning with Cross-boundary Dimension

The above studies illustrate the evolutionary progress of strategic planning in HK over the past decades. Early attempts in the 1980-90s in cross-boundary planning focused primarily on addressing the transport needs in response to the increasingly cross-boundary activities that exerted grave pressure on the cross-boundary infrastructure. The HK 2030 Study adopted a more visionary approach that emphasised the need to expand cross-boundary infrastructure for better regional mobility and connectivity and recognised the needs to take full advantages of the closer cross-boundary connections in setting out spatial development strategies for HK. The GPRD Study could be regarded as a pioneer step in fostering cooperation in the GPRD region through a more proactive and institutional approach led by both Government and relevant stakeholders, mostly expert advisors including planning professionals and academics.

In response to increasing cross-boundary mobility, regional planning initiatives have taken different forms. For better understanding of the cross-boundary travel trends and people's situation of and aspirations for making cross-boundary travel movements, a series of surveys have been conducted since the late 1990s. These include the biennial CBTs, "Survey of HK People Living and Working in the PRD Region" and "Survey of HK People Living in SZ", etc. These survey results serve as useful reference materials for the Government and other stakeholders to study cross-boundary travel activities for the planning of cross-boundary transport infrastructure as well as community- and tourism-related facilities.

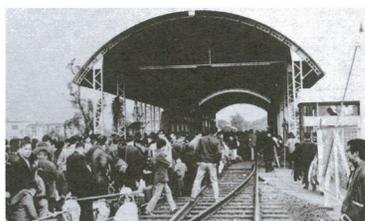
To promote knowledge sharing with the regional counterparts, in 2008, the Planning Department took a lead in establishing a platform on "Cooperation of Cross-boundary Travel Information" among four neighbouring cities including HK, SZ, Macao and Zhuhai for the sharing of cross-boundary travel information, which is an importance reference for government planning work relating to cross-boundary transport infrastructure and related facilities.

3. Cross-boundary Facilities – from Strategic Planning Perspective

In face of the tremendous changes in cross-boundary travel characteristics and accelerating regional mobility over the decades (**Figure 6**), timely provision of new infrastructure to meet the demand and minimise the cost of the ever-intensifying regional interaction is always a big challenge to the HKSAR Government. With raising public aspiration for more accessible and seamless cross-boundary services, town planners consider cross-boundary infrastructure

not merely means to reduce journey time and lower travel cost but also a key to promote convenience, safety and comfort that could meet the rising public aspirations.

Figure 6: Rail-based Cross-boundary Facilities – From Past to the Present



1. *Cross-boundary passengers crossing the old Lo Wu bridge to the Mainland in 1960s.*

(Source: MTR Corporation Limited)



2. *Lo Wu BCP in the early 2000s.*

(Source: Planning Department, the HKSAR Government)



3. *Lok Ma Chau Spur Line BCP in 2012.*

(Source: Planning Department, the HKSAR Government)

3.1 Cross-boundary Facilities – Yesterday

HK locates at the southern tip of the GPRD region and SZ is indeed the main gate for all land-based movements between HK and the Mainland. Owing to this geographical situation, the majority of the cross-boundary passenger and freight movements are made through the BCPs between HK and SZ boundaries.

The Kowloon-Canton Railway (KCR) was the first modern transport infrastructure in the 1910s enabling passengers to enjoy through train services between HK and GZ, the metro-city of South China at that time. Through train services to GZ was suspended in the late 1940s due to political reasons for nearly thirty years, engendering cross-boundary passengers having to walk across the railway bridge at Lo Wu for train services in the Mainland. However, during the same period, cross-boundary passenger and goods movements had increased at a quick pace. After decades of political and socio-economic developments on both sides of the boundary, Lo Wu BCP turns out to be one of the most heavily used cross-boundary control points all over the world.

The KCR railway services between Lo Wu and Kowloon also provide opportunities for urban expansion in the form of new towns in the New Territories. In the 1970s, the Government decided to develop the small market towns of Shatin, Tai Po, Fanling and Sheung Shui, all being located along the KCR line, into a series of new towns to accommodate the growing

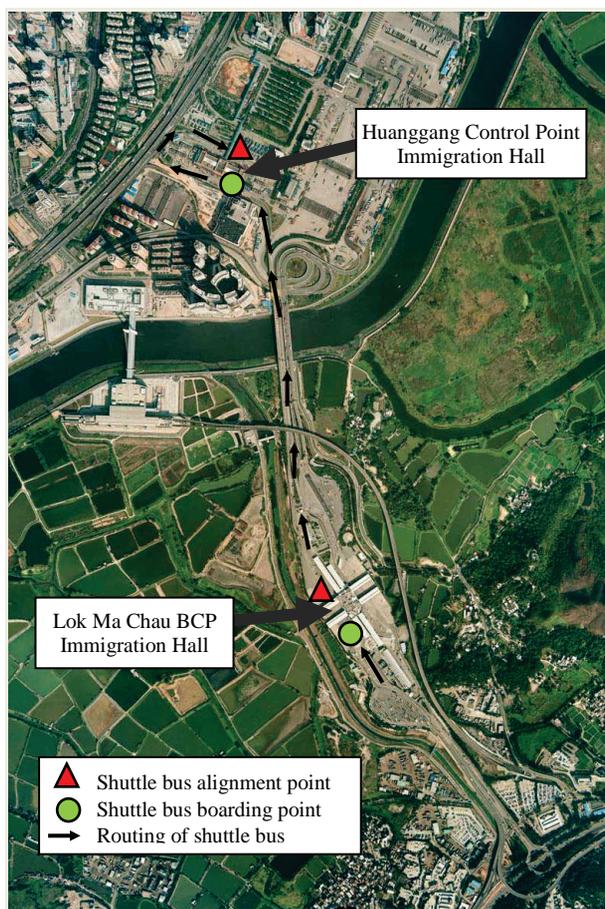
population. In 2011, these four new towns accommodate a population of about 953 000¹¹ (equivalent to about 13% of HK population). With the modernisation of the KCR railway services in the 1980s and the full development of the four new towns, the East Rail Line, which is now so named, provides a major transport connection between northeast New Territories and the metropolitan area.

The highway connections and physical layouts of road-based BCPs have imposed constraints on their developments. Both Man Kam To and Sha Tau Kok BCPs were opened in early 1980s and they are located along the eastern section of the HK/SZ boundary. At the time when the two BCPs were constructed, the BCP facilities were implemented independently by the HK and SZ governments and resulted in mismatch in the design capacity of the BCPs on both sides of the boundary. In recent years, there were “bottleneck” problems in the peak periods for Man Kam To BCP. The problems have instigated improvement works to Man Kam To BCP on SZ side that commenced in 2010. Due to the geographical constraints and highway connection of the Man Kam To BCP, there is limited scope for further enhancement in capacity at this BCP to meet the anticipated future travel demand in terms of convenience and the level of comfort.

Lok Ma Chau BCP is the busiest road-based BCP with about 80 000 passengers per day and approximately 26 000 vehicles per day¹². Being the third heavily-utilised BCP in terms of the number of cross-boundary passengers in HK, Lok Ma Chau BCP cannot be considered as a convenient and user-friendly facility. As shown in **Figure 7**, the passenger halls of customs, immigration and quarantine facilities on both HK and the SZ sides are about 1 600m apart from each other and are linked together by a bridge spanning over the river. Lok Ma Chau/Huanggang shuttle buses are the most popular means for cross-boundary passengers to travel between the two immigration halls and passengers have to board and alight twice for completing the customs clearance procedures. Not only does it cause inconvenience and discomfort to the passengers, it also reduces the operational efficiency of the BCP.

¹¹ Source: Census and Statistics Department, Government of the HKSAR.

¹² Source: Immigration Department and Customs and Excise Department, Government of the HKSAR.

Figure 7: General Layout of Lok Ma Chau BCP

(Source: Aerial Photo from Lands Department, the HKSAR Government)

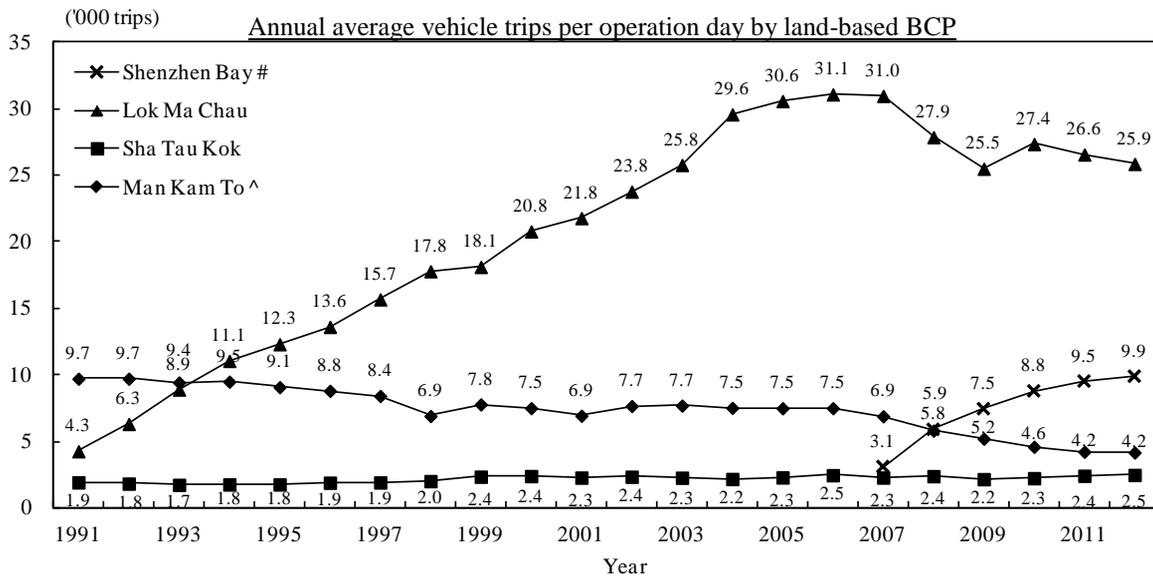
3.2 Cross-boundary Facilities – Today

Trends in Cross-boundary Traffic and Passenger Movements

Over the past decades, there has been a significant and continuous increase in cross-boundary freight and passenger traffic. As revealed from **Figure 2**, cross-boundary traffic movements showed a steady growth in the 1990s but increased at a faster pace in the early 2000s. Due to good accessibility, Lok Ma Chau BCP remains as the busiest and most popular vehicular crossing. The volume of cross-boundary traffic at Lok Ma Chau has risen by 50% from around 20 000 trips per day in early 2000s to its historical peak of about 31 000 trips per day in 2006-2007, handling nearly 75% of all cross-boundary vehicle trips (**Figure 8**). Man Kam To BCP handled around 6 000-7 000 cross-boundary vehicle trips a day over the past decade before the improvement works on SZ side since 2010. The majority of the vehicles making use of this BCP are goods and container vehicles as this BCP is the designated point of entry of all vegetables and livestock. Sha Tau Kok BCP, situated at the eastern periphery

of the HK/SZ boundary, is used by less than 10% of all cross-boundary traffic with an average daily flow of around 2 000 trips.

Figure 8: Cross-boundary Traffic Movements



Notes: # Shenzhen Bay BCP came into operation on 1.7.2007.
 ^ Passenger clearance services at Man Kam To BCP reduced from Feb 2010 due to reconstruction works.

(Source: Immigration Department and Customs and Excise Department, the HKSAR Government)

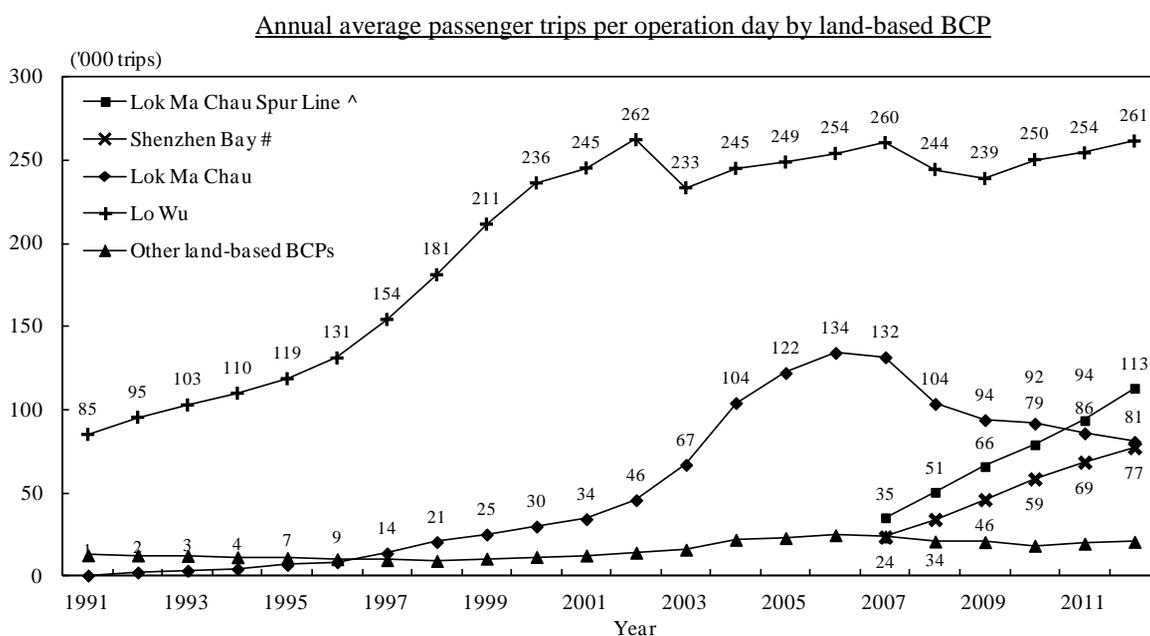
The cross-boundary passenger movements have been increasing at a fast rate since the 1990s (Figure 2). Lo Wu BCP has long been the busiest boundary crossing between HK and the Mainland and the traffic demand at this BCP reached a historical high value with an average of 262 000 passengers per day in 2002 (with passenger demand surging to over 350 000 on festive days) (Figure 9).

Unlike Lo Wu BCP which has been a passenger-only crossing right from the beginning, the Man Kam To, Sha Tau Kok and Lok Ma Chau BCPs were originally designed mainly for cross-boundary freight traffic. With a continuous increase in cross-boundary travel, the three BCPs have to cater for more passenger traffic. In particular, Lok Ma Chau BCP has taken up the largest share of the increase amongst these land-based crossings.

With a large volume of cross-boundary traffic, San Tin Interchange, the primary highway connection leading to Lok Ma Chau BCP, and its adjoining traffic networks have been overloaded and queues of cross-boundary traffic tailed back and blocked the operation of the

surrounding strategic highways. Improvement works at San Tin Interchange were commenced in 2005 to cope with the cross-boundary traffic demand and to relieve traffic congestion at the BCP. It is worth noting that the improvement works have alleviated the traffic conditions for cross-boundary freight traffic only, but due to site constraints, the room for accommodating more cross-boundary passenger activities at the BCP remained limited. The 24-hour passenger clearance was implemented at Lok Ma Chau BCP in 2003 after the completion of the passenger hall improvement works for enhancing the passenger handling capacity. However, there is still room for improving degree of convenience and the level of comfort for passengers using this BCP.

Figure 9: Cross-boundary Passenger Movements



Notes: # Shenzhen Bay BCP came into operation on 1.7.2007
 ^ Lok Ma Chau Spur Line BCP came into operation on 15.8.2007.

(Source: Immigration Department, the HKSAR Government)

Forward-looking and Holistic Approach in Planning of Cross-boundary Facilities

The opening of the SZ Bay BCP in mid-2007 has lessened the traffic loading at the Lok Ma Chau BCP which appeared to be near saturation from 2004 onwards. The proportion of cross-boundary traffic via SZ Bay BCP has increased from 7% in second half of 2007 to over 20% since 2010; whilst the share of Lok Ma Chau BCP has declined from 72% in 2007 to nearly 60% in 2012. Similarly, the Lok Ma Chau Spur Line BCP, also commenced services in 2007, has relieved the heavily-used Lo Wu BCP. **Figure 9** shows that the share of total

cross-boundary passengers of Lo Wu BCP dropped from above 60% before 2007 to less than 50% in 2012. The planning of these two new BCPs has demonstrated a more forward-looking and holistic approach to planning cross-boundary infrastructure in HK with the following aspects:

Planning Consideration in a Wider Spatial Context

The Master Plan of Shenzhen (1996-2010) (深圳市人民政府 2010) completed in the early 1990s, delineated the spatial planning proposals covering not only the Special Economic Zone in SZ but also the rest of the city outside the Special Economic Zone. According to the plan, future development of SZ should follow three development structures with the western, central and eastern axes. The western axis originated from the Nanshan Cluster (南山區), and extended along the Pearl River to connect GZ. This spatial development plan was further realised in the “Dual CBD” concept established under the Master Plan of Shenzhen (2010-2020) (深圳市人民政府 2010) where Qianhai (前海) and Futian-Luohu (福田/羅湖) were identified as the two municipal centres for SZ. Qianhai locates to the south of SZ Bao’an International Airport and with her strategic location along the development corridors of HK and GZ. Qianhai is positioned as the second CBD for SZ, playing the role of a modern service industry zone. Based on the transport planning policy of “East-in-East-out, West-in-West-out”, one of the transport development strategies of the Master Plan was to strengthen the cross-boundary infrastructure and transport facilities for goods vehicles on both eastern and western sides.

With upcoming developments in western SZ, significant growth in cross-boundary travel movements between HK and SZ is anticipated. To rationalise the distribution of cross-boundary traffic which used to concentrate in the east, the SZ Bay BCP was recommended in the Crosslinks Study (1996) and Feasibility Study Additional Cross-border Links (1997-2000), commissioned by the Planning Department to cater for future cross-boundary travel demand. These studies marked momentous changes in strategic planning in HK as town planners have started to involve in the planning of cross-boundary land-based transport infrastructure at an early stage.

People-Oriented Design

The planning of new cross-boundary facilities concerns not only the handling capacity of BCPs. Instead, a people-oriented design is adopted in the planning stage to ensure convenience, accessibility and availability of BCPs to the cross-boundary passengers. The pursuit of “co-location” of immigration and customs facilities at SZ Bay BCP was a pioneer

step in promoting seamless cross-boundary services to shorten the time involved in the customs clearance procedures and thereby enhancing travelling convenience and comfort.

To the public, these two new BCPs open more choice and flexibility in making cross-boundary trips. The opening of the SZ Bay BCP provides convenient cross-boundary services for people in northwest New Territories who previously relied heavily on the facilities in the east viz. Lo Wu or Lok Ma Chau BCPs. Provision of domestic public transport services was thoroughly considered in the planning stage of the SZ Bay and Lok Ma Chau Spur Line BCPs so that a wider choice of transport modes is available to the public. According to the CBTS 2011 survey results, about 14% of the total cross-boundary passengers made use of franchised buses/green minibuses to access the BCPs, increasing from a share of 6% in year 2007.

Development Opportunities

In undertaking strategic planning, the construction of cross-boundary transport infrastructure is not an end in itself but instead, a means to achieving sustainable development in HK and the GPRD region. To follow up these initiatives, a series of planning and engineering studies have recently been or are being carried out.

Considering its proximity to SZ Bay BCP with access via Kong Sham Western Highway, the ongoing Hung Shui Kiu New Development Area (NDA) Planning and Engineering Study identifies Hung Shui Kiu NDA as a gateway to the Northwest New Territories from the Mainland, capitalising on the relevant strategic transport infrastructure and the potential of developing the NDA into a business and leisure centre (HKSAR Government 2011).

With a view to optimising the land resources of the strategic location in close proximity to the existing BCPs, the Lok Ma Chau Loop (the Loop) is proposed for higher education, to be complemented by high-tech research and development as well as cultural and creative industries (**Figure 10**) (HKSAR Government 2012a). The transport links to Lok Ma Chau BCP and Lok Ma Chau Spur Line would provide strategic highway and public transport connections respectively between the Loop and other areas in HK.

Figure 10: Photomontage of the Proposed Development on Lok Ma Chau Loop



(Source: Planning Department, the HKSAR Government)

The implementation of the Northern Link (NOL) was promulgated in the Railway Development Strategy (RDS) in 2000 (HKSAR Government 2000) and is under detailed consideration in the current review and update of the RDS. The NOL would join up the East Rail Line with the West Rail Line with possible connection to the Lok Ma Chau Spur Line BCP. In addition, the project would divert some of the passengers for boundary crossing or for commuting to urban area from the East Rail Line. In the current review of RDS, Kwu Tung Station might be added to the existing Lok Ma Chau Spur Line enabling passenger interchange between the two railway lines to facilitate more effective east-west movement for residents of the New Territories (HKSAR Government 2012b). Another function of NOL is to serve the NDAs in the northern New Territories which are important land sources in addressing the housing demand in a longer term. In addition, NOL would also form a framework of the green transport system.

3.3 Cross-boundary Facilities – Tomorrow

Planning for cross-boundary infrastructure is an on-going process and requiring continuous review to take account of the aspirations and requirements of cross-boundary travellers.

As stipulated in the dedicated chapter entitled “Maintaining the Long-term Prosperity and Stability of HK and Macao” under the National 12-5 Plan, a key message was highlighted in the strengthening of the planning and co-ordination of a comprehensive transportation system among PRD Region, HK and Macao, by means of some major co-operation projects, viz. HZMB, the HK Section of the XRL and the LT/HYW BCP.

The HK Section of XRL will plug in the 16 000 km national high-speed rail network now being developed in full stream in the Mainland, connecting HK with the Beijing-Guangzhou Passenger Line (京廣客運專線) and Hangzhou-Fuzhou-Shenzhen Passenger Line (杭福深客運專線). Journey time between HK and the Central and Southern Mainland and various major Mainland cities will be greatly shortened. It is estimated that a population of 60 million will fall within a four-hour journey zone from the West Kowloon Terminus in HK, which will be the largest coverage in the world. Within the PRD region, the future terminus of XRL at Shibi in GZ will be extensively served by high-speed railway routes, inter-city rapid transit routes, urban metro lines of GZ and major highways and various public transport services. Through interchanging with the PRD Rapid Transit System at Humen of Dongguan, the XRL will also put HK within easy reach of major PRD cities. The enhanced connectivity between HK and the Mainland will strengthen HK's position as the global city in the GPRD region and reinforce our competitiveness as an international service centre.

The HZMB will fill in the missing link the HK-SZ and Macao-Zhuhai Metropolitan Areas across the Pearl River as identified in the GPRD Study. This “seamless connection” between the two banks of Pearl River would strengthen the cross-boundary connection in achieving the “one-hour traffic circle within the Bay Area”. With the HZMB, many places in the western PRD region will fall within a three-hour journey zone from HK. This would enhance the attractiveness of the western PRD region to HK investment, which is conducive to the upgrading of its industrial structure. The implementation of the HZMB will also benefit various sectors in HK, such as tourism, finance and commerce. In particular, it will enhance HK's position as a trade and logistics hub as goods from the western PRD and places further west, such as Guangxi, could be exported from the airport and container ports in HK.

With the completion of the HZMB and other cross-boundary transport facilities in the near future, Tung Chung would be well-positioned to enjoy the benefit from “Bridgehead Economy” and thereby becoming a transportation hub for both tourism and logistics industries in the PRD region. The ongoing Tung Chung New Town Extension Study is to realise such development potential for the territory (HKSAR Government 2012c). Also, HK International Airport (HKIA) would be benefited from the sea-crossing link across Pearl River with the Macao International Airport and Zhuhai Airport as her hinterland. The future Tuen Mun-Chek Lap Kok Link and Tuen Mun Western Bypass would provide a direct north-to-south link to HKIA serving the Northwest New Territories and further to SZ at SZ Bay BCP. In the regional context, openings of these infrastructures would boost the status of North Lantau and Tung Chung as the focal point of regional transport and commodity movements.

Taking a step forward, possible railway linkage between the two airports in HK and SZ, which is still under public engagement in the current review and updated of RDS, would provide convenient interchange services for passengers between the two airports. With its spur line to Hung Shui Kiu area, this possible link would facilitate the development of the northwest New Territories as a whole (HKSAR Government 2012b).

In 2006, the Planning Study on LT/HYW BCP and its Associated Connecting Road in HK was jointly commissioned by the Planning Department and the relevant authorities of the SZ Municipal People's Government in 2006 to explore the need, function and benefits of a new BCP. The Planning Department commissioned a further study to examine the planning, traffic, environmental and engineering issues of the new crossing point (HKSAR Government 2008). Both studies confirmed the strategic need of the new BCP and recognised that this cross-boundary infrastructure together with the associated highway linkages on both sides of the boundary would extend the economic hinterland of HK for future regional cooperation and development, enabling HK to grab the development opportunities associated with the new development districts in Longgang (龍崗中心區) and Pingshan (坪山新城中心) of SZ East that put forward in the Master Plan of Shenzhen. Furthermore, with the improved transport connections with the municipalities in the GD East like Meizhou (梅州), Chaozhou (潮州) and Hieyang (揭陽) and places further east in Fujian (福建), opportunity could also be taken by establishing closer interaction with the Western Taiwan Straits Economic Zone (海峽西岸經濟區) that aims at strengthening the competitiveness of coastal cities by capitalising the economic cooperation with Taiwan.

In HK, the new BCP will re-distribute the cross-boundary traffic amongst the crossings in the east, i.e. Man Kam To and Sha Tau Kok BCPs, for which works for improving performance to meet public aspirations are limited due to physical constraints on both HK and SZ sides. The new connecting road to be constructed linking Fanling Highway and the LT/HYW BCP will improve the existing road network in the New Territories North as a whole, and provide the required transport access for the adjoining areas in New Territories North identified in the 2013 Policy Address with potentials to serve future housing demands. Apart from addressing the acute housing demand, major development areas in the New Territories North could provide development space for the industries where HK enjoys clear advantages.

4. Conclusion

The classic “gravity model” has been applied in predicting intercity movements of people and goods. It theorises that the relative strength of bondage between two places is proportional to their population size and scale of economic development with the gravitational attraction diminishing with increasing geographical distance. Empirical studies shown that improvement to transport linkages within a region could be regarded as a catalyst for stronger regional mobility and closer socio-economic connections that eventually strengthen the competitiveness and attractiveness of the constituent cities.

As evidenced from the history of cross-boundary development between HK and SZ, the construction of cross-boundary transport infrastructure is not an end in itself. Improved accessibility across the boundary would indeed facilitate more intensified socio-economic interactions. This set a momentum for reinforcing the vibrancy of GPRD region as a whole which in turn reinforcing HK’s competitiveness as a global city.

Planning for cross-boundary transport infrastructure has been evolving with the strategic planning process for HK. In the early years, planning of cross-boundary infrastructure primarily focused on addressing basic cross-boundary traffic needs on a demand-driven or project-based basis. With closer socio-economic interaction in the GPRD region and with the deepening and broadening of their regional cooperation initiatives, the scope of strategic planning has been extending in terms of both spatial and time horizons. The area of concerns has stretched from individual projects to a more integrated and forward-looking development strategy for HK.

With new and improved cross-boundary facilities and associated transport connections, the valuable land resources in the northern New Territories would become more accessible, offering a wider choice for location of home, employment and schools for the locals. Also, land in close proximity to the Mainland would be particularly vital for those industries and business that closer connections with GPRD could enjoy greater advantages. Greater job opportunities available in the northern New Territories would boost economic activities and decentralise activities from the urban core, thereby contributing to balancing the spatial distribution of job opportunities over the territory and bringing jobs closer to homes.

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