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# The Legislative Council

# of the

# Hong Kong Special Administrative Region

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## Delegation of the Panel on Transport

## Report on the duty visit to Singapore to study its experience in development and provision of public transport facilities and traffic control measures

## 23 to 26 September 2014

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## CHAPTER 1 — INTRODUCTION

### 1.1 Purpose of the report

1.1.1 A delegation of the Panel on Transport ("the Panel") of the Legislative Council visited Singapore from 23 to 26 September 2014 to study the country's experience in development and provision of public transport facilities and traffic control measures. This report presents the main findings and observations of the delegation.

### 1.2 Background of the visit

1.2.1 While the Singapore government has been expanding the road and railway transport infrastructure to cope with the increasing travel demand, there is a pressing need to find ways to maximize the capacity and to enhance the performance of the existing transport system. To this end, effective transport management using the latest information technology is adopted for the orderly and safe operation of the transport system.

1.2.2 Singapore has pioneered the use of advanced technology to manage its expressways and tunnels. Its centralized Intelligent Transport Systems ("ITS") collect and disseminate real-time traffic information to guide motorists to reach their destinations most efficiently. Also, Singapore is the first city in the world to make use of Electronic Road Pricing ("ERP") system to regulate traffic in its Central Business District.

1.2.3 In public transit, Singapore has built a number of air-conditioned and user-friendly integrated transport hubs in order to encourage the use of public transportation. It has also rolled out an intelligent bus management system that not only provides bus operators an integrated platform for better fleet management, but also gives commuters real-time bus arrival information.

1.2.4 In addition, Singapore has deployed a fully automated train control system that obviates the need for an on-board driver. At present, there are three Mass Rapid Transit ("MRT") lines, namely the North East Line

("NEL"), the Circle Line and the Downtown Line that are operating fully automatically.

1.2.5 The Panel decided to embark on the duty visit to Singapore, in order to gain first-hand information about the traffic management measures that could be of good reference for Hong Kong. Besides, it would be worthwhile to learn from Singapore's experience in the development and operation of a number of heavy and light rail systems.

1.2.6 On 4 July 2014, the Panel obtained the House Committee's permission to undertake the duty visit to Singapore.

## 1.3 Objectives of the visit

1.3.1 The objectives of the duty visit are –

(a) to study the experience of the Singapore government and to obtain first-hand information on the relevant policies and initiatives in the development and provision of public transport facilities and traffic management measures;

(b) to study and observe the application of Information Technology in traffic management; and

(c) to study and observe the operation and management of the fully automatic, driverless MRT system in Singapore as well as the development and operation of the Light Rail Transit ("LRT") system.

## 1.4 Membership of the delegation

1.4.1 The delegation comprised the following six Panel members –

Hon CHAN Kam-lam, SBS, JP *(Chairman of the Panel for the 2013-2014 session and leader of the delegation)*
Hon Gary FAN Kwok-wai *(Deputy Chairman of the Panel for the 2013-2014 session)*
Hon Michael TIEN Puk-sun, BBS, JP
Hon CHAN Han-pan, JP
Hon POON Siu-ping, BBS, MH
Hon Tony TSE Wai-chuen, BBS

1.4.2 Ms Sophie LAU, Clerk to the Panel, and Miss Katherine CHAN, Council Secretary, accompanied the delegation during the visit.

## 1.5 Visit programme

1.5.1 The visit programme of the delegation commenced on 23 September 2014 and ended on 26 September 2014. The detailed visit programme and a list of the organizations and persons met by the delegation are in **Appendices I and II** respectively.

## CHAPTER 2 — OVERVIEW OF THE TRANSPORT STRATEGY IN SINGAPORE

### 2.1 Overview

2.1.1 Singapore is one of the most densely populated countries in the world, with a total land area of 687 square kilometres and a population size of about 5.4 million. Like other urban cities, Singapore has to face the challenges of meeting the growing travel demand of its citizens to support the economy against the constraints of physical space. Against this, the Singapore government has formulated a transport strategy aiming at providing an efficient people-centred public transport system that will meet the diverse needs of the society and optimize the road network.

2.1.2 In 2013, the Singapore government published the Land Transport Master Plan to set out its vision for land transport in Singapore for the next 20 years. An efficient land transport system will come into place that can address the transport needs of the city-state and enhance the travel experience. The Master Plan has identified the following three objectives to be achieved in the years ahead –

(a) providing more connections by connecting commuters to more places, where they work, live and play;

(b) offering better public transport services by enhancing the reliability, comfort and efficiency of transport modes; and

(c) building and operating a public transport system that meets individual needs of the diverse community.

In order to achieve the above three policy objectives, the government has planned to improve Singapore's public transport infrastructures, road network efficiency capacity, cycling facilities, and accessibility to public transport network through various measures. These measures are explained in brief in the sections below.

## 2.2 Building up a quality public transport system

2.2.1 To support increasing travel demand, the Singapore government seeks to build up a quality public transport system through:

(a) expanding the rail network to reach more people and places. The government plans to increase the length of the rail network by 55% from 178 kilometres in 2012 to 278 kilometres by around 2020. According to Singapore's Land Transport Master Plan, their rail network will be doubled in length to around 360 kilometres by 2030. With the increase in rail density, commuters in the central area may access a rail transit station within 400 metres, or five minutes' walk on average;

(b) enhancing rail services by adding more trains to every rail line, upgrading the signalling system for rail lines to enable trains to run at shorter intervals, and tightening the operating performance standards that the train operators must meet in minimizing service delays[1];

(c) improving bus services through boosting the bus capacity. The government has decided to partner with the public bus operators and provide them with funding to purchase 550 buses. Together with the 250 buses that the public bus operators pledge to add to their fleet, an additional 800 new buses will serve the community over the next few years;

(d) building (i) more bus hubs with bigger and longer bus stops, and (ii) integrated transport hubs where air-conditioned bus interchanges and rail stations are co-located with retail and commercial activities; and

[1] Financial penalties to be imposed for train disruptions lasting more than 30 minutes.

(e) enhancing the free services of the Intelligent Route Information System ("IRIS") to help commuters plan their trips. The SBS Transit, the major bus operator in Singapore, currently provides two IRIS applications which provide travel information on (i) next bus arrival time and (ii) the best way to get to their destinations by bus or train based on the shortest travelling time or walking distance. The SBS Transit is co-working with the Singapore government to undertake a project that will provide commuters with bus loading information.

## 2.3 Maximizing road network efficiency capacity

2.3.1 ERP system has been the pillar of Singapore's traffic demand management strategy for managing road congestion. ERP system charges motorists when they use the priced road at places and at times where and when they may cause congestion. ERP rates differ for different roads and time periods depending on local traffic conditions so as to encourage motorists to change their mode of transport, travel route or time of travel. In recent years, the Singapore government has been developing the next generation ERP system using global positioning system ("GPS") in a more targeted and fairer way. There are two benefits of using a GPS-based ERP system: (i) overcoming the inflexibility of installing physical gantries and (ii) making distance-based congestion charging possible with the computation based on the actual length of congested roads used by motorists.

2.3.2 The Land Transport Authority ("LTA") under the Ministry of Transport is responsible for planning, operating, and maintaining Singapore's land transport infrastructure and systems. LTA has complemented its ERP system with the development of ITS to provide updated information on road conditions to drivers. Key components within the ITS network include (i) ITS Centre which monitors traffic with an array of ITS and deploys ground recovery crew to assist motorists who are in need, and (ii) i-Transport which provides an integrated platform that centralizes

the management of all ITS including traffic signal control, traffic monitoring and provision of real-time traffic advisory information.

2.3.3 In 2014, LTA and the Intelligent Transportation Society Singapore jointly launched "Smart Mobility 2030", which is Singapore's master plan that outlines how the country will develop its ITS over the next 15 years. Its goal is to optimize transport systems and enhance commuter travel experience across Singapore with the latest ITS initiatives and advancements in transport technologies.

## 2.4 Establishing a bike-friendly city

2.4.1 Singapore is working towards the goal of becoming a bike-friendly city. Cycling has been positioned as an option for short-distance intra-town trips linking commuters from residential precincts to major transport nodes such as MRT stations, bus interchanges and local amenities. To promote cycling activities, the government is committed to constructing more dedicated cycle tracks next to pedestrian footpaths and providing additional bicycle racks at key transport nodes.

## 2.5 Enhancing accessibility to public transport

2.5.1 As part of its people-centred public transport system, the Singapore government seeks to cater for the society's diverse needs by providing better access to public transport. In Singapore, barrier-free facilities to assist the elderly and the disabled have been made available within all MRT stations since 2006. Each of the existing MRT stations now has at least one barrier-free entrance with a lift, a tactile guidance system and wheelchair-accessible toilets. More pedestrian overhead bridges next to MRT stations will be installed with lifts to improve barrier free accessibility to major transport nodes.

## 3.1 Meeting with the Minister for Transport

3.1.1 The delegation met with Mr LUI Tuck-yew, the Minister for Transport and his aides. Views were exchanged on the experience in the planning of public transport system and implementation of traffic management measures.

The delegation members meet with the Minister for Transport

3.1.2 The Ministry of Transport oversees the development and regulation of civil aviation and air transport; maritime and ports as well as land transport. The main focus of the Ministry is to bring about efficient and cost effective transportation to enhance Singapore's economic competitiveness and quality of life. The operations and regulatory work is spearheaded by the four statutory boards under the Ministry of Transport's charge, namely the Civil Aviation Authority of Singapore, the Maritime and Port Authority of Singapore, LTA and the Public Transport Council. The Ministry also oversees the operations of the Air Accident Investigation

Bureau of Singapore. The Ministry has seven divisions, which are Air Transport Division, Land Transport Division, Sea Transport Division, International Relations and Security Division, Corporate Communications Division, Corporate Development Division and the Air Accident Investigation Bureau of Singapore.

3.1.3 Mr LUI Tuck-yew is the current Minister for Transport. He was elected in the General Elections as Member of Parliament for Tanjong Pagar Group Representation Constituency and was appointed as Minister of State, Ministry of Education in May 2006. Following the General Elections in May 2011, Mr LUI was elected as Member of Parliament for Moulmein-Kallang Group Representation Constituency and has become the Minister for Transport up to the present.


Mr LUI Tuck-yew, the Minister for Transport (second from the left)

3.1.4 When exchanging views with the Minister for Transport, delegation members noted that Singapore's transport system has been facing a number of challenges, such as increasing travel demand, limited land,

declining public transport share, and changing demographics and expectations of transport. In recent years, commuters have experienced crowding on buses and trains and occasional train disruptions. It is found that Singapore's older rail lines have been under stress as train and rail assets grow older while travel demand continues to increase.

Transport strategy

3.1.5 The Minister of Transport shared with delegation members that in view of the aforesaid challenges, the Singapore government does not only meet the needs of today, but also anticipates tomorrow's needs and develops an efficient transport system that can move them into the future.

*Make public transport a preferred choice*

3.1.6 Delegation members noted that to meet increasing travel demand in future, the Singapore government will make use of public transport to meet a higher proportion of travel needs. One of the key goals of the Land Transport Master Plan 2013 is to increase the peak hour public transport mode share to 75%. It is therefore vital to make public transport a choice mode of transport for Singaporeans. Against this objective, the Singapore government is enhancing their public transport system to make it more attractive to Singaporeans and a viable alternative to the car. By strengthening the integration of their public transport system, commuters should be able to benefit from seamless and convenient transfers; easily accessible services; reliable and comfortable travel journeys; competitive journey time relative to cars; and affordable fares.

*Better manage traffic congestion*

3.1.7 The delegation noticed that the Singapore government spares no efforts to optimize the road transport through effective policies and innovative technologies. To manage congestion and keep their vehicle population at levels supportable by their road infrastructure, they have introduced strict policies to limit vehicle ownership and usage. They also employ technology to enhance the efficiency of road operations, optimize road capacity and provide information on road conditions to drivers. ERP

has been implemented to manage congestion in high-traffic areas. Traffic management technologies are also applied to improve daily traffic flow with real-time traffic information.

*Accessibility*

3.1.8 In line with social and demographic changes in the society, the Singapore government implements initiatives to provide better access for diverse groups such as the elderly, wheelchair users and families with young children. These measures also contribute to a more liveable environment for the community as a whole. Besides, more than half of the public buses are wheelchair-accessible and the intent is for the whole fleet to be wheelchair-accessible by 2020.


Delegation members exchange views with the Minister for Transport

Cycling as green transport mode

3.1.9 Delegation noted that cycling becomes an environmentally-friendly mode of transport that is increasingly popular in Singapore, especially for short trips – as part of the daily journey to work, typically to MRT station or bus interchange, or for intra-town travel. Besides being affordable and convenient, cycling also offers health benefits, bringing riders of all ages closer to nature and the outdoors.

3.1.10 The delegation also noticed that in response to the challenges faced by Singapore's transport system, the Singapore government plans to create a more people-centred land transport system with more connections to where commuters want to go and better service whichever mode of travel they use. The land transport system will give more consideration to the well-being of the diverse community and enhance the liveability of their environment. The Singapore government plans to make public transport an attractive mode of travel so that Singaporeans will rely less on the personal car. To better meet the expectations of the community, the Singapore government has conducted a series of public consultations on how the government can improve the overall travel experience in recent years and published the Land Transport Master Plan in 2013 to set out its vision for land transport in Singapore for the next two decades.

3.1.11 Delegation members expressed that Hong Kong encounters similar problems in traffic management. Both governments of Singapore and Hong Kong in the long run will further the policy of using railways as the backbone of public transport system. Like the Hong Kong government, the Singapore government will also significantly expand the rail network. Besides, they will continue to add to and adjust their bus network, not just to facilitate commuters' connecting journey on the expanded rail system but also to help them reach more places directly and more conveniently. It was noted that the Singapore government will further complement the bus network with more extensive infrastructure for cycling and walking as attractive alternatives to move around and to get to the train stations.


Delegation members listen to how the Singapore government tackles the challenges faced by their transport system

Hon CHAN Kam-lam, delegation leader, exchanges souvenirs with the Minister for Transport, Mr LUI Tuck-yew

## 3.2 Meeting with the representatives of the Land Transport Authority

3.2.1 The delegation paid a visit to LTA and received a briefing on the traffic control measures in Singapore, including ERP, ITS, and the national planning of cycling facilities and cycling path network, by Mr CHUA Chong-kheng, Deputy Chief Executive (Infrastructure & Development); Dr CHUAI Chip-tiong, Director, Traffic & ITS Operations; Ms SOH Ling-tim, Deputy Director, ITS Centre; and other representatives of LTA.

Delegation members exchange views with LTA representatives

3.2.2 Delegation members were briefed that LTA is the agency responsible for planning, building and maintaining Singapore's land transport infrastructure and systems. The twin pillars of Singapore's public transport system are their extensive urban rail network and their comprehensive public bus system. This is supplemented by taxis that bridge public and private transport modes.

3.2.3 Delegation members noted that LTA plans, develops and invests in the construction of the rail lines. It also decides where the lines run, how the construction should be done, what technologies and trains to be used and the schedule for the roll-out. As the regulator, they work with the public transport operators to improve reliability, comfort and user-friendliness of train services. They also work closely with the Public Transport Council to monitor the quality and affordability of bus services. To ensure service levels provided by the two operators (i.e. the SBS Transit and the SMRT Corporation) meet the Quality of Service standards, LTA studies ticketing and GPS data, and conducts independent surveys at bus stops.

Traffic management

3.2.4 Vehicle Quota System ("VQS"), together with ERP, is one of the key pillars in Singapore's traffic management strategies. With Singapore's limited land resources and increasing demand for vehicle ownership, the Singapore government needs to make sure that their vehicle growth rates do not spiral out of control and lead to gridlock on their roads. Otherwise, road construction and public transport projects will be ineffective in the long haul if they do not control the number of vehicles on the road.

*Vehicle Quota System*

3.2.5 Delegation members received a briefing on VQS. It was implemented in May 1990 when rising affluence in Singapore showed that simply increasing ownership taxes were not effective in controlling vehicle population growth. Before VQS was introduced, the vehicle population continued to grow despite increasing taxes. The Singapore government then introduces VQS to limit the numbers of new vehicles allowed on the roads each year. The annual vehicle growth rate in recent years in Singapore is appended below.

| Year | Vehicle growth rate per annum |
|---|---|
| Prior to 2009 | 3% |
| From 2009 | 1.5% |
| From August 2012 | 1% |
| From February 2013 | 0.5% |

Source: LTA

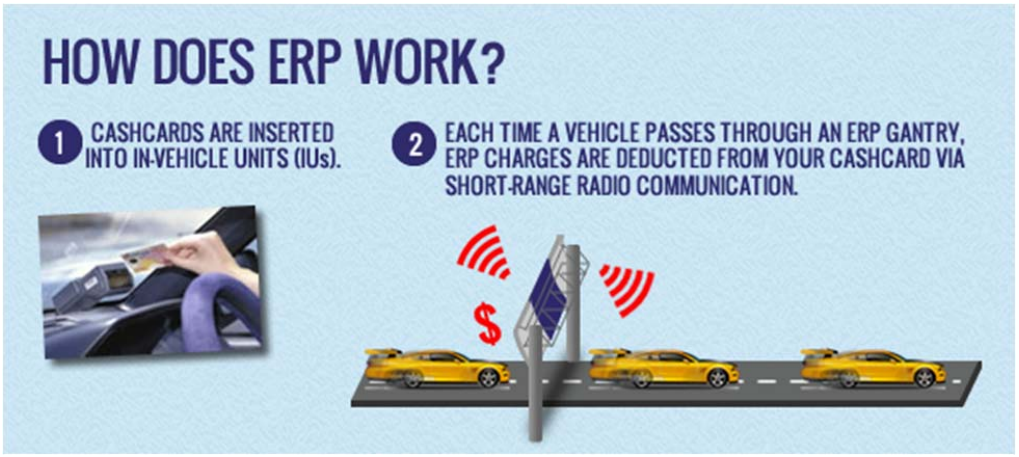
3.2.6 The Singapore government sets the vehicle growth rate at 0.25% per annum in the coming years. They will continue to review whether a further reduction is necessary.

3.2.7 VQS regulates the rate of growth of vehicles on the roads at a rate that can be sustained by developments in land transport infrastructure. The Singapore government controls the number of new vehicles allowed for registration, while the market determines the price of owning a vehicle. Anyone who wishes to register a new vehicle in Singapore must first obtain a Certificate of Entitlement ("COE"), which represents the right to own a vehicle for 10 years. COE quota is computed and set every three months. COEs are allocated through an open bidding process, which is conducted twice a month.

*Electronic Road Pricing*

3.2.8 LTA representatives briefed delegation members that traffic congestion is costly to the individual and society. It results in the loss of productive hours, environmental pollution, wasted fuel and adverse health effects. To keep traffic moving, LTA continues with a holistic and integrated approach using all the tools available, including building more roads, regulating vehicle growth, implementing traffic engineering solutions and promoting the use of public transport. In addition to these measures, they also need to manage traffic demand through ERP.

3.2.9 ERP is an electronic system of road pricing used in managing road congestion. The first road-pricing scheme, known as the Area Licensing Scheme, was introduced in the Restricted Zone in 1975. The scheme was subsequently extended to major expressways with the Road Pricing Scheme. In 1998, ERP replaced the previously manual Area Licensing Scheme for restricted zones and Road Pricing Scheme for expressways. Based on a pay-as-you-use principle, motorists are charged when they use priced roads during peak hours. ERP rates vary for different roads and time periods depending on local traffic conditions. This encourages motorists to change their mode of transport, travel route or time of travel. It uses a dedicated short-range radio communication system to deduct ERP charges from smart-cards inserted in the in-vehicle units of vehicles each time they pass a pricing point when the system is in operation. The following picture illustrates how ERP works in Singapore.




Source: LTA

3.2.10 Delegation members noted that to manage traffic congestion in a more targeted, flexible and fairer way, LTA is developing a new road pricing system based on global navigation satellite system technology. This is fairer since ERP charges will be computed based on the actual length of congested roads used by motorists. It is estimated that ERP remains effective in addressing current and future traffic conditions and ensuring motorists continue to have a smooth journey in Singapore.

Intelligent Transport Systems

3.2.11 LTA representatives briefed the delegation operations of ITS. In land-scarce Singapore, ITS' sophisticated traffic and control systems maximize road network efficiency capacity as well as monitor and manage traffic flow. ITS infrastructure spans over 164 kilometres of expressways and road tunnel systems. It allows timely dissemination of traffic information which is key to help motorists take the best route to their destinations.

3.2.12 Delegation members noted that ITS Centre is one of the vital components within ITS network. The Centre which is run on a seven-day-a-week, 24-hour basis monitors traffic with an array of ITS and deploys ground recovery crew to assist motorists who are in distress. Real-time traffic advisory information is also provided to motorists through electronic message signs.

LTA representatives introduce ITS Centre to the delegation

3.2.13 Apart from ITS Centre, LTA representatives also introduced the following vital components of ITS network to delegation members:

(a) The Expressway Monitoring and Advisory System ("EMAS") monitors traffic along expressways, alerts motorists of traffic incidents and ensures swift response to these incidents;

EMAS
(Source: LTA)

(b) A total of 10 major arterial road corridors with a combined road length of about 142-kilometre are fitted with EMAS Arterial by early 2014. Extending EMAS to the major arterial roads can manage traffic and guide motorists more effectively;


EMAS Arterial
(Source: LTA)

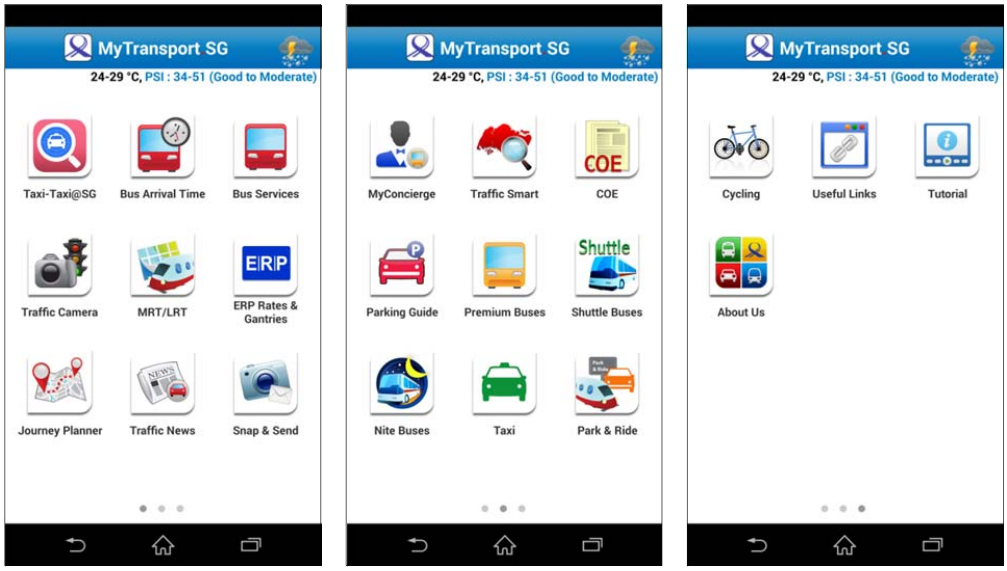
(c) Junction Electronic Eyes, a system of surveillance cameras, are installed to monitor the traffic condition at major signalized junctions; and

Junction Electronic Eyes
(Source: LTA)

(d) Parking Guidance System provides real-time information on parking spaces availability of shopping malls at major shopping belts in Marina Centre, Orchard and Harbourfront to reduce circulation of traffic in these areas.


Parking Guidance System
(Source: LTA)

3.2.14 The delegation noted that LTA has spared no efforts to empower drivers and commuters by making use of technology. LTA has developed the MyTransport.SG portal and smartphone application to provide drivers and commuters access to timely information which helps them manage their travel decisions. Commuters can find out what time their bus arrives or the route that a bus service takes whereas drivers can look up ERP rates and available parking space in the city and other popular areas. In addition, the public can turn to LTA's online resources, their websites, Facebook, Twitter and YouTube channels, for real-time updates on travel conditions and land transport topics. The interfaces of the MyTransport.SG mobile app, including nite buses, ERP rates and gantries and bus arrival time etc., are set out below.




Interfaces of the MyTransport.SG mobile app

National planning of cycling facilities

3.2.15 LTA representatives briefed the delegation that the Singapore government has embarked on a multi-pronged strategy to promoting cycling as a mode of green transport in the country. The strategy includes building additional cycling infrastructures, creating a cyclist-friendly environment and enhancing cycling safety. Delegation members learnt more about the cycling plans and initiatives of Singapore when they visited the cycling facilities near Pasir Ris Town and enjoyed a bicycle ride there.

## 3.3 Meeting with the Chairman and Deputy Chairman of the Government Parliamentary Committee for Transport

3.3.1 The delegation visited the Parliament of Singapore and exchanged views with Mr Cedric FOO, Chairman and Mr SENG Han-tong, Deputy Chairman of the Government Parliamentary Committee for Transport.


Mr Cedric FOO, Chairman (Right) and Mr SENG Han-tong, Deputy Chairman (Left) of the Government Parliamentary Committee for Transport exchange views with the delegation

Parliament of Singapore

3.3.2 Singapore has a unicameral Parliament which performs the functions of making laws, controlling the state's finances and acting as a check and balance on the actions of the government. The Singapore Parliament comprises three categories of Members, which are Elected Members, Non-Constituency Members, and Nominated Members. The

majority of Members of Parliament are elected into Parliament at a General Election on a first-past-the-post basis and represent either Single Member Constituencies or Group Representation Constituencies.

3.3.3 The parliamentary election is held once every five years. The last election was held in May 2011 with People's Action Party winning 81 of the 87 elected seats in Parliament. The remaining six elected seats went to the opposition Workers' Party. The Workers' Party took six seats, representing the opposition's best performance since the independence of Singapore in 1965. Subsequently, a by-election was held in January 2013 to fill up a vacant seat because of the resignation of a People's Action Party Member. The Workers' Party gained one more seat from the by-election. The next parliamentary election will take place in 2016.

Government Parliamentary Committees

3.3.4 Government Parliamentary Committees were first established by the ruling People's Action Party in 1987 to generate alternative views in legislature. They have no constitutional status but are instead an initiative of People's Action Party government. Government Parliamentary Committees comprise only governing party members, but each of them is backed by a resource panel of subject experts and interested lay persons.

3.3.5 There are a total of 11 Government Parliamentary Committees looking at communications and information; culture, community and youth; defence and foreign affairs; education; finance, trade and industry; health; home affairs and law; manpower; national development and the environment; social and family development; and transport. The governing party allocates to each Government Parliamentary Committee a portfolio corresponding to one or more Ministerial portfolios. Each Government Parliamentary Committee examines the policies, programmes and proposed legislation of a particular government ministry, provides the ministry with feedback and suggestions, and is consulted by the ministry on issues of public interest.

Public transport system

3.3.6 The delegation and the Chairman and Deputy Chairman of the Government Parliamentary Committee for Transport exchanged views on the means to provide efficient public transport service in Hong Kong and Singapore. Delegation members noted that the Singapore government, like the Hong Kong government, is also going to expand and upgrade the rail network. Today, Singapore's rail network spans over 178 kilometres. By 2030, their rail network will have doubled in length to about 360 kilometres, enough to go around Singapore's coastline twice. And by 2030, the four MRT lines – the East-West Line, the North-South Line, NEL and the Circle Line – will be joined by five new lines: the Downtown Line, the Thomson Line, the Eastern Region Line, the Jurong Region Line and the Cross Island Line.

3.3.7 Apart from railway development, delegation members noted that the Singapore government has licensed the operation of the rail and bus services to two listed companies, namely the SBS Transit Limited and the SMRT Corporation Limited. It was also noted that the Singapore government is going to add more buses to the bus fleet and introduce new bus services through the Bus Service Enhancement Programme ("BSEP") to enhance connectivity. BSEP was introduced in 2012 to address some of commuters' most immediate concerns, particularly bus crowding and frequency. The Singapore government has partnered with the public bus operators to significantly increase the bus fleet by about 20%, equivalent to 800 new buses over the next five years. Under BSEP, the public bus operators will be required to improve bus frequencies during peak periods. Today, 80% of bus services must be operated within 10-minute scheduled intervals and all services must operate within 30-minute scheduled intervals. With BSEP, 90% of all bus services must operate within 10-12 minute intervals and all services must operate within 20-minute scheduled intervals. The delegation members noted the strong involvement and investment of the Singapore government in the provision of public bus service.

Managing roads and the vehicle population

3.3.8 As both Hong Kong and Singapore are facing traffic congestion problem, the delegation and the Chairman and Deputy Chairman of the Government Parliamentary Committee for Transport shared their experience in ensuring smooth road traffic. The delegation was told that ERP is not intended to be a means to generate revenue. The Singapore government uses ERP to control the speed of traffic flow on busy highways and roads. The charges are employed to influence the drivers' choice over time of travel and roads to be used. The government will review the speed of traffic flow every quarter of the year and adjust the level of charges. Sometimes the charges will be reduced if the said speed improves.

3.3.9 Since 1990, the Singapore government has regulated vehicle growth through VQS. At present, the total number of private vehicles in Hong Kong exceeds 546 000, whereas that in Singapore exceeds 600 000. The latest cost of getting a COE in Singapore for a small car, i.e. a car with engine capacity up to 1 600cc and maximum power output up to 97kW (130bhp), is about S$64,000 (HK$396,800) and that for a medium car, i.e. a car with engine capacity above 1 600cc or maximum power output above 97kW (130bhp), is about S$71,000 (HK$440,200). Together with the impact of ERP introduced since 1998, the Singapore government has managed to keep traffic flowing smoothly on major roads and highways.

3.3.10 The Singapore government makes use of sophisticated traffic and control systems to maximize road network efficiency and capacity as well as monitor and manage traffic flow. This system monitors more than 164 kilometres of expressways and road tunnels. Besides, the Singapore government uses EMAS to detect accidents, vehicle breakdowns and other incidents ensuring a fast response to restore normal traffic flow. A system of surveillance cameras at traffic junctions also monitors traffic at potential chokepoints.

3.3.11 After the meeting, delegation members were invited to tour around the Parliament of Singapore to understand more about its history and operation.


Delegation members pose for a group photo at the Parliament of Singapore

Delegation members exchange views with the Chairman and Deputy Chairman of the Government Parliamentary Committee for Transport

Hon CHAN Kam-lam, delegation leader, presents a souvenir to Mr Cedric FOO, Chairman of the Government Parliamentary Committee for Transport

The delegation tours around the Parliament of Singapore

## 3.4 Meeting with the representatives of the SBS Transit and visit to the North East Line's Operations Control Centre and the Sengkang Integrated Transport Hub

3.4.1 In order to study and observe the application of Information Technology in provision of public transport service, the delegation paid a visit to the SBS Transit, a leading bus and rail operator in Singapore. They received a briefing on the company's rail and bus operations by Mr WONG Wai-keong, the Executive Vice President (Rail) of the SBS Transit, and other representatives of the company. Besides, to gain a better understanding of MRT and LRT systems, delegation members were given a tour of NEL's Operations Control Centre ("OCC") and then visited the Sengkang Integrated Transport Hub.

Delegation members listen to the presentation delivered by the representatives of the SBS Transit

3.4.2 The delegation noted that the SBS Transit is a listed company providing MRT, LRT and bus services in Singapore. Every day, the company carries more than three million passengers on their extensive bus and rail network. Its parent company is ComfortDelGro Corporation, a multi-national land transport company. In 2013, the SBS Transit earned S$15.5 million (HK$96.1 million) in profit from a total revenue of S$847.3 million (HK$5.3 billion).

Mass Rapid Transit system

3.4.3 The SBS Transit representatives briefed delegation members that they operate NEL and the Downtown Line. NEL, which is the world's first fully automated, underground heavy rail system, connects Punggol to HarbourFront. NEL is a 20-kilometre long railway line with 16 stations. Some 175 million passenger trips were made on NEL in 2013. Besides, the Downtown Line is the 5th MRT line in Singapore. It is planned to be opened in three stages: in 2013, 2016 and 2017 respectively. When fully completed, the line will be about 42 kilometres long with 34 stations, making it the longest underground and driverless MRT line in Singapore.

3.4.4 Delegation members noted that to meet the increase in passenger demand, the SBS Transit added 400 more train trips to NEL in January 2014. Train operating hours are also extended during major events and public holidays. To meet projected demand for rail services in the long run, LTA ordered 18 new trains for NEL in 2012, which is estimated to increase the capacity by 70%. The new trains will have a more customer-centric interior and a better detrainment door design. In preparation for the arrival of the new trains, NEL depot at Sengkang has upgraded its various systems including signalling and communications. Upgrading works on the communication equipment used in NEL trains and the power supply system at the stations began in 2013, with completion expected by 2015.

Light Rail Transit system

3.4.5 Apart from MRT lines, the SBS Transit representatives briefed the delegation that they operate the Sengkang LRT Line with 14 stations and the Punggol LRT Line with 15 stations. Both the Sengkang LRT and Punggol

LRT Lines are fully automated and serve to provide Sengkang and Punggol residents a seamless transfer to NEL of MRT system. The ridership of LRT in 2013 was about 29 million passenger trips. Moreover, the delegation also noted that the SBS Transit is implementing a number of measures to enhance LRT service. For instance, the Sengkang and Punggol LRT systems are being upgraded to prepare for a two-car operation that is scheduled for implementation in 2016. The signalling and the platform stopping control systems will also be enhanced to accommodate the two-car operation.

Mr WONG Wai-keong, the Executive Vice President (Rail) of the SBS Transit briefs delegation members on the company's MRT and LRT systems

Bus service

3.4.6 The representatives of the SBS Transit briefed delegation members that a total of 3.6 million passengers travel on buses daily. The company owns 75% of the scheduled bus market share in Singapore. Having a fleet of more than 3 200 buses, the company serves 17 interchanges and more than

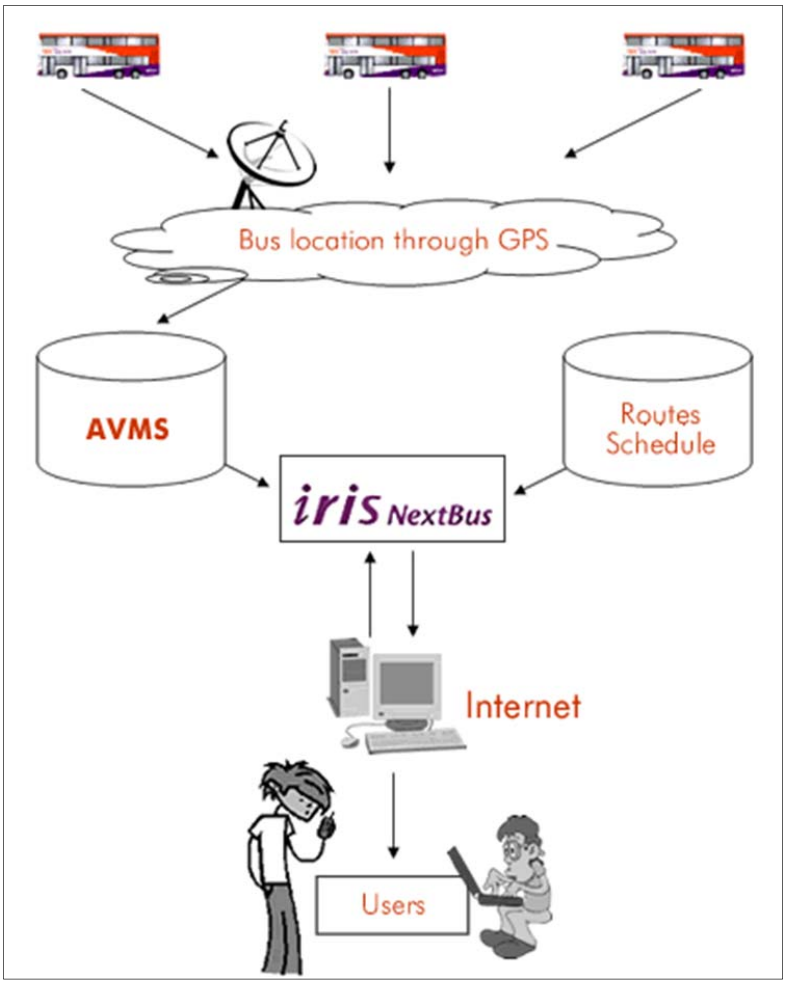
3 500 bus stops island-wide. The delegation noted that to enhance bus service, the SBS Transit is going to implement a service enhancement plan, including expanding the size of the fleet, particularly purchasing more wheelchair accessible buses. In addition, the operating hours of selected bus services will be extended.

Intelligent Route Information System

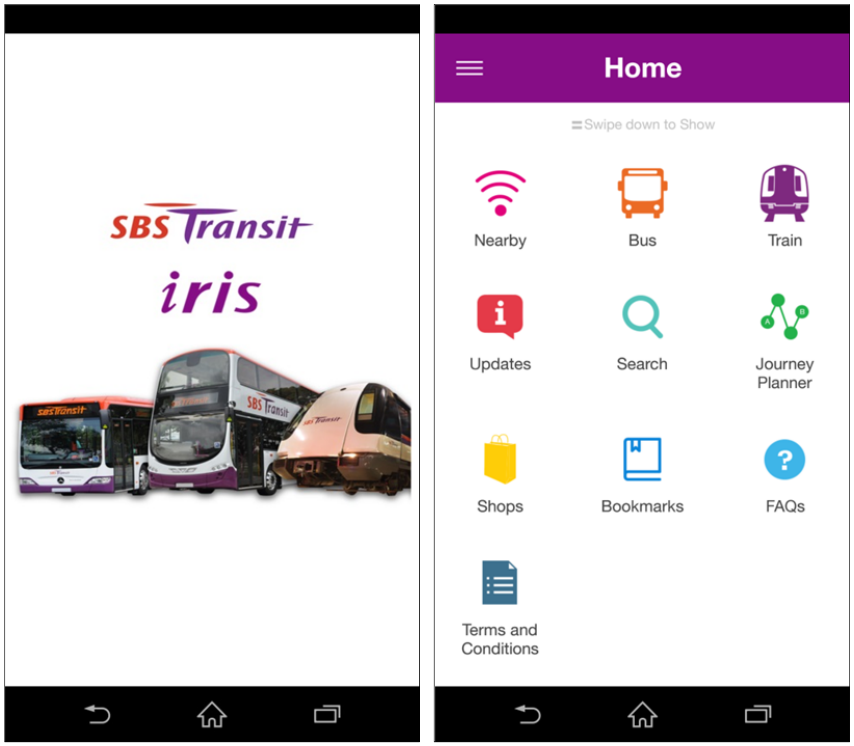
3.4.7 The SBS Transit representatives introduced IRIS to delegation members. The two IRIS applications are "*iris* NextBus" and "*iris* Journey Planner". The former application offers bus arrival timings on a real-time basis. Passengers can estimate the time before the next bus departs from the bus interchange. The latter application helps commuters plan the best way to get to their destinations by providing travel solutions on the buses and trains based on the shortest walking distance or shortest travelling time. Delegation members then tried out IRIS applications on their mobile phones.

Delegation members listen to the demonstration of IRIS applications

3.4.8 Delegation members also noted that all SBS Transit buses are equipped with Automatic Vehicle Management System tracking device. Their exact locations enroute can be tracked in real-time basis. Equipped with relevant route conditions/patterns, "*iris* NextBus" can provide the estimated next bus arrival times. "*iris* NextBus" architecture overview and the interfaces of the IRIS application on smart phones are attached below.




"*iris* NextBus" architecture overview
(Source: The SBS Transit)




Interfaces of the IRIS application on smart phones

3.4.9 To observe the operation and management of the fully automatic, driverless MRT system in Singapore as well as the development and operation of LRT system, the delegation then went on to visit NEL's OCC. They also took a ride of LRT to Sengkang Town Centre Station and toured around the Sengkang Integrated Transport Hub.

3.4.10 During the tour at NEL's OCC led by the representatives of the SBS Transit, delegation members noted that NEL operated by SBS Transit is one of the world's first fully automatic underground heavy rail systems. Built at a cost of S$4.6 billion (HK$28.52 billion), NEL is 20-kilometre long and has 16 stations. In 2013, some 175 million passenger trips were made on NEL.

3.4.11 The delegation also noted that many measures have been put in place to ensure NEL's safety and security as it is a driverless system. Customer Service Officers are responsible for patrolling in all the trains. They monitor the boarding process, provide assistance to passengers on board as well as look out for suspicious articles. Besides, all the trains are installed with CCTV cameras. There are 14 CCTV cameras in each train, with two internal CCTV cameras at each carriage and one external CCTV camera at each end of the train. The CCTV cameras allow the staff at OCC to monitor what is happening in the trains and to respond to situations. Public announcements will be made when required.

3.4.12 The representatives of the SBS Transit briefed delegation members that they make use of decals and announcements to remind passengers to mind the gap between the train and the platform. Apart from that, NEL is equipped with a signalling system which checks that all train doors are closed before the train can depart the station. If the train door detects any obstruction, it will reopen to enable passengers to remove the obstruction. If the obstruction has not been removed, all the train doors will re-open and the train will not depart. In the meantime, the signalling system will send a door obstruction alarm to NEL's OCC and staff at the station will be alerted to investigate the cause of the obstruction and render assistance. NEL station platforms are also equipped with Emergency Train Stop buttons which passengers can activate during emergency. Passengers can also make use of the red Emergency Telephones at the platform to alert staff at the Passenger Service Centre.

3.4.13 Delegation members noted that the SBS Transit operates the Sengkang LRT Line and the Punggol LRT Line. The former has 14 stations and the latter 15 stations. Both Lines are fully automated. They serve to provide Sengkang and Punggol residents a seamless transfer to NEL of MRT system.

3.4.14 The delegation also noted that the SBS Transit has implemented a number of measures to enhance LRT service in recent years. Before January 2013, SBS Transit only operated the Sengkang West LRT during the morning and evening peak hours. In order to better cater the travel needs of commuters, the SBS Transit has operated the Sengkang West LRT in both

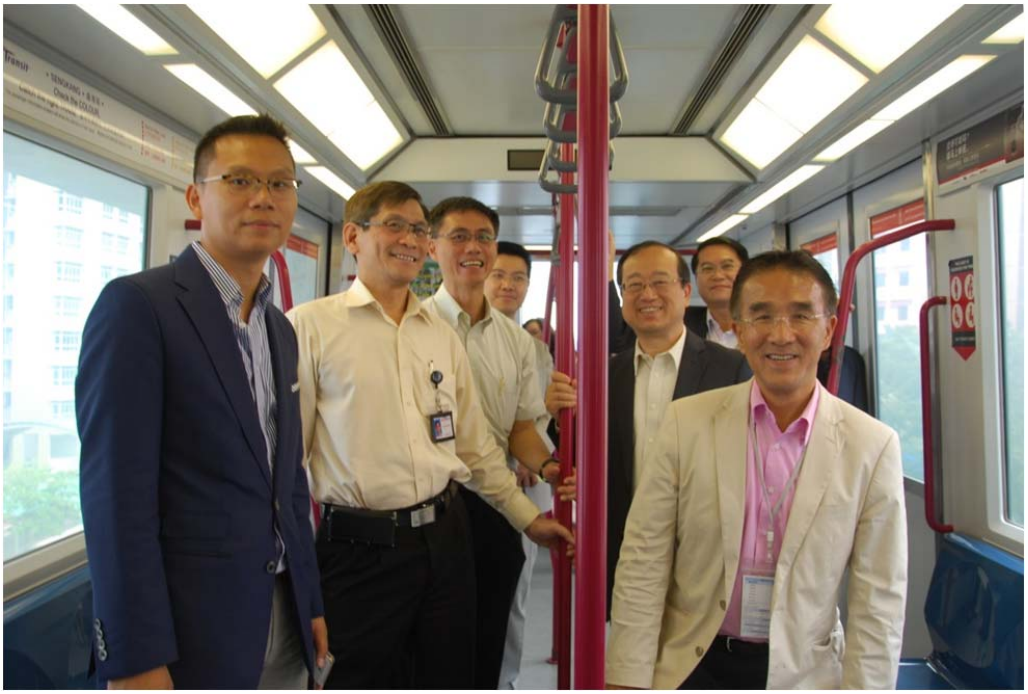
directions throughout the day since 1 January 2013. Besides, an additional 1 033 trips are added to the line each week. Train frequency is maintained at three to four minutes during weekday peak hours and five to six minutes at other times.

The delegation visits the Sengkang Integrated Transport Hub

3.4.15 Besides, it was noted that the ridership on the Sengkang and Punggol LRT has been increased steadily, with a 10% year-on-year growth from 2008 to 2011. In order to cope with the growing transport demand, LTA has modified 16 of the 41 existing single train-cars to allow these train-cars to be coupled for 2-car operations since 2012. This brings the total fleet size to 57 train-cars, thereby increasing the train fleet by about 40%. Besides, system upgrading and modification works has started since mid-2013. The 2-car train system is expected to be commissioned for service in 2016. Moreover, LTA has enhanced LRT service by buying more trains, with 13 trains for the Bukit Panjang LRT system.

3.4.16 Delegation members were very much impressed by the Sengkang Integrated Transport Hub which is a fully air-conditioned bus interchange station seamlessly linked to MRT stations and adjoining commercial developments like shopping malls. With this integration, commuters can easily run errands and shop conveniently and comfortably, before transferring to their connecting buses or trains. At present, there are seven Integrated Transport Hubs – Ang Mo Kio, Bedok, Boon Lay, Clementi, Sengkang, Serangoon and Toa Payoh. In the coming decade, the Singapore will build more hubs in tandem with the development in the respective areas.


Hon CHAN Kam-lam, delegation leader, exchanges souvenirs with the representatives of the SBS Transit



Delegation members pose inside LRT compartment

## 3.5 Meeting with the Director of the Hong Kong Economic and Trade Office in Singapore

3.5.1 Delegation members met with Mr FONG Ngai, Director of the Hong Kong Economic and Trade Office in Singapore ("HKETO") and other representatives of HKETO. They also received a briefing on the latest developments of Singapore and other member countries of the Association of Southeast Asian Nations ("ASEAN")[2]. Delegation members attended a luncheon hosted by HKETO and had interactive exchanges over traffic and other issues in Singapore and Asia.


Delegation members meet with HKETO representatives

[2] ASEAN comprises Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam.

3.5.2 The delegation noted that the Hong Kong government will explore the possibility of entering into Free Trade Agreement ("FTA") with other economies, so long as they are in Hong Kong's interests, consistent with the principles and provisions of the World Trade Organization, and can contribute to multilateral trade liberalization. In the past, Hong Kong signed four FTAs respectively with the Mainland in 2003, New Zealand in 2010, the Member States of the European Free Trade Association in 2011, and Chile in 2012.

3.5.3 The director of HKETO briefed the delegation that Hong Kong and ASEAN agreed in April 2013 to pursue an FTA. The first round of negotiation on FTA between Hong Kong and ASEAN was held successfully in July 2014. The key elements covered by FTA negotiation include the elimination or reduction of tariffs; rules of origin; liberalization of trade in services; liberalization, promotion and protection of investment; and intellectual property co-operation.

3.5.4 Delegation members noted that Southeast Asia is one of the fastest growing economic regions in the world. The 10 member states of ASEAN collectively are Hong Kong's second largest partner in terms of goods trade and fourth largest in services. It is believed that FTA will enhance trade and investment flows between ASEAN and Hong Kong, generate new opportunities for Hong Kong's businesses and boost economic growth in the longer term.

3.5.5 Besides, the director of HKETO updated the delegation on the economic and political developments of ASEAN. They noted that the 2014 Gross Domestic Product ("GDP") growth of Singapore was projected to be 2.5% to 3.5%, narrowed from the previous band of 2% to 4%. In the second quarter of 2014, Singapore's GDP grew at 2.4%, up from the advance estimate of 2.1%, but down from 4.9% in the first quarter of 2014. The slower growth was due to, among others, a sharp slowdown of the manufacturing sector which grew only 1.5%, compared with the 9.8% growth in the first quarter of 2014. The delegation also noted that the number of tourists from Malaysia visiting Singapore has gone down recently, which may be caused by the mystical disappearance of Malaysian Airlines flight MH370 on 8 March 2014 and another accident on 17 July 2014 in

which Malaysian Airlines flight MH17 was reported to be attacked and crashed in eastern Ukraine. It was also noted that the numbers of tourists visiting Singapore and neighbouring Malaysia and Thailand have dropped too.

3.5.6 Delegation members generally agreed that a FTA with ASEAN will facilitate and enhance trade and investment flows between Hong Kong and ASEAN, bring about better market access opportunities and create more favourable business environment for Hong Kong's businessmen. It will also strengthen Hong Kong's role as an international trade, commerce and financial centre.

3.5.7 In addition, the Deputy Director of HKETO introduced the ASEAN Internship for University Students of Hong Kong Scheme which has been launched since summer 2014 to delegation members. The Internship Scheme is initiated and developed by HKETO with the aim of widening Hong Kong university students' international perspectives and enhancing bilateral relations between Hong Kong and ASEAN. About 90 internship places offered by some 30 host organizations in seven ASEAN countries were taken up by Hong Kong university students, with the majority of the places in Singapore.


Hon CHAN Kam-lam, delegation leader, presents a souvenir to
Mr FONG Ngai, Director of HKETO in Singapore

## 3.6 Visit to the Marina Bay Cruise Centre Singapore and its connecting transport facilities

3.6.1 The delegation paid a visit to Marina Bay Cruise Centre Singapore ("MBCCS") and received a briefing by the representatives of the Singapore Tourism Board in order to better understand the traffic facilities for tourists and traffic management at the centre.

3.6.2 The delegation noted that MBCCS is a new cruise terminal in Singapore which is located at Marina South. Occupying 28 000 square metres, MBCCS is designed as an architectural icon with the capability to accommodate some of the world's largest cruises. The terminal features a spacious arrival and departure hall as well as a large ground transportation area to ensure a smooth and seamless experience for passengers. Construction of the S$500 million terminal began in October 2009 and was completed on 22 May 2012. The opening of the new cruise terminal in October 2012 marks Singapore's status as a regional cruise hub. With deep water, a large turning basin and no height restrictions, the terminal has the capability to dock ships of up to 220 000 tons and measuring up to 360 metres in length. MBCCS is able to handle about 6 800 passengers at any one time.

3.6.3 The delegation toured around MBCCS and noted that the arrival and departure halls of the terminal comprise 80 check-in counters and up to 40 immigration counters.

Delegation members tour around MBCCS

3.6.4 Delegation members also noted that MBCCS attaches much importance to the transport arrangements for cruise passengers. Various public transport services such as coaches, public buses and taxis are provided at the terminal. As regards the parking facilities, carpark and coach bay area occupying 32 000 square metres provides 25 coach bays and 327 carpark lots in total. Other facilities include convenient road access with provisions made for walkway linkages to MRT stations, the waterfront promenade and the park.


The delegation visits the connecting transport facilities of MBCCS

3.6.5 After the tour, delegation members considered that the Cruise Terminal opened in June 2013 at Kai Tak Development Area in Hong Kong should have better transport facilities and the Hong Kong government may draw on the experience of MBCCS, in particular the transport arrangements for cruise passengers.


Hon CHAN Kam-lam, delegation leader, presents a souvenir to
the representatives of the Singapore Tourism Board

## 3.7 Visit to cycling facilities near Pasir Ris Town

3.7.1 As Singapore is working towards the goal of becoming a bike-friendly city, the delegation visited the cycling facilities near Pasir Ris Town. They received a briefing on Singapore's National Cycling Plan by the representatives of LTA.

Delegation members listen to the briefing given by LTA representative

3.7.2 The delegation was informed that Singapore has been promoting the use of bicycle as a mode of green transport in recent years. Since 2010, the Singapore government has formulated the National Cycling Plan with the objective of developing cycling routes for short commuting purposes, which will be integrated into a comprehensive network throughout Singapore. Against this objective, the Singapore government has rolled out a S$43.2 million (HK$267.8 million) programme to design and construct dedicated cycle tracks next to pedestrian footpaths in various districts. Pasir Ris Town, where delegation members paid a visit to, is one of these districts.

3.7.3 Delegation members also noted that LTA will build a cycling path network of about 190 kilometres by 2020. The long-term aim is to provide a comprehensive cycling network so residents can easily and safely cycle to MRT stations and neighbourhood centres. By 2030, the existing cycling paths will have grown into a comprehensive island wide cycling path network reaching well over 700 kilometres in length. The network will combine intra-town routes, inter-town routes, the Park Connector Network and round-island routes, and will allow people to cycle safely and comfortably within and between towns.

Delegation members take a bicycle ride around Pasir Ris Town

3.7.4 The delegation noted that the Singapore government will enhance the bicycle facilities in the coming years. On top of the 3 000 bicycle racks at 32 MRT stations completed since 2011, the Singapore government will construct a total of 500 more bicycle racks at 11 MRT stations. To cater for bicycle parking in private developments, LTA is working with the Urban Redevelopment Authority to establish guidelines that encourage developers to provide bicycle parking. Besides, LTA will continue to work with the

Town Councils and other agencies to provide sufficient bicycle parking within the Housing and Development Board estates and at key community amenities.

Delegation members try to use the double-tiered racks to load and unload the bicycles at the bicycle parking area

3.7.5 Besides, other supporting cycling infrastructure like bicycle crossings and way-finding signage will be built to improve safety and convenience for cyclists. A code of conduct for cyclists and a national cyclist education programme are also being developed.

The delegation and LTA representatives pose for a group photo
at the cycling path near Pasir Ris Town

3.7.6 After the briefing, delegation members then took a bicycle ride around Pasir Ris Town and visited bicycle parking area at a MRT station. During the riding tour, LTA representatives introduced the parking facilities like the double-tiered racks and the bicycle signal crossings facility to delegation members.

## 4.1 Observations

4.1.1 Having received briefings and exchanged views with the Minister for Transport, the Chairman and Deputy Chairman of the Government Parliamentary Committee for Transport of the Singapore Parliament, representatives of LTA, the SBS Transit and the Singapore Tourism Board, as well as visited NEL's OCC, MBCCS and the cycling facilities near Pasir Ris Town, the delegation has the following observations.

4.1.2 The delegation notes that the Singapore government is a forward looking one which anticipates actively the needs of tomorrow. It never stops to improve the efficient transport system which is well developed over the past decades. The word "efficient" is at the centre of Singapore's transport strategy. The government makes the choices for the citizens and aims to maximize the efficiency of the transport system and the gain for all.

4.1.3 The delegation considers that although Hong Kong faces similar challenges of Singapore like growing transport demand, limited road space and traffic congestion, the Hong Kong government, in addition to using railway as the backbone of the public transport system, strives to build a more diversified public transport system. Under the system, various public transport modes can complement with each other so that commuters can be provided with reasonable choices. The various public transport means include franchised buses, public light buses (green minibuses and red minibuses), taxis, ferries and tram. Delegation members also recognize that in Hong Kong the private sector is allowed a bigger role in providing public transport service.

4.1.4 The delegation notes that in Singapore, the government plays the role of a central bus network planner and provides the public transport operators funding to purchase buses. As such, the public transport operators only focus on their daily operation and maintenance as well as quality of service, regardless of their revenues and sustainability. There will be 1 000 government-funded buses on the road by 2017 to enhance connectivity and improve bus service levels. In Hong Kong, however, the public transport operators are independently managed on commercial principles. The

franchised bus operators may suffer a loss and their performance varies. The delegation considers that the Hong Kong government should enhance the local bus service, making reference to Singapore's experience.

4.1.5 The delegation is very much impressed by the Singapore's future railway development. Today, Singapore's rail network spans over 178 kilometres. By 2030, according to Singapore's Land Transport Master Plan, their rail network will be doubled in length to around 360 kilometres. By then, the four existing MRT lines will be joined by five new railway lines. Whereas in Hong Kong, the Railway Development Strategy 2014 announced by the government in 2014 recommends seven new railway projects. If all seven are to be implemented, the total length of the railway network will be increased from 270 kilometres in 2021 to over 300 kilometres by 2031. This being the case, the delegation is of the view that Hong Kong's railway development will fall behind Singapore by 2030 in terms of the mileage of railway network completed.

4.1.6 Delegation members find LRT system in Singapore excellent in respect of the growth in ridership and the government's efforts to expand and upgrade their service to meet the demand. The delegation considers that the Hong Kong government should draw on Singapore's experience in developing LRT and review the role of the Light Rail in North West New Territories.

4.1.7 The delegation is impressed by the integrated transport hubs during their visit to the Sengkang Integrated Transport Hub. The integrated transport hub merges bus and rail travel with retail environments in major towns. This allows people to transfer easily from major rail stations to bus interchanges. Currently, there are seven such hubs in Singapore. Over the next 10 years, the Singapore government is building more hubs where air-conditioned bus interchanges and MRT stations are co-located with developments as part of their drive to improve connectivity. Delegation members consider that Hong Kong can also learn from Singapore's integrated transport hubs to enhance the local public transport interchanges.

4.1.8 The delegation finds that the development of IRIS applications which enable commuters to obtain travel information on next bus arrival

time and the best way to get to their destinations by bus or train based on the shortest travelling time or walking distance remarkable. The delegation members consider that the Hong Kong government should step up its efforts in further developing the existing application of Information Technology to traffic management and provision of public transport service. The delegation members consider that the government or public transport operators may integrate information on different public transport services into a centralized electronic platform for citizen's convenience. This will enable commuters to simultaneously obtain information on various transport services, such as bus and train services, through the same application on smart phones. Performance of public bus service could be monitored by these applications too.

4.1.9 The delegation notes that the Singapore government has regulated vehicle growth through VQS. Under the system, the annual vehicle growth rate in Singapore dropped steadily from 3% in 2009 to 0.5% in early 2013. The Singapore government also sets the growth rate at 0.25% per annum in the coming years. Whereas in Hong Kong, the total number of total licensed private vehicles grew by about 30% from 2003 to 2013, with an annual growth rate of 3.4% in recent years. However, delegation members view that the Hong Kong government may not be able to adopt drastic measures like VQS to manage the growth of private vehicles.

4.1.10 The delegation members understand that ERP is also another effective means to discourage drivers to use roads in Central Business Districts or busy districts so as to keep traffic flowing smoothly on major roads and highways. However, the implementation of ERP in Hong Kong is still in the consultation stage since 1980s amid resistance from the public for reasons like protection of privacy. In the light of worsening traffic congestion, it is considered possible that the Hong Kong government would implement ERP if certain issues like privacy could be overcome.

4.1.11 Delegation members appreciate that the Singapore government is working hard to add 90 kilometres more of cycling paths to Housing and Development Board towns to bring the total off-road cycling path network to around 190 kilometres by 2020. In the long run, the Singapore government is going to provide all 26 Housing and Development Board towns with a

comprehensive cycling network. Besides, the delegation is highly impressed by the cycling facilities near Pasir Ris Town, in particular the double-tiered racks. Delegation members find it easy to load and unload the bicycles from the racks. The delegation considers that the Hong Kong government can make reference to Singapore's cycling plan when formulating the relevant policy and designing new development areas. For instance, if the government introduces the double-tiered bicycle racks in Hong Kong, the problem of insufficient parking spaces for bicycles in the New Territories and the outlying islands may be alleviated as the number of bicycle parking spaces can be doubled.

## 4.2 Conclusions

4.2.1 The delegation considers the visit meaningful and enlightening. Through the meetings and visits, delegation members have the opportunity to exchange views with the Minister for Transport, Members of the Government Parliamentary Committee for Transport, representatives from relevant government bodies as well as the bus and rail operator in Singapore. The visit has provided the delegation with first-hand information on the relevant policies and initiatives in the development and provision of public transport facilities and traffic management measures. Besides, the delegation is able to observe the application of Information Technology in traffic management as well as the operation and management of MRT and LRT systems in Singapore.

4.2.2 The delegation appreciates that the Singapore government has worked very hard to continually upgrade and expand their public transport system and to make public transport service accessible to all and at a reasonable price. The Singapore government is controlled by the cabinet members who come from the political party that gains a simple majority in a General Election. As the political party is supported by the electors, the Singapore government could efficiently map out the policy and formulate new traffic management measures. ERP, implemented for decades to control the speed of traffic in the Central Business Districts, is a good example. They also try all possible means to manage the major roads i.e. keep them under surveillance on a 24 hours a day and seven days a week basis and the vehicle population by means of VQS. Singapore's experience is certainly successful in its political and socio-economic context. Some of the measures, like the application of information technology to provide real-time traffic information to drivers and commuters; building of better integrated transport hub, are valuable and useful reference for Hong Kong.

## ACKNOWLEDGEMENTS

The delegation wishes to thank all the distinguished individuals, including the Minister for Transport, the Chairman and Deputy Chairman of the Government Parliamentary Committee for Transport, representatives of LTA, the SBS Transit and the Singapore Tourism Board, as well as the Director and representatives of HKETO, with whom they met during the visit. The delegation is most grateful to them for their detailed briefings and the useful exchanges of views and information with delegation members.

The delegation is grateful to the Consulate-General of Singapore in Hong Kong and the International Relations and Security Division of the Ministry of Transport for their assistance in putting together the visit programme and offer of assistance in logistics arrangements. Last but not least, the delegation expresses sincere thanks to staff of the Legislative Council Secretariat for their dedicated support and hard work.

## ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| **ASEAN** | Association of Southeast Asian Nations |
| **BSEP** | Bus Service Enhancement Programme |
| **COE** | Certificate of Entitlement |
| **EMAS** | Expressway Monitoring and Advisory System |
| **ERP** | Electronic Road Pricing |
| **FTA** | Free Trade Agreement |
| **GDP** | Gross Domestic Product |
| **GPS** | global positioning system |
| **HKETO** | Hong Kong Economic and Trade Office in Singapore |
| **IRIS** | Intelligent Route Information System |
| **ITS** | Intelligent Transport Systems |
| **LRT** | Light Rail Transit |
| **LTA** | Land Transport Authority |
| **MBCCS** | Marina Bay Cruise Centre Singapore |
| **MRT** | Mass Rapid Transit |
| **NEL** | North East Line |
| **OCC** | Operations Control Centre |
| **the Panel** | Panel on Transport |
| **VQS** | Vehicle Quota System |

## Appendix I: Visit programme

| | |
|---|---|
| **23 September 2014 (Tuesday)** | Arrive at Singapore |
| | Visit to cycling facilities near Pasir Ris Town |
| **24 September 2014 (Wednesday)** | Visit to the Marina Bay Cruise Centre Singapore and connecting transport facilities |
| | Visit to the Hong Kong Economic and Trade Office in Singapore |
| | Meeting with the Minister for Transport |
| **25 September 2014 (Thursday)** | Visit to the Singapore Parliament and meeting with the Government Parliamentary Committee for Transport |
| | Visit to the SBS Transit and tour of the North East Line's Operations Control Centre and an Integrated Transport Hub |
| **26 September 2014 (Friday)** | Visit to the Land Transport Authority |
| | Depart for Hong Kong |

## Appendix II: List of organizations and persons met by the delegation

| 23 September 2014 (Tuesday) |
|---|
| **Land Transport Authority**<br>Mr TEO Kwang-liak, Senior Manager, Cycling<br>Mr Matthew CHEAH, Deputy Manager, Cycling<br>Mr Alfred LIN, Ride Liaison Officer<br>Mr Darren CHONG, Ride support |
| **24 September 2014 (Wednesday)** |
| **Marina Bay Cruise Centre Singapore**<br>Ms Michelle CHAN, Assistant Director, Cruise Industry Development, Cruise (Singapore Tourism Board)<br>Mr Nigel GOH, Business Development Manager, Sats-Creuers Cruise Services Pte Ltd |
| **Hong Kong Economic and Trade Office in Singapore**<br>Mr FONG Ngai, Director<br>Ms Joyce CHAN, Deputy Director<br>Mr Paul LEUNG, Assistant Director (Trade) |
| **Ministry of Transport**<br>Mr LUI Tuck-yew, Minister for Transport<br>Mr SENG Han-thong, Deputy Chairman for the Government Parliamentary Committee for Transport<br>Dr Janil PUTHUCHEARY, Member of the Government Parliamentary Committee for Transport<br>Mr ANG Wei-neng, Member of the Government Parliamentary Committee for Transport<br>Mr Louis LIM, Assistant Director, International Relations and Security Division |

| **25 September 2014 (Thursday)** |
|---|
| **Singapore Parliament**<br>Mr Cedric FOO, Chairman of the Government Parliamentary Committee for Transport<br>Mr SENG Han-tong, Deputy Chairman of the Government Parliamentary Committee for Transport |
| **SBS Transit**<br>Mr WONG Wai-keong, Executive Vice President, Rail<br>Mr LEONG Yim-sing, Senior Vice President, Rail Engineering<br>Mr Alex GOEI, Senior Vice President, Rail Operations<br>Mr FOO Jang-kae, Vice President, Rolling Stock/Power & OCS<br>Ms Angie TAN, Vice President (Special Grade), Information Technology |
| **26 September 2014 (Friday)** |
| **Land Transport Authority**<br>Mr CHUA Chong-kheng, Deputy Chief Executive (Infrastructure & Development)<br>Dr CHUAI Chip-tiong, Director, Traffic & ITS Operations<br>Ms SOH Ling-tim, Deputy Director, Intelligent Transport System Centre<br>Ms KOH Wee-ping, Manager, Traffic Analysis<br>Ms YAP Hui-jin, Manager, Cycling Development |

## REFERENCES


1. Ministry of Transport, Singapore government
   *http://www.mot.gov.sg*

2. Parliament of Singapore
   *http://www.parliament.gov.sg*

3. Land Transport Authority
   *http://www.lta.gov.sg/content/ltaweb/en.html*

4. Land Transport Authority: Land Transport Master Plan 2013
   *https://www.lta.gov.sg/content/dam/ltaweb/corp/PublicationsResearch/files/ReportNewsletter/LTMP2013Report.pdf*

5. Land Transport Authority: A glimpse into land transport 2030
   *http://www.lta.gov.sg/content/dam/ltaweb/corp/PublicationsResearch/files/ReportNewsletter/LTMP2013Booklet-Eng.pdf*

6. Hong Kong Economic and Trade Office in Singapore
   *http://www.hketosin.gov.hk*

7. SBS Transit Limited
   *http://www.sbstransit.com.sg*

8. Marina Bay Cruise Centre Singapore
   *http://mbccs.com.sg*