



## 1. Introduction

1.1 In September 2014, the Government announced the Railway Development Strategy 2014 ("RDS-2014") which reaffirms the policy of using railway as the backbone of the public transport system and maps out the development and planning blueprint of the heavy rail network up to 2031. Seven new railway projects<sup>1</sup> are scheduled to be completed by 2031 with an estimated cost of HK\$110 billion.

1.2 In parallel with planned development of the heavy rail network, the Government considers it necessary to carry out a systematic review on the overall strategic arrangements of the public transport system. To this end, the Government conducts the Public Transport Strategy Study ("PTSS") which examines the respective roles and positioning of public transport services other than heavy rail to enhance their development. The PTSS also looks into some important topical issues of the public transport sectors in detail, as well as examining how to enhance the complementarity amongst the various public transport services.<sup>2</sup> This is to ensure that the public can enjoy efficient services with reasonable modal choices, and that the public transport operators can enjoy sustainability within their respective niche area.

1.3 An important aspect of PTSS is to examine the ways of promoting franchised bus route rationalisation for enhancing network efficiency, and, having regard to the implications for other public transport services, to explore whether it is feasible and desirable for franchised buses to attract more passengers by introducing different types of new services such as point-to-point

---

<sup>1</sup> The seven new railway projects are the Northern Link & Kwu Tung Station, Tuen Mun South Extension, East Kowloon Line, Tung Chung West Extension, Hung Shui Kiu Station, South Island Line (West) and North Island Line. Upon the completion of the seven construction projects, Hong Kong's railway network will lengthen from 270 km in 2021 to over 300 km by 2031. The number of stations will increase from 99 to 114 as well.

<sup>2</sup> The public transport services studied cover franchised buses, public light buses, taxis, non-franchised buses, light rail, trams and ferries.

express routes and seat-only service, and to explore whether it is feasible and desirable to install real-time bus arrival information systems for service improvement.

1.4 As part of PTSS, franchised bus services will be discussed at the meeting of the Panel on Transport to be held on 9 February 2015. In order to facilitate the discussion, the Research Office has prepared this information note on the operation of franchised bus services in Seoul and Singapore. Seoul is selected because it is recognised as a successful case study of enhancing franchised bus services through implementing traffic management measures such as bus route rationalisation and improvement of transport infrastructure facilities and management systems. Singapore is chosen because it has implemented a number of measures to enhance bus services and network efficiency, including bus route rationalisation and installation of more integrated transport hubs.

## **2. Seoul**

2.1 The Seoul Metropolitan Government overhauled its bus transport system in 2004. At that time, bus services were not popular with travelling public due to infrequent services and long/circuitous route. Also contributed was increased private car ownership amid increasing affluence of local people. Faced with worsening problems of traffic congestion and air pollution, the Seoul Metropolitan Government decided to carry out a comprehensive reform of its bus services in 2004 after a series of public transport management and planning studies. The strategy comprised three essential elements, namely (a) bus route rationalisation, (b) improvement of transport infrastructure facilities and management systems, and (c) introduction of distance-based fare charging system. Based on the 2004 reform, the Seoul Metropolitan Government has introduced further transport enhancement measures in the ensuing years to improve the bus services.

### Bus route rationalisation

2.2 Prior to the 2004 reform, many bus routes in Seoul were either too long or circuitous resulting in excessive travelling time and traffic congestion. In addition, there were a number of overlapping bus routes which reduced the

operating efficiency of the transport network and added to the problems of traffic congestion and air pollution. Against this, the Seoul Metropolitan Government commissioned a consultant to undertake a large-scale study and then consulted the academics, district representatives and the public on the findings and recommendations of the consultancy study. An entire redesign of the city's bus route network ensued in an effort to better structure and integrate more than 400 different bus routes.

2.3 Under the new design, bus services are grouped into four types and colour-coded to make them easily distinguishable. Blue buses are long-distance express buses connecting outlying suburbs with each other and with the city centre. Red buses are long-distance express buses connecting the satellite cities with the city centre. Green buses travel around the metropolitan area to provide connecting services to subway stations. Yellow buses circle downtown area and stop at stations for blue buses and major railway stations, as well as business, tourist and shopping areas. The above arrangement serves to reduce overlapping bus routes, thereby enhancing bus operation efficiency and reducing travel time<sup>3</sup>.

## Improvement of transport infrastructure facilities and management systems

### *Enhancement of transit interchanges*

2.4 The provision of more transit interchanges was set out in the 2004 bus reform as one of the main measures for achieving more efficient use of bus resources, relieving congestion and reducing the need for long-haul point-to-point bus routes. The Seoul Metropolitan Government has invested in improving the transit interchanges and hubs to facilitate smooth and safe transfers not only between bus services but also across modes.

2.5 Seoul's transit interchanges now have air conditioning and are co-located with retail and commercial developments. This enables commuters to transfer in a comfortable and seamless manner and makes it convenient for them to shop when they interchange between public transport modes. Bicycle racks are also available to commuters who ride their bikes back home.

---

<sup>3</sup> In a further effort to improve the quality of the bus fleet, the Seoul Metropolitan Government has financed the purchase of (a) low-floor buses running on compressed natural gas to cut down on air pollution and to reinforce the services for the handicapped, and (b) articulating buses to increase the carrying capacity per ride.

### *Introduction of median exclusive bus lanes*

2.6 Before the 2004 bus reform, the Seoul Metropolitan Government had already introduced roadside bus-only lanes to speed up public transport that would be otherwise held up by traffic congestion. However, roadside bus-only lane could not function properly due to illegal parking and stopping, as well as conflicts with vehicles entering and exiting the side streets. In response, the Seoul Metropolitan Government has included the introduction of median exclusive bus lanes as part of its 2004 reform package to improve the speed, punctuality and operation efficiency of bus services.

2.7 In Seoul, exclusive bus lanes have been constructed in the centre of a busy street as red colour polymer concrete pavements. The median exclusive bus lane locations are selected by taking into account the number of lanes, degree of overlapping with subway lines, concentration of traffic demands, inflow and outflow of traffic volume, and bus traffic volume per hour. Particularly, median exclusive bus lanes are installed where more than three lanes in each direction are available with hectic traffic demand so as to connect Seoul with surrounding cities.

### *Establishment of the Bus Management System*

2.8 To coordinate bus services on a comprehensive and system-wide basis, the Seoul Metropolitan Government has established a new Bus Management System ("BMS") using advanced intelligent transport system technology. Global positioning system ("GPS") terminals installed in every bus allow a central bus control centre to monitor all bus locations and speeds, adjust the number of buses travelling on any given route, communicate with bus drivers, and provide real-time information to passengers waiting at bus stops or checking bus schedules on the Internet.

2.9 The new BMS facilitates the provision of more dependable, on-time bus service and better, real-time information for passengers. It also helps optimize service distribution by adjusting bus assignments and scheduling to conform better to the different travel demands on different parts of the extensive bus network. For example, extra buses are able to be put into

service during peak hours for popular transit routes in order to reduce crowding and shorten waiting time.

#### *Launch of the Transportation Operation and Information Service system*

2.10 The Seoul Metropolitan Government has launched the Transportation Operation and Information Service ("TOPIS") system to monitor real-time traffic conditions of arterial roads and intersections. In particular, the TOPIS system collects information from GPS, wireless communications and terminals installed in buses to help coordinate the bus routes and manage ridership effectively. Specifically, it co-ordinates traffic volume, bus routes and traffic bottleneck areas, as well as providing real-time information to passengers, drivers, bus companies and other related organizations. The TOPIS system lets passengers waiting at bus stops know when to expect the next bus based on real-time positioning of buses and traffic flow on the roads. In addition, based on real-time information on how buses are running, the TOPIS system efficiently manages the interval between buses and takes timely action in case of an accident.

#### *Implementation of the Bus Signal Priority system*

2.11 The Bus Signal Priority ("BSP") system, which has been deployed in many cities around the world, is a traffic signal enhancement strategy. The strategy facilitates efficient movement of buses through signalized intersections which allows an approaching bus to have priority on using the limited intersection capacity over other vehicles entering the intersection. The Seoul Metropolitan Government has implemented the BSP system to permit the optimization of traffic signals to speed up buses.

#### Introduction of distance-based fare charging system

2.12 Transfers between modes generally attract separate fares for each mode. The Seoul Metropolitan Government has introduced a unified fare structure that integrates both bus and rail services. The entire trip is calculated as one fare and all fares are calculated based on the distance travelled. A multi-purpose, stored value smart card system (called "T-Money") has been introduced to facilitate this inter-modal ridership.

2.13 Upon the introduction of distance-based fare charging system, the commuters are found to pay about 30% less on average for using public transportation service. Even if a passenger travels a long distance with multiple transfers, the system is designed to charge less than the old way of charging per each ride.

### Benefits of the franchised bus service reform

2.14 The bus reform introduced in 2004, coupled with the subsequent enhancement measures, has helped improve the operation of bus services in a number of areas, including:

- (a) increasing bus speed from 11 km per hour to 22 km per hour;
- (b) boosting the number of bus passengers by six times;
- (c) enhancing the reliability of bus services by five times; and
- (d) improving the punctuality of bus services, attributable to increased speed in the median exclusive bus lanes and scientific bus management with the use of the TOPIS system.<sup>4</sup>

## **3. Singapore**

3.1 In Singapore, the franchised bus services<sup>5</sup> are intended to complement the mass rapid transit ("MRT") system and bring commuters closer to their destination. The Land Transport Authority ("LTA"), being a central bus network planner, aims to put in place an efficient, integrated and sustainable bus system which focuses on improving journey quality for commuters, thereby reducing reliance on private transport that causes the problems of traffic congestion and pollution.<sup>6</sup>

---

<sup>4</sup> Source: UN-Habitat (2013).

<sup>5</sup> Franchised bus services are operated by two private companies, namely the SBS Transit Ltd and the SMRT Buses Ltd.

<sup>6</sup> LTA works with the Public Transport Council ("PTC") and the latter is an independent body established in 1987 to monitor the quality and affordability of bus services. Together, they have established the Quality of Service Standard that all public bus operators must abide by.

3.2 Over the years, Singapore has implemented a comprehensive package of public transport measures to enhance bus services and network efficiency, featuring (a) bus route rationalisation, (b) provision of government funding for purchasing more buses to improve service frequency, reliability and comfort levels, (c) installation of more integrated transport hubs and bus hubs, (d) implementation of bus priority measures and (e) offer of real-time bus information for commuters.

#### Bus route restructuring

3.3 To provide quality bus services and enhance network efficiency, LTA took over the role of bus planning from the operators in 2010 and published the Bus Route Master Plan for public consultation. The Master Plan mapped out detailed bus routes, service specifications and infrastructure facilities for the bus network over the next three to five years. Under the Master Plan, LTA adopted three key principles for the planning of the bus routes:

- (a) improving journey quality, including greater transfer convenience, better service reliability and where possible, shorter journey times;
- (b) having better integration between bus and rail, with buses feeding the MRT network directly and quickly for a more effective hub-and-spoke model; and
- (c) maintaining the overall financial viability of the bus system.

3.4 During the public consultation exercise, LTA met with communities across the country to collect their views on how to improve the efficiency of the bus network. One common feedback was that services covering long distances were unreliable. LTA proposed to split a long bus route into two shorter complementary routes, notwithstanding the trade-off of requiring commuters who used it for longer inter-town travel to make a transfer. As a remedial measure, LTA suggested the installation of more user-friendly transit interchanges. After seeking the approval from PTC, LTA went ahead with the proposal and phased in the changes to the bus routes progressively starting from end-2010 to allow more time for commuters and bus operators to adjust.



### *Provision of more choices for bus users*

3.5 In recent years, LTA has allowed bus operators the flexibility of making use of service and fare differentiation to cater for the needs of diverse commuter segment. A case in point is the introduction of premium bus service scheme for commuters who are prepared to pay a higher fare for having better bus service, e.g. a more direct journey with a more comfortable ride and guaranteed seats. The provision of premium bus services is positioned to bridge the gap between personalised services (i.e. cars and taxis) and basic bus/rail services. To encourage greater market participation and innovation by private bus operators, there are minimal regulations in bus routes, fares and service frequency for such premium bus services. Another example is the launch of the more expensive Fast Forward bus services with fewer stops and flexible routing to avoid traffic congestion. Commuters travelling on Fast Forward buses can save up to 20% in travel time during the morning and evening peak hours.

### Implementation of the Bus Services Enhancement Programme

3.6 Under the *Land Transport Master Plan 2013*, LTA plans to increase the length of the rail network by 55% from 178 km in 2012 to the targeted length of 278 km in ten years' time. As new rail lines take time to build, LTA launched the Bus Service Enhancement Programme ("BSEP") in 2012 to address commuters' concerns, particularly bus crowding and frequency. Under BSEP, a total of S\$1.1 billion (HK\$6.7 billion) has been earmarked for purchasing 1 000 new buses and introducing 80 new bus route services between 2012 and 2017 to enhance connectivity and improve bus service levels.

3.7 The first phase of BSEP, comprising the purchase of 550 new buses and the offer of 40 new bus route services, was completed at end-2014. The second and final phase will involve purchasing 450 more buses during 2015-2017, and increasing available resources for an additional 40 expanded bus route services.<sup>7</sup> Upon the full implementation of BSEP by 2017 and with new purchase made by private bus operators, the total capacity of the bus system will increase by about 35%, or about 1 400 buses, in five years.

---

<sup>7</sup> Most of these new bus routes will be feeder or short trunk services to serve new areas of developments such as Sengkang and Punggol.



3.8 Under BSEP, the public bus operators are required to improve bus frequencies, especially during peak periods. It is stipulated that 90% of all bus services must operate within 10-12 minute intervals. In particular, more feeder bus services are required to run at scheduled intervals of 10 minutes or less.

#### Installation of more integrated transport hubs and bus hubs

3.9 LTA is committed to providing more and better connections for commuters by installing more integrated transport hubs where air-conditioned bus interchanges and rail stations are co-located with retail and commercial activities. The provision of integrated transport hubs allows transfers to be done more comfortably and provide added convenience as commuters can do some shopping before transferring to their connecting MRT or bus. All bus interchanges are barrier-free and have wheelchair-accessible facilities.

3.10 Seven integrated transport hubs are currently built, which are located at Bedok<sup>8</sup>, Boon Lay, Ang Mo Kio, Clementi, Sengkang, Serangoon and Toa Payoh. Six more will be provided at Bukit Panjang, Hougang, Joo Koon, Jurong East, Marina South and Yishun in tandem with re-development in the respective areas over the next 10 years.

3.11 In addition, LTA has developed bus hubs to create more waiting and boarding space for commuter comfort and reduce the average time each bus needs to dwell at the bus stops. These bus hubs are installed with real-time bus arrival/departure information panels to help passengers better manage their travel time.

---

<sup>8</sup> The Bedok Integrated Transport Hub was opened in November 2014. The 1.6 hectare interchange is one of the largest bus interchanges in Singapore with 29 bus services calling at it. The new interchange is expected to benefit about 40 000 commuters daily.

## Provision of bus priority measures

### *Implementation of bus lane scheme*

3.12 One of the key bus priority measures in Singapore is the implementation of bus lane scheme<sup>9</sup> to give priority to buses on the road, enabling them to enter and exit stops more smoothly and provide faster rides for commuters. After several rounds of extension, the length of bus lanes increased to 150 km in 2014 from 120 km in 2008.

3.13 In a measure to ensure that the bus lane scheme remain effective in improving travel time for buses, LTA has made use of traffic wardens and on-board bus lane enforcement cameras. The traffic wardens are deployed at various hotspot areas to record the vehicle licence plate number of motorists who infringe bus lanes. These locations are usually the ones where most of the scheduled buses were obstructed.

3.14 In addition, about 90 buses across 12 SBS Transit<sup>10</sup> bus services that ply along routes with bus lanes are fitted with video cameras to record bus lane infringements (**Figure 1**). This system requires little intervention by the driver as the video is set to continuously monitor the road in front of the bus. The video camera also allows LTA officers to assess the circumstances more accurately if motorists are caught on video infringing bus lanes. As for the penalty, motorists who drive on bus lanes during restricted hours are fined S\$130 (HK\$795).

---

<sup>9</sup> Aside from buses, only emergency service, police vehicles and bicycles are allowed on bus lanes. There are two types of bus lane in Singapore: (a) normal bus lanes (operating from 7:30 am to 9:30 am and from 5 pm to 8 pm between Monday and Friday) and (b) full-day bus lanes (operating from 7:30 am to 8 pm between Monday and Saturday).

<sup>10</sup> The SBS Transit is a public transport operator providing both bus and rail services. It has established a strong presence in the bus services market with a total fleet of close to 3 000 buses and a 75% market share.

**Figure 1 — Video camera to detect bus lane infringement**



Source: Land Transport Authority.

### *Provision of the Mandatory Give-Way to Buses scheme*

3.15 The Mandatory Give-Way to Buses scheme<sup>11</sup> is also an important measure implemented to improve the speed and reliability of bus services. The operation of this scheme is similar conceptually to a zebra crossing, except that it is meant for buses. When nearing a bus stop under the scheme, motorists will first see triangular give way markings on the road (**Figure 2**). These markings indicate that motorists approaching these bus stops need to slow down and watch out for buses pulling out of the bus bay. Motorists come to a complete stop before the give way line and give way to buses exiting the bus bay at the location. Motorists may continue their journey once the bus has successfully exited the bus bay.<sup>12</sup> As for the penal provision, motorists who do not give way to buses exiting from bus bays, where the new road markings are drawn or if they stay in the yellow box marked "Give Way to Buses" are liable to a fine of S\$130 (HK\$795). According to LTA, after implementing the bus priority measures, bus average speeds have been increased from 16-19 km per hour to 20-25 km per hour.<sup>13</sup>

---

<sup>11</sup> Signal priority is also given for buses approaching some major junctions by extending the green-time for them.

<sup>12</sup> As of November 2014, there were a total of some 320 bus stops under this scheme. LTA is tasked with reviewing and implementing the scheme in phases to benefit more commuters.

<sup>13</sup> Source: Land Transport Authority (2015).

**Figure 2 — Illustration of bus stop with Mandatory Give-Way to Buses scheme**



Source: Land Transport Authority.

### *Offer of real-time bus information for commuters*

3.16 Commuters need accurate information to plan their journeys. For example, if a commuter knows one bus is running late, he or she may choose to hop on another bus going in the same direction. LTA has worked with the public bus operators to ensure that commuters can see departure times of all bus services departing from interchanges. Currently, bus arrival times can be shown on bus arrival information display panels at over 100 bus stops across the city. Furthermore, LTA is working on a project on the feasibility of providing information on the level of crowding on buses so that commuters can make more informed choices for their journeys.

3.17 LTA has also launched MyTransport.SG, a portal that consolidates information and e-services for land transport users. Within MyTransport.SG, MyTransport.SG Mobile provides commuters information on public transport services on mobile devices, including real-time bus arrival information that is also shown on display panels at the bus stops across the city. Commuters may also make use of the Journey Planner to plan their journeys using public transportation. The portal's interactive map covers bus and rail trips that can be made across the city.

### Introduction of distance-based fare charging system

3.18 LTA has introduced the distance-based fare charging system to give commuters a more equitable fare structure based on distance travelled

regardless of the mode of public transport used (between bus and MRT, and between buses) and the number of valid transfers made. With distance-based fares, commuters pay the same fare whether they travel directly to their destination, or make transfers during the journey. Commuters have the flexibility to decide on the best route to reach their destination.

### Improvement of reliability through operations

3.19 In addition to the above measures implemented for improving the operating environment of franchised bus operators, LTA works with PTC to put in place the Quality of Service ("QoS") Standards to safeguard commuters' interest in terms of bus service provision. Currently, the QoS standards comprise the following two categories:

- (a) Operating Performance Standards which measure minimum daily or monthly operational deliverables, either at the bus network or route levels. They cover the aspects of bus reliability, loading and safety; and
- (b) Service Provision Standards which measure overall bus route planning and provision of services. They cover the aspects of service availability, integration and information.

3.20 In cases of non-compliance with the QoS standards, PTC is empowered to impose financial penalty on franchised bus operators to keep service lapses to the minimum. The penalty quantum ranges from S\$2,000 (HK\$12,240) per day per bus service to S\$100,000 (HK\$612,000) per month per standard (see [Appendix](#) for the Operating Performance Standards and the Service Provision Standards for bus services, and the penalty framework for non-compliance with QoS Standards.) Based on the latest publicly available information, both the SBS Transit Ltd and the SMRT Buses Ltd<sup>14</sup> fully complied with all the QoS standards between December 2012 and May 2014.

---

<sup>14</sup> It operates a fleet of more than 1 050 buses, serving mainly in housing estates in northern and north-western Singapore.

Table 1 — Quality of Service Standards for bus services

Operating Performance Standards	
Reliability	
Scheduled bus trips operated on each bus service	At least 96% monthly.
Bus service should adhere to not more than five minutes of its scheduled headway (frequency) upon departure at the bus interchanges and terminals	Not less than 85% daily.
Bus breakdown rate on all bus services	Less than 1.5% monthly.
Loading	
Bus loading during weekday peak periods on each bus service	Not exceeding 95% daily.
Safety	
Accident rate on all bus services	Less than 0.75 per 100 000 bus-km per month.
Service Provision Standards	
Availability of up-to-date information	<ul style="list-style-type: none"> <li>• To provide hotline and information on internet website for convenient trip planning.</li> <li>• To display information at all bus interchanges/terminals with passenger boarding activities.</li> <li>• To display information at all bus stops with display facilities.</li> <li>• To provide timetables at bus stops for bus services with long headway (i.e. headway of 20 minutes or more, for more than 20% of the bus trips).</li> </ul>

Table 1 — Quality of Service Standards for bus services (cont'd)

<b>Availability</b>	
Access to any bus service	To run at least one bus service within 400 m radius of any development subject to minimum demand.
Provision of direct bus service connections	To run direct bus services: (a) between a public housing estate and a nearby bus interchange or MRT station; (b) between major employment/activity centres and a nearby bus interchange or MRT station; and (c) between public housing districts and downtown.
Bus service operating hours	At least 18 hours daily, unless otherwise stipulated by PTC.
Bus service scheduled headways (frequencies)	<ul style="list-style-type: none"> <li>• At least 80% of bus services to operate at headway of not more than 10 minutes during weekday (excluding public holidays) peak periods, unless otherwise stipulated by PTC.</li> <li>• At least 90% of feeder bus services to operate at headway of not more than 10 minutes during weekday (excluding public holidays) peak periods, unless otherwise stipulated by PTC.</li> <li>• At least 85% of bus services to operate at headway of not more than 20 minutes during off-peak periods, unless otherwise stipulated by PTC.</li> <li>• 100% of bus services to operate at headway of not more than 30 minutes, unless otherwise stipulated by PTC.</li> </ul>
<b>Integration</b>	
Bus service integration in public housing districts	<ul style="list-style-type: none"> <li>• At least one bus service to depart from the bus interchange/terminal at 6 am or earlier, daily.</li> <li>• At least one bus service to depart from the bus interchange/terminal at 12 midnight or after the last train service, whichever is later, daily.</li> </ul>

Source: Public Transport Council.



**Table 2 — Penalty framework for Non-Compliance with the Quality of Service Standards**

<b>Service Provision Standards</b>	
<b>Standards</b>	<b>Financial penalty<sup>(1)</sup></b>
<b>Operator-based (Monthly) standards</b>	
All Service Provision Standards	S\$100,000 (HK\$612,000) per month on each non-compliant standard.
<b>Operating Performance Standards</b>	
<b>Route-based (Daily) Standards</b>	
Standard on headway adherence Standard on loading	S\$20,000 (HK\$122,400) for each non-compliant day on each non-compliant route.
<b>Route-based (Monthly) Standards</b>	
Standard on percentage of scheduled trips operated	S\$20,000 (HK\$122,400) per month on each non-compliant route.
<b>Operator-based (Monthly) Standards</b>	
Standard on bus breakdown rate Standard on accident rate	S\$100,000 (HK\$612,000) per month on each non-compliant standard.

Note: (1) All such sums collected by PTC shall go into the government's consolidated fund.

Source: Public Transport Council.

## References

### South Korea

1. Cornell University. (2009) *Seoul Bus System Reform Project*. Available from: [https://courses.cit.cornell.edu/crp384/2009reports/Kim&Graham\\_Seoul%27s%20Bus%20System%20Reform%20Project.pdf](https://courses.cit.cornell.edu/crp384/2009reports/Kim&Graham_Seoul%27s%20Bus%20System%20Reform%20Project.pdf) [Accessed February 2015].
2. International Transport Forum. (2005) *Public Transport Promotion Policies*. Available from: <http://www.internationaltransportforum.org/IntOrg/ecmt/urban/Tokyo05/Kim.pdf> [Accessed February 2015].
3. Korea Transport Institute. (2012) *Bus System Reform in Korea*. Available from: [http://www.koti.re.kr/mail/pdf/KOTI\\_2011\\_04.pdf](http://www.koti.re.kr/mail/pdf/KOTI_2011_04.pdf) [Accessed February 2015].
4. Ministry of Strategy and Finance. (2013) *2012 Modularization of Korea's Development Experience: Best Experiences from Public Transport Reform*. Available from: <http://www.ksp.go.kr/publication/modul.jsp?syear=&sage=&skey=&stem=&stype=&pg=3&idx=122> [Accessed February 2015].
5. Pucher, J. et al. (2005) Public Transport Reforms in Seoul: Innovations Motivated by Funding Crisis. *Journal of Public Transportation*. 19 November, 8 (5), pp.41-62. Available from: <http://www.nctr.usf.edu/wp-content/uploads/2010/03/JPT-8-5.pdf> [Accessed February 2015].
6. Rutgers. (2005) *Regional Focus: Public transport in Seoul*. Available from: [http://policy.rutgers.edu/faculty/pucher/PTI\\_English.pdf](http://policy.rutgers.edu/faculty/pucher/PTI_English.pdf) [Accessed February 2015].
7. Seoul National University. (2007) *Challenges for Environmentally Sustainable Transport In Seoul*. Available from: [http://s-space.snu.ac.kr/bitstream/10371/90679/1/6.Challenges\\_for\\_Environmentally\\_Sustainable\\_Transport\\_in\\_Seoul.pdf](http://s-space.snu.ac.kr/bitstream/10371/90679/1/6.Challenges_for_Environmentally_Sustainable_Transport_in_Seoul.pdf) [Accessed February 2015].
8. Seoul Solution. (2014) *Global Lab on Metropolitan Strategic Planning, Seoul Global Exchange: Seoul Public Transportation Reform*. Available from: [https://seoulsolution.kr/sites/default/files/forum/%5BWorldBank%20Global%20Lab%5D%20Seoul%27s%20Experiences\\_140428.pdf](https://seoulsolution.kr/sites/default/files/forum/%5BWorldBank%20Global%20Lab%5D%20Seoul%27s%20Experiences_140428.pdf) [Accessed February 2015].

9. UN-Habitat. (2013) *Bus reform in Seoul, Republic of Korea*. Available from: [http://unhabitat.org/wp-content/uploads/2013/06/GRHS.2013.Case\\_.Study\\_.Seoul\\_.Korea\\_.pdf](http://unhabitat.org/wp-content/uploads/2013/06/GRHS.2013.Case_.Study_.Seoul_.Korea_.pdf) [Accessed February 2015].

### Singapore

10. Land Transport Authority. (2012) *Buses*. Available from: <http://www.lta.gov.sg/content/ltaweb/en/public-transport/buses.html> [Accessed February 2015].
11. Land Transport Authority. (2012) *Land Transport Master Plan 2013*. Available from: <http://www.lta.gov.sg/content/dam/ltaweb/corp/PublicationsResearch/files/ReportNewsletter/LTMP2013Report.pdf> [Accessed February 2015].
12. Land Transport Authority. (2015a) *LTA's role in public bus services*. Available from: <http://www.lta.gov.sg/content/ltaweb/en/public-transport/buses/ltaroleinpublicbuservices.html> [Accessed February 2015].
13. Land Transport Authority. (2015b) *Trunk Buses*. Available from: <http://www.mytransport.sg/content/mytransport/home/commuting/busservices.html> [Accessed February 2015].
14. Ministry of Transport. (2010) *Speech by Mrs Lim Hwee Hua, Minister in the Prime Minister's Office and Second Minister for Finance and Transport at Committee of Supply Debate (Land Transport)*. Available from: [http://www.mot.gov.sg/News-Centre/News/2010/Speech-by-Mrs-Lim-Hwee-Hua,-Minister-in-the-Prime-Minister-s-Office-and-Second-Minister-for-Finance-and-Transport-at-Committee-of-Supply-Debate-\(Land-Transport\)-on-11-March-2010,-2-10PM,Parliament/](http://www.mot.gov.sg/News-Centre/News/2010/Speech-by-Mrs-Lim-Hwee-Hua,-Minister-in-the-Prime-Minister-s-Office-and-Second-Minister-for-Finance-and-Transport-at-Committee-of-Supply-Debate-(Land-Transport)-on-11-March-2010,-2-10PM,Parliament/) [Accessed February 2015].
15. *Ministry of Transport*. (2015) Available from: <http://www.mot.gov.sg/> [Accessed February 2015].
16. Public Transport Council. (2013) *News, The PTC Revises Penalty Quantum for Bus Quality of Service (QoS) Standards to Ensure Better Service Levels*. Available from: [https://www.ptc.gov.sg/get\\_content.aspx?id=news050313093844](https://www.ptc.gov.sg/get_content.aspx?id=news050313093844) [Accessed February 2015].
17. *Public Transport Council*. (2015) Available from: <https://www.ptc.gov.sg/> [Accessed February 2015].

## Hong Kong

18. GovHK. (2013) *Press Releases, LCQ22: Bus route rationalisation*. Available from: <http://www.info.gov.hk/gia/general/201305/29/P201305280641.htm> [Accessed February 2015].
19. Office of the Ombudsman. (2012) *Press Release, The Ombudsman Probes Transport Department Mechanism for Monitoring the Frequencies of Franchised Bus Services*. Available from: [http://www.ombudsman.hk/direct-investigation-under/2012\\_10\\_01.pdf](http://www.ombudsman.hk/direct-investigation-under/2012_10_01.pdf) [Accessed February 2015].
20. Transport and Environmental Protection Department. (2010) *Rationalisation of Bus Routes to Improve Air Quality*. Administration's paper submitted to the Panel on Transport and Panel on Environmental Affairs of the Legislative Council for discussion on 22 January 2010. LC Paper No. CB(1)916/09-10(01).
21. Transport and Housing Bureau. (2014) *Public Transport Strategy Study - Work Plan*. Administration's paper submitted to the Panel on Transport of the Legislative Council for discussion on 25 November 2014. LC Paper No. CB(1)238/14-15(06).
22. Transport Department. (2014) *Press Releases, TD strives to enhance public transport services and road safety*. Available from: [http://www.td.gov.hk/en/publications\\_and\\_press\\_releases/press\\_releases/transport\\_department/index\\_id\\_2183.html](http://www.td.gov.hk/en/publications_and_press_releases/press_releases/transport_department/index_id_2183.html) [Accessed February 2015].
23. 香港申訴專員公署：《主動調查報告－對專營巴士行車班次的監察機制》，2014年，網址：[http://ofomb.ombudsman.hk/abc/files/DI254\\_full\\_TC.pdf](http://ofomb.ombudsman.hk/abc/files/DI254_full_TC.pdf) [於2015年2月登入]。

---

Prepared by Jackie WU  
Research Office  
Information Services Division  
Legislative Council Secretariat  
3 February 2015  
Tel: 2871 2129

---

*Information notes are compiled for Members and Committees of the Legislative Council. They are not legal or other professional advice and shall not be relied on as such. Information notes are subject to copyright owned by The Legislative Council Commission (The Commission). The Commission permits accurate reproduction of information notes for non-commercial use in a manner not adversely affecting the Legislative Council, provided that acknowledgement is made stating the Research Office of the Legislative Council Secretariat as the source and one copy of the reproduction is sent to the Legislative Council Library.*