

Smart Mobility – Intelligent Traffic Management Electronic Road Pricing Pilot Scheme in Central Core District

Concepts and Preliminary Ideas

Purpose

The Government will adopt a **multi-pronged approach** with the **use of technology to enhance traffic management** to progressively tackle the **serious traffic congestion** in the **Central Core District**, including launching the Electronic Road Pricing (“ERP”) Pilot Scheme (**“the Pilot Scheme”**) in the Central Core District.

Vision

2. In order to build Hong Kong into a livable city, the Government is determined to progressively employ technology to enhance traffic management in a systematic and well-planned manner, with an aim to **alleviate traffic congestion, which is one of the initiatives under Smart Mobility**. Central, being the business hub of Hong Kong as an international financial centre, warrants priorities in resolving traffic congestion.

3. Smart Mobility is the key element for developing Hong Kong into a Smart City. The goal is to apply innovation and technology to facilitate the public to plan their journeys more efficiently and to make better use of public transport, thereby alleviating traffic congestion and reducing overall carbon emissions, and in turn creating a better environment and promoting sustainable development.

4. Central plays a strategic role in the overall development of Hong Kong. In view of its unique road network and the persistent traffic congestion that has plagued the community for years, the Government is determined to adopt a more innovative approach and to apply technology more robustly to properly address the traffic congestion problem in the Central Core District. This also fulfils the policy objective of transforming Hong Kong into a Smart City.

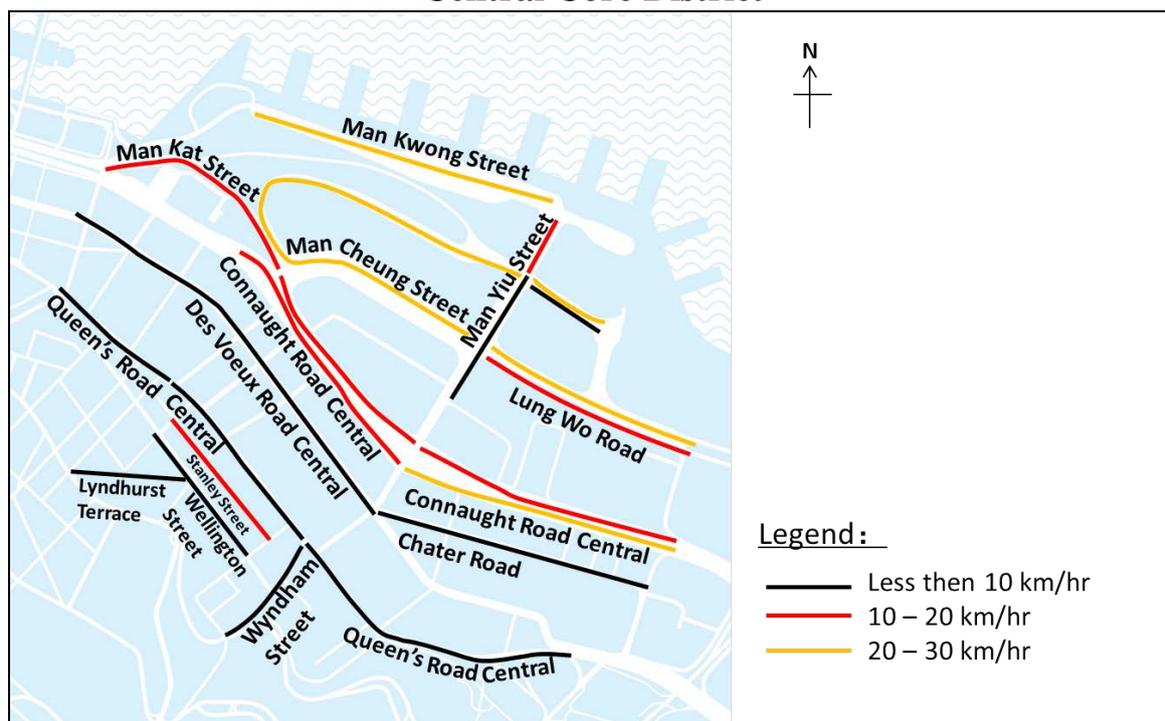
5. The Government will study the use of technology to combat illegal parking and introduce measures to enhance complementary measures for vehicles and pedestrians, which include increasing the supply of parking spaces and improving the connectivity of pedestrian walkways, so as to make Central more accessible to commuters. The Government will also study **the use of technology to launch the Pilot Scheme with a view to managing the increasing traffic flow in Central.**

Worsening Traffic Congestion

6. The **total number of licensed vehicles** in Hong Kong has increased from 524 300 in 2003 to 766 200 in 2017, representing a **growth of 46%**, and an annual growth rate of 3%. The growing vehicle fleet has translated into an increase of traffic volume in the urban areas. The annual average daily traffic **entering and leaving the Central Core District** has increased from 463 300 vehicles in 2003 to 503 400 vehicles in 2017, **representing an increase of about 10%**. Taking the peak hour traffic as an example, more than 70% are private cars (about 45%) and taxis (about 30%), about 15% are goods vehicles and motorcycles, and the remaining about 10% are public transport vehicles such as franchised and non-franchised buses as well as public light buses.

7. Central has long been Hong Kong's financial and commercial hub, where many multi-national financial services corporations set up their headquarters. High-rise commercial buildings, dense population, coupled with a continuous flow of visitors attracted by its history, art and culture as well as gourmet food, have made Central a vibrant place stuffed with vehicles every day. In the past few years, the car journey speeds at major traffic corridors in the Central Core District during peak hours have been showing a declining trend. For example, **the average car journey speeds on roads such as Des Voeux Road Central (eastbound), Chater Road, Connaught Road Central (westbound) have been reduced by 10% to 35% during the period from 2015 to 2017. In particular, cars travelling on some sections of Queen's Road Central only move at around 6 km/hour during noon peak hours, a speed that is not much faster than an adult's average walking speed of 4 to 5 km/hour.** The vehicle speeds at major roads in the Central Core District during noon peak hours are shown in **Figure 1.**

Figure 1: Noon Peak Vehicle Speeds on major traffic corridors in the Central Core District



Proposed Measures

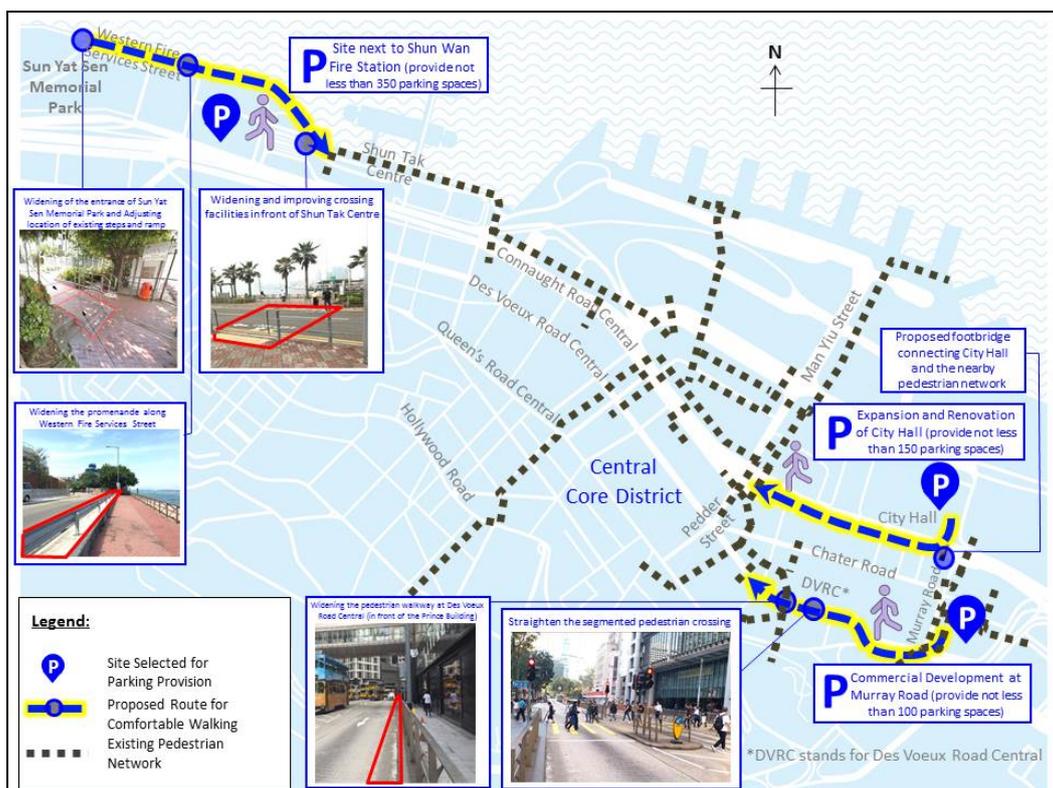
8. We recognise that **a multi-pronged approach should be adopted** in order to **alleviate traffic congestion in the Central Core District**. Apart from implementation of the Pilot Scheme, it is also essential to optimise the complementary measures in the area. The proposed measures are outlined as follows:

1. Increasing Parking Spaces and Optimising Pedestrian Access

9. **To reduce the volume of traffic entering the Central Core District**, we will consider providing additional public parking spaces under the development projects undertaken around the periphery of the area, as well as improving the environment of pedestrian walkways, so that motorists are motivated to park their vehicles near the periphery of the Central Core District and walk into the area via convenient pedestrian walkways. **Figure 2** shows the locations identified for provision of additional public parking spaces, namely **the site next to Sheung Wan Fire Station, the commercial development of the former Murray Road Multi-storey Car Park Building and the project on expansion and renovation of Hong Kong City Hall, which will altogether provide at least 600 public parking**

spaces. Besides, the “Walk in Hong Kong” project will be piloted in the Central and Western District. Initiatives will include improvement of footpaths connecting to Shun Tak Centre as well as upgrading of access connection to the existing pedestrian network under the development of the former Murray Road Multi-storey Car Park Building and the project on the expansion and renovation of City Hall, which will include widening of footpath and enhancement to pedestrian crossing facilities to tie in with the aforementioned parking facilities and provide the **“park and walk”** option to motorists who wish to travel to Central. Furthermore, we plan to install about 12 000 new generation parking meters to replace the existing parking meters across the territory. The new parking meters will be put into service in the Central and Western District and other districts in phases from early 2020 for full completion by early 2022. They will be equipped with sensors to detect whether a parking space is being occupied and provide real time parking vacancy information to assist motorists in finding vacant parking spaces, so that the time spent on circulating on roads looking for parking spaces can be reduced. This will also help alleviate road congestion. All new parking spaces and on-street parking meters, together with the existing 270 government and privately-operated carparks, will be included in the search function of “HKeMobility” mobile application, enabling the public to locate the available parking spaces swiftly and easily.

Figure 2: Increasing Parking Spaces and Optimising Pedestrian Access



II. Application of Technology to Assist Traffic Enforcement

10. Goods vehicles engaged in illegal loading and unloading activities in “no-stopping” zones, and private cars idling at inner streets¹ for a prolonged period or circulating around the area or even engaged in illegal kerbside activities in “no-stopping zones”², often contribute to the worsening of traffic congestion in Central. Apart from the sustained efforts by the Hong Kong Police Force (HKPF) to take stringent enforcement actions against illegal parking and **other unlawful activities causing traffic obstruction**, the Government is actively examining **the application of new technologies to assist frontline officers in taking enforcement actions against traffic contraventions** in order to enhance enforcement efficiency and strengthen the deterrent effect.

11. The HKPF is looking into the use of video analytic technology in combating traffic offences that cause traffic obstruction, such as illegal stopping at bus stops and in “no-stopping” zone. Subject to the technical assessments, the Government will apply the technology at appropriate locations to assist the HKPF to combat traffic contraventions. The **Central and Western district is one of the locations to be considered for implementation on this front**.

III. Improving Public Transport Network

12. The traffic problem in the Central Core District cannot be effectively resolved by the Police’s enforcement action alone, as traffic congestion is not only caused by frequent kerbside activities, but also stems from the fact that the area is overwhelmed with too much incoming traffic. We will strive to improve the public transport network to **attract more commuters to opt for public transport** in lieu of private cars for access to Central. We will proactively work with the franchised bus companies on **improving passenger waiting facilities at bus stops, streamlining bus stop distribution** and **enhancing public transport services** in response to passengers’ demand, so as to enhance network efficiency and alleviate traffic congestion.

¹ Including Finance Street, Ice House Street, and Chater Road etc.

² Typical example would be at Queen’s Road Central near Landmark during day time

IV. Reducing Traffic Volume

13. As mentioned in paragraph 6 above, the volume of traffic entering and leaving the Central Core District has been on the rise over the years. However, the space available for constructing more roads in the area is very limited. The commissioning of the Central-Wan Chai Bypass and Island Eastern Corridor Link (“CWB”) in February 2019 provided an alternative east-west route on Hong Kong Island and helped alleviate the traffic congestion at the major corridors such as Connaught Road Central, Harcourt Road and Gloucester Road. Nevertheless, the commissioning of CWB cannot change the fact that there are too many motorists driving into the Central Core District, and that Queen’s Road Central, Des Voeux Road Central, Pedder Street, and Wyndham Street are still heavily congested. There is, however, limited scope for expansion of road transport infrastructure in the densely-developed Central. Indeed, building more roads and pursuing the prevailing traffic management measures alone can hardly tackle the traffic congestion in the Central Core District. To alleviate traffic congestion effectively, it is inevitable that consideration be given to charging motorists to discourage them from driving into the area, thereby reducing the traffic flow in the area. We propose to, **through the use of technology to effectively manage traffic volume, implement the Pilot Scheme** at the Central Core District in order **to alleviate local traffic congestion caused by too many vehicles driving into Central**, so that the residents of the Central and Western district, frequent visitors to Central and tourists will be able to enjoy more time and space and experience the vitality and fascinating diversity in the Central Core District.

The Purpose and Consideration of Pilot Scheme

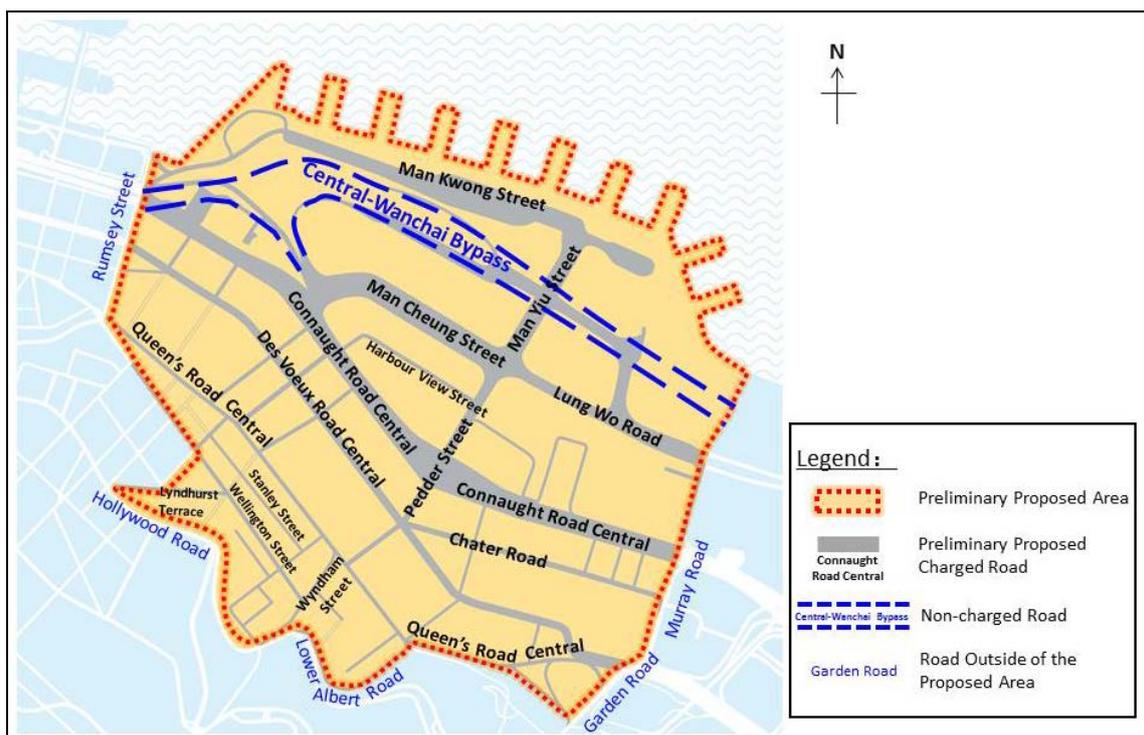
14. We commenced a three-month public engagement exercise in December 2015, allowing the public to deepen their understanding of the purpose, basic elements of the Pilot Scheme and overseas experience, etc. After soliciting the views of the public and other stakeholders, we commissioned an in-depth feasibility study for the project. The Pilot Scheme itself is essentially an intelligent traffic management tool. Formulation of the Pilot Scheme framework should take account of the following factors:

- (a) The **“user pays”** principle should be adopted to change the commuting pattern of motorists, for example, switching to public

transport, and / or making their trips to the Pilot Scheme area in non-peak hours;

- (b) The charging level and concessionary or exemption arrangement should be drawn up having regard to **vehicles' carrying capacity** and **economic contribution**, so as to optimise the use of limited road space and reduce vehicle emissions;
- (c) The Pilot Scheme should mainly cover congested roads in the Central Core District while **minimising the impact on residence nearby, as illustrated in Figure 3**. It covers the Central Core District with an aim to promote the effective use of the limited roads and to enhance the sustainability and efficiency of development in Hong Kong ;

Figure 3: Preliminary Proposed Area covered by the Pilot Scheme



- (d) The Pilot Scheme, with the use of “in-vehicle units” proposed under Smart Mobility, will adopt the concept of **“congestion charging”** and **“variable charges at variable period”**. The Pilot Scheme does not aim to increase government revenue. The Government will consider providing additional recurrent resources broadly equivalent to the net revenue to be generated from the pilot scheme for implementing measures to improve

public transport services and encourage wider usage;

- (e) The Pilot Scheme will be launched in tandem with the “Intelligent Transport System and Traffic Management” initiatives under Smart Mobility. It will adopt the Radio Frequency Identification technology and will be supplemented by Automatic Number Plate Recognition in identifying vehicles entering the area covered by the “Pilot Scheme”. We will ensure that the handling of personal data under the “Pilot Scheme” **complies with the Data Protection Principles of the Personal Data (Privacy) Ordinance (Chapter 486)**; and
- (f) Although ERP has been implemented in a number of overseas places for more than 10 years, it is a new concept to road users in Hong Kong. Taking reference from overseas experience³, we target to **reduce the overall traffic volume in the Central Core District by 15%** as the initial yardstick. If the traffic volume could be reduced effectively, **the average car journey speeds at the major roads during peak hours could be increased by 3 to 5 km/hour**. For the more congested junction during noon peak hours, the signal waiting time could be significantly reduced, from the current three cycles to about one cycle.

Forging Consensus

15. We hope that consensus can be reached on the Pilot Scheme to pave the way for detailed design and construction in the next stage. Let us work together and take an important step forward towards the implementation of the intelligent traffic management system.

Transport Department
April 2019

³ During the initial stage of implementing ERP in Singapore, London (United Kingdom), Stockholm (Sweden), the volume of traffic entering the charging area has been reduced 10-15%, 16% and 15% respectively during the peak hour / charging period.