

**For Information**  
**12 July 2010**

**LEGISLATIVE COUNCIL**

**PANEL ON TRANSPORT AND  
PANEL ON ENVIRONMENTAL AFFAIRS**

**Pilot Low Emission Zones for Franchised Buses**

**Purpose**

As requested by Members at the joint meeting of the Panel on Transport and Panel on Environmental Affairs on 28 May 2010, this paper reports on the progress of our study to examine the feasibility of introducing pilot low emission zones (LEZs) that aim to restrict access for franchised buses to more environment-friendly models and provide information on possible alternatives to reduce emissions from our franchised bus fleet and facilitate the introduction of the proposed pilot LEZs.

**Setting Up Pilot Low Emission Zones**

2. Franchised buses could account for up to 40% of the traffic flow along busy corridors in Causeway Bay, Central and Mong Kok. Restricting franchised buses' access to these corridors to more environment-friendly models could bring significant improvement to the roadside air quality. The data collected by the roadside air quality monitoring stations in these corridors can be used to assess the effectiveness of these pilot LEZs in improving roadside air quality. We are therefore examining the feasibility of setting up pilot LEZs at one or more of these busy corridors, having regard to the availability of sufficient cleaner buses for setting up the zones. The experience of setting up pilot LEZs can also help us consider the case for extending the scope of the LEZs to other types of vehicles.

## **Current Bus Deployment at Busy Corridors**

3. To improve the roadside air quality, the Government has been encouraging the franchised bus companies to deploy cleaner buses to the above busy corridors in their deployment of cleaner buses. As at end March 2010, buses complying with Euro II or above emission standards make up of about 70% of the combined bus fleet of Kowloon Motor Bus Company (1933) Limited, Citybus Limited and New World First Bus Services Limited. Through the Government's encouragement and franchised bus companies' concerted efforts, all the franchised buses running on Yee Wo Street, 92% on Hennessy Road, 93% on Nathan Road, 84% on Queensway, and 89% on Des Voeux Road Central are Euro II or above bus models. The Euro II standards were introduced in 1997, and were replaced by Euro III standards in 2001.

4. There are about 2,360 buses operating along routes cutting across the above busy corridors, accounting for about 40% of the whole franchised bus fleet. If we restrict entry to the pilot LEZs to allow franchised buses of emission standards at Euro IV or better, there will be a significant shortfall of such buses because the combined bus fleet of the three franchised bus companies has in total about 160 buses meeting Euro IV or above emission standards. Even if all the existing Euro IV or above buses are deployed to routes running through the busy corridors, there is still a shortfall of about 2,200 buses. The shortfall could be made up to a certain extent by the normal bus replacement programme scheduled for the coming years. However, there remains a need to make available a substantial number of cleaner buses for setting up pilot low emission zones, particularly if they are to be set up in the short term.

## **Accelerating the Replacement of In-use Franchised Buses**

5. Franchised bus companies are required to operate their franchised bus services with buses under the age of 18, and have been replacing their serving buses accordingly. This arrangement has taken account of the maintenance, operational and financial capability of the bus operators and their obligations to provide a proper and efficient service to the public. To make up for the shortfall in the number of buses meeting the required emission standards

for operating the pilot LEZs, one possible option is to accelerate the replacement of in-use buses. The cost of a new double-deck bus is about HK\$3 million, so accelerating the pace of the bus replacement will have impacts on bus fare and operation of bus companies. The extent to which the bus replacement schedule could be advanced would also be constrained by the production capacity of the bus manufacturers. We have also come across views questioning whether it is cost-effective to phase out pre-maturely franchised buses.

## **Other Options**

6. At the last joint Panel meeting on 28 May 2010, Members requested the Administration to set out other possible options to reduce emissions from our franchised bus fleet and facilitate the introduction of the proposed pilot LEZs.

### *Bus Route Rationalisation*

7. The Government has been working with the franchised bus companies to pursue bus route rationalisation to reduce the number of buses on road, especially those plying through the busy corridors. As a result of these efforts, over 3,000 bus trips passing through Central, about 2,000 bus trips passing through Yee Wo Street in Causeway Bay and about 1,600 bus trips in Nathan Road per day were removed between 1999 and September 2009. As noted from previous discussions at the joint meetings of the Panel on Transport and Panel on Environmental Affairs, local support is critical to further reducing the number of bus routes and trips in these corridors. We will continue to pursue further bus route rationalisation proposals and secure the support of the concerned District Councils for implementing these proposals.

### *Retrofit After-treatment Devices to Reduce the Emissions of In-use Franchised Buses*

8. Retrofitting suitable after-treatment devices can reduce substantially the emissions of in-use franchised buses. In this regard, franchised bus companies have retrofitted their pre-Euro and Euro I buses with

diesel oxidation catalysts that can reduce their particulate emissions by about 30%. They are also in the process of retrofitting their Euro II and Euro III buses with diesel particulate filters (DPF), which can reduce the emissions of particulates, hydrocarbon and carbon monoxide by about 80% or more, thereby making their emission performance reaching the level of Euro IV or above level for particulates, which is a key roadside air pollutant. The retrofitting work is expected to be completed within 2010.

9. Regarding another key vehicle emission, nitrogen oxides (NO<sub>x</sub>), we note that some places in Europe, such as London and Belgium have successfully retrofitted some of their Euro II and Euro III buses with Selective Catalytic Reduction (SCR) devices, which can reduce their NO<sub>x</sub> emissions by about 60%. Coupled with DPF, the SCR retrofit could upgrade the emission performance of the retrofitted Euro II and III buses to reach Euro IV or above level. It is however relevant to note that buses in these European cities are mostly single-decker.

10. We have consulted the major franchised bus companies and agreed with them that it would be prudent to ascertain the technical feasibility and emission benefits of retrofitting SCRs to the local Euro II and III franchised buses by a trial. To this end, we will shortly form a task force comprising representatives from the major franchised bus companies, overseas and local experts as well as relevant Government departments to examine the related technical issues and to oversee the launching of the trial.

11. If SCR retrofitting is found to be technically feasible, it would be a cost-effective option to cut the emissions of our franchised bus fleet and facilitate the setting up pilot LEZs at busy corridors. Large scale SCR retrofit can also benefit other areas where buses are a major source of roadside air pollution. Subject to satisfactory outcome of the trial, we will map out the way forward for taking forward the SCR retrofit in conjunction with franchised bus companies.

Environmental Protection Department  
July 2010