

## FOREWORD

The Transport Department is fully committed to environmental protection. We are conscious of the commitments under the Clean Air Charter and have been working whole-heartedly to improve air quality by taking effective measures to mitigate the air pollution generated from our transport system. We have also exerted influence over our business partners in the transport sector, for example, franchised bus, public light bus and taxi operators, to encourage them to join us in pursuing the wide range of measures aimed at protecting the environment.



We will continue to strive for achievement of our Departmental Vision, viz. *“we will provide the world’s best transport system which is safe, reliable, efficient, environmentally friendly and satisfying to both users and operators”*. In this issue of our Environmental Report we aim to advise the readers what has been done in 2007 by or through the Transport Department to improve the quality of our living environment.

## ABOUT THIS REPORT

This Environmental Report covers the period from 1 January 2007 to 31 December 2007. It is published in electronic version on our web site for the sake of reducing paper consumption. Its target readers are members of the general public. The readers will be informed of the business of our Department, the efforts we have made and the measures we have taken to protect the environment.

*Suggestions ?*

*Comments ?*

Any suggestions or comments on this report are most welcome and can be sent to [tdenq@td.gov.hk](mailto:tdenq@td.gov.hk).

## ABOUT TRANSPORT DEPARTMENT

Our Department is responsible for the implementation of the Government's policy under the following 5 programme areas:

- (i) Planning and Development;
- (ii) Licensing of Vehicles and Drivers;
- (iii) District Traffic and Transport Services;
- (iv) Management of Transport Services; and
- (v) Transport Services for People with Disabilities.



Our headquarters are located in the Immigration Tower in Wanchai. We have also some 20 sub-offices accommodated in other government offices or private commercial buildings. As at 31 December 2007, we had an establishment of 27 directorate posts and 1202 non-directorate posts. In our daily business, we manage or operate the following main types of facilities:



- (i) public transport interchanges/termini;
- (ii) vehicle inspection centres;
- (iii) driving test centres;
- (iv) traffic lights;
- (v) escalators;
- (vi) CCTV and variable message signs;
- (vii) intelligent transport systems; and
- (viii) roads and pedestrian facilities.



Besides other government departments, our business partners include the operators of franchised and non-franchised buses, tram, taxi, ferry, green mini-buses and public light buses. We also have dealings with the various tunnel and Government carpark operators.

## ENVIRONMENTAL GOAL

Our environmental goal is to provide an environmentally friendly transport system in Hong Kong.

## ENVIRONMENTAL POLICY

We are committed to providing a transport system in an environmentally acceptable manner to align with the sustainable development of Hong Kong.

## ENVIRONMENTAL OBJECTIVES

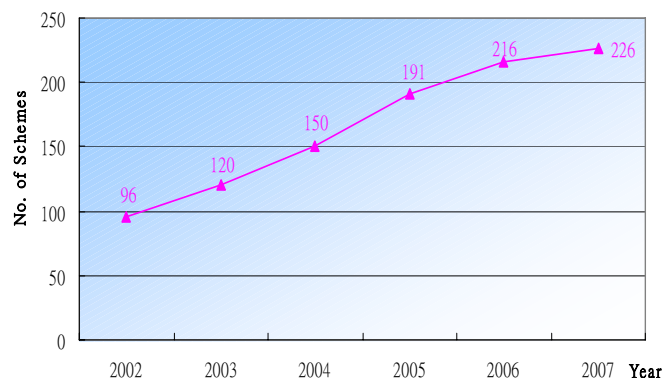


### Environmental Objective No. 1 - Reduction in Vehicular Traffic

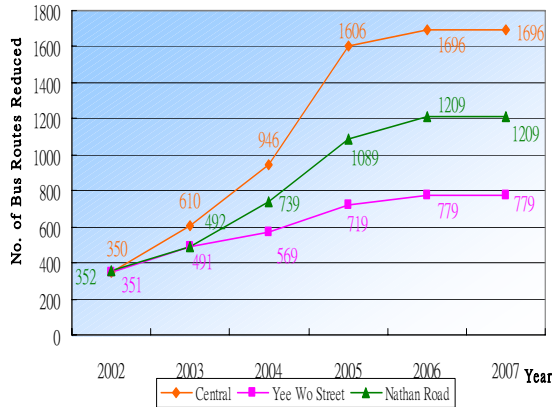
In managing the public transport system, we coordinate the roles played by the various public transport modes, including the rail, bus, tram, taxi, ferry etc., so as to achieve the highest possible overall efficiency. This includes rationalizing public transport services to improve accessibility whilst avoiding duplication and raising the level of service to improve attractiveness. In the end, it helps to reduce vehicular traffic and mitigate air pollution. With these benefits in mind, we make our best efforts to enhance the efficiency of the transport system in the following ways:

#### (i) **Implementation of public transport interchange schemes**

The introduction of interchange schemes enable passengers to make the most efficient use of the transport system across different modes. They include bus-rail interchange, green minibus-rail interchange, taxi-rail interchange, and bus-bus interchange schemes. **The numbers of bus-bus interchange schemes implemented since 2002 are shown in the graph on the right.**



**(ii) Rationalization of bus routes and stops**

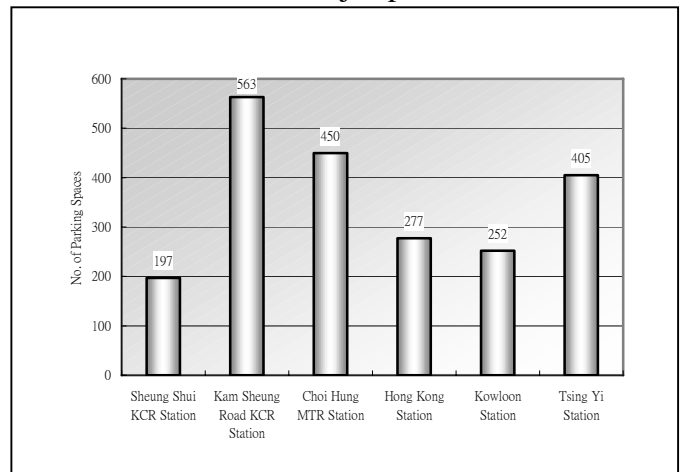


This process includes amalgamation, truncation and modification of bus routes, re-location of bus stops and adjustment of bus schedules to match the prevailing passenger demands. The resulting arrangements can help to reduce traffic congestion. **The cumulative reduction of the number of bus trips since 2002 is shown in the graph on the left.**

**(iii) Provision of park-and-ride (PnR) facilities**

These facilities are carpark provided near railway stations. People can shorten their private car trips and switch to the rail for the major part of their journeys.

**The number of parking spaces provided in each PnR facility is shown in the graph on the right.**



**(iv) Provision of bicycle parks**

In the New Territories, we monitor the demand for bicycle parks, and make provisions (amounting to a total of about 8,000 cycle parking spaces) close to railway stations to enable bicycle riders to change to the rail.



## Environmental Objective No. 2 - Tightening of Emission Control



We have adopted the Euro IV emissions standards since 1 October 2006 to tighten the control over the emission of air pollutants by vehicles in the following manner:

### (i) **Franchised buses imported before 1 October 2006**

We encourage the franchised bus operators to retrofit diesel particulate filters or diesel catalysts on their “older” buses for compliance with the Euro emission standard. For all those pre-Euro and Euro I buses, the retrofitting works have been completed since 2003 and we keep on encouraging the retrofitting works for their Euro II and III buses. With the exception of a few bus models, the retrofitting works for Euro II & III buses would be completed by end 2009.

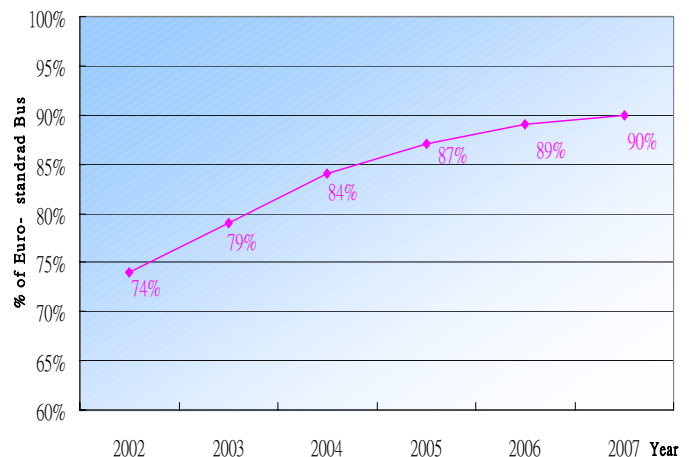
### (ii) **Franchised buses and medium & heavy diesel vehicles over 3.5 tonnes imported on or after 1 October 2006**



*Euro IV Bus*

We require Franchised buses and medium & heavy diesel vehicles over 3.5 tonnes imported on or after 1 October 2006 to comply with Euro IV emission standards for registration in Hong Kong.

The yearly variation of the percentages of buses complying with the Euro Emission Standard since 2002 is shown in the graph on the right.



**(iii) All private cars, taxis, light buses, goods vehicles, buses and special purpose vehicles**

We require them to pass smoke or emission tests during their annual inspection. We also select 40 diesel vehicles per day to undergo the dynamometer smoke test at the Kowloon Bay Vehicle Examination Centre. The legislative amendment to tighten the in-use diesel vehicle emission standard from 60 Hartridge Smoke Units (HSU) to 50 HSU will be effective from 1 May 2008.



**Smoke Test**

Further, we encourage the franchised bus operators to deploy “cleaner” buses (i.e. Euro II or above) to run in busy areas such as Yee Wo Street or on busy corridors like Hennessy Road, Queensway, etc.

**Environmental Objective No.3 - Use of Alternative Fuel Vehicles to replace Diesel Vehicles**

Since February 2001, in response to our appeal, the franchised bus operators have switched the fuel of all franchised buses to ultra low sulphur diesel, which can reduce particulate emission by 5 to 10%.

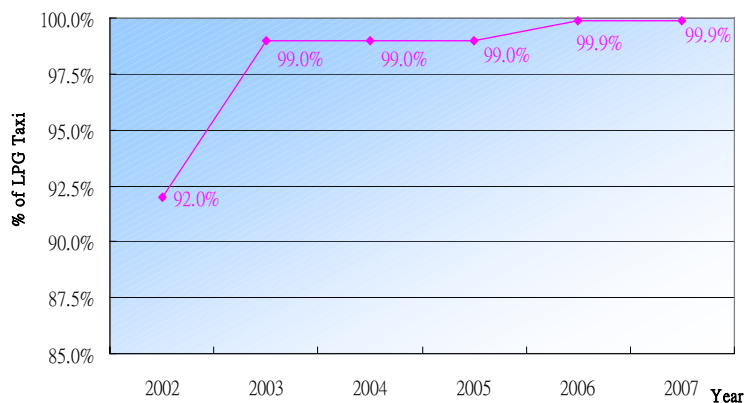
Besides, we took part jointly with other Government departments in the promotion of “cleaner” fuel such as liquefied petroleum gas (LPG) or electricity in place of diesel. Our efforts include the implementation of the following:

**(i) Conversion of diesel taxis to LPG taxis**



As at end of 2007, over 99.9% (i.e. 18133 Nos.) of the taxis were LPG taxis.

The percentages of LPG taxis over the past few years are shown in the graph on the right.



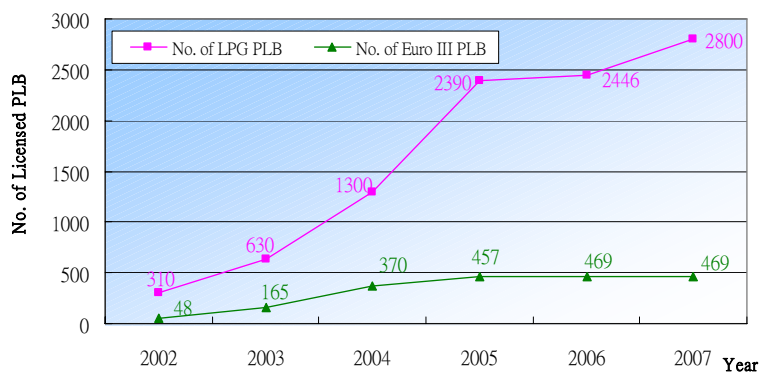
**(ii) Set-up of LPG Refilling Stations**

We work jointly with other departments to facilitate the setting up of LPG refilling stations at convenient locations. Up to end 2007, there were a total of 58 LPG refilling stations in Hong Kong.

**(iii) Incentive scheme for LPG/Electric Light Buses**

We launched an incentive scheme in August 2002 to encourage Public Light Bus (PLB) owners to replace their diesel PLBs by LPG or electric ones. Under the scheme, one-off grants of \$60,000 and \$80,000 were awarded for replacement of diesel PLBs by LPG and electric PLBs respectively. The scheme ended in December 2005 and was followed by another one launched on 1 April 2007 (under the title of "To Replace pre-Euro and Euro I Diesel Commercial Vehicles by New Commercial Vehicles Incentive Scheme"). Under the latter scheme, similar one-off grants of \$40,000, \$60,000 and \$80,000 were introduced for Euro IV, LPG and electric replacement vehicles respectively. As at end 2007, the number of LPG PLBs was 2494 against 469 Nos. of Euro III diesel PLBs, and there were also 22 licensed Euro IV diesel PLBs.

The numbers of licensed LPG PLB and Euro III Diesel PLB since 2002 are shown in the graph on the right.

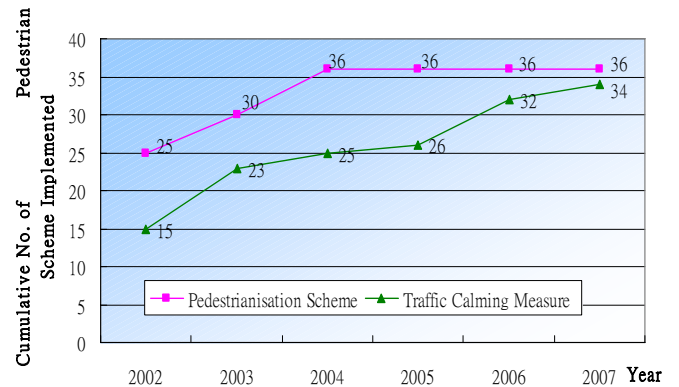


(iv) **Replacement of pre-Euro and Euro I diesel commercial vehicles**

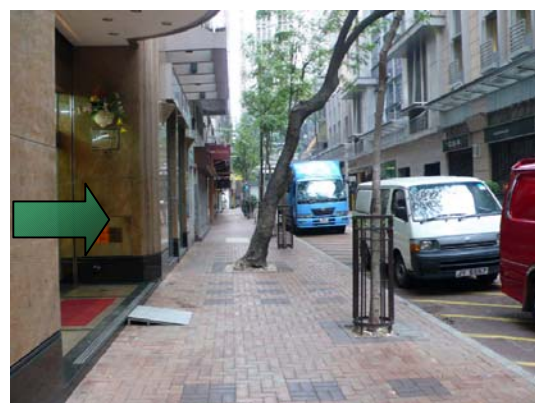
The second incentive scheme mentioned in (iii) above for PLBs applies also to other pre-Euro and Euro I diesel commercial vehicles.

**Environmental Objective No. 4 - Pedestrian & Traffic Calming Schemes**

The merits of these schemes in improving local air quality and streetscape have been recognized since we first introduced them to busy areas like Causeway Bay and Mong Kok in 2000. **The cumulative numbers of pedestrian schemes implemented since 2002 are shown in the graph on the right.**



***Traffic Calming Street: Jaffe Road (near O'Brien Road)***



***Traffic Calming Street: Minden Avenue***



## **Environmental Objective No. 5 - Efficient Use of Road Space via Advanced Technologies**

We aim to reduce the journey times of motorists, and hence the consumption of vehicle fuel and emission of air pollutants from vehicles, through the enhancement of the efficiency of the transport network by the application of advanced technologies in the following aspects:

### **(i) Promotion of Intelligent Transport Systems**

We promote the use of advanced information and telecommunication technologies to facilitate the collection and dissemination of real-time traffic information to the general public and motorists.

### **(ii) Dissemination of Real-time Traffic Information**

We install variable message signs (VMS) and Journey Time Indication System (JTIS) along strategic corridors to inform motorists of the latest traffic conditions and journey times. Through the Internet, mobile phones and PDA, we disseminate real-time CCTV images and speed maps to the general public. Further, we are developing speed map panels to be installed along selected strategic corridors to display traffic congestion levels. With the benefit of such information, motorists can plan their journeys ahead to avoid traffic congestion, thus reducing their journey times.



There are now 30 VMS in operation in Kai Tak, Lion Rock and Aberdeen Tunnel Areas, the Tsing Ma and Tsing Sha Control Areas and the northwest New Territories. One JTIS is presently operating on Hong Kong Island. We are planning to expand it to Kowloon so that real time cross-harbour journey times from Kowloon to Hong Kong, and vice versa, can be shown to motorists. We have now a set-up of 120 CCTV cameras to capture real-time images for transmission via the Internet and mobile phones to the road users. In 2005, a traffic speed map was launched on the Internet covering major roads on northern Hong Kong Island.



**(iii) Operation of Area Traffic Control (ATC) Systems**

We operate computerized ATC systems in the Urban Area, Tsuen Wan, Kwai Tsing, Sha Tin and Ma On Shan, Tai Po and North District. The ATC systems carry out real-time coordination and adjustments to the green time settings of traffic signals to suit daily traffic variations as well as seasonal traffic characteristics. The result is that overall traffic delay at intersections is minimized and journey time on the road is reduced. Furthermore, it is estimated that the operation of the ATC systems also reduces the number of stops of vehicles by 28% and hence the vehicle emission associated with the stop and start activities.

**Environmental Objective No. 6 - Saving Electricity at our facilities**

Our facilities that have major consumption of electricity are broadly divided into 3 categories for the sake of formulating our electricity saving measures:

**(i) category 1 including all our offices, vehicle inspection centres, and driving test centers**

We adopt green office management (see details below) to reduce electricity consumption in this category of facilities. **The situation of electricity**

consumption since 2002 is shown in the following table.

Year	2002/03	2003/04	2004/05	2005/06	2006/07
Electricity consumed (Kwh)	1,276,955	1,458,931	1,348,613	1,407,274	1,412,992

- (ii) **category 2 including traffic lights, CCTV, variable message signs, intelligent transport systems and journey time indication systems, etc, that are in operation round the clock for the purpose of regulating and monitoring road traffic**



We plan to replace the conventional traffic signal lights by LED traffic signals to reduce power consumption.

- (iii) **category 3 including escalators and public transport interchanges/terminus that serve pedestrians and public transport passengers**

There is room for energy- saving but we have to strike a balance between the saving of electricity and the service to the public. The measures adopted to reduce electricity consumption by the facilities in this category include the following:



- escalators are turned off at the end of the operating period
- the ventilation and part of the lighting of the public transport interchanges/termini are turned off as soon as the public transport services cease every night
- lighting of low power consumption rating is used
- the ventilation systems are properly maintained to work efficiently in respect of power consumption

The situation of electricity consumption of these category 3 facilities in 2006 & 2007 is shown in the following table and graph:

Year	Electricity Consumed (Kwh)
2005/06	1,563,608
2006/07	2,046,554

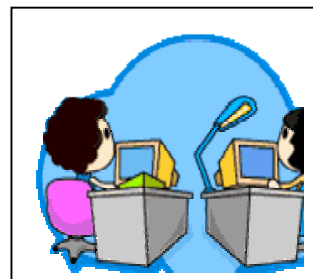
The increase in electricity consumption in 2006/07 is mainly due to the incorporation of the electricity bills for the escalator system in Central into the Department account since October 2005. If the part due to the escalator system is excluded, there is an increase of about 1.03%, mainly due to the operation of a few new facilities in 2006/07.

### **Environmental Objective No. 7 - Green Office Management**

We always keep abreast of the green practices recommended by the Environmental Protection Department and Electrical & Mechanical Services Department and introduce them to our offices whenever appropriate. Our aim is to reduce paper and electricity consumption as far as possible and to use recycled materials as much as possible. The latest green office practices adopted by us are summarized below.

#### *Paper-reduction Measures*

- Sharing documents via the Local Area Network and the Internet by uploading reports, circulars and other documents on the Transport Department Intranet and Internet website
- Using e-mails and e-memos within the department and, as far as practicable, when communicating with other departments and the public
- Setting the font size of the letters and characters of Word documents to smaller format for drafting purposes, to set the line spacing from Chinese style to English style for reducing the length of Word documents and preview the documents before printing
- Issuing tender documents in electronic format
- Printing and photocopying on both sides of paper and on used paper
- Re-using envelopes and loose-minute jackets
- Sending unclassified documents without using envelopes
- Sending electronic seasonal greeting cards



- Sending no originals when these are sent by fax
- Using no covering sheets when documents are faxed
- Using CD-ROM to carry departmental publications and consultancy study reports instead of hard copies
- Monitoring the quantity of paper consumed quarterly
- Adopting e-Filing system where appropriate

The situation of paper consumption since 2004 is shown in the following table:

Year	2004	2005	2006	2007
A4 Paper (reams)	20,525	20,685	19,090	25,445
A3 Paper (reams)	410	650	500	1,170

The substantial increase in paper consumption in 2007 is associated with the stepping up of publicity efforts including “How to obtain your favourite vehicle registration mark by auction”, “Notification letters to the reserved vehicle registration mark applicants for attending auctions”, “Notification of 5 Day Week”, etc.

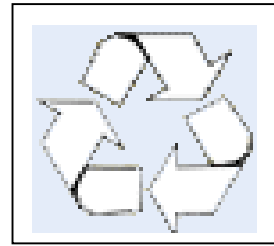
#### *Energy-saving Measures*

- Monitoring and promoting energy-saving measures (e.g. switching off air-conditioning units, computers, etc.) by designated staff
- Setting the air conditioning temperature to 25.5°C in the summer months
- Reminding all staff to switch off lights when not in office
- Turning off unnecessary lighting when the area is not in use and affixing “Save Energy” stickers near switches to remind staff to save energy
- Turning off some air-conditioning units when the occupancy is low (e.g. after normal office-hours)
- Reminding all staff to set all computers and office equipment to energy-saving mode during office hours and to turn them off after use
- Replacing CRT monitors with more energy-efficient LCD monitors
- Adopting an open plan office concept through the use of half-glass walls to allow light to pass through when designing the layout of a new office
- Using T8 fluorescent lamps to replace T10 fluorescent lamps for energy saving
- Promoting walking up and down the floors instead of using lifts



### *Recycling Measures*

- Providing green boxes for the collection of waste paper and arranging with recyclers to collect waste paper for recycling
- Collecting used printer toner cartridges for recycling
- Promoting the use of recycled paper
- Collecting used CD-ROM discs for recycling



### *Other Measures*

- Practising no-smoking policy within all our offices



### **Environmental Objective No. 8 - Staff Awareness**

**Transport Department  
2007  
Environmental Seminar**

**Green Office & Hong  
Kong's Environment – Air**

**By Environmental Protection  
Department**

We try to develop a green culture within the Department and make all staff environmentally conscious. To this end we regularly arrange EPD to deliver seminars to our staff, nominate staff to attend energy-saving workshops organised by EMSD and disseminate green messages to everybody via the computer network. We also distribute among the staff, leaflets obtained from EPD about environmental protection tips.

## ENVIRONMENTAL ACHIEVEMENTS IN 2007

The progress/achievements versus the targets for 2007 are summarized in the following table.

Objectives	2007 Targets	Progress & Achievements
Reduction in Vehicular Traffic	<ul style="list-style-type: none"> <li>(i) To continue the existing bus-rail interchange schemes between MTRC and New Lantau Bus (NLB)</li> <li>(ii) To continue the existing GMB-rail interchange schemes</li> <li>(iii) To continue the existing taxi-rail interchange schemes at the Airport</li> <li>(iv) To rationalize more bus routes in busy areas and on busy roads</li> </ul>	<ul style="list-style-type: none"> <li>(i) Passengers were offered \$1 fare discount for interchanging between MTR Tung Chung Line and NLB's 37, 37P, 38, 38P and N38</li> <li>(ii) Passengers were offered \$0.3 to \$3.5 fare discount for interchanging between 56 GMB routes and MTR</li> <li>(iii) Taxi passengers enjoyed a 50% fare discount on the Airport Express Line by presenting a taxi receipt of amount not less than \$60 on the same day at Kowloon and Tsing Yi Stations</li> <li>(iv) 52 bus trips in Central, 9 bus trips in Yee Wo Street and 258 bus trips on Nathan Road were reduced.</li> </ul>

<b>Objectives</b>	<b>2007 Targets</b>	<b>Progress &amp; Achievements</b>
Tightening of Emission Control	(i) To encourage the franchised bus operators to retrofit diesel catalysts or particulate filters on more buses (ii) To tighten the in-use diesel vehicle emission standard from 60 Hartridge Smoke (HSU) Units to 50 HSU	(i) 90% of the 5900 franchised buses have been retrofitted against 89% in 2006. (ii) The new emission standard has been made effective in May 2008.
Use of Alternative Fuel Vehicles to Replace Diesel Vehicles	(i) To continue the incentive scheme and encourage more owners to have their diesel Public Light Buses converted to LPG or electric ones.	(i) The number of LPG PLBs increased from 2446 in 2006 to 2494 in 2007.
Pedestrian Schemes	(i) To introduce more traffic calming measures in streets in Wan Chai, Tsim Sha Tsui, Jordan and Sham Shui Po (ii) To beautify more streets with landscape works	(i) 4 more streets were included, namely Jaffe Road near O'Brien Road, Minden Avenue, Pilken Street and Fuk Wa Street. (ii) Fuk Wa Street (between Kweilin Street and Nam Cheong Street) and Nathan Road (western footpath between Salisbury Road and Peking Road; eastern footpath between Salisbury Road and Middle Road) were landscaped.



<b>Objectives</b>	<b>2007 Targets</b>	<b>Progress &amp; Achievements</b>
Efficient Use of Road Space via Advanced Technologies	<ul style="list-style-type: none"> <li>(i) To continue the collection and dissemination of real-time traffic information to the public</li> <li>(ii) To plan and implement the installation of more VMS, JTIS, CCTV and traffic speed map panels</li> <li>(iii) To continue the operation of the speed map on the Internet</li> <li>(iv) To expand the ATC systems to cover Tuen Mun and Yuen Long</li> <li>(v) To upkeep the efficiency of the ATC systems</li> </ul>	<ul style="list-style-type: none"> <li>(i) Target achieved.</li> <li>(ii) 19 VMS were being constructed in Lok Ma Chau, the Cross Harbour Tunnel Area and Tsing Sha Control Area. VMS for Tolo Highway, Fanling Highway and Tuen Mun Road were being planned.</li> <li>(iii) Target achieved.</li> <li>(iv) The ATC systems were being expanded to cover the two districts. Works had commenced in last March and the new ATC systems are expected to operate in October 2008.</li> <li>(v) The “old” ATC systems of Kowloon, Tsuen Wan and Sha Tin were being planned to be upgraded (more specific), which would also cover 33 signal junctions in Tsueng Kwan O.</li> </ul>
Saving Electricity at our facilities	<ul style="list-style-type: none"> <li>(i) To reduce electricity consumption in our offices by 1%</li> </ul>	<ul style="list-style-type: none"> <li>(i) The target was not achieved because of working overtime and the increasing use of computer equipment.</li> </ul>

Objectives	2007 Targets	Progress & Achievements
Green Office Management	(i) To continue with the green office management practices (ii) To reduce paper consumption by 5%	(i) Target achieved (ii) The target was not achieved because of the increased paper consumption associated with the stepping up of publicity efforts including “How to obtain your favourite vehicle registration mark by auction”, “Notification letters to the reserved vehicle registration mark applicants for attending auctions”, “Notification of 5 Day Week”, etc.
Staff Awareness	(i) To arrange EPD to deliver a seminar to us (ii) To get leaflets from EPD for distribution among the staff (iii) To continue dissemination of green messages via the computer network.	(i) A seminar on “Green Office and Air” was delivered by EPD (ii) Leaflets on “Action Blue Sky”, “Volatile Organic Compounds and Smog”, “Pogramme on source separation of domestic waste” were distributed. (iii) Target achieved.

## OUR 2008 OBJECTIVES & TARGETS

Objectives	Targets
Reduction in Vehicular Traffic	<ul style="list-style-type: none"> <li>(i) To continue the existing bus-rail interchange schemes between MTRC and New Lantau Bus (NLB)</li> <li>(ii) To continue the existing GMB-rail interchange schemes</li> <li>(iii) To continue the existing taxi-rail interchange schemes at the Airport</li> <li>(iv) To rationalize more bus routes in busy areas and on busy roads</li> </ul>
Tightening of Emission Control	<ul style="list-style-type: none"> <li>(i) To encourage the franchised bus operators to retrofit diesel catalyts or particulate filters on more buses</li> <li>(ii) To control emission according to the new emission standard of 50 Hartridge Smoke (HSU) Units</li> </ul>
Use of Alternative Fuel Vehicles to Replace Diesel Vehicles	<ul style="list-style-type: none"> <li>(i) To continue the incentive scheme and encourage more owners to have their diesel Public Light Buses converted to LPG or electric ones.</li> </ul>
Pedestrian Schemes	<ul style="list-style-type: none"> <li>(i) To explore more opportunities for the implementation of pedestrian schemes</li> </ul>
Efficient Use of Road Space via Advanced Technologies	<ul style="list-style-type: none"> <li>(i) To continue the collection and dissemination of real-time traffic information to the public</li> <li>(ii) To plan and implement the installation of more VMS, JTIS, CCTV and traffic speed map panels</li> <li>(iii) To continue the operation of the speed map on the Internet</li> <li>(iv) To continue the operation of the Area Traffic Control Systems</li> </ul>

Objectives	Targets
Saving Electricity at our facilities	(i) To reduce electricity consumption in our offices by 1% (ii) To contain the electricity consumption of our non-office facilities to the level of 2007
Green Office Management	(i) To continue with the green office management practices (ii) To save paper by 5%
Staff Awareness	(i) To organize an environmental seminar for our staff

