

Environmental Report 2012



運輸署

Transport Department



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 proactive 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 2012 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 2012 to 31 December 2012. 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.

Any suggestions or comments on this report are most welcome and can be sent to tdenq@td.gov.hk.



ABOUT TRANSPORT DEPARTMENT

Our Department is responsible for the implementation of the Government's transport 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 2012, we had an establishment of 27 directorate posts and 1,264 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 and public light buses. We also run maintenance, operation and management contracts 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.

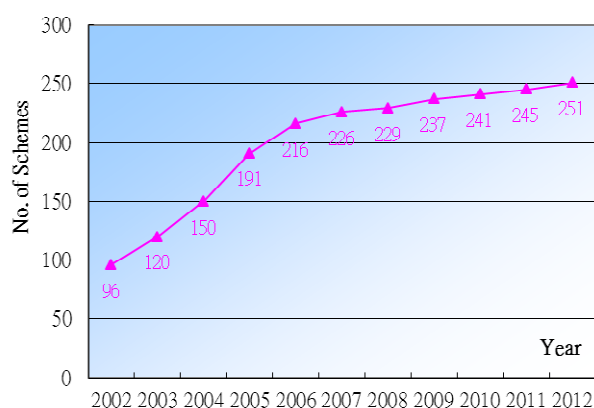
ENVIRONMENTAL OBJECTIVES

Environmental Objective No. 1 - Reduction in Vehicular Traffic

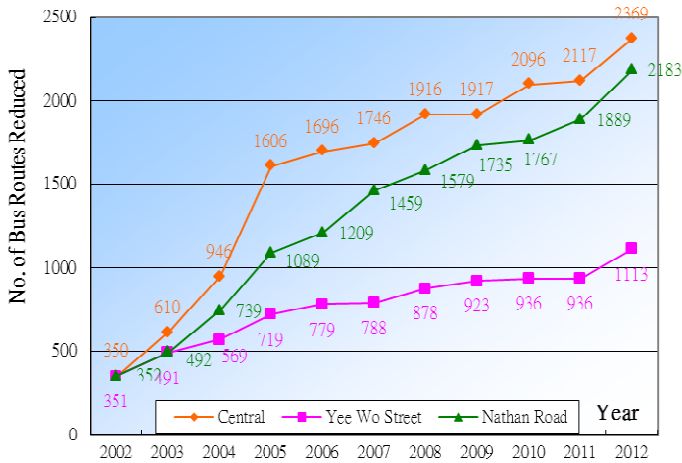
In managing the public transport system, we coordinate the roles played by the various public transport modes, including the rail, bus, tram, public light bus, taxi, ferry etc., so as to achieve the highest possible overall efficiency. This includes rationalizing public transport services to improve 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 enables 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.



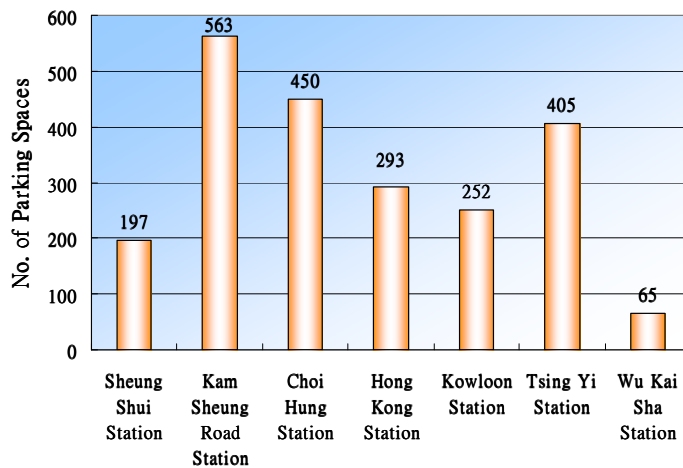
(ii) Rationalization of bus routes and stops



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 below.



(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 15,400 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 vehicle emissions in the manner as detailed below. We have further tightened the requirement to Euro V emission standards since 1 June 2012.

(i) Franchised buses imported before 1 October 2006

We encourage the franchised bus operators to retrofit emission reduction devices on their serving buses to reduce their particulates emission. For all those pre-Euro and Euro I buses, the retrofitting works of Diesel Oxidation Catalyst (DOC) had been completed since 2003. All franchised bus companies had completed to retrofit Diesel Particulate Filter (DPF) on all Euro II and III buses in 2010 with the exception of a few bus models where retrofitting of DPF onto these bus models is not technically feasible.

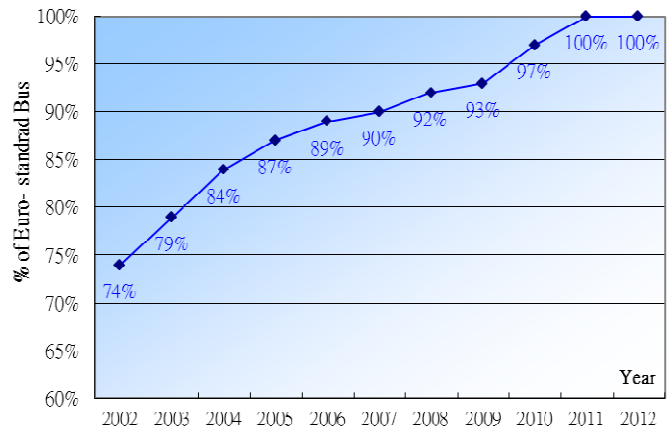
(ii) Franchised buses and medium & heavy diesel vehicles over 3.5 tonnes imported on or after 1 October 2006

◦ Euro V



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. We have further tightened the emission standards to Euro V emission standards since 1 June 2012 for all newly registered vehicles, except light goods vehicles of design weight not more than 3.5 tonnes.

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 about 10% of the diesel vehicles per day to undergo the dynamometer smoke test at the Kowloon Bay Vehicle Examination Centre. The in-use diesel vehicle emission standard has been tightened from 60 Hartridge Smoke Units (HSU) to 50 HSU since 1 May 2008.



Smoke Test

Further, we encourage the franchised bus operators to deploy Euro II or above buses to run in busy corridors such as Yee Wo Street, Hennessy Road, Queensway, Des Voeus Road Central and Nathan Road.

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%. Euro V diesel was introduced on 1 December 2007 and replaced Ultra Low Sulphur Diesel since then.

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 2012, over 99.9% (i.e. 18,131 Nos.) of the taxis were LPG taxis.

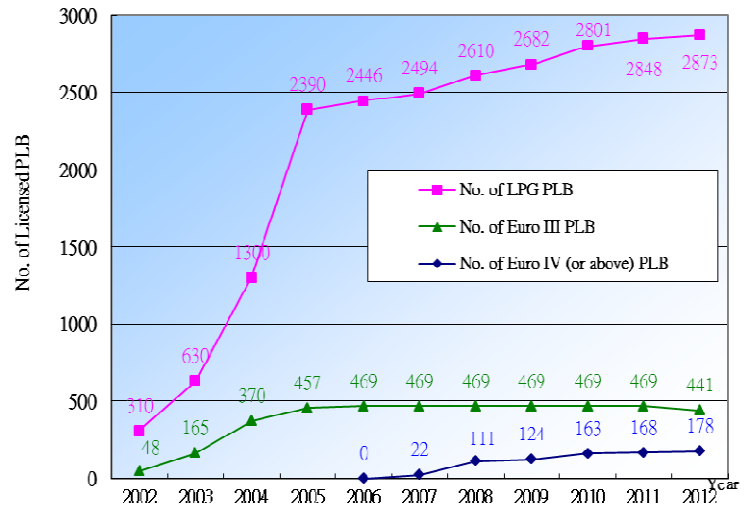
(ii) Set-up of LPG Refilling Stations

We work jointly with other departments to facilitate the setting up of LPG refilling stations at convenient locations. Up to end 2012, there were a total of 59 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 and ended in March 2010. Under this scheme, similar one-off grants of \$40,000, \$60,000 and \$80,000 were introduced for Euro IV, LPG and electric replacement vehicles respectively. The third incentive scheme, “Incentive Scheme for Replacing Euro II Diesel Commercial Vehicles by New Commercial Vehicles”, was introduced in July 2010 for a period of 3 years till June 2013. Under the scheme, one-off grants for replacement of a Euro II PLB with a brand new diesel, LPG and electric vehicles are \$77,000, \$88,000 and \$92,000 respectively. As at end 2012, the number of LPG PLBs was 2,873 against 441 Nos. of Euro III diesel PLBs, and there were also 178 licensed Euro IV or at more stringent emission standard diesel PLBs.

The numbers of licensed LPG PLB, Euro III and IV (or above) Diesel PLB since 2002 are shown in the graph on the right.

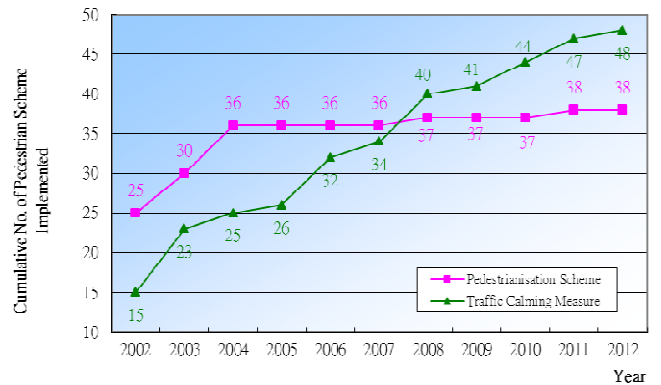


(iv) Replacement of Euro II diesel commercial vehicles

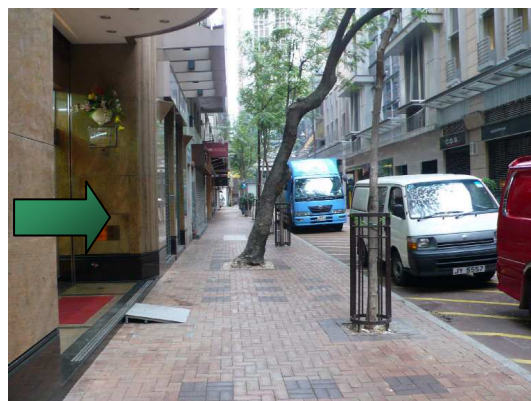
The third incentive scheme mentioned in (iii) above for PLBs applies also to other Euro II diesel commercial vehicles.

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

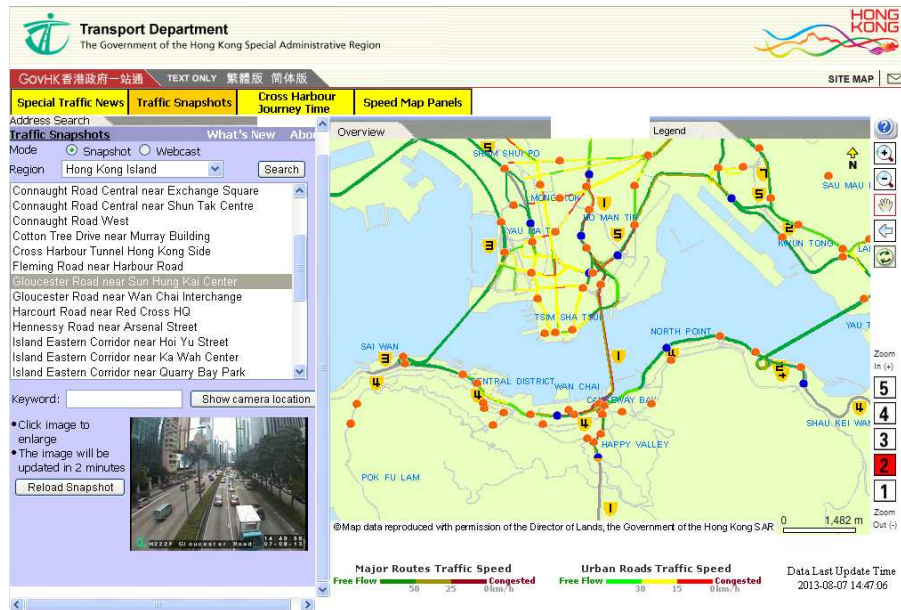
**Environmental Objective No. 5 - Efficient Use of Road Space through
Application of Advanced Technologies**

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 promoting the application of intelligent transport systems in the following aspects:

(i) Provision of Transport Information through Internet and Mobile Applications

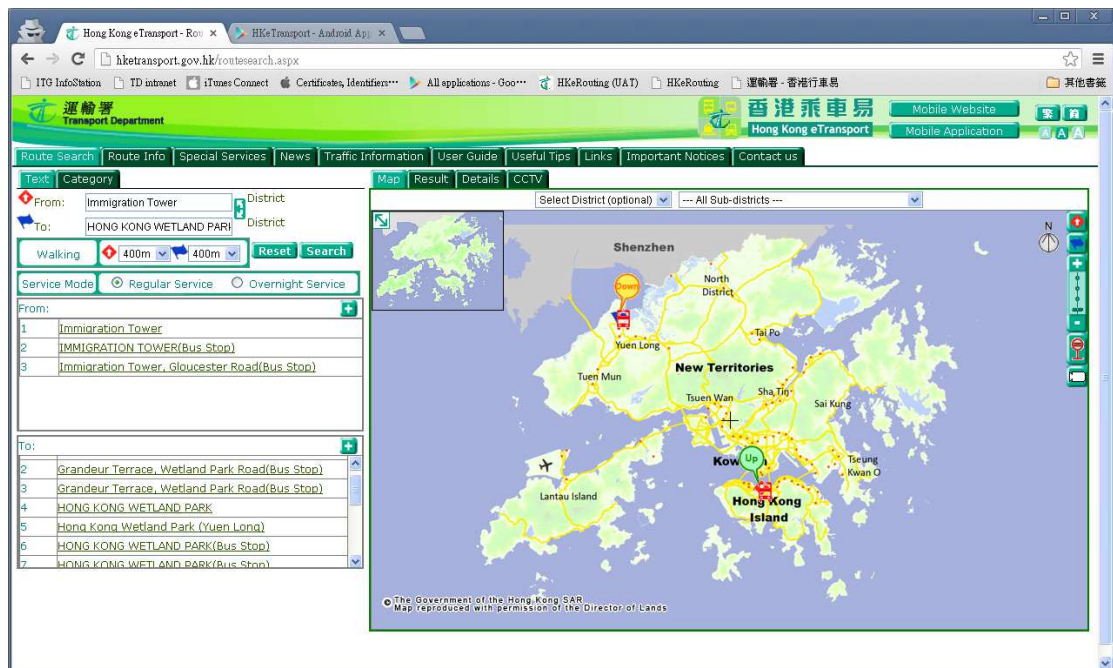
We have been providing traffic and transport information through the Internet on our Homepage for the motorists and passengers to plan their journeys and make better use of the road network and public transport services.

We launched the Road Traffic Information Service (RTIS) website in February 2009. The service integrated the dissemination of 4 types of real-time traffic information by a single website, namely the Special Traffic News, the CCTV snapshots of traffic condition, the cross-harbour journey time between Hong Kong Island and Kowloon, and the traffic speed map for road users to better choose their transport mode and plan their journeys. To enable road users using the service at any time and place that is convenient to them, we launched the mobile version of the service in May 2010. Since March 2011, we have been disseminating the above-mentioned real-time traffic information via the Data.One website of GovHK. Private companies have developed mobile applications using the traffic data of Data.One for the public.

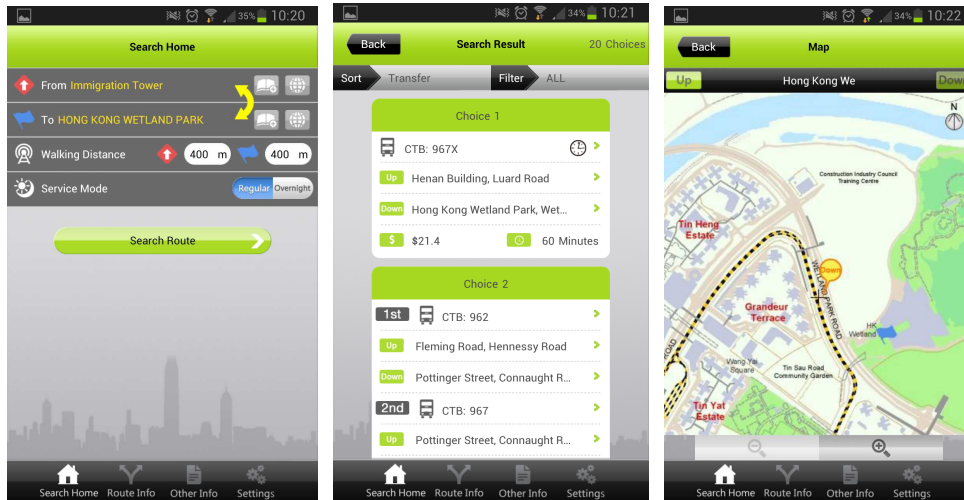


Road Traffic Information Service

To enable commuters to make better use of the public transport services, we launched Hong Kong eTransport in April 2009. It is a free one-stop multi-modal public transport route search system with map information available to the public on the Internet. We launched the mobile application and mobile web version in 2011.



Hong Kong eTransport website version



Hong Kong eTransport mobile application

We launched Hong Kong eRouting website in April 2010 to provide motorists an optimum driving route search service based on the shortest distance, shortest time and lowest toll on the Internet. Moreover, useful information such as no stopping restrictions, part-time pedestrian streets and major public car parks are also shown for motorists' reference. We launched the mobile web version of Hong Kong eRouting in August 2011. We also plan to launch the mobile-application of the Service in early 2013 for searching driving route as well as obtaining real time traffic information for pre-trip planning anytime and anywhere.



Hong Kong eRouting website version

(ii) Dissemination of Real-time Traffic Information on Roads

To enhance smooth traffic flow and alleviate traffic congestion, we provide efficient traffic monitoring and incident management by installation of traffic control and surveillance (TCS) facilities in tunnels and Tsing Ma Control Area, Tsing Sha Control Area and Kong Sham Western Highway. Real-time traffic information is provided to motorists via the TCS facilities, such as variable message signs, lane control signals, etc.



Journey Time Indication System

We provide Journey Time Indication System (JTIS) along major roads towards the three cross-harbour tunnels to inform motorists of the journey times for their choice of traffic routes to avoid congestion. There are currently 10 journey time indicators showing the estimated cross-harbour journey times across the harbour via different tunnels to motorists. They are located at the major divergent points at the approach roads to the tunnels.

In addition, we are installing speed map panels along selected strategic corridors in the New Territories to display traffic congestion levels in alternative routes with target completion by early 2013. We are also developing a Traffic and Incident Management System (TIMS) to enhance the efficiency and effectiveness in managing traffic and transport incidents and in disseminating traffic and transport information to the public. The TIMS is scheduled for commissioning in mid 2015. With the benefit of more real-time traffic information, motorists can better plan their journeys ahead to avoid traffic congestion, thus effectively reducing their journey times.



Speed Map Panel

In March 2011, we disseminated real-time traffic data for free download and value-added re-use by the public through Data.One.

(iii) Expansion and Operation of Area Traffic Control (ATC) Systems

In view of the significant benefits of the Area Traffic Control (ATC) system in optimising the utilisation of road capacity, minimising traffic delay and reducing vehicle emissions, we have expanded the system in phases to cover majority of the districts. Out of the 1,835 signalized intersections in the territory, 1,735 are under the control of ATC system.

With the greater coverage of the ATC system, overall traffic delay at intersections is minimised and journey time of road users is reduced. Due to better coordination of traffic signals resulting in less stop and start activities, fuel consumption and emissions of vehicles are also reduced.



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 centres

We adopt green office management to reduce electricity consumption in this category of facilities.



Driving Test Centre

(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 have also replaced the conventional traffic signals with light-emitting diodes (LED) to reduce power consumption. In October 2012, all our traffic signals are operating with LED lamps in lieu of incandescent lamps.

(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 the above category 1 and 3 facilities since 2006 is shown in the following table:

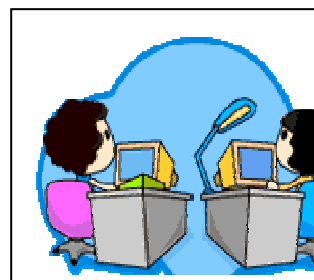
Year	2006	2007	2008	2009	2010	2011	2012
Electricity consumed (kWh)	3,289,090	3,454,563	3,469,056	3,394,615	3,326,832	3,186,493	2,986,255

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
- Reducing the font size of the letters and characters, and the line spacing for drafting, and preview of documents before final print
- 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

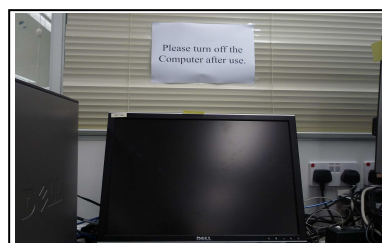


The situation of paper consumption since 2004 is shown in the following table:

Year	2004	2005	2006	2007	2008	2009	2010	2011	2012
A4 Paper equivalent (reams)	21,345	21,985	20,090	27,785	25,573	26,682	27,477	29,464	28,426

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

**Environmental Seminar
2012**

Improving Hong Kong's Air
Quality and Waste Reduction
and Recycling

**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 Environmental Protection Department (EPD) to deliver seminars to our staff, nominate staff to attend energy-saving workshops organised by Electrical and Mechanical Services Department 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 2012

The progress/achievements versus the targets for 2012 are summarized in the following table.

Objectives	2012 Targets	Progress & Achievements
Reduction in Vehicular Traffic	<p>(i) To continue the existing bus-rail interchange schemes</p> <p>(ii) To continue the existing GMB-rail interchange schemes</p> <p>(iii) To continue the existing taxi-rail interchange schemes at the Airport</p> <p>(iv) To rationalize more bus routes in busy area and on busy road</p>	<p>(i) Passengers were offered \$1.0 fare discount for interchanging between MTR Tung Chung Line and New Lantau Bus (NLB)'s 37, 37P, 38, 38P and N38. Besides, passengers travelling on MTR East Rail Line can enjoy free interchange on MTR feeder bus routes K12, K14, K17 and K18 which are operated by KMB at designated MTR stations. (Remark: MTRCL offers free transfer on MTR bus routes for West Rail and Light Rail Passengers in North-west Transit Service Area at the moment.)</p> <p>(ii) Passengers are offered \$0.3 to \$3.0 fare discount for interchanging between 49 GMB routes and MTR.</p> <p>(iii) Taxi passengers enjoy a 50 % fare discount by using an Octopus card on the Airport Express Line by presenting a taxi receipt of amount not less than \$60 on the same day at Kowloon or Tsing Yi Stations.</p> <p>(iv) 252 bus trips in Central, 177 bus trips on Yee Wo Street and 294 bus trips on Nathan Road were reduced.</p>

Objectives	2012 Targets	Progress & Achievements
Tightening of Emission Control	(i) To continue the trial of SCR retrofit on Euro II and Euro III buses to ascertain its effectiveness in reducing NOx emission	(i) All pre-Euro and Euro I buses have been fitted with DOC. The franchised bus operators have also completed the retrofitting of DPF on their Euro II and Euro III buses where technically feasible. (ii) The trial of retrofitting Euro II and Euro III buses with Selective Catalytic Reduction (SCR) device commenced in September 2011. The interim findings of the trial have been reported to the Panel on Environmental Affairs of the Legislative Council in June 2012. It is targeted to complete the trial in Q1 2013.
Use of Alternative Fuel Vehicles to Replace Diesel Vehicles	(i) To continue incentive scheme for the replacement of Euro II commercial vehicles, which includes Public Light Buses. We will continue to encourage more owners to have their diesel Public Light Buses converted to LPG or electric ones	(i) The administration has launched a new incentive scheme since July 2010 for replacement of Euro II commercial vehicles, which includes Public Light Buses for a period of 3 years till June 2013. The number of LPG PLBs increased from 2,848 in 2011 to 2,873 in 2012.
Pedestrian Schemes	(i) To explore opportunities for the implementation of traffic calming schemes to meet public needs	(i) The works of the traffic calming scheme at Woosung Street will commence in late 2013.

Objectives	2012 Targets	Progress & Achievements
Efficient Use of Road Space through Application of Advanced Technologies	<ul style="list-style-type: none"> (i) To continue the collection and dissemination of real-time traffic information to the public (ii) To continue the provision of Hong Kong eRouting and Hong Kong eTransport Services. (iii) To continue the project for developing a Traffic and Incident Management System for completion by mid 2015 (iv) To continue the installation of speed map panels in the New Territories (v) To conduct survey to gauge the performance of Area Traffic Control Systems and identify improvements if appropriate 	<ul style="list-style-type: none"> (i) Target achieved. (ii) Target achieved. (iii) Preparation of tender documents for implementation of the system is in progress. (iv) The installation of speed map panels in the New Territories is in progress and target to completion in early 2013. (v) Car journey time surveys were conducted in the 4th quarter and local improvements had been carried out if necessary.
Saving Electricity at our facilities	<ul style="list-style-type: none"> (i) The Phase 3 (New Territories) contract for replacing existing conventional traffic signals with LED signals are being implemented for completion in the third quarter of 2012 (ii) To contain the electricity consumption of our non-office facilities to the level of 2011 as far as possible 	<ul style="list-style-type: none"> (i) The Project was substantially completed in October 2012. (ii) A decrease of 11.9% achieved.
Green Office Management	<ul style="list-style-type: none"> (i) To continue with the green office management 	<ul style="list-style-type: none"> (i) Target achieved.

Objectives	2012 Targets	Progress & Achievements
	practices (ii) To contain the paper consumption to the level of 2011 (iii) To maintain the use of recycle paper to 30% of paper consumption	(ii) Paper consumption in 2012 has reduced by 3.5% as compared to the consumption in 2011. (iii) Recycle paper contributes 37% of total paper consumption.
Staff Awareness	(i) To arrange EPD to deliver a seminar to our staff	(i) Environmental Seminar was delivered by EPD on 6 November 2012 on: <ul style="list-style-type: none"> ➤ Improving Hong Kong's Air Quality; and ➤ Waste Reduction and Recycling.

OUR 2013 OBJECTIVES & TARGETS

Objectives	Targets
Reduction in Vehicular Traffic	<ul style="list-style-type: none"> (i) To continue the existing bus-rail interchange schemes (ii) To continue the existing GMB-rail interchange schemes (iii) To continue the existing taxi-rail interchange schemes at the Airport (iv) To rationalize more bus routes in busy area and on busy road
Tightening of Emission Control	<ul style="list-style-type: none"> (i) To implement large scale SCR retrofit onto Euro II and Euro III franchised buses in Q2 2015 for completion by end 2016 after obtaining funding approval from the Finance Committee in 2013.
Use of Alternative Fuel Vehicles to Replace Diesel Vehicles	<ul style="list-style-type: none"> (i) To continue to encourage more owners to have their diesel Public Light Buses converted to LPG or electric ones
Pedestrian Schemes	<ul style="list-style-type: none"> (i) To explore opportunities for the implementation of traffic calming schemes to meet public needs
Efficient Use of Road Space through Application of Advanced Technologies	<ul style="list-style-type: none"> (i) To continue the collection and dissemination of real-time traffic information to the public (ii) To launch the mobile application for HK eRouting (iii) To continue the dissemination of real-time traffic data for free download and value-added re-use by the public through Data.One (iv) To continue the project for developing a Traffic and Incident Management System for completion by mid 2015 (v) To continue the installation of speed

Objectives	Targets
Efficient Use of Road Space through Application of Advanced Technologies (cont')	map panels in the New Territories (vi) To conduct survey to gauge the performance of Area Traffic Control Systems and identify improvements if appropriate
Saving Electricity at our facilities	(i) To contain the electricity consumption of our non-office facilities to the level of 2012 as far as possible
Green Office Management	(i) To continue with the green office management practices (ii) To contain the paper consumption to the level of 2012 (iii) To maintain the use of recycle paper to 30% of paper consumption
Staff Awareness	(i) To arrange EPD to deliver a seminar to our staff