ENVIRONMENTAL MANAGEMENT AND PERFORMANCE

LAND AND WATERBORNE TRANSPORT

Hong Kong is one of the most densely populated cities in the world. A safe, efficient, reliable and environment friendly transport system is important to the sustainable development of the city. On environmental management, we will continue to press ahead with the following initiatives -

- promotion of environment friendly transport modes;
- reduction in traffic congestion and better inter-modal co-ordination;
- promotion of non-mechanised transport mode; and
- application of Information Technology (IT) in traffic management.

Priority for Efficient and Environment Friendly Transport Modes

Railways are the backbone of our public transport system. They are environment friendly, safe and efficient mass carriers in Hong Kong, carrying about 40% of our public transport passengers. The total length of our railways under operation is about 231 kilometres (km) (about 675 km of total track length).

We are taking forward the following two railway projects in full swing -

- Shatin to Central Link; and
- Hong Kong section of the Guangzhou-Shenzhen-Hong Kong Express Rail Link.
Upon completion of these railway passenger lines, the total length of railways in operation in Hong Kong will be increased to 270 km.

The Government announced the Railway Development Strategy 2014 (RDS-2014) on 17 September 2014. Having regard to transport demand, cost effectiveness and the development needs of New Development Areas and other new development projects, RDS-2014 recommends that seven new railway projects be completed in the planning horizon up to 2031, including Northern Link (and 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. In accordance with the indicative implementation window recommended in RDS-2014, THB invited the MTR Corporation Limited (MTRCL) to submit proposals for the implementation of the first batch of railway schemes viz Tuen Mun South Extension, Northern Link (and Kwu Tung Station) and East Kowloon Line in February 2016. THB also invited MTRCL to submit proposals for the implementation of Tung Chung West Extension (and Tung Chung East Station) and North Island Line in January and June 2017 respectively. In response to THB’s invitation, MTRCL submitted the proposals for Tuen Mun South Extension, Northern Link (and Kwu Tung Station), East Kowloon Line, and Tung Chung West Extension (and Tung Chung East Station) in the period between December 2016 and January 2018. Scrutiny of the proposals within the Government and exchanges with MTRCL to clarify the details, are being carried out. When all the new projects recommended in RDS-2014 are completed, the total length of the railways will increase from 270 km in 2021 to over 300 km.

The Government will continue with its efforts to enhance complementarity of railway and other public transport modes to ensure the long-term, balanced, efficient, multi-model network and sustainable development of public transport services. To this end, the Government completed the Public Transport Strategy Study (PTSS) in June 2017. The PTSS examined the roles and positioning of public transport services other than the heavy rail. Over 60 measures have been recommended to enhance the arrangement of public transport system. The Government is implementing these recommended measures so that the public can enjoy highly-efficient, convenient and diversified public transport services.

As far as electric vehicles (EVs) are concerned, TD will continue to assist the Environment Bureau in the importation and introduction of EVs by formulating relevant standards and guidelines, and checking / approving new models according to prevailing requirements. To enhance the EV charging network, the Government and the private sector have joined hands to set up more than 1800 charging facilities.
Reduction in Traffic Congestion and Better Inter-modal Co-ordination

To reduce traffic in busy areas and hence the impact on the environment, we have taken the following measures -

- rationalisation of bus routes and provision of bus-bus interchange (BBI) schemes;
- implementation of more inter-modal interchange schemes;
- provision of Park-and-Ride (PnR) schemes; and
- alleviation of road traffic congestion.

Rationalisation of Bus Routes

The Government and franchised bus companies have been pursuing bus route rationalisation with greater vigour since 2013 to enhance network efficiency, improve service quality, ease traffic congestion and reduce roadside air pollution. This includes adopting an “Area Approach” to holistically review bus service for Tuen Mun, North District, Sha Tin, Tai Po, Tsing Yi, Yuen Long and Kowloon. Under the Area Approach, bus service is reviewed holistically for a district as a whole, rather than on a route-by-route basis, to bring maximum overall benefits to the district. In addition, with the successive opening of the West Island Line, Kwun Tong Line Extension and South Island Line (East), TD has rationalised road-based public transport services in areas served by the new railway lines in a similar manner so as to enhance the co-ordination among various public transport services and their complementarity. Together with rationalisation items implemented under the annual Route Planning Programmes, a total of 36 bus routes with low patronage were cancelled or amalgamated with other routes between 2013 and end 2017. Another 14 routes had been truncated and 339 routes had their frequency reduced. These reorganisation arrangements resulted in the reduction of 4,362 bus trips along major trunk roads in Central, Causeway Bay and Mong Kok per day.

BBI Schemes

BBI schemes are pursued as one of the measures to achieve more efficient use of bus resources, relieve congestion, minimise environmental impact on busy corridors, and reduce the need for long-haul point-to-point bus routes. As at end 2017, there were about 429 BBI schemes, providing fare discount and more route choices for interchanging. These schemes have
enhanced the bus network and facilitated inter-district travel whilst minimising the need for introducing additional long-haul bus routes. They are well received by the public. On average, some 187,000 passengers use these interchange schemes every day in 2017.

**Low Emission Zones**

EPD has designated low emission zones (LEZs) in three busy corridors in Causeway Bay, Central and Mong Kok since 31 December 2015. The Government has worked with franchised bus companies on the deployment of buses meeting the emission level of Euro IV or above to operate on routes passing through the LEZs as far as practicable.

**Bus-Rail and Green Minibus-Rail Interchange Schemes**

To promote the interchange between rail and other public transport modes, interchange discount concessions in the form of bus-rail interchange (BRI) and green minibus (GMB)-rail interchange (GRI) schemes have been introduced. As at end 2017, eight franchised bus routes and 61 GMB routes were offering fare concessions to passengers involved in the BRI (ranging from $0.6 to $1.0) and GRI (ranging from $0.3 to $3.0) schemes for the MTR. Besides, passengers travelling on MTR East Rail Line could enjoy free interchange on MTR feeder bus routes K12, K14, K17 and K18 at designated MTR stations along East Rail Line. The MTRCL also offers free transfer on MTR bus routes for West Rail Line and Light Rail passengers.

**GMB-GMB Interchange Schemes**

GMB-GMB interchange schemes are introduced to achieve more efficient use of minibus resources and minimise environmental impact on public roads subject to financial capability of the operators concerned. To promote the interchange between two different GMB routes, fare concessions were offered to interchanging passengers on 80 routes (ranging from $0.5 to $10.3) as at end 2017.

**PnR Schemes**

PnR car parks allow drivers to park their cars at transport interchanges and switch to public transport, with a view to reducing the amount of road traffic entering congested areas.
Currently, there are 12 car parks providing PnR service in various districts of Hong Kong Island, Kowloon and New Territories (including urban and rural areas). These car parks are located at or near MTR stations, including Sheung Shui Station, Hong Kong Station, Kowloon Station, Tsing Yi Station, Choi Hung Station, Kam Sheung Road Station, Hung Hom Station, Olympic Station, Hang Hau Station, Wu Kai Sha Station, Tuen Mun Station and Ocean Park Station, to facilitate drivers to switch to MTR.

In planning future rail stations and major transport interchanges, especially those on the fringe of the urban area, PnR facilities will be developed wherever appropriate.

Alleviating Road Traffic Congestion

Road traffic congestion affects all road users, not just bringing inconvenience to them but also causing adverse impact on our economic activities, the environment as well as the quality of life. The Government attaches great importance to alleviating road traffic congestion. It has been taking forward progressively the host of short, medium and long-term measures recommended by the Transport Advisory Committee in its Report on Study of Road Traffic Congestion in Hong Kong. For example, TD commenced in December 2017 an in-depth feasibility study on an Electronic Road Pricing Pilot Scheme in Central and its adjacent areas (ERP Pilot Scheme) in the light of public comments received, and will engage the public to develop a detailed ERP Pilot Scheme and its implementation strategy having regard to the feasibility study result. We have proposed to raise the fixed penalty charges for congestion-related traffic offences in tandem with inflation to restore their deterrent effect. TD has also commenced a two-year consultancy study on commercial vehicle parking in 2017 with an aim to formulating measures for meeting the demands from commercial vehicles.

Promotion of Non-mechanised Transport Mode

The Government endeavours to foster a green community by promoting cycling and walking for short-distance commuting between public transport stations and living places or offices, thereby minimising the need for mechanised transport for “first mile” and “last mile” connections.

Owing to road safety considerations, the Government does not encourage cycling as a mode of transport in urban areas. Instead, the Government fosters a “bicycle-friendly” environment in new towns and new development areas where the traffic density is generally lower and where there are more comprehensive cycle track networks.
TD has completed in 2017 a consultancy study on improving the cycle track networks in nine new towns\(^1\) and on reviewing the feasibility of relaxing existing bicycle prohibition zones (BPZs). The consultancy has identified and proposed improvement to around 900 locations. These improvement measures include providing more public bicycle parking spaces and providing additional safety facilities at some sharp bends, steep ramps and pedestrian crossings (such as the installation of collapsible plastic bollards for segregating two-way cycle track) in order to ensure the safety of cyclists and pedestrians. The first round of improvement works involving around 100 locations commenced in phases in 2016 and is expected to be completed in 2018. Regarding relaxation of existing BPZs, TD is working on lifting a number of BPZs in accordance with the consultants’ recommendations, and will commence District Council consultations in early 2018.

As regards walkability, the Government will continue to take forward “Walk in HK” and encourage people to walk more by launching a series of measures under the four themes: “Make it smart” by providing user-friendly information on walking routes; “Make it connected” by enhancing our pedestrian networks; “Make it enjoyable” by making walking a pleasant experience; and “Make it safe” by providing a safe and quality pedestrian environment. Specific measures taken by TD in 2017 included providing covers on certain walkways connecting to public transport facilities, launching a new function in the HKeTransport App to enable users to use the application to plan and search for the best walking routes in major shopping areas of Causeway Bay, commencing a study on enhancing pedestrian connectivity between Wan Chai and Sheung Wan, completing the synchronisation of 18 staggered pedestrian crossings, etc. Our aim is to enhance the overall walkability of our city for Hong Kong people to commute, to connect and to enjoy, making walking an integral part of Hong Kong as a sustainable city.

\(^1\) The nine new towns are Shatin / Ma On Shan, Tai Po, Sheung Shui / Fanling, Yuen Long, Tin Shui Wan, Tuen Mun, Tsuen Wan, Tung Chung and Tseung Kwan O.
In several areas with high pedestrian flow, we have been taking forward pedestrian environment improvement schemes. In Yuen Long, we have completed ten improvement measures, comprising nine small to medium-scale local improvement measures such as the widening of pedestrian crossings and footpaths at various locations, as well as a relatively large-scale improvement measure of streetscape enhancement along both sides of Fung Yau Street North. For the Elevated Pedestrian Corridor in Yuen Long Town connecting with Long Ping Station which is a large-scale improvement measure, we plan to seek funding approval for the construction of the project in the 2018-19 legislative session with a view to commencing construction works as early as possible. In Mong Kok, further investigation studies for the proposed footbridge system have been substantially completed. We will review and enhance the current footbridge scheme before proceeding with the detailed design. In Causeway Bay, we have completed a short-term improvement measure on the widening of a signal-controlled crossing to improve the at-grade pedestrian environment.

Provision of Hillside Escalator links and Elevator systems (HEL) can improve pedestrian accessibility to uphill areas and to reduce dependence on vehicular access to these areas via congested, steep and narrow access roads. In this connection, the Government continues to take forward various HEL projects. For example, all pedestrian facilities under the two HEL projects at Tsz Wan Shan and Kwai Chung were completed and open for public use in 2017. The construction works of three other HEL projects at Kowloon City, Tsing Yi and Kwai Chung are in progress and scheduled for completion starting from 2019 in phases. The Government also obtained funding approval from the Legislative Council in December 2017 for the construction of another HEL project at Kwai Chung. A consultancy study has commenced in December 2017 to review and improve the assessment mechanism for HEL proposals established by the Government in 2009, and on this basis to carry out initial screening and assessments for the new proposals received in past years to select the most feasible and justified proposals, so as to draw up a timetable for implementing these proposals in future.

Application of IT in Traffic Management

Promoting “Smart Mobility” is an integral part of the Government’s transport policy. The Government has been developing the Intelligent Transport Systems (ITS) under a three-pronged approach: dissemination of traffic information to the public, traffic control and supporting traffic enforcement. Some of the Government ITS initiatives are elaborated below.
**Journey Time Indication System**

The Journey Time Indication System (JTIS) is installed at critical diversion points of cross harbour routes to display the estimated journey time required for using the three road harbour crossings. It provides the latest traffic situation for motorists crossing the harbour so that they can make informed route choices and avoid congested tunnels. There are ten sets of JTIS installed at various diversion points of the strategic cross harbour routes on Hong Kong Island and in Kowloon. The real-time cross-harbour journey time is also shown on TD’s website and mobile applications, and shared via Government's public section information portal “data.gov.hk” for public use. TD will install more JTISs along other major routes.

**Area Traffic Control System**

The Area Traffic Control (ATC) system uses a central computer to co-ordinate the operation of on-street traffic signals on a required basis. In view of the significant benefits of the 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. As at end-2017, out of the 1898 signalised junctions in the territory, 1857 were linked to the ATC system. With the greater coverage of the ATC system, overall traffic delay at intersections is minimised and journey time is reduced. Due to better co-ordination of traffic signals resulting in less stop and start activities, fuel consumption and emissions of vehicles are also reduced.

To protect the environment and save costs, conventional light bulbs used in public road traffic signals have been replaced by light emitting diodes (LED).

**Speed Map Panels**

The Speed Map Panel (SMP) system was launched in January 2013. Five SMPs were installed on strategic routes in the New Territories to provide motorists with traffic conditions of the roads towards Kowloon by gantry signs in map format. The traffic information is also shown on TD’s website and mobile application, and shared via the Government's public sector information portal “data.gov.hk” for public use. TD will install more SMPs at appropriate locations along other major routes.
**Traffic and Incident Management System**

TD launched the Traffic and Incident Management System in December 2017 to enhance the efficiency and effectiveness in managing traffic and transport incidents and in disseminating traffic and transport information to the public.

**Public Services on the Internet and Mobile Applications**

To help passengers, motorists and other road users better plan their journeys, we have been providing information on road network, traffic conditions and public transport services on the Internet and mobile applications.

The public services include Road Traffic Information Service, Hong Kong eRouting and Hong Kong eTransport. The Road Traffic Information Service provides real-time traffic information to facilitate the selection of optimum transport modes and routes by commuters. The Hong Kong eRouting provides motorists with the optimum driving route options based on selection criteria such as distance, travel time, toll, etc. For the Hong Kong eTransport, it offers one-stop multi-modal public transport route search services providing point-to-point search services covering various public transport modes with map display.

These services are provided to the public through websites and mobile applications. To facilitate commuters (in particular overseas visitors) who do not have ready access to mobile data service to use the Hong Kong eTransport service, kiosks were also installed at some strategic locations, including the Arrival Halls of Terminal 1 of HKIA, the Hong Kong Convention and Exhibition Centre and public transport interchanges etc.

**CIVIL AVIATION**

AA and CAD have implemented a range of initiatives to safeguard the environment. The former is responsible for the operation and development of HKIA and the latter is the regulator for civil aviation and provider of air traffic control services.
Initiatives by AA

AA’s Environmental Commitment

HKIA is committed to long-term sustainable growth and becoming a leading environmental performer in Hong Kong. AA’s environmental policy focuses on adopting and encouraging practices that minimise the environmental footprint of the airport with the aims of becoming more resource and cost efficient, and addressing emerging risks and public expectations.

In May 2012, AA pledged to make HKIA the world’s greenest airport. To set the foundation for realising this goal, AA benchmarked its environmental performance against 23 hub-sized airports and airports that are recognised as environmental leaders. Areas for improvement are identified, reviewed and incorporated into AA’s five-year Environmental Plan.

AA is committed to learning from and sharing environmental best practices with other airports. AA is the Vice-Chair of Airports Council International (ACI) World Environment Standing Committee (WESC) and, immediate Past Chair of the ACI Asia-Pacific Regional Environmental Committee. AA also hosted the 35th ACI WESC Meeting in March 2017 which was attended by over 20 airport environmental managers, ACI representatives and aviation environmental experts.

Minimising Emissions

In November 2016, AA and 53 airport business partners made the second pledge to further reduce airport-wide carbon intensity by 10% by 2020 based on 2015 levels. To ensure the achievement of this new target, AA implemented the following support strategies in 2017 to facilitate capacity building and information sharing among its airport business partners -

- HKIA Senior Executive Roundtable: In November 2017, AA held the second roundtable with business partners’ senior management teams to discuss the high-level business case associated with carbon reduction initiatives. CLP Power Hong Kong Limited was invited to share supporting initiatives to achieve carbon reductions.

- HKIA Carbon Reduction Award Scheme: Nine business partners were awarded in recognition of their outstanding carbon reduction performance for
Technical Working Group: The purpose of this Technical Working Group is to provide business partners with the latest best practices and technologies via knowledge sharing sessions within the airport community. Two meetings on ISO 50001 and cooling system optimisation were held in April and October 2017 respectively.

HKIA Carbon Benchmarking Scheme: Sector-based carbon reduction performance was provided to business partners to provide more transparent information and to encourage friendly competition.

Further details can be found at http://www.hongkongairport.com/eng/csr/carbon-reduction/index.html.

In addition, AA has established a carbon offset framework to offset carbon emissions associated with corporate events and staff business travel. Under this policy, AA purchases Gold Standard carbon credits generated from renewable energy projects in Mainland China.

To facilitate the introduction and operation of EVs and electric ground support equipment (EGSE) at HKIA, AA has installed 208 EV chargers and 34 EGSE chargers (two charging points per EGSE charger) at the airside, among which 48 EV chargers and 8 EGSE chargers are located at the Midfield Concourse and Western Apron. By the end of 2017, the total number of EVs and EGSE operating at HKIA stood at 444. AA has also been active in electrifying its own fleet. As at 31 December 2017, AA owned 356 vehicles and ground support equipment, of which 48 were electric saloon vehicles, 14 were electric vans and 31 were EGSE. AA also has a programme to retire its older diesel vehicles and replace them with cleaner EURO VI vehicles or EVs. This includes 44 passenger buses which entered service in batches between 1998 and 2013.

Since July 2017, all saloons operating in the Airfield Restricted Area must be EVs. To encourage airside operators to adopt EVs, AA launched the Airside Electric Vehicle Incentive Scheme in June 2012 which provides a subsidy for switching from existing diesel-powered saloons to EVs. The incentive scheme ran until June 2016.

To reduce greenhouse gas and other emissions from aircraft, AA implemented an auxiliary power unit (APU) ban in December 2014 that controls the usage of APUs at frontal stands. In order to meet aircraft needs for electrical power and cabin cooling once the ban came into effect, AA provided or upgraded 299 fixed ground power units and 154 pre-conditioned air systems.
Before implementing the ban, AA also worked closely with airport business partners to organise trials and developed an operational procedure for the ban.

**Saving Energy**

In February 2017, AA obtained the certification of ISO 50001 for Energy Management System for the Terminal 1 and the Midfield Concourse. An effective energy management system and new initiatives are being incorporated consistently.

Smart technology was applied to enhance energy efficiency at HKIA in 2017. A cloud-based building analytic system was introduced in the North Satellite Concourse to analyse the real-time status of the facilities. Big data technology was employed to enhance energy management and operation efficiency.

Furthermore, Smart-to-Charge system was installed at the car park of HKIA Tower to enhance the efficiency and capacity of the AA’s electric vehicle charging facilities. By using the Smart-to-Charge system, the number of electric vehicle charging points was increased from 3 to 17 with optimised charging time.

**Reducing Solid Waste**

In order to meet the corporate target to reduce / recycle / recover 50% of total waste by 2021, programmes are developed to help on waste reduction.

To facilitate the segregation of key waste streams such as paper, glass, plastic and aluminum cans at source, AA provides free plastic bags to retail and food and beverage tenants to encourage the sorting and segregation of recyclables.

Since 2011, AA has been running a food waste recycling programme to collect food waste from terminal buildings and airport business partners every day. Over 2,000 tonnes of food waste was recycled as animal feed in 2017.

AA launched the HKIA Food Rescue Programme in partnership with Food Angel, a local non-government organisation. The programme is funded through the HKIA Environmental Fund and aims to minimise food waste whilst helping the underprivileged. The programme has been developed in three stages.
2013, AA sponsored Food Angel to purchase a refrigerated truck and covered the operating costs of collecting surplus food from business partners on the airport island. In 2014, a central storage room was set up in the terminal building to collect additional surplus food from catering outlets. In 2016, the programme was expanded to cover Tung Chung and Discovery Bay. In addition, Food Angel also worked with Hong Kong Sheng Kung Hui to upgrade a local community kitchen to serve meals to the needy in Tung Chung. In 2017, over 32 tonnes of surplus food was collected and transformed into over 30,000 meal boxes.

In 2017, AA commenced a feasibility study for a Waste-to-Energy facility as part of its waste management strategy. The study will determine possible treatment technologies, evaluate the technical feasibility of different technologies, assess environmental impacts and develop the potential business model.

To prepare for the Government’s upcoming Municipal Solid Waste (MSW) charging legislation (expected to be launched by 2019), the AA commenced a MSW charging pilot scheme at the HKIA in June 2017 to give waste producers and waste handlers an early start in experiencing the waste charging process. This pilot will determine the most cost-effective and efficient approach for AA to implement an MSW charging programme at HKIA.

The HKIA Environmental Management Recognition Scheme

In April 2017, AA launched its third HKIA Environmental Management Recognition Scheme. A total of 106 retail shops, food and beverage outlets, office tenants and cleaning contractors have joined the scheme. The 20-month scheme focuses on waste management, and is designed to help participants prepare for the planned introduction of MSW charging and to encourage wider implementation of effective waste reduction and recycling measures. The Scheme consists of two main parts. The “Recognition Scheme” aims to acknowledge outstanding environmental management efforts and performance of participants. In addition, the “Passenger Awareness Programme”, a newly introduced initiative, commenced in mid-2017. Green ambassadors were recruited from Tung Chung schools to proactively interact with passengers and the public by inviting them to play an online game on a tablet or through encouraging them to take photos with the EPD’s mascot – the Big Waster.

Environmental Awards

In 2017, AA received a number of awards recognising its efforts in environmental protection:
**Environmental Campaign Committee - Hong Kong Green Organisation Certification**

- Hong Kong Awards for Environmental Excellence (Public Services Category) – Gold Award
- Wastewi$e Certificate: Excellence Level
- Carbon Reduction Certificate

**ECO Park**

- Friends of Eco Park

**EPD recognition**

- Indoor Air Quality “Good Class Certificate” for Terminals 1 and 2, the North Satellite Concourse and SkyPier
- Wasteccheck Promotional Partner Award

**World Green Organisation**

- United Nations Millennium Development Goals - Green Office Awards Labelling Scheme
  - Green Office Label
- Sustainable Business Award 2017

**Carbon Care Asia**

- Car bonCare® Label 2017

**Federation of Hong Kong Industries and Bank of China (Hong Kong) Limited (BOCHK)**

- BOCHK Corporate Environmental Leadership Awards (Services Sector) – Bronze Award

**The Hong Kong Council of Social Service**

- Caring Company Scheme – 10 Years Plus Caring Organisation

**Hong Kong Institute of Certified Public Accountants**
• Best Corporate Governance Awards 2017 – Platinum Award in the Public Sector / Not-for-profit Category

• Sustainability and Social Responsibility Reporting Awards – Winner in the Public Sector / Not-for-profit Category

The Hong Kong Management Association

• Hong Kong Sustainability Award 2016/17

International recognition

• Airports Council International - Airport Carbon Accreditation ‘Optimisation” Level 3

• Airports Council International Asia Pacific Green Airports Recognition 2017 – Silver Recognition in the 25 million passengers per annum and above category

Sustainability Report


This is the AA’s first web-based report, which increases its accessibility and enhances the reading experience. New features include dynamic graphics, videos and interactive charts.

The report has been prepared in accordance with the Global Reporting Initiative’s GRI Standards: Core option and GRI G4 the Airport Operators Sector Disclosures. It has been externally verified to provide greater transparency and accountability for AA’s stakeholders.


Environmental Impact Assessment (EIA) for the Three - Runway System (3RS)

The Director of Environmental Protection approved the EIA report for the 3RS project on 7 November 2014 (details of the EIA report can be found at
The Environmental Permit (EP) was also granted on the same day. AA is actively implementing the environmental mitigation measures and enhancements with a view to achieving “development alongside environmental conservation” in the implementation of the 3RS project.

Since December 2015, AA has re-routed and imposed speed limit on the high-speed ferries of the SkyPier to facilitate early protection of Chinese White Dolphins. This has taken place well before the commencement of the reclamation works in August 2016. AA has employed full time on-site Environmental Team and Independent Environmental Checker to implement a comprehensive environmental monitoring and audit programme for the monitoring of Chinese White Dolphins, water quality, air quality and noise to ensure that contractors comply fully with the conditions stipulated in the EP and implement the environmental mitigation measures in a prudent and proper manner. Besides, AA has commenced the preparatory work, including developing a management plan, for the proposed 2 400 hectares marine park which will be the largest of its kind in Hong Kong. As part of the 3RS project, AA has also established a Marine Ecology Enhancement Fund and a Fisheries Enhancement Fund to finance strategies and studies that aim to enhance the marine environment in the vicinity of HKIA and the Pearl River Estuary waters. Academics, experts and stakeholders will be invited to participate in the formulation of strategies and the conduct of studies.

Initiatives by CAD

Aircraft Noise Mitigation

CAD has implemented a series of aircraft noise mitigation measures and has been closely monitoring their implementation. Such measures include noise abatement departure procedures, Continuous Descent Approach procedures, the use of flight paths over water to avoid overflying residential areas whenever possible and satellite navigation technologies for achieving improved track-keeping accuracy by suitably equipped aircraft to confine the noise footprint as far as possible.

For aircraft departing to the northeast of the airport, CAD requires all airlines to adopt the noise abatement departure procedures stipulated by the International Civil Aviation Organization (ICAO).

For the purpose of reducing the number of aircraft overflying populated areas in various areas in the New Territories during night time, aircraft arriving between midnight and 7 am are required to land from the southwest, subject to acceptable wind direction and safety consideration. In 2017, CAD recorded
that 83.7% of arriving aircraft were able to land from the southwest of HKIA between midnight and 7 am under permissible conditions.

Similarly, with a view to reducing the number of aircraft overflying more densely populated districts like Hung Hom, North Point, Shaukeiwan and Chai Wan, under acceptable weather and safety conditions, aircraft departing to the northeast of the airport between 11 pm and 7 am are required to use the southbound route via the West Lamma Channel. In 2017, 98.4% of aircraft departing to the northeast of the airport during the said period were able to take the southbound route over the West Lamma Channel.

Over the years since 2012, CAD has implemented a new set of flight procedures that make use of satellite-based navigation technology for noise mitigation. Aircraft which are equipped and certified to use the said technology and with adequate training to the crew concerned, when departing to the northeast of the HKIA, can make use of the on-board navigation capabilities to achieve higher track-keeping accuracy during their turn to the West Lamma Channel, thereby keeping the aircraft at a distance away from the areas in the vicinity of the flight paths, and reducing the impact of aircraft noise on these areas.

Only aircraft meeting stipulated requirements in Chapter 3 of Annex 16, Volume 1, Part II, to the Convention on International Civil Aviation (“Chapter 3 noise standards”) are allowed to operate at HKIA. Starting from end of March 2014, CAD ceased to allow airlines to schedule aircraft whose noise levels only marginally meet the Chapter 3 noise standards between 11 pm and 7 am. As a further step to mitigate aircraft noise, this measure has been extended to cover the whole day since end October 2014. CAD will continue with its existing efforts to encourage the airlines to speed up replacing their older and noisier aircraft with newer and quieter ones.

CAD also provides periodic reports on its website on aircraft noise measurements. Moreover, CAD meets members of the public and maintains a telephone hotline to handle enquiries or complaints against aircraft noise.

Carbon Reduction

ICAO decided in October 2016 to implement a Carbon Offsetting and Reduction Scheme for International Aviation as one of the measures to contribute to carbon neutral growth from 2020 onwards. The scheme is expected to complement a broader package of measures to be implemented by the aviation sector including the technological advancement on fuel efficient aircraft, improvement on operational procedures to reduce fuel consumption and promotion of the use of sustainable alternative fuels. CAD will make
suitable preparation in consultation with stakeholders for the implementation of the scheme. CAD and AA will also closely monitor the developments.

For the CAD Headquarters, CAD has progressively launched an Energy Optimisation System (EOS) to optimise the control of the central air-conditioning system according to the real-time external weather and system operations data since end 2015. With a full year operation of EOS in 2017, CAD achieved an estimated yearly saving of some 750,000 units of electricity, equivalent to reduction over 400 tonnes of green house gas emission. With the substantial energy saving achieved, CAD is exploring the feasibility to launch the same initiative in the air-conditioning system at Air Traffic Control Tower.

CAD recognises the importance of environmental protection and would continue to explore means to infuse green measures into our operations to maintain sustainability of civil aviation.

LOGISTICS, PORT AND MARITIME SERVICES

The MD, which is responsible for maritime and navigational safety matters within Hong Kong waters, has implemented various initiatives to protect and improve the environment -

- MD launches patrol Hong Kong waters to ensure compliance with the marine legislation, which includes detection of offences that may cause pollution to the environment, such as littering, illegal discharge of oil, and dark smoke emission from vessels.

- MD monitors and conducts spot checks on dark smoke emissions from vessels within Hong Kong waters. On receipt of complaint, MD will investigate and if sufficient evidence is established, initiate prosecution. To enhance the control of dark smoke emission, we have amended the current legislation to allow the use of the Ringelmann Chart as an objective benchmark for taking enforcement actions, i.e. vessels shall not emit dark smoke which is as dark as or darker than shade 2 on the Ringelmann Chart for three minutes or more continuously at any one time. The amended legislation came into effect on 18 July 2014.

- MD monitors and regulates the movement of vessels within Hong Kong waters round-the-clock through an advanced vessel traffic surveillance system to protect the marine environment from pollution caused by marine traffic accidents.

- MD adopts performance-based contract for the scavenging of floating
refuse and collection of refuse from ocean-going ships and local vessels to ensure effectiveness and efficiency of marine cleansing services.

- MD maintains a Maritime Oil Spill Response Plan and a Maritime Hazardous and Noxious Substances (HNS) Spill Response Plan to co-ordinate departmental actions for handling oil and noxious substances pollution incidents in Hong Kong waters, and continues to fulfil the pledge to respond on site within two hours of the reported spillage inside harbour limits.

- MD takes part in the Maritime HNS Spill Response Plan, to provide scavenging and cleansing services for HNS residues left in Hong Kong waters after it has been properly treated and confirmed safe for removal from the sea.

- MD has signed a co-operation arrangement with the port administration of Guangdong, Shenzhen and Macao to adopt the Regional Maritime Oil Spill Response Plan for the Pearl River Estuary.

- MD maintains energy saving plans to minimise energy consumption in the China Ferry Terminal and the Hong Kong-Macau Ferry Terminal by economising on the use of lighting and air-conditioning. MD also encourages the Tuen Mun Ferry Terminal to implement energy saving plans to minimise energy consumption.

- MD has signed the Food Wise Charter, led by EPD, aiming to avoid and reduce food waste generation by its catering contractors.

- MD has adopted green measures on all fronts in the operation of the Government Dockyard (GD), including the use of marine diesel engines, compliance with the latest relevant requirements in the Annex VI to the International Convention for the Prevention of Pollution from Ships (MARPOL) on new government vessels, annual review and upgrading of facilities with environment friendly engines, equipment and products (e.g. installation of photovoltaic panel for battery charging and using the proximity switches for lights at remote staircase to reduce the consumption of electricity), and regular air quality checks on indoor worksites, etc. Apart from installing additional shore power facilities for lay-by vessels, GD has started to use energy saving LED lights to replace traditional light bulbs since 2015. Besides, GD has begun to replace existing central air-conditioning chiller system with more energy efficient chiller system by phases. To support Government’s green policy, MD has participated in EPD's pilot scheme of using B5 biodiesel fuel on vessels since 2012 with nine government vessels currently joining the scheme. GD has also adopted EPD’s green procurement requirements in the materials supply contracts, coach service contracts and
cleansing contracts etc. In 2017, GD collected 569 waste lead batteries and about 1,277 toner cartridges for recycling.

- MD implements relevant international conventions on marine pollution prevention through the enactment and enforcement of legislation. These conventions include MARPOL, the International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990 and the Protocol on Preparedness, Response and Co-operation to Pollution Incidents by Hazardous and Noxious Substances, 2000.

- We also work closely with operators of container terminals, mid-stream and river trade operators to preserve a clean and safe environment for sea transport.

- Container terminal operators have also implemented other measures, such as conducting building energy audit on premises, using energy saving equipment, reducing unnecessary light fittings, installing grease traps and oil interceptors in workshops and kitchens, engaging specialised contractors to handle waste disposal, and using electricity-powered cranes and vehicles, and liquefied petroleum gas shuttle buses to reduce air pollution.

- We recognise that the protection of the marine environment is not only important in its own right but also instrumental in enhancing Hong Kong’s position as a world-class port. In the course of port planning and development, we will continue to work with EPD and the Sustainable Development Unit to comply with relevant environmental impacts and sustainability assessment requirements.