

## SUSTAINABILITY REPORT

## Safety First



↓20%

mechanical failure of bus fleet  
in December compared to the  
same period last year

Safety is in everything we do. It is our highest priority and an integral part of our business strategy. We strive to raise our safety standards and performance and continue to invest heavily in improving the safety of our bus operations.





### Good Health and Well-Being

#### Safety Policy

The KMB and LWB Safety Policy ensures that injury and health risks are minimised to provide a safe and healthy environment for our employees and the public. All our employees are required to comply with all legal requirements applicable to our operations, and we regularly consult employees to identify opportunities for improvement in our safety management system.

#### Safety Committees

Safety Committees oversee internal communication on occupational safety and health information, including risks, trends and policies. All Safety Committees meet regularly to discuss safety issues at different levels across the Company.

At the corporate level, there is the Working Committee for Safety that oversees safety issues. The Departmental Safety Committees, Maintenance Safety Committees and Operations Safety Committees are responsible for safety issues relating to departments and sections. Departmental Safety Committees may vary the frequency of meetings depending on the scale of departmental safety risks.

#### Safety Management

We are dedicated to advancing occupational health and safety. We fully comply with the Occupational Safety and Health Ordinance and the Factories and Industrial Undertakings Ordinance (Chapters 509 and 59, Laws of Hong Kong, respectively). The KMB Occupational Health and Safety Management System adopted to ISO 45001:2018 which promotes continuous improvement of safety performance across all aspects of our business, including bus maintenance and design upgrades.

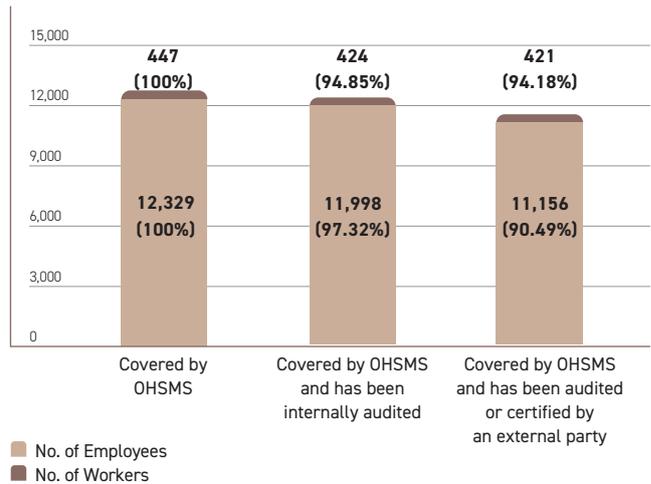
The key benchmarks of our operational performance are mechanical reliability<sup>1</sup> and operational capability<sup>2</sup>. In 2023, the mechanical reliability of KMB's bus fleet was 150,249 km: 1, while LWB's bus fleet was 508,657 km: 1. In 2023, KMB and LWB attained an operational capability of 96.78 % and 98.84% respectively.

#### Operational Excellence

KMB and LWB are certified to the ISO 9001:2015 Quality Management Systems ("QMS") Standard, demonstrating our commitment to achieving up-to-date operational and service standards through the implementation of robust processes and practices.

#### Safety Statistics

The number and the percentage of staff and workers covered by our Occupational Health and Safety Management System (OHSMS) are tabulated as follows:



ⓐ KMB is dedicated to delivering safe and reliable bus services, relying on the KMB Academy to cultivate professional talents for the local bus industry

<sup>1</sup> Mechanical reliability refers to the average number of kilometres a bus operates before it experiences one mechanical breakdown on the road with passengers on board.  
<sup>2</sup> Operational capability refers to the ratio of actual to scheduled departures in the peak direction during the peak hours of 7:00 a.m. to 9:00 a.m. across the bus network.

## SUSTAINABILITY REPORT



- Ⓐ The bus fleet is equipped with multiple safety devices, including the GST System, which provides real-time feedback to help bus captains enhance driving performance

### Job Hazard Analysis

With an aim to ensure that both the working environment and staff performance comply with legal requirements, in-house safety rules, and industry best practices; job hazard analysis is conducted by managerial staff together with the relevant workers to assess the risk for a work task. Based on the assessment result, appropriate safety measures will be formulated and implemented to minimise the risk of a work activity.

Regular safety inspections and audits will be performed to ensure that these safety measures are properly implemented and to identify whether there are any improvement opportunities. The inspection result and audit result serve as a basis for reviewing our job hazard analysis. This Plan-Do-Check-Act management approach is employed to sustain a cycle of continuous improvement in safety performance.

### Bus Safety Facilities and Maintenance

A number of technological devices, including speed-limiting devices and telematics systems, have been installed on buses to improve safety and record operational data. All KMB and LWB buses undergo an ISO-certified maintenance regime, comprising daily and monthly servicing, a semi-annual minor dock and an annual road-worthiness inspection, as well as spot checks from the Transport Department of the Hong Kong SAR Government.

### Latest Bus Safety Measures

#### GST Safe & Eco Driving System

GST System is a safety and eco-driving system. It replaced the GreenRoad System on the whole KMB and LWB fleets in July 2023. GST System helps evaluate the driving performance and calculate the engine idling time of each and every bus trip, as well as encourage the bus captain to enhance their driving skills and pattern. The driver feedback unit at the dashboard provides real-time audio and visual alerts to the bus captain behind the wheel immediately after he/she has committed a driving behaviour that needs attention or instant rectification in five key driving aspects, including cornering, braking, acceleration, pedal control and speeding.

In addition to receiving instant feedback on his/her driving behaviour, the bus captain can also review his/her performance via the "GST Driver" app, which clearly shows the time, date and location of his/her improper driving behaviour as well as the duration and location where he/she let the engine idle.

Since 2020, KMB has introduced a reward scheme to demonstrate our appreciation to bus captains with good performance in the safety and eco-driving system. The reward scheme is well received by bus captains, who compete among themselves in their respective depots and share knowledge with one another regarding techniques for achieving greater driving safety.

The GST System is conducive to identifying bus captains who need further training and monitoring. With the implementation of such safety and eco driving system, KMB and LWB are further equipped for providing safe and environmentally friendly service to the public.



- Ⓐ The bus fleet has installed a Speed Limiting Retarder that can automatically activate the brake to prevent speeding downhill



### Driving Monitoring System (“DMS”)

This monitoring device, mounted on the dashboard, uses image processing and advanced facial recognition technology to detect the level of alertness of a driver. Early audio alerts and vibration warnings through the bus captain seat will be activated when it is suspected that the driver is showing signs of fatigue or abnormality.



### Advanced Driver Assistance System (“ADAS”)

The device is installed on the lower saloon windscreen and uses image-processing technology to detect obstacles on the road and calculate the obstacle distance. Early audio alerts and vibration warnings will be activated when “unsafe” conditions are detected.



### Electronic Stability Programme (“ESP”)

The ESP is an important safety feature to prevent a bus from skidding or overturning when cornering or operating on a slippery road surface.



### Speed Limiting Retarder (“SLR”)

SLR enhances the speed limiters of our fleets. The current speed limiters cut off the fuel supply to the engine when the speed limit is reached. The SLR automatically activates the brakes or retarder to prevent speeding when travelling downhill.



### Safety Belts

KMB and LWB have requested bus manufacturers to install 3-point safety belts on all seats as a standard feature for new buses. Meanwhile, KMB has been working on retrofitting existing buses with safety belts in order to provide better protection to passengers.

## SUSTAINABILITY REPORT



- Ⓐ The KMB Academy provides HKQF-accredited professional and comprehensive training courses for new recruits, in-service bus captains and bus captain training instructors

### KMB Academy

KMB established the KMB Academy ("the Academy") in January 2022, aiming to nurture talents for the bus industry. The Academy provides professional and comprehensive training programmes for franchised bus maintenance personnel and all bus captains. In 2023, two training programmes, the "Certificate in Continuing Development for In-service Bus Captains" and the "Professional Certificate for Instructors in Franchised Bus Industry" were recognised at Level Three and Level Four respectively under the Qualifications Framework ("HKQF") by the Hong Kong Council for Accreditation of Academic and Vocational Qualifications. The number of HKQF programmes in the KMB Academy now totals four.

**The "Certificate in Bus Maintenance"** at HKQF Level Two for franchised bus maintenance personnel offers knowledge of mechanical operation and industrial safety. Students will also undergo basic technical training, including engine, drivetrain, chassis, electrical appliances, and air-conditioning, with on-the-job training available in KMB and LWB depots. In addition to the HKQF Level Two accreditation, graduates will also receive professional bus maintenance certificates recognised by two European bus manufacturing giants, Alexander Dennis Ltd and Volvo Buses, making them semi-skilled workers with a clear progression ladder through further training.

### The "Certificate in Public Bus (Franchised) Driving training"

at HKQF Level Three is planned around building safety consciousness, bus maneuvering skills, and bus route and bus type knowledge. In addition to driving, students will also be trained in customer service and emotional management to further enhance their service standards. Before graduation, assessments are conducted by instructors to ensure student performance meets the standards of KMB.



- Ⓐ In addition to receiving recognition from the HKQF for completing the "Certificate in Bus Maintenance" course, graduates are also recognised by two major European bus manufacturers

The “Certificate in Continuing Development for In-service Bus Captains” is at HKQF Level Three; the training aims at enhancing our in-service bus captains on road safety awareness, driving skills and attitude, including defensive driving techniques.

The “Professional Certificate for Instructors in Franchised Bus Industry” at HKQF Level Four is set to provide our instructors (both Driving Instructors and Technical Instructors) with a better understanding of the role of an instructor at the KMB Academy in terms of enhancing teaching skills, improving teaching quality and fostering professional development whilst taking into consideration their teaching performance, professional behaviour and attitude.

Other than taking care of the training needs of bus maintenance staff and bus captains, the Academy also provides short-term courses and workshops for tertiary institutions covering various topics, aiming to widen students’ understanding of the bus industry, business operations and public institutions. For primary and secondary schools, the Academy offers a variety of on-campus STEM education courses and activities in which students can apply interdisciplinary knowledge and cultivate innovative thinking through “hands-on” and “minds-on” activities.

### Public Safety Awareness Programme

Ensuring passenger safety is of utmost importance in our bus operations. Through the use of different channels, we are able to raise public awareness of passenger safety. A series of safety messages are broadcast on the Bus Stop Announcement System in Cantonese, English and Putonghua to remind passengers to hold the handrail at all times. Safety stickers such as “Hold the handrail” and “Fasten the seatbelt” were placed in bus compartments. We also periodically communicate educational messages to the public through our mobile app, app1933, and KMB’s Facebook page.



- Ⓐ KMB and LWB have always prioritised passenger safety and frequently reminded passengers to “Hold the handrail” by putting up stickers in the bus

### Safety Bus

KMB is dedicated to promoting road and passenger safety. We modified a single-deck bus into a “Safety Bus” with the theme of “Stop, Look, Listen and Give Way” to reach out to the community. Combining learning with playing through motion-sensing games and virtual reality activities inside the compartment, the Safety Bus allows participating students to learn public transport etiquette, such as fastening the seatbelt, holding the handrail, and learning about blind spots of buses. In order to raise awareness of the participants, staff members from the Safety Department are also present to play quiz games and give short talks on road and passenger safety. In 2023, a total of 587 students visited the Safety Bus.

Apart from safety promotion for school kids, KMB has also worked together with the Hong Kong Police Force to organise safety seminars for the elderly. Our staff deliver road safety messages via various interactions with the elderly so as to promote their safety awareness. In 2023, about 100 elderly persons attended our safety seminars.

### Mobile Classroom

The first Mobile Classroom activity was launched by the KMB Academy and the Safety Department in 2023 to promote road and driving safety especially when bicycles and buses are on the road concurrently. More than 200 bus captains and public members were engaged in the activity. They welcomed and appreciated our efforts in engaging different road users (bus captains, cyclists, pedestrians and also bus passengers) while promoting road safety messages.



- Ⓐ Safety Bus pays visits to schools

## SUSTAINABILITY REPORT

## CASE STUDY



## Introducing a Preventive Maintenance System and utilising data analysis to mitigate potential risks associated with mechanical failure

As the "Heartbeat of the City" in Hong Kong, the KMB and LWB fleets must perform at an optimal level of mechanical reliability and operational capabilities, which is crucial to the overall operation of bus services across the city. The KMB engineering team consistently reviews the parts replacement plan, enhances mechanical durability, and improves the quality of components to ensure the fleet maintains the highest standards of safety and service. Recently, they have proactively introduced a Preventive Maintenance System for the fleet, believing that the maintenance policy of "prevention is better than cure" can effectively monitor the condition of various systems and utilise resources for targeted repairs and maintenance.

The Preventive Maintenance System introduced by KMB for the fleet remotely monitors vehicles and major components such as engines, cooling systems, transmissions, braking systems, and

batteries. The monitoring system transmits real-time performance data of vehicle systems to the company's servers for analysis and regularly sends abnormal reports to the engineering staff, helping them to determine the priority of inspections and repairs. By conducting necessary repairs and maintenance in advance based on data analysis, potential risks of components failure are avoided, thereby increasing the safety coefficient of the vehicles.

Since the launch of the Preventive Maintenance System in March last year, the number of mechanical failures of bus fleets in December 2023 decreased by over 20% compared to the same period in 2022, which is concrete evidence of our ongoing commitment to enhancing bus safety by strategically using technology.



“

KMB and LWB operate over 4,000 buses daily, making us one of the largest bus companies globally. We make it our mission to provide safe, reliable, and comfortable bus services to passengers. The KMB engineering team constantly researches and implements various safety and monitoring systems, aiming to achieve the goal of “prevention being better than cure” for the entire bus fleet.

The Preventive Maintenance System was recently introduced to our fleet, which remotely collects real-time performance data of vehicle components. This allows engineers to promptly identify potential issues and accurately predict the probability of component failures, enabling them to devise appropriate repair and maintenance measures to enhance the mechanical reliability and operational efficiency.

Furthermore, the collected data are also used to enhance the efficiency of bus maintenance and servicing. Engineers can prioritise maintenance and servicing tasks based on the performance of vehicle components, effectively allocating manpower and planning parts ordering. This ensures optimal resource utilisation and improves cost-effectiveness.

**Andrew Kwan, KMB Operations Director**

”

