



2022

Environmental, Social and Governance Report

Shenzhen Expressway Corporation Limited



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Message from the Board of Directors

Shouldering social responsibilities and missions since its establishment, Shenzhen Expressway has been striving for the vision of “becoming the pioneer of road transport and urban infrastructure and the segment leader of general environmental protection”. In the spirit of “delving into the deep, striving for the top and fighting for the speed”, we have taken the initiative to implement national strategies, such as the “Building China’s Strength in Transportation”, the “Beautiful China Initiative”, the goals of “Carbon Peak and Carbon Neutrality”, the dual building of “Guangdong-Hong Kong-Macao Greater Bay Area and “Shenzhen as a pilot demonstration area of socialism with Chinese characteristics”, as well as the dual reform plans namely “Comprehensive plan on implementing pilot reforms in Shenzhen building into a demonstration area of socialism with Chinese characteristics (2021-2025)” and “Comprehensively deepening the reform and opening-up of the Qianhai Shenzhen-Hong Kong Modern Service Industry Cooperation Zone”. In doing so, we have fully implemented the guiding principles of the 20th CPC National Congress across the whole corporation and will open a new chapter with a firmer belief and determination, and a more resolved struggling spirit.

Seek green development to fuel low-carbon growth and harmonious coexistence between man and nature.

Respecting, adapting to, and protecting nature is essential for building China into a modern socialist country in all respects. To this end, Shenzhen Expressway has always viewed green, circular, and low-carbon operation a vital approach to achieve sustainable business development. In recent years, we have responded proactively to develop featured environmental protection and integrated clean energy industries, vigorously practiced green operation and sought development in line with the principle of harmonious coexistence between man and nature. By the end of 2022, Shenzhen Expressway undertook 23 organic waste treatment projects, with a designed daily treatment capacity of more than 6,900 tons. Amongst these projects, 14 (with a total design capacity of 3,520.5 tons/day) have been put into commercial operation, with an annual organic waste treatment capacity of 956,852 tons. The total installed capacity of wind power hit 648MW and 1.67 million MWh of wind power was generated, equivalent to a reduction of 1,363,724 tons of carbon dioxide and 204,892tce of standard coal.

Safeguard security to strengthen the development bottom line. Over the past year, we made continuous efforts to enhance our work safety management structure and quality control system and innovate in the professional field of engineering and its research and application. In this way, we practiced good safety development and quality management. In 2022, a total of 6,000 safety production responsibility agreements were signed within the corporation.

People-oriented to train talents. Talent serves as the core strategic resource for corporate development. Shenzhen Expressway always adheres to such employee-oriented business philosophy. Over the past year, we practised the major policy of respecting, labour, knowledge, talent, and creativity, safeguarded and developed the interest of labour and protected their rights. In this way, we continue to further the talent training of Shenzhen Expressway. In 2022, we did a good job in selecting, employing, educating and retaining human resources. Specifically, we had a total of 7,279 employees with a 100% labour contract signing rate and social insurance coverage rate.

Seek digital and intelligent empowerment to pursue innovation-driven development. Scientific and technological innovation is an inexhaustible source for corporate development. Shenzhen Expressway always highly values scientific and technological innovation and pursues to be a leading enterprise with the aid of advanced science and technology. Besides, we proposed a strategic plan to build an information-based intelligent Shenzhen Expressway across the board. Over the past year, we were granted 29 new patents, making our existing patents amount to 356.

Work together to bolster rural revitalisation. When the country demands and the people call out, its enterprises are responding. It is a great mission of Chinese enterprises to help achieve common prosperity and rural revitalisation across the country. We leveraged the core role of state-owned enterprises in the upstream and downstream industrial chain, constantly bettered supply chain management, and fueled the development of local industries over the past year. Meanwhile, we actively made ourselves a part of community development and encouraged our staff to volunteers in communities. During the year, we provided a duration of 3,444 hours of volunteer services and donated RMB2.8 million for charity.

In the future, Shenzhen Expressway will make continued endeavour to “strengthen and bolster our edges in toll highway, develop featured environmental protection and integrated clean energy industries, build intelligent Shenzhen Expressway and advance high-quality sustainable development”. We will better support scientific and technological innovation, continue to hire and train talent people, secure intrinsically safe engineering projects and work together with our partners to seek “green, open, sharing, co-operative and win-win” development and fulfil our social responsibilities and spirit as a state-owned enterprise with concrete actions!

Liao Xiang Wen

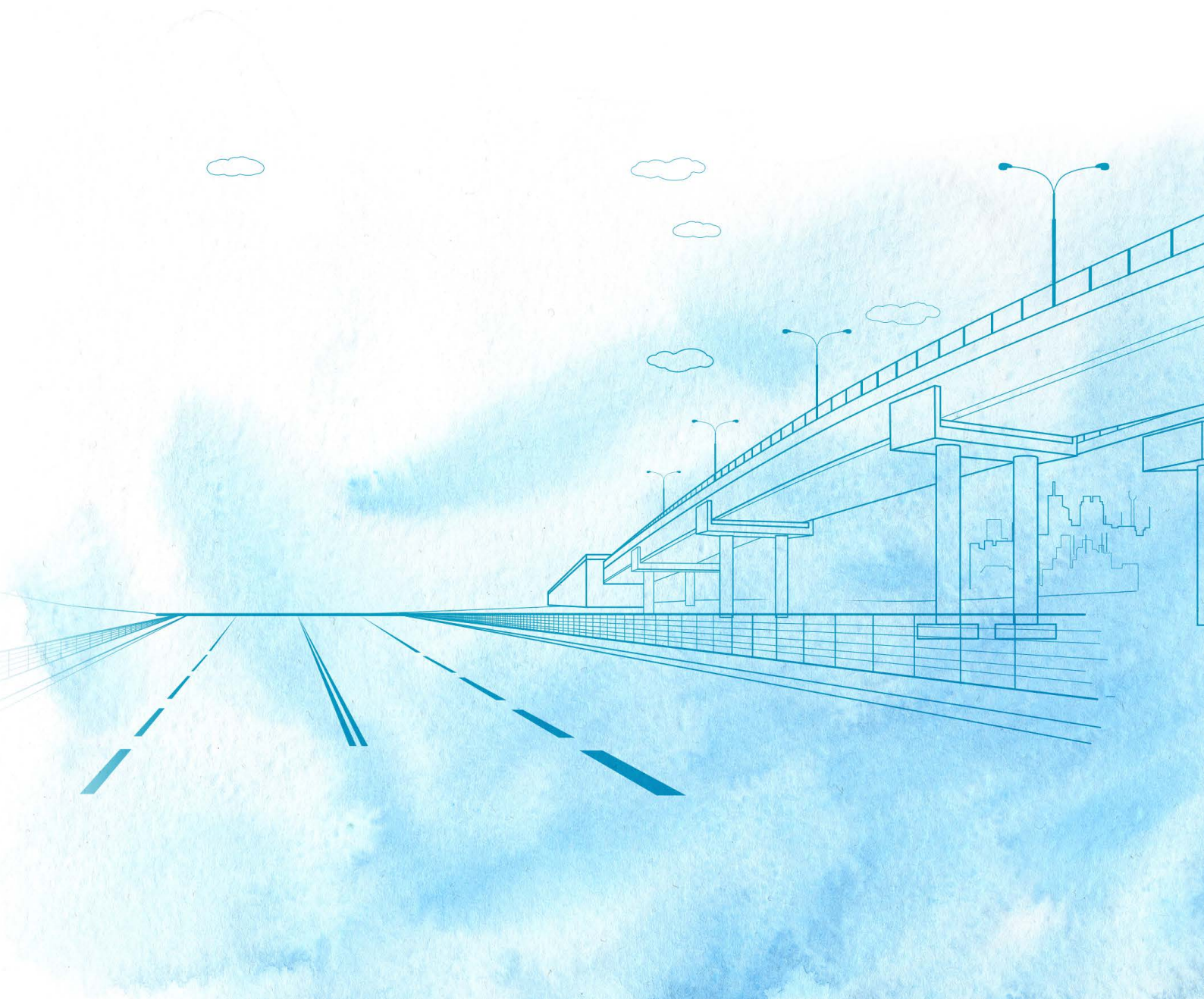
Executive Director and President

Statement of the Board of Directors

The Company's Board of Directors attaches great importance to the sustainable development management. The Company has established an effective ESG management mechanism and has formed an ESG governance structure featuring clear hierarchy and labour division.

As the highest governance body in the Group, the Board of Directors is responsible for the management and decision-making of ESG matters of the Group, clarifying the development direction of ESG matters, formulating ESG work strategy, regularly following reports from the Secretariat of the Board and Investor Relations Department on ESG work, and comprehensively supervising the Company's ESG management. The Board of Directors hears and reviews the Company's Environmental, Social and Governance Report annually, and supervises the implementation progress against the related ESG targets.

During the reporting year, the Company has completed the review and assessment of ESG issues and set ESG environmental targets. The Board of Directors reviewed, discussed, and confirmed the ESG work results of this year.



About Us

Company Profile

Shenzhen Expressway Corporation Limited (hereinafter referred to as "Shenzhen Expressway"; stock code: 600548.SH/00548.HK), founded in 1996, specialises in investment, construction and operation management of toll highway and general-environmental protection. At present, the general environmental protection business mainly includes solid waste resources treatment and clean energy. Besides, we are also a service provider of high-quality construction management and highway operation management for the government and other enterprises. Supported by our relevant management experience and resources, we also carry out project development and management, operation and maintenance, intelligent transportation/environmental protection system, engineering management and industrial finance and other services based on our main business.

By the end of 2022, a total of 16 highway projects were operated and invested by the Company including approximately 643 kilometers of high-level ones (by the proportion of controlling interests). The Company actively participated in many regional urban infrastructure development projects, and invested in 18 environmental protection, clean energy and financial projects. We also operated many platform companies of investment, construction, operation, environment, urban infrastructure and new energy.



Our history **27** years



Size of total assets **69.2** billion



Total number of employees **7,279**

Business Segments



Toll Highway Industry

The Group, as an important service provider for the construction and operation of transportation infrastructure in the Guangdong-Hong Kong-Macao Greater Bay Area, is undertaking key projects of the Greater Bay Area, including Jihe Expressway reconstruction and expansion, Outer Ring Phases II&III and Coastal Phase II. The operated and invested toll highway projects are mainly distributed in the Pearl River Delta and economically developed areas in the central and eastern of the region, connecting airports, ports and other infrastructures like criss-crossed arteries, and playing an important fueling role in regional economic development.



› Toll Highway



General environmental Protection Industry

The Group has run large-scale clean energy and environmental pollution control businesses with quick business growth and fostering capacity. Meanwhile, the Group runs business in the dismantling and cascade utilisation of retired automobiles and new energy batteries and industrial environmental protection service industries playing a role in protecting our lucid waters and lush mountains.



› General-environmental Protection



New Business Industry

The Group also launches the new urban construction business and the industrial-financial integration business and has participated in the construction of a number of large-scale municipal projects with its excellent construction management capacity. The combination of industry and finance has become a new driver for the sustainable development of its dual core businesses and the Group has formed a business landscape of "participating in one and controlling two"¹ In the field of bank, financial leasing and industrial funds.

¹ Shenzhen Expressway has invested in Bank of Guizhou by equity participation, whilst having controlling shares in Shenzhen Expressway Private Equity Industrial Investment Fund Management Company Limited and Shenzhen Expressway Financial Leasing Company Limited

Corporate Culture

Mission

Building high-quality infrastructure

Shenzhen Expressway has specialised in the infrastructure field for years, especially in traffic and urban infrastructure and niche-general environmental protection, to create the core competitive edge of "dual core businesses". We also develop the IT-based business, explore and foster new businesses such as urban comprehensive services and integration of industry and finance, and leverage our construction and operation management capacity in transportation infrastructure, municipal engineering, urban comprehensive development and other aspects to deliver top-notch products and services for the government and the Greater Bay Area.

Serving a better life in the city

Shenzhen Expressway, as a key enterprise of transportation infrastructure in Shenzhen, plays a protective role in urban infrastructure construction and urban operation with the backing of our talents, funds and technological advantages. We provide residents there with safer and more convenient travel conditions and a cleaner and more beautiful living environment, allowing coexistence and win-win results between ourselves and the city.

Core Values



Responsibility

Responsibility is fundamental for Shenzhen Expressway's achievements.



Integrity

Integrity is crucial for Shenzhen Expressway's survival.



Innovation

Innovation is the key to Shenzhen Expressway's success.



People-oriented

People-oriented is the source of Shenzhen Expressway's vitality.

Vision

To become a pioneer of road transport and urban infrastructure

At the historical juncture of building the Greater Bay Area and building Shenzhen into a demonstration area of socialism with Chinese characteristics, improve asset scale, investment return, engineering construction and operational management capacities by adjustment, consolidation and optimisation, capacity expansion and quality improvement, cost reduction and efficiency increase, and a development and innovation strategy holding a leading position in the toll highway industry.

To become a segment leader of general environmental protection

We actively expand featured environmental protection and integrated clean energy, on the agenda of focusing on expansion, keeping exploring, fostering capability and building a team strategy. We forge competitive strengths in general environmental protection and built a leading brand with distinctive characteristics and edges.

Corporate Spirit

Delve to the deep

Specialise in our core businesses by dedication, being pragmatic, learning and improving our expertise.

Strive for the top

Never slack off in good times and never give up in bad times; pursue development actively and seek breakthroughs and improvements.

Fight for the speed

Always strive to make progress with persistent efforts and passion, and always pursue excellence to be a pioneering leader.

Core Highlights in ESG



Highlights in 2022

Social Contribution

Paid dividends of RMB

1.35 billion to shareholders in 2021

representing the 25th consecutive years distributing cash dividends.
A cumulative cash dividends of about RMB

12.23 billion have been paid

Paid taxes of RMB

0.532 billion

Achieved a social contribution

per share of **RMB1.85** in 2022

R&D Innovation

Invested

RMB **46.48** million in research and development

Management and technical personnel of the total staff

32%

Has **356** authorised patents,

29 of which were granted in 2022

Intelligent Expressway

The total distance of expressways on the operating management and control platform based on BIM was

130.51 kilo miles

Creatively adopted the

digital management mode

of full life-cycle infrastructure and intelligent means

Applied AI lens

intelligent inspection

Awards

Received a **second prize** of the Third Science and Technology Award of Guangdong Province Highway Society for its "R&D Project of Glass Fibre Reinforced Concrete Bridge Guardrail" in June 2022.

Received an award from the First Shenzhen Transport Utilities **Quality Project Award** for the Shenzhen Freight Toll Station Project constructed by it in July 2022.

Energy Saving and Environmental Protection

Achieved an on-grid energy production of

1,667,144 MWh from wind power generation and

16,067,677 KWh

from biogas power generation and collected and transported (processed)

956,852

tons of wastes

Partnership

100% of core suppliers of Shenzhen Expressway has signed the integrity agreement.

The investment in public welfare projects totalled RMB

2.8 million

All core suppliers of Shenzhen Expressway signed an integrity agreement

100%

287 volunteers offered a total of
3,444 hours of volunteer services

Community Integrated Service Center
50,000 people

ESG Honours in 2022



June 2022

Ranked 28th amongst listed companies in China in the latest ESG rating released 1st by FTSE Russell; ranked in the transportation infrastructure industry



September 2022

Was honoured as one of the “Top 100 ESG Listed Companies in China” at the “16th China Listed Company Value Forum” sponsored by the Securities Times



November 2022

Won the “2022 Golden Bridge Award – Annual Excellent ESG Practice Company Award” sponsored by h5.investorchina.cn & investorchina.cn



November 2022

Was honoured as one of the “2022 Top 20 Listed Companies in Greater Bay Area in Green Governance” sponsored by Shenzhen Research Association of Corporate Governance



December 2022

Awarded an “Excellent Environmental Responsibility (E) Award at China ESG Gold Awards 2022”

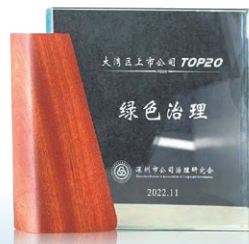


December 2022

Ranked 36th in the “Social Responsibility of Local State-owned Enterprises – Vanguard 100 Index” in the *Research Report on Corporate Social Responsibility of Local SASAC and Local State-owned Enterprises (2022)* released under the guidance of the Social Responsibility Bureau of the State-owned Assets Supervision and Administration Commission of the State Council



Honoured as one of the “**Top 100 ESG Listed Companies in China**” sponsored by the Securities Times.



Honoured as one of the “**2022 Top 20 Listed Companies in Greater Bay Area in Green Governance**” sponsored by Shenzhen Research Association of Corporate Governance.



Awarded an “**Excellent Environmental Responsibility (E) Award at China ESG Gold Awards 2022**”.



Ranked 36th in the “**Social Responsibility of Local State-owned Enterprises – Vanguard 100 Index**” in the *Research Report on Corporate Social Responsibility of Local SASAC and Local State-owned Enterprises (2022)*.

CONSOLIDATE THE CORNERSTONE OF DEVELOPMENT THROUGH SOLID GOVERNANCE

01

Good corporate governance is the foundation of sound and sustainable development of an enterprise. Shenzhen Expressway is devoted to enhancing its governance structure, establishing and improving various operational rules, advancing the work of combating corruption and upholding integrity, and improving the governance effectiveness with persistent efforts.

Key Performance

Response rate towards
reported complaints/violations

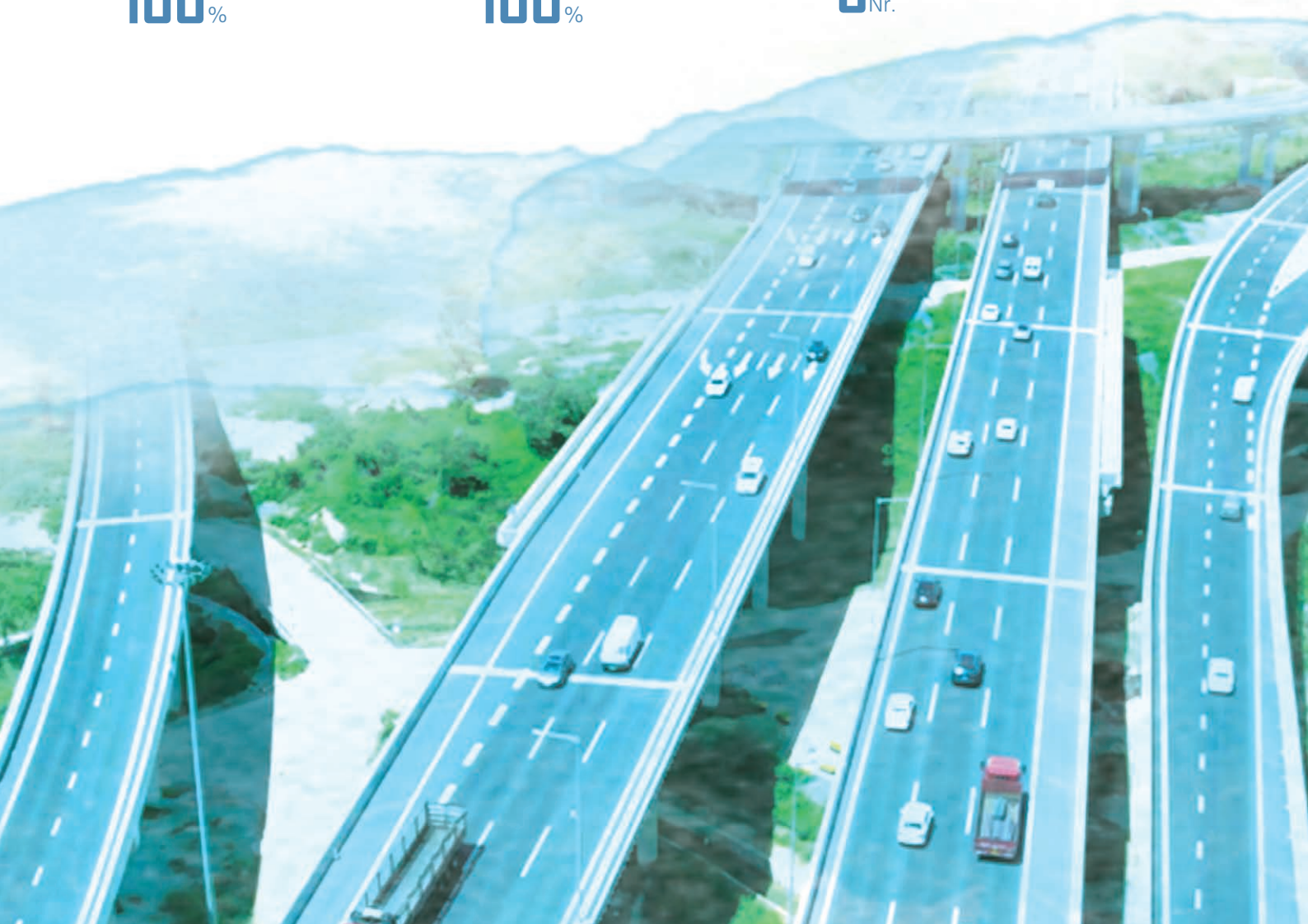
100%

Signing rate of the letter of
commitment to incorrupt practice

100%

Number of legal cases regarding
corrupt practices

0 Nr.



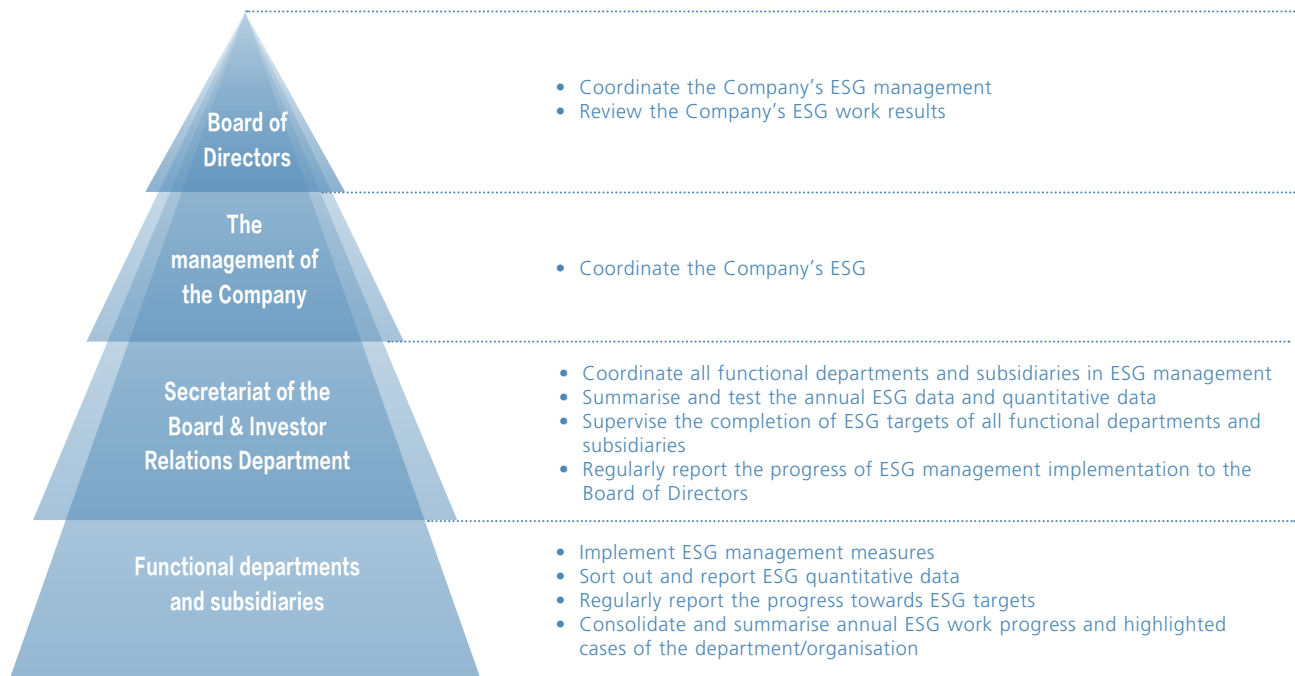
ESG Governance

To proactively fulfil social responsibilities is essential to sustainable development of an enterprise. Shenzhen Expressway attaches great importance to establishing and improving its ESG governance system and working mechanism. Specifically, we have made active efforts to further green transportation, integrate ESG concepts into our long-term development strategy, and practice them in the whole process of our decision-making, management, operation and the whole industry chain.

ESG Governance Structure

The Board of Directors is the highest responsible body and decision-maker for ESG matters of Shenzhen Expressway. It is mainly responsible for overall deliberation and approval of ESG strategies, visions and objectives, review and evaluation of risks and importance related to ESG matters, and review and approve public disclosures related to ESG matters. The Secretariat of the Board & Investor Relations Department, under the administration of the Board of Directors, is mainly responsible for co-ordinating all functional departments and subsidiaries to carry out ESG-related work, supervising the Company's ESG performance and related target progress, and reporting the Company's ESG matters to the Company's management and the Board of Directors.








ESG Governance Structure of Shenzhen Expressway



Communication with Stakeholders

Shenzhen Expressway attaches great importance to communication with stakeholders including governments, shareholders, employees, customers, suppliers, environments and communities. Diversified communication channels and feedback mechanisms are established in line with their characteristics, to disclose the Company's sustainable development tendency in a timely manner, and to ensure that the demands of stakeholders are accurately identified, fully understood and responded in a targeted way.

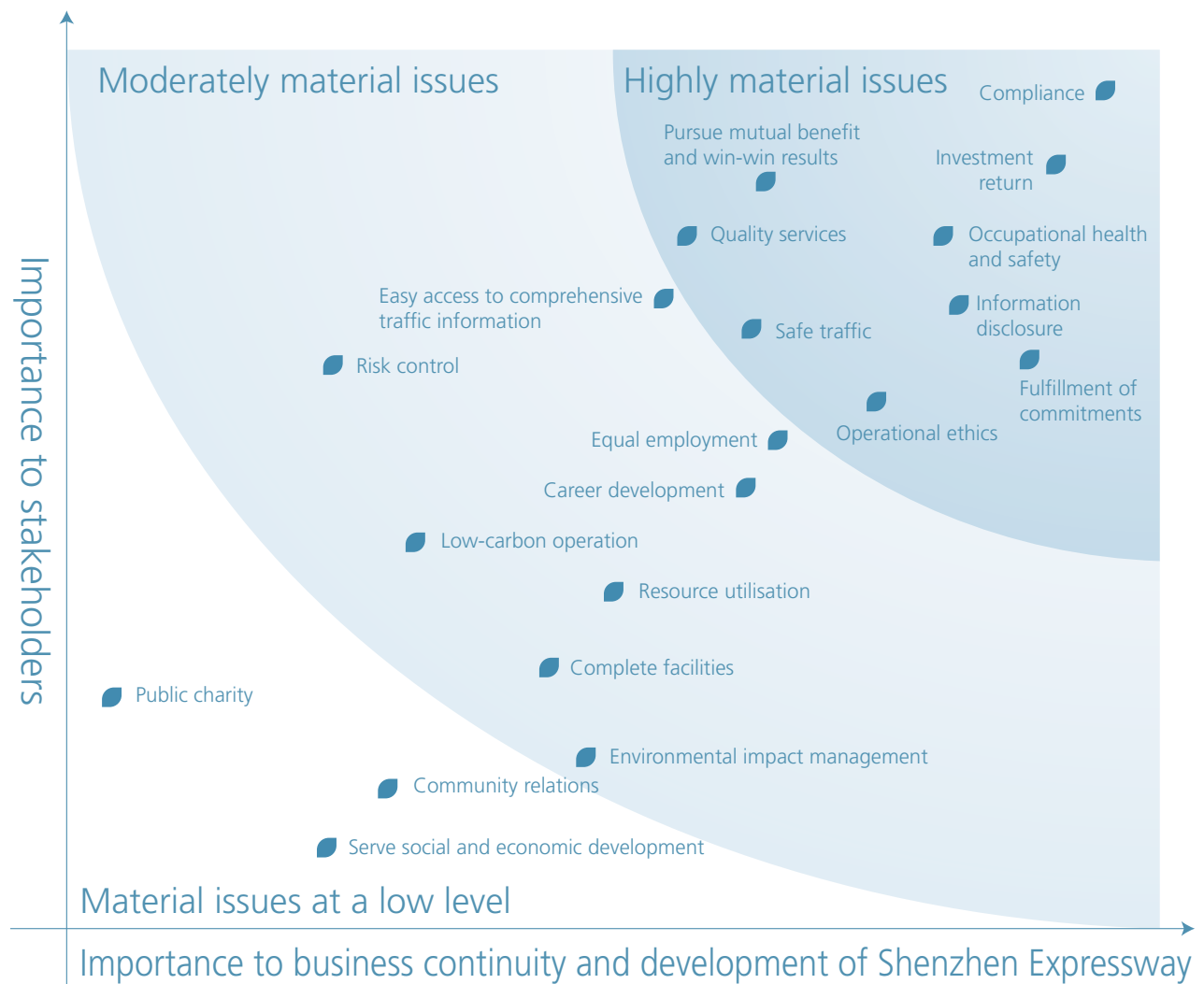
Communication with Stakeholders of Shenzhen Expressway

Stakeholders category	Major issue	Demand and expectation	Response
 Government and regulatory agency	Compliance Serve social and economic development	Comply with laws and regulations Implement national policies and promote social and economic development Targeted poverty alleviation and support for regional development	<ul style="list-style-type: none"> Continuously strengthen the corporate compliance management and ensure legal and compliant operation Formulate and continue to optimise the Company's strategic positioning, industrial orientation and business measures, ensure conformance to the orientation of national policies, balance economic and social benefits in development, and promote social and economic development Carry out targeted poverty alleviation and support regional development by means of industrial investment, personnel assignment and public welfare investment
 Shareholders	Investment return Risk prevention Information disclosure	Robust income and dividends Reduce investment risk Open and transparent information	<ul style="list-style-type: none"> Do well in business operation, improve business performance, and maintain a stable dividend policy Improve enterprise management and attach importance to risk identification and control Conduct information disclosure in a compliance manner and attach importance to investor relations
 Suppliers	Pursue mutual benefit and win-win results Fulfilment of commitments	Carry out co-operation for mutual benefit and win-win results Fulfil contracts Promote industry development	<ul style="list-style-type: none"> Implement fair procurement and build a responsible supply chain Keep promises and fulfil commitments Encourage suppliers to use new technologies, new materials and new processes, optimise their management mode, and jointly promote industry development
 Customers	Quality services Safe traffic Easy access to comprehensive traffic information Complete facilities	Quality services Ensure safe and smooth traffic flow Ensure timely rescue and obstacle removal Easy access to comprehensive traffic information Perfect road facilities	<ul style="list-style-type: none"> Render feedback on services and open the complaint channels to public Improve traffic efficiency with new technologies and modes Strengthen emergency rescue and attach importance to road safety management Timely release traffic information Strengthen road maintenance
 Employees	Equal employment Career development Occupational health and safety	Salary and benefit Development opportunities Training system	<ul style="list-style-type: none"> Continuously improve the salary performance system and carry out employee satisfaction survey Optimise the position system and assessment and promotion mechanism, and put into place systems for competitive recruitment of management positions and new employee guides Attach importance to career development training, expand online and training courses below the line, put into place academic education and incentive mechanism for those getting technical titles, etc.
 Communities	Operational ethics Community relations Public charity	Highway environmental impact Business ethics Participate in community development Support public charity	<ul style="list-style-type: none"> Do well in project environmental assessment, planning and design Value coordinated development with surrounding communities, make public the complaint channels, and timely and properly handle reasonable appeals Carry out targeted poverty alleviation and support regional development Carry out public welfare activities
 NGOs/non-government environmental protection groups	Environmental impact management Low-carbon operation Resource utilisation	Make rational use of resources Preserve the ecological environment	<ul style="list-style-type: none"> Improve the efficiency of energy and resource utilisation Implement green operation and office Strengthen the disclosure of environmental information

Assessment of Materiality Issues

During the preparation of the Environmental, Social and Governance (ESG) report, we identified 20 potential materiality issues combined with the regulatory disclosure requirements and the focuses of stakeholders, and benchmarked them with the outstanding enterprises in the industry. External experts in sustainable development were invited to provide professional advices on the ranking of materiality issues, to ensure that the existing issues are highly related to the business operation of Shenzhen Expressway and the development of the industry. The final review of major issues and ranking by the Company's management that the identified materiality issues are feasible and effective. Based on the analysed results of materiality issues, the major issues are fully elaborated in this Report and will be carefully considered when formulating internal development strategies and management policies.

Materiality Matrix of Shenzhen Expressway in 2022



Integrity and Anti-corruption

Shenzhen Expressway strictly abides by the *Anti-Corruption and Bribery Law of the People's Republic of China*, the *Anti-Money Laundering Law of the People's Republic of China*, the *Tendering and Bidding Law of the People's Republic of China* and other laws and regulations, resolutely roots out corruption from the source, clearly defines the “zero tolerance” principle against fraudulent behaviour, consolidates the foundation to exercise the rigorous governance over the Party, and has formulated the *Anti-Fraud Work Regulations* to clarify the key areas and division of responsibilities for anti-fraud work. In addition, the internal rules such as *Employee Handbook*, *Employees Rewards and Punishments* are formulated to regulate all employees' behaviours and ethics.

In 2022, The number of corruption lawsuits filed by Shenzhen Expressway and concluded was

0

2 special party committee meetings were held to study Party conduct and integrity construction

45 annual key assignments were deployed and implemented one by one

32 copies of *Responsibility Agreement on Party Conduct and Integrity Construction in 2022* were signed

13 reporting letters, visits and whistle-blowing were accepted, with 2 filed

100% of signing rates of integrity agreement with core suppliers

19 thorough investigations were conducted

Risk Prevention and Control

Shenzhen Expressway has formulated the *Handbook in Risk Prevention and Control in Key Areas*, which covers the possible integrity risk points in the work process in six major fields, including project construction, investment management, operation management, financial management, general administration, and employee management. The contractors' code of conduct into risk prevention and control requirements is incorporated, whilst the focus of risk prevention and control and its work direction is clarified, conducting a sound punishment system to help prevent corruption.

Report Acceptance

We formulate and regularly update the *Administrative Measures for Discipline Inspection, Petition and Reporting*, which clarifies the work process of report acceptance, to ensure that petitions, complaints, reported cases and incidents are handled accurately, timely and fairly.

14 effective whistle-blowing incidents of various types were received in 2022

the response rate of effective reporting was 100%



Work Process for Discipline Inspection, Petition and Reporting



Our Reporter Protection System

Shenzhen Expressway has formulated the *Reporter Protection System*, which stipulates the handling of confidential documents and the protection of whistleblowers' information, to protect the basic rights and interests of whistle-blowers from being infringed on, and resolutely prohibit any form of retaliation. It is stipulated that:

All departments, units and personnel must keep strictly confidential the whistleblower's name, employer, home address and other relevant information

Relevant reporting materials must be submitted to the Company's Discipline Inspection Committee for confidential management, and shall not be excerpted, copied, withheld or destroyed without permission

Transfer of reporting materials to the unit or person reported against is strictly forbidden

The acceptance of the report from the reporter and the verification of the situation with the reporter shall be carried out under the condition of maintaining confidentiality and not disclosing the reporter's identity

Rewards and publicity for the meritorious whistleblower shall not disclose the name, employer and other information about the reporter without the written consent of the whistle-blower

Integrity Education

Integrity education plays a fundamental role in corruption control and a vital link to foster the awareness of integrity and cultivate the atmosphere of integrity. Shenzhen Expressway conducts regular education and publicity on typical cases of violations against integrity regulations through board newspapers, WeChat official accounts, corporate internal journals, internal and external websites, and other publicity platforms. We organise incorrupt practice education conferences and anti-corruption warning education lectures and organise employees to watch anti-corruption warning education films every year to promote employees at all levels to keep in mind the concept of anti-corruption and promoting integrity and reflect it in their behaviours.

In 2022, the total duration of anti-corruption education activities was

137 hours, with a total of **7,279** participants.

Specifically, **5** hours of anti-corruption education activities were conducted for senior management staff

and directors, with a total of **14** participants.



● Case | Shenzhen Expressway held a mobilisation meeting for the 2022 Party Committee's month of discipline education and learning

Shenzhen Expressway held a mobilisation meeting for the Party Committee's month of discipline education and learning on the afternoon of August 31, 2022. The meeting was presided over by Lin Jitong, Secretary of the Discipline Inspection Committee and Chairman of the Supervisory Committee. At the meeting, Hu Wei, Secretary of the Party Committee and Chairman of the Board of Directors, gave a lecture on a clean political party with the theme of "Studying the Party Constitution, Observing the Party Discipline, Strengthening the Party Spirit and Taking the Initiative to Play A Key and Pioneering Role in the Development of Shenzhen Expressway".



› On-site Discipline Education and Learning of the Party Committee's Month

WORK TOGETHER FOR ENVIRONMENTAL PROTECTION AND LUCID WATER AND LUSH MOUNTAINS

02

Under the concept of green development and putting resource and energy conservation and ecological environmental protection first, Shenzhen Expressway actively carries out pollution control, ecological protection, climate change response and other work to promote the high-quality development of transportation and high-level protection of the ecological environment in a synchronous and win-win manner, aiming to promote a comprehensive green transformation of economic and social development.

Key Performance

On-grid electricity from wind
power generation

1,667,144_{MWh}

YOY change

+20%

On-grid electricity from
biogas power generation

16,067,677_{kWh}

YOY change

+893%

Total amount of collected and
transported waste

956,852_{ton}

YOY change

+122%

Environmental penalty incidents

0_{Nr.}



Strengthen Environmental Management

As a responsible corporate citizen, Shenzhen Expressway strictly abides by various environmental protection laws and regulations, attaches importance to the construction of its environmental management system, issues environmental protection management system documents, strengthens environmental protection monitoring, guards against environmental risks, fulfils environmental protection responsibilities, and strives to reduce the impact of the Company's operations on the environment. Our environmental protection management is elevated to a new level. In 2022, Shenzhen Expressway did not incur any penalties or legal proceedings due to environmental issues.

Environmental Management System

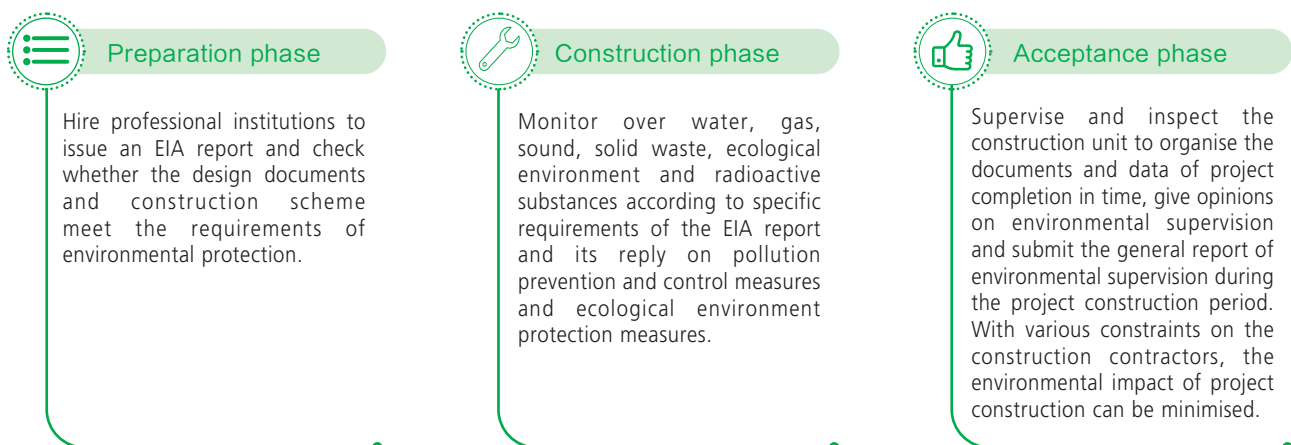
In strict compliance with the *Environmental Protection Law of the People's Republic of China*, the *Air Pollution Prevention and Control Law of the People's Republic of China*, the *Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Waste*, the *Water Pollution Prevention and Control Law of the People's Republic of China*, the *Law of the People's Republic of China on the Environmental Impact Assessment* and other laws and regulations, Shenzhen Expressway rigorously controls the emissions of pollutants, greenhouse gases and sewage, and the disposal of solid hazardous and non-hazardous waste. In 2022, Shenzhen Expressway Bioland Environmental Technologies Corp., Ltd, Nanjing Wind Power Technology Co., Ltd. and Shenzhen Shenshan Special Cooperation Zone Qiantai Technology Company Limited obtained the certification of ISO 14001 environmental management system.



Environmental Management System Certificate

Shenzhen Expressway is committed to complying with environmental regulations during project construction, subcontracts projects to construction contractors with specific qualifications, clarifies the environmental standards of construction management by formulating project technical specifications and construction management regulations, and controls environmental violation risks of contractors through contract clauses.

Environmental Supervision System



Adhere to Green Design

Green design is a top priority to maximise the integration of the environmental protection concepts into projects. Shenzhen Expressway factors greening control into the project construction plan, proactively brings down any possible pollution impact, takes measures to preserve the original local natural landscape, strengthens the awareness of saving and intensive land use and protecting cultivated land, and avoids and minimises changes to the natural landscape.

Route selection design



Shenzhen Expressway's projects under construction make full use of the existing land, internalise the earthwork as much as possible, and have effectively reduced the occupation of urban land resources through measures such as the recycling of waste residues, interconnecting micro-topography and landform transformation, greatly reducing the impact on the ecosystem and culture in the business location.

Construction design



Shenzhen Expressway values the reduction of the impact of the construction process and subsequent highway operation on the local natural environment. All projects under construction actively are carried out with ecological, environmentally friendly, energy-saving and efficient construction techniques.

Operation design



Sound barriers are erected along residential areas to reduce the noise pollution caused by passing vehicles after operation.

Shenzhen Expressway practices the bottom-line principle that “**no construction is permitted before getting an EIA certificate**” in every project and takes the initiative to conduct the EIA reports and apply for the EIA certificate. We also co-operate with professional EIA consulting agencies to carry out environmental protection and environmental impact assessment together, and ensure that the environmental protection work of each project meets the requirements of local laws and regulations.

Proper Use of Land

Shenzhen Expressway strictly implements the *Water and Soil Conservation Law of the People's Republic of China* and other relevant regulations and entrusts a qualified unit to prepare a water and soil conservation plan before a construction project starts.

- In the project design stage, to minimise land occupation, the whole line is basically adopts the bridge structure, with bridges accounting for 99%. When the route passes through woodland and mountains, we use the half-bridge and half-road form to minimise the damage to the natural ecological environment due to mountain excavation.
- In the project preparation stage, we timely discover and stop illegal land occupation in line with the principle of “zero tolerance” through intensive inspections along the route, to ensure zero occurrence of illegal land occupation of red-line land.
- During the project construction process, we authorise a third party organisation to monitor the environment and water and soil conservation conditions of each project, form a monitoring report, and issue it to the construction unit for rectification and implementation.



► Authorised a third party to monitor the project environment and water and soil conservation conditions and form reports.

In 2022,

Shenzhen Expressway conducted more than

155 land inspections




Practice Green Operation

Shenzhen Expressway, pursuing the clean and low-carbon development direction, actively carries out business in the environmental protection industry. Specifically, with a view to speeding up the transformation and upgrading of our energy structure, we try our best to control greenhouse gases and energy consumption in the production and operation process, strengthen the control of energy conservation and emission reduction and carry out a number of environmental protection projects such as solid waste recycling and wind power generation, responding to the national “Carbon Peaking and Carbon Neutrality” strategy and the “zero-waste city” construction concept with concrete actions, and support the construction of “green China”.

Develop Green Industries

Shenzhen Expressway has engaged itself in the niche-general environmental protection industry with strong strengths while maintaining its leading position in the toll highway industry, and now has put into place a dual core business pattern backed by toll highway and general-environmental protection. To this end, we run environmental companies specializing in the expansion of environmental protection businesses such as solid waste recycling and treatment, and new energy companies engaged in the expansion of new energy businesses such as wind power. We do so with a view to building a world-class comprehensive group of the whole environmental protection industry chain to engage in environmental protection investment, science and technology and services. Meanwhile, we run business in the dismantling and cascade utilisation of retired automobiles and new energy batteries and industrial environmental protection service industries, playing a role in protecting our lucid waters and lush mountains.

Main Industries and Key Performance in the Environmental Protection Industry in 2022



Wind power generation

Baotou Nanfeng Project

Xinjiang Mulei Project

Huai'an Zhongheng Project



Yongcheng Zhuneng Project

Zhongwei Gantang Project

Project of Nanjing Wind Power Technology Co., Ltd.


Nanjing Avis Project

- The construction of the industrial chain landscape of “wind turbine manufacturing and sales + wind farm development and operation + wind farm operation + wind turbine operation and maintenance + financial support” is basically completed.
- In 2022, the cumulative installed capacity of wind power projects reached **648MW**, and the on-grid electricity from wind power generation was **1,667,144MWh**, equivalent to a reduction of **1,363,724 tons** of carbon dioxide and **204,892tce** of standard coal.

► Baotou Nanfeng Project

► Xinjiang Mulei Project



Organic waste treatment

Bioland Organic Waste Treatment Project

Lisai Organic Waste Treatment Project

Shaoyang Organic Waste Treatment Project

Ya'an Organic Waste Treatment Project

Organic Waste Treatment Project of Guangming Environmental Park

- In 2022, Shenzhen Expressway undertook **23** organic waste treatment projects, with a designed daily treatment capacity of more than **6,900 tons**. Amongst these projects, **14** (with a total design capacity of **3,520.5 tons/day**) have been put into commercial operation, with an annual organic waste treatment capacity of **956,852 tons**. The on-grid electricity from biogas power generation was **16,067,677kWh**, equivalent to a reduction of **13,015 tons** of carbon dioxide and **621.58kgce** of standard coal.



Hazardous waste treatment

Scrapping & Comprehensive Utilization Project of Waste Power Batteries and Retired Vehicles by Shenshan Qiantai

- An integrated system of “**source – grid – load – storage**” is built based on the business model of “**recycling – disassembly – cascade remanufacturing – recycling**”, promoting carbon reduction in the whole chain of upstream and downstream industries.
- **11** technical patents and **four** modern production lines for battery cascade utilisation and regeneration disposal.
- In 2022, the number of dismantled scrapped vehicles went up by **45%** YOY, and the disposal of retired power batteries increased by more than **200%** YOY.



Flexible Disassembly Line of Finished Automobiles

Shenzhen Expressway's Measures for of Kitchen Waste Treatment

Harmless

- Inorganic waste residues are transported by slag trucks to domestic waste sanitary landfills for harmless landfilling to make the kitchen waste harmless.

Recycling

- The ether extract in kitchen waste and waste cooking oil is processed in the oil workshop and sold. The water residue enters an anaerobic fermentation system, and the biogas generated by the anaerobic fermentation is used for heat supply and power generation;
- For the generated waste residue and sludge, after going through the desliming workshop, part of the sludge is returned to the anaerobic tank for further utilisation, and the remaining waste residue and sludge are dehydrated and composted into nutrient soil to realise resource utilisation of kitchen waste;
- The pretreated waste residue is used as feed for the breeding of black soldier flies to realise the reuse of waste;
- Leachate of waster is treated to prevent the occurrence of environmental pollution incidents.

Reduction

- The generated sewage passes through the biochemical sewage treatment system and is filtered by the ultrafiltration membrane and discharged into the municipal pipe network after reaching the standard;
- The waste air (odour) generated from the production workshop and equipment ventilation is discharged after being treated by the biological deodorisation system and up to standard to realise the reduction of kitchen waste.



Efficient Use of Resources

Strictly abiding by the *Energy Conservation Law of the People's Republic of China*, the *Cleaner Production Promotion Law of the People's Republic of China* and other laws and regulations, Shenzhen Expressway pays attention to the development and use of wind power generation, and greatly advances its solid waste recycling technology and practices a range of energy-saving and consumption-reducing measures, including use of energy-saving LED lights and electronic invoices. With all our work in these aspects, we have achieved efficient use of resources and play a role in helping China's sustainable development.

Resource type	Unit	2022
Electricity	kWh	105,328,316
Gasoline	Litre	703,942
Diesel	Litre	2,475,094
Natural gas	Cubic metre	132,350
Liquefied petroleum gas	kg	210
Water resources	ton	1,755,037
Water use density	ton/million revenue	187.25
Comprehensive energy consumption density	kWh/million revenue	19,545.38

▲ Resource Usage Data of Shenzhen Expressway in 2022

Benchmarking year 2021, we expect

- to reduce water consumption per million RMB revenue by **2.5%** in 2024.
- to reduce comprehensive energy consumption per million RMB revenue by **3%** in 2024.

In 2022, the water consumption per million RMB revenue increased **32.6%**
and energy consumption per million RMB revenue increased **7.51%**.²

* In 2021, due to the office relocation of the Corporate headquarters and its subsidiary, the Construction Company, the setting scope of environmental targets only includes Environmental Company, Operation Development Company, Yichang Company, New Energy Company, Shenchang Companies, Qinglian Companies, Investment Companies, and Qinglong Company.



In Shenzhen Expressway's toll highway business segment, the main energy consumption is the power consumption of streetlamps on expressways. On the premise of ensuring road illumination, Shenzhen Expressway achieves energy saving and emission reduction by replacing traditional high-energy-consuming high-pressure sodium lamps (HPSL) with energy-saving LED lights. Besides, Shenzhen Expressway strongly advocates the use of "Shenzhen e-traffic applet" and electronic invoices to reduce paper consumption and significantly reduce idling emissions of vehicles at toll stations.

» Shenzhen e-traffic applet



In 2022,

Shenzhen Expressway
had a total of

18,693 sets of LED
lighting.

Compared with traditional HPSL
lighting, LED lighting can save about

14.9126 million kWh
of electricity every year,

reducing the carbon
emission by about

11,631 tons each year.

The “Shenzhen e-traffic applet” helps reduce carbon emissions by about

33,200 tons per year by offering electronic invoices
compared with traditional paper invoice.



Practice Green Office

Shenzhen Expressway proactively promotes the concept of sustainable development to employees. In this regard, we launched the green office activity themed by “Consciously Save Energy, Share the Green”, organised employees to watch promotional videos and posted promotional materials on energy conservation to establish employees’ awareness of energy conservation and guide them to start from little things around them, continuously reducing greenhouse gas emissions.

Green Office Activity

- ✱ The cooling temperature of office air conditioners is not set below 26℃, and it is required to turn off the air conditioner half an hour before end of business.
- ⏻ The lights are turned off in time when no one is in the office, and the standby time of electrical appliances such as computers is reduced.
- 📄 Paperless office is comprehensively promoted, the number of documents to be printed is strictly controlled, and documents are modified on electronic device as much as possible.
- 🖨 Office paper is used for printing on both sides or reused, and the Company’s OA system is used to regularly remind employees to pay attention to energy conservation and environmental protection.
- ☕ The use of disposable paper cups is eliminated, and mugs are used for visitors.
- 🍴 The “Clear Your Plate” action is actively implemented to eliminate the waste of food and promote civilised dining.
- 📋 An office supplies application and review system are established for on-demand purchase of office equipment and waste reduction.

Respond to Climate Change

Climate change has been followed by frequent occurrence of extreme weather and natural disasters. As a consequence, the stability and safety of major engineering structures of transportation infrastructure are directly affected, causing a great threat to traffic safety. In response, Shenzhen Expressway actively identifies factors influencing climate change, carries out wind power-oriented new energy business, and upholds the development concept of “green highway” to contribute to mitigating climate change and creating a better development space.

Greenhouse Gas Emissions

Resource type	Unit	2022
Greenhouse gas emissions of scope 1	Tons of carbon dioxide equivalent	8,706
Greenhouse gas emissions of scope 2	Tons of carbon dioxide equivalent	60,068
Total emissions of greenhouse gas	Tons of carbon dioxide equivalent	68,875
Density of greenhouse gas	Tons of carbon dioxide equivalent/ million revenue	7.34

▲ Greenhouse Gas Emission Data of Shenzhen Expressway in 2022

On the basis of 2021,

- we expect to reduce GHG emissions per million RMB revenue by **3%** in 2024.

In 2022, GHG emissions per million RMB revenue reduced **2.32%**.

* In 2021, due to the office relocation of the Corporate headquarters and its subsidiary, the Construction Company, the setting scope of environmental targets only includes Environmental Company, Operation Development Company, Yichang Company, New Energy Company, Shenchang Companies, Qinglian Companies, Investment Companies, and Qinglong Company.



Carbon Emission Management Measures



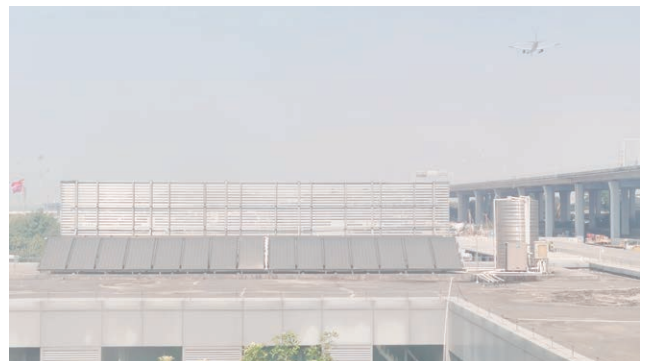
› Garden-style office space



› Solar panel-powered anti-collision bucket





› Induction cooktop



› Solar water heater

Identification of Climate Risks and Opportunities

In 2022, Shenzhen Expressway made clear possible climate-related risks and potential financial impacts and formulated corresponding countermeasures by referring to the climate risk classification provided by the Task Force on Climate-related Financial Disclosures (TCFD). In the future, we will refer to the best practices of our peers and international leading standards, and develop short-term, medium, and long-term management strategies of climate change and reduction targets of greenhouse gas emissions, continuously improving the adaptability to the impact of climate change.

Risk type	Climate-related risks	Potential financial impact
 Transformation risk	Policies and laws <ul style="list-style-type: none"> • Raise the price of greenhouse gas emissions; • Strengthen the reporting obligation; • Litigation risk; • Restrictions on business license; 	<ul style="list-style-type: none"> • Increased compliance costs; • Restrictions on the use of carbon-intensive assets; • Deregistration, asset impairment and early retirement of existing assets due to policy changes.
	Science and technology <ul style="list-style-type: none"> • Replace existing products and services with low emission solutions. • Upfront cost of the transition to low emission technologies. 	<ul style="list-style-type: none"> • Cancellation of investment and early elimination of existing technologies; • Capital investment in new technologies; • Operational costs for the adoption and deployment of new technologies and practices.
	Market <ul style="list-style-type: none"> • Risks arising from changing supply and demands as the economy responds to climate change. This may include: <ul style="list-style-type: none"> - Changes in customer behaviour; - Uncertainty of market signals; - Increase of the cost of raw materials. 	<ul style="list-style-type: none"> • Decreased income due to changes in demand for goods and services; • Sudden and unexpected changes in energy costs; • Changes in enterprise valuation.
	Reputation <ul style="list-style-type: none"> • Changes in consumer preference; • Stigmatisation of the Company; • Increased stakeholder concerns. 	<ul style="list-style-type: none"> • Decreased income caused by the decreasing demand for goods and services; • Decrease in capital availability; • Increased spending on marketing.
 Physical risks	Acute risks <ul style="list-style-type: none"> • Risk of increasingly severe climate events; Chronic risks <ul style="list-style-type: none"> • Risk of long-term changes in weather patterns. 	<ul style="list-style-type: none"> • Interruption of business, transportation, supply chain and distribution chain. • Damage to tangible assets (plant, equipment, infrastructure). Impact on insurance liability. Restrictions on the ability to procure insurance. • Degradation or limitation of resource availability (such as water).

To deal with the potential hazards brought by climate change, Shenzhen Expressway has taken countermeasures for different segments to prevent the occurrence of risks.

Response Measures against Climate Risks

Carry out environmental investigation and fully understand the information

Before preparing the construction plan and schedule, collect the weather forecast in recent years in this area and prepare the corresponding plan. Collect data in real time and adjust the operation plan through the meteorological station set up on the construction site. At the same time, require the supervision organisation to appoint professionals on site to sample raw materials in time and carry out flaw detection and inspection on welds.

Apply intelligent patrol inspection to assign rescue tasks

Leveraging AI lens intelligent inspection with 24-hour manual uninterrupted video patrol inspection, the customer service centre proactively discovers special situations of road traffic in a timely manner and directly assigns rescue tasks to rescue units, road administration personnel, maintenance personnel and traffic police departments through one-key assigning function of "road network monitoring and command and dispatching system".

Predict weather changes and prepare in advance

Co-operate with traffic police, road administration, maintenance, traffic engineering and other departments, pay close attention to weather changes and disaster warnings issued by meteorological departments, appropriately increase patrol density, and ensure the safety and smoothness of expressways under severe weather conditions. Before the arrival of extreme weather, increase the number of rescue vehicles, carry out hidden danger investigation, increase road patrols and reinforce pavement, cut down some trees, etc. In addition, enhance information linkage. According to the weather forecast, the customer service centre timely releases road traffic information through Weibo, WeChat official account, traffic radio and other channels, guides the vehicles to make travel scheme in advance and gives full play to information guidance, to ensure highway accessibility and high-efficiency operation.

For special periods, strengthen key protection

When typhoon and flood season comes, start emergency plan, conduct comprehensive investigation of potential safety hazards, strengthen patrols, and reserve enough emergency materials and emergency vehicles.

Install necessary facilities to reduce risk probability

To prevent the harm caused by lightning, install lightning rod and grounding device in the main plant, and install lightning protection grid on the whole roof. The biogas pipeline is also equipped with lightning protection and anti-static grounding devices. The buildings in the plant area are fortified according to the earthquake of Grade 6, with the seismic grade of structural frame as Grade 2 and shear wall as Grade 3.

Develop energy conservation and emission reduction and respond to policy changes

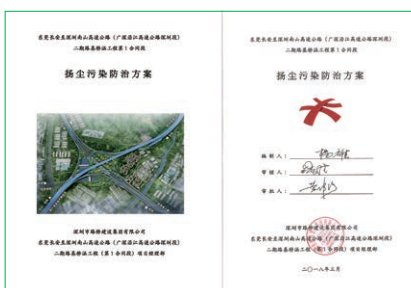
By adopting various energy conservation and emission reduction measures and investing in new energy industries such as photovoltaics and kitchen waste utilisation, meet the requirements of energy conservation and emission reduction and green transformation policies to reduce policy risks.

Ecological Environment Protection

Shenzhen Expressway adopts a series of measures against dust, noise and emissions to minimise their environmental impact during construction. For example, we reserve a special fund for the prevention and control of dust pollution in the project cost, and compulsorily require construction units to take responsibility for prevention and control of dust pollution. We also erect soundproof screens to rectify the road surface to reduce construction noise and reduce the noise impact on surrounding residents, and take effective pollution control measures to limit emissions of exhaust gas and wastewater, and waste discharge.

Dust Control

Shenzhen Expressway requires each construction section to formulate a *Special Plan for the Prevention and Control of Dust Pollution* to strengthen the prevention and control of dust pollution, and organises various projects to promote the recycling of discarded soil, construction waste, pile foundation slurry, etc. All projects under construction actively adopt ecological, environmentally friendly, energy-saving and efficient construction techniques, and clarify the principle of “three concentrations”³, to reduce the pollution to the atmosphere during the operation process, and strictly implement seven 100% measures for dust control⁴, and maintain regular management.



► Prevention and Control Scheme of Dust Pollution in Phase II Shenzhen Section of Coastal Expressway

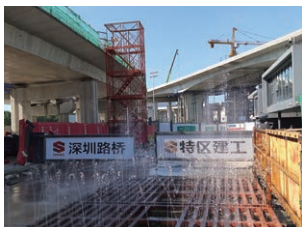


► All projects are enclosed with construction fences and external frames



► All entrances and exits and roadways are hardened

seven 100% measures for dust control



► All entrances and exits are equipped with washing facilities



► All dust-prone work surfaces are constructed with a wet approach



► All exposed soil and dust-prone materials are covered



► All entrances and exits are equipped with TSP online monitoring equipment

- 3 We implement closed production of rebar processing plants, concrete mixing plants and asphalt mixing plants.
- 4 All construction retaining walls and outer frames are fully enclosed, dust-prone working surfaces all treated with wet construction, exposed soil and dust-prone materials fully covered, accesses and roadways totally hardened, and accesses fully equipped with washing facilities and TSP on-line monitoring equipment. These measures are implemented in all construction sites.

Noise Control

Shenzhen Expressway has always paid attention to noise pollution. We have adopted the principle of “three concentrations” to implement closed production of rebar processing plants, concrete mixing plants and asphalt mixing plants to reduce the noise and air pollution caused by construction. We urge construction units to implement noise reduction measures in accordance with the *Technical Specification for the Prevention and Control of Noise Pollution from Construction Projects*, such as the “eight musts”⁵ to reduce noise pollution.

Traffic noise problem

- We add no-honking signs on relevant sections and soundproof screens along the expressway;
- For some sections with serious surface damage, potholes, and other problems, we carry out road rectification work such as finish layer of relevant sections.
- The upper layer of the expressway pavement is equipped with modified asphalt SMA-13 noise-reducing pavement⁶ structure.

Construction noise problem

- **Design phase:** The main noise sources are placed far away from the office areas and residential areas, the noise threshold limit requirements are set when equipment is purchased, noise-reducing facilities such as mufflers, sound insulation covers and flexible hoses are installed for high-noise equipment, and buildings and green belts in the plant are fully utilised to reduce noise.
- **Construction phase:** We reasonably arrange the construction time, and prohibit construction at noon and at night.
- **Construction process:** We choose low-noise machinery, reasonably arrange the location and working time of construction equipment and avoid concentrating the use of many power machinery equipment at the same time. We try to keep construction machinery and equipment away from noise-sensitive objective as much as possible and carry out certain isolation and noise proof and reduction treatments to reduce the impact of construction noise.



► Mass Reception Points at the Construction Site



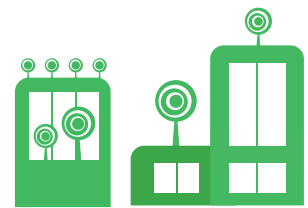
► Noise monitoring and Acoustic Fencing



► Installation of Acoustic Fencing along the Construction Route



► Noise Reduction Measures such as Vibration Damper Plates, Rubber Tyre Machinery and Equipment



- It is essential to do a good job in receiving visits from the masses, communicating with the affected people, making public announcements, carrying out continuous construction according to applicable laws, implementing various sound insulation and noise reducing measures, planning the construction schedule scientifically, strengthening the publicity and education of civilised construction and improving the on-line monitoring network.
- Stone Mastic Asphalt (SMA) is a new kind of asphalt mixture, and the test result indicates that the internal damping and road texture of SMA make the road attenuation tire vibration capability of SMA distinctly better than that of ordinary roads.

Noise Reduction Input of Shenzhen Expressway Operation Development Company in 2022

The milling project can effectively remove damaged loose parts of old pavements, ensure driving safety and reduce noise. In 2022, the total amount of pavement milling

works of the Operation Development Company was **159,250.48** square

metres, with a total investment of RMB **29.15** million.

The amount of milling works on straight sections of roads was **95,728.73**

square metres, with an investment of RMB **1,853,700**.

The milling works on escrowed sections amounted to **63,521.75** square

metres with an investment of RMB **10.6** million.

In 2022, a total of **766** metres of soundproof screens was installed on straight sections of roads.



Emissions Management

In strict accordance with the Law of the People's Republic of China on the Prevention and Control of Atmospheric Pollution, Water Pollution Prevention and Control Law of the People's Republic of China and other laws and regulations, Shenzhen Expressway has formulated internal management systems such as Sewage Operation Regulations and Desulfurisation System Operation Regulations and taken effective pollution control measures to regulate and reduce its waste discharge and environmental pollution.

Waste Gas Treatment Measures

Kitchen waste treatment

- The desulfurised and purified biogas is used for combustion to generate electricity, and the waste gas generated from combustion is discharged at high altitude according to the local air pollutant emission standards.

Battery ecological industry chain management

- The "spray tower + two-stage activated carbon" process is used for collecting and treating dusty waste gases.
- To treat odor in the workshop caused by a large amount of smoke and waste gas generated in the process of cutting and disassembling scrapped new energy vehicles and fuel vehicles, the wet dust removal method, i.e., "cyclone spray tower + activated carbon adsorption" process was adopted.

Project construction management

- At the exit of the construction site, set up facilities for washing vehicles.
- The road on the construction site shall be cement or hardened pavement, and the bare soil covering film, closed cement warehouse, material processing shed, fog gun machine and spray system are adopted to effectively prevent the dust on the construction site.
- Supporting installation of automatic instrument for monitoring total suspended particulate matter.

Wastewater Treatment Measures

Kitchen waste treatment

- The process of “anaerobic + MBR (Membrane Bioreactor) system + nanofiltration + reverse osmosis” is adopted for sewage treatment.
- Online monitoring devices were installed to monitor the pollutant concentration at the sewage outlet.

Battery ecological industry chain management

- The “pre-sedimentation and oil removal + air flotation + sand filter” process was adopted for wastewater treatment.
- The treated effluent flew to the discharge metring channel by itself.

Project construction management

- Set up mobile toilets, wastewater sedimentation tanks and oil separation tanks on the construction site, and part of the treated wastewater shall be recycled.
- The construction wastewater that cannot be recycled is transported to the municipal sewage treatment plant for treatment by the closed suction-type sewer scavenger.
- If the construction site is in the section of water source protection zone, it is installed intercepting ditch and sedimentation tank on one side of the reservoir nearby to collect and divert the wastewater generated during construction.

Waste Treatment Measures

Solid waste

- Adopt the management mechanism of “whoever produce shall take full responsibility”;
- Actively explore new ways of handling residues, such as industrial co-operation with the farming industry to use residues as feed;
- Adopt the full feed anaerobic technology to increase biogas output and reduce the production of residues.

Domestic waste

- Control recyclables, non-recyclables, hazardous waste and kitchen waste by category.
- Regularly transport waste to the local waste disposal station for disposal.

Hazardous waste

- Hand over to a third party qualified to transfer hazardous waste for disposal.

Pollutant Emission Data of Shenzhen Expressway in 2022

Pollutant type	Unit	2022
Hazardous waste	kg	9,142
Hazardous waste density	kg/million revenue	0.98
Non-hazardous waste	ton	95,612
Non-hazardous waste density	ton/million revenue	10.2

Pollutant type	Unit	2022
Total air pollutant emissions	kg	6,390
NO _x emissions	kg	4,601
SO _x emissions	kg	1,630
Particulate emissions	kg	158
Air pollutant emission density	kg/million revenue	0.68
Total chemical oxygen demand	ton	245
Total wastewater discharge	ton	941,867
Wastewater discharge density	ton/million revenue	100.49

Benchmarking on Year 2021, we expect

- to reduce hazardous waste generation per million RMB revenue by **3%**;
- to reduce non-hazardous waste generation per million RMB revenue by **3%**;
- to reduce air pollutant emissions per million RMB revenue by **3%** in 2024.

Real reduction in waste generated per million RMB revenue by **25.02%** in 2022.

Due to the office relocation of headquarters and its subsidiary in 2022, the Construction Company, the data may have significant change from 2021, so the headquarters and the Construction Company were not included in the environmental target for 2024. The setting scope of environmental targets only includes Environmental Company, Operation Development Company, Yichang Company, New Energy Company, Shenchang Companies, Qinglian Companies, Investment Companies, and Qinglong Company.



Ecological Restoration

Shenzhen Expressway puts a new premium on the impact of its business on the surrounding ecological environment and community life. We strictly abide by the *Regulations on Environmental Protection Management of Construction Projects* and other laws and regulations and industry regulations, and have internally formulated the *Third-Party Monitoring Management System* and the *Interim Measures for Basic Safety Requirements for Construction Projects*, which regulate the workflow and operational specifications of each operation link. Environmental protection measures are implemented in strict accordance with the requirements of the EIA report, and the withdrawal and disposal sites were backfilled and restored with vegetation, and have been approved by the Environmental Protection Bureau to form an EIA closure. Meanwhile, we regularly build vegetation along expressways, at interchanges and in toll station areas, and strengthen routine greening maintenance management. All projects continue to carry out landscape greening works to achieve harmony between roads and the environment.



› Ecological Environment Around the Highway

In 2022

0 incident recorded for causing large-scale damage to the surrounding ecological environment and national protected wildlife.



QUALITY ENGINEERING THROUGH VALUE CREATION

03

Shenzhen Expressway adheres to fulfilling the mission of “building high-quality infrastructure and serving a better life in the city”, keeps a tight grip on safety and strictly controls project quality. With advanced and intelligent operation and maintenance technology, rich experience in road safety management and intimate and convenient services, we constantly create comfortable driving experience, and ensure the safety of roads, employees and related parties to promote the development and progress of regional transportation and economy.

Key Performance

Signing rate of the safety
responsibility agreement

100%

Vehicle rescue
services

3.41_{10,000 times}

Existing patents
granted

356_{Nr.}

Investment in research and
development innovation

RMB 46.48_{million}

Prompt handling rate of
justified complaints

100%

YOY change

+8%

YOY change

+6.9%



Keeping a Tight Grip on Safety

Shenzhen Expressway focuses on ensuring road safety and strictly abides by the laws and regulations such as the *Law of the People's Republic of China on Work Safety*, the *Highway Law of the People's Republic of China* and the *Regulations on Quality Management of Construction Projects*. Adhering to the principle of "safety first, prevention crucial, comprehensive governance" in the project construction, work safety is put in the first place of project management, and the relevant requirements of safety management are fully implemented.

Safety System

In accordance with the *Measures for Administration of Emergency Response Plan for Work Safety Accidents*, and *Guidelines of Standardisation of Corporate Work Safety* (GB/T33000-2016) and other laws, regulations and norms, Shenzhen Expressway has improved a series of safety production management systems such as the *Corporate Safety Management Procedure*, *Emergency Response Management Procedure for Work Safety* and *Safety Training Management System*. In this way, we regulate various elements of work safety management and ensure the implementation of various work safety tasks with strict standards.

Work Safety Management Structure

Shenzhen Expressway continues to improve its four-level work safety management structure, which from top to bottom consists of the Work Safety Committee (hereinafter referred to as the "Safety Committee"), the Work Safety Committee Office (hereinafter referred to as the "Safety Committee Office"), the Safety Supervision Department, and all subsidiaries. The Chairman as the Safety Committee director, is responsible for establishing and improving the Company's safety management organisation and leading the Company's work safety management and supervision work. The head of the Safety Supervision Department is also the head of the Safety Committee Office, implementing the work requirements of the Safety Committee and carrying out comprehensive supervision and management of the Company's work safety.



Work Safety Responsibility Assessment

Shenzhen Expressway has established a sound work safety responsibility system for all staff, conducted a work safety management network from the management organisation to the frontline team, and clarified the work safety responsibilities of departments and practitioners at all levels. The Company revised the *Standardised Assessment Criteria for Work Safety*, intensified the assessment of the implementation of work safety responsibility for the main persons in charge, persons in charge and the main business departments and conducted regular assessments of the appropriateness and performance of their responsibilities. We continue to implement the safety risk collateral working mechanism, linking the safety performance of key management personnel to their salary income, carrying out responsibility implementation assessment, and supervising implementation by assessment. In addition, the Company has also invited a professional third party to carry out inspection on the implementation of the assessment items to test the effectiveness of the system operation of each unit and the implementation of the safety management responsibilities of personnel at all levels.

Dual-prevention Mechanism Establishment

Following the principle that "each risk is managed by a dedicated person, and different levels of risks are managed at different levels", Shenzhen Expressway continues to construct a dual-prevention mechanism. We have established a list of hazard source identification and evaluation and a list of job risk identification and control responsibilities, identified hazard sources, and clarified risk classification and control measures to guard against risks in the early stage, and strengthen prevention beforehand. We have formed a special study work programme for key operations and key risk points and a work programme for the identification and management of safety hazards to ensure that on-site operations are standardised.

established a list of control responsibilities for each position, a four-colour chart of risks and a list of hidden dangers in a total of more than

20 copies

We identified

3 major risks

10 greater risks

100-plus general and minor risks

gave **312** suggestions on safety control measures, and

achieved a **100%** rectification rate of hidden risk.



Safety Operation

In 2022, we identified, acquired and used 10 relevant laws and regulations, including the latest *Law of the People's Republic of China on Work Safety* and the *Compilation of Emergency Operation Instructions Manual of Shenzhen Transport Bureau (Draft for Comments)*, clarified the awareness of safety responsibilities for all the employees, and strengthened the construction of the rules and regulations for the standardised system of work safety and the constraints on rights granted by the law ensuring all employees performed their respective duties earnestly.

More than 6,000 safety production responsibility agreements were signed by all employees, including main persons in charge, persons in charge and heads of departments, forming a level-by-level management and implementation pattern to ensure that safety management is put into practice. In 2022, the Company did not have any work safety accidents and achieved the goal of "zero casualties" in work safety.

● Case | Yichang Expressway carried out snow removal and obstacle clearing work to ensure smooth traffic flow.

Hunan Yichang Expressway Development Company Limited (hereinafter referred to as "Yichang Company") held a joint meeting for safe and smooth traffic of Yiyang-Changde Expressway (hereinafter referred to as "Yichang Expressway") during the 2022 Spring Festival with the traffic police bureau, maintenance and rescue organisations under the local jurisdiction, set up an emergency team to remove ice and snow, and went to the scene at the first time to carry out preventive snow-melting agent spreading and road clearance work, timely removed the snow and ice and set up warning signs while directing traffic dispersion at congestion-prone sections to ensure safe and smooth traffic at all times.

- A total of **9** de-icing operations were carried out
- More than **70** tons of snow-melting agent were dispersed
- Assistance was provided to cope with **4** traffic accidents
- More than **40** safety facilities were erected



► Joint Meeting for Safe and Smooth Traffic



► The toll station organised volunteers to clean the snow in time.

● Case | Qinglian Expressway carried out flood control and emergency rescue work to ensure traffic safety.

Most areas of Guangdong Province were hit by the “dragon boat water” since June, which was the strongest flood season in recent years. Several rivers in the Pearl River Basin continuously exceeded the warning water level and the main stream of Beijiang River was at its worst flood in a hundred years, causing a tremendous flood control pressure. Staff of all business departments of Guangdong Qingyuan-Lianzhou Expressway Development Company Limited (hereinafter referred to as “Qinglian Expressway”) took actions immediately:

📍 Held a on-site meeting for flood control and emergency rescue

👤 Set up a flood control rescue team composed of Party members

❤️ Organised young volunteers to participate in logistical support services

🕒 Implemented a centralised 2-hour reporting mechanism for on-duty officer

- A total of **470** people went to the front line for flood control and rescue
- with the aid of **42** excavators,
- **18** loaders,
- and **148** transport vehicles,
- effectively avoiding traffic safety accidents caused by extreme rainstorms.



› A meeting on flood control and emergency rescue.



› Clearing road obstacles.



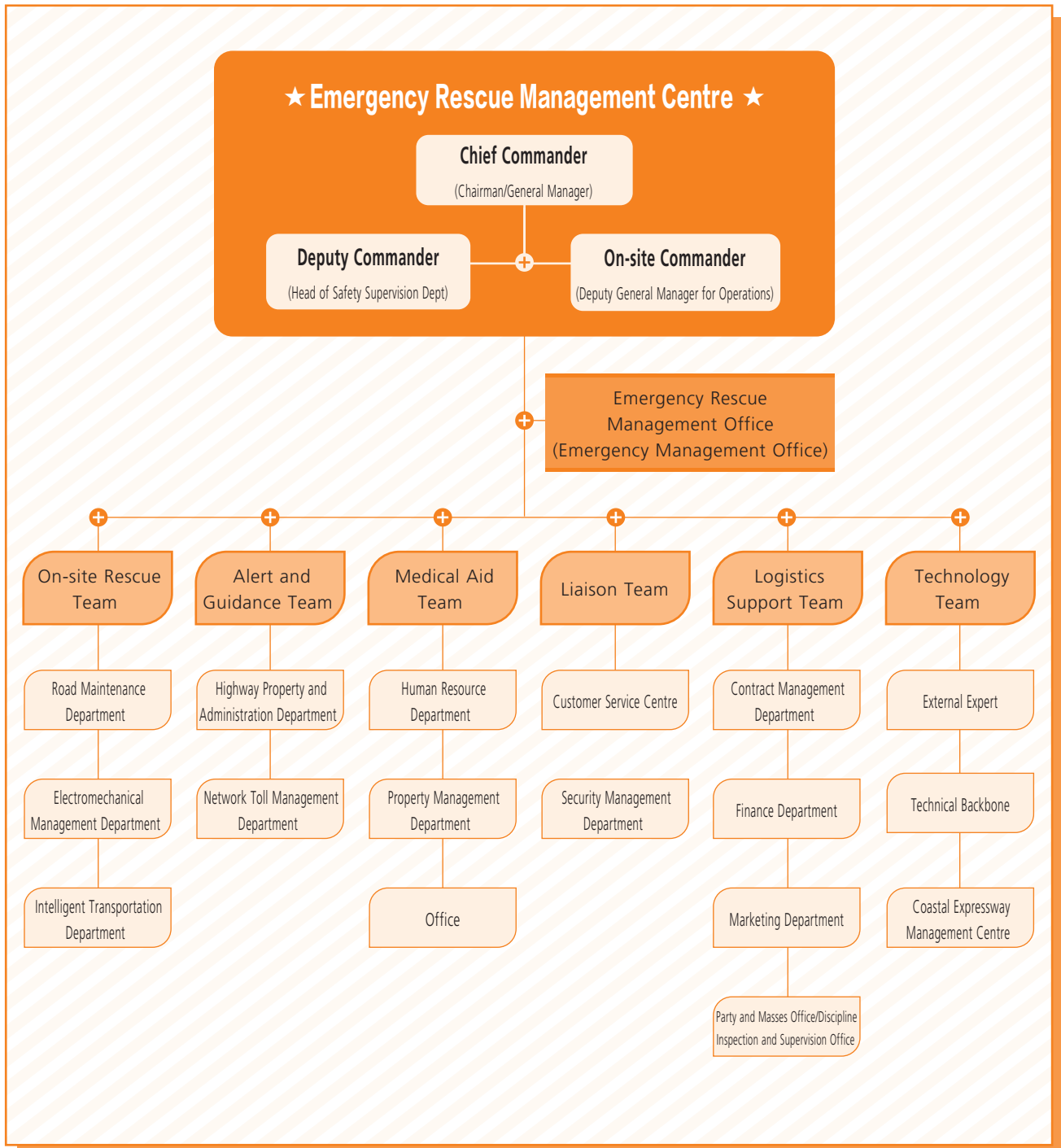
› Monitoring by videos



› Identifying potential hazards.

Emergency Response

The *Production Safety Accident Emergency Plan of Shenzhen Expressway Operation Development Company Limited*, was launched this year, clarifying the safety responsibilities and task requirements of the safety emergency organisation, and formulating special emergency plans and on-site disposal plans. We also organised drills according to regulations and did a good job in accident prevention to ensure the safety of the Company's production and operation.



▲ Organisation Chart of Emergency Rescue for Production Safety Accidents

Strictly Control Project Quality

Focusing on the construction concept of “project quality, safety essence, architectural art, construction assembly, operation intelligence and environmental friendliness”, Shenzhen Expressway continues to provide high-quality projects. The Company has passed the ISO9001 Quality Management System Certification.

Quality Management

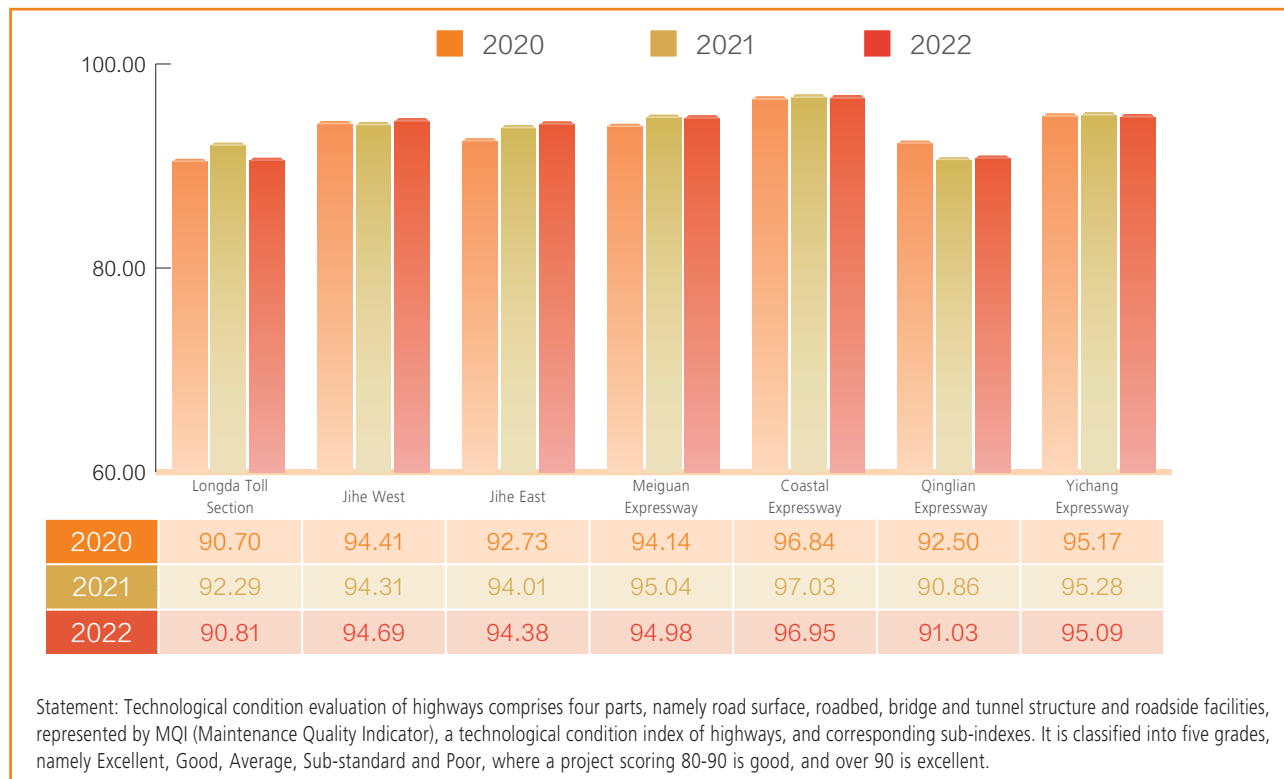
Shenzhen Expressway is committed to building high-quality infrastructure. According to the *Law of the People's Republic of China on Work Safety*, *Guidelines for Work Safety Standardisation of Maintenance Department* and other laws, regulations and industry regulations, we have established the *Manual for Work Safety Management of Road Maintenance Department*, and the *System for the Potential Hazard Investigation and Management of Highway Maintenance Department*. We implement a scientific quality management system and technology to ensure the quality and safety of projects.

In 2022, Shenzhen Expressway refined the comprehensive plan for annual quality management inspection, summarised key regulatory control points, and expanded the scope of quality supervision and inspection. We established a quality control system covering the whole process of project pre-planning, engineering design, engineering bidding, material monitoring, construction, project operation and others, and carried out quality inspections at key points of projects. During the reporting period, we organised 2 comprehensive inspections and 8 special inspections for 15 construction projects and there was no major quality incident in all projects in 2022.

Meanwhile, we continued to increase investment in road maintenance, carried out a complete investigation for maintenance sections, put forward targeted preventive maintenance plans for the whole operating period, and implemented regulation measures against road diseases. During the reporting period, the indices of technical conditions of each expressway managed by the Company were graded as “Excellent”.



ISO9001 Quality Management System Certification



▲ Maintenance Quality Indicator (MQI) of Sections Operated by Shenzhen Expressway

In March 2022, the patent application for the comprehensive management platform of standardised electromechanical operation and maintenance developed by Shenzhen Expressway using AR technology was approved, indicating that the electromechanical maintenance personnel turn paper records into multi-dimensional digital records by wearing AR glasses to identify maintenance difficulties quickly. After the platform is put into use, the error handling time is reduced to less than 1 hour, and the annual labour cost is decreased by about RMB100,000, effectively improving the mechanical and electrical inspection efficiency and maintenance effect of expressways.



Unblocked traffic is key to the high-quality development of local economy and society. Shenzhen Expressway actively explores a variety of measures. Amongst others, we apply advanced intelligent control technology to improve the operation monitoring, operational management and controlling and emergency management capability of key sections, so as to create orderly and safe expressways with unblocked traffic flows and improve the travelling experience of drivers and passengers.

Shenzhen Expressway actively builds a "road network monitoring, command and dispatching platform" to scientifically predict possible traffic flow increment, roundtrip peak, peak traffic flow period and other important data at key toll stations, so as to guide toll stations to open lanes and prepare emergency resources. We strengthen the application of operation monitoring results and use new media such as traffic radio, WeChat, Weibo and message board to release traffic flow monitoring data of expressways timely to improve the accuracy, timeliness and practicality of travel information services.

Shenzhen Expressway launches a new traffic management model of "active early intervention" to predict the congestion based on the road network operation monitoring data, and coordinate the traffic flow in advance with intelligent dynamic algorithms and control strategies to relieve road congestion and improve traffic efficiency.



Traffic Management Model of “Active Early Intervention”

This model focuses on building six active traffic control scenarios.

- 1 Ramp control** to manage signal lights at the entrance and exit ramps through ramp control to reduce or eliminate expressway traffic congestion, reduce the accident rate and the total travel time, and use the road capacity effectively.
- 2 Dynamic toll adjustment.** A dynamic adjustment plan of expressway toll is formulated and dynamic adjustment of the toll rate for vehicles entering and leaving Shenzhen is practiced to transform the control mode from single passive dispersion to two-way control of both source and flow.
- 3 Speed limit** by lanes to limit the traffic speed of each lane through the front-end lane’s dynamic speed limit device to balance the traffic pressure of each lane and ensure traffic stability.
- 4 Dynamic truck** management to manage traffic lanes and running speed of trucks dynamically according to the real-time monitoring data of trucks, thus ensuring traffic safety and efficiency.
- 5 Coordinated information control** of surrounding road networks to generate automatic production optimisation schemes for signal timing dial based on real-time monitoring and simulation deduction to adjust regional traffic volume of peak hours and holidays, and to ensure the smooth and orderly operation of main lines and surrounding road networks.
- 6 Post-evaluation of control schemes.** Based on accumulative control data, various control schemes are evaluated quantitatively combining with the control effect and traffic operation to achieve continuous iterative optimisation.

Road Emergency Rescue

Shenzhen Expressway has formulated the *Measures for Processing of Highway Rescue Information* in strict compliance with the *Service Standards and Operating Procedures of Guangdong Province for Vehicle Rescue on Expressways*, which specifies the relevant responsibilities of toll stations, Highway Property and Administration Department, and Customer Service Information Department, and lists the procedures for required rescue in detail.

With the customer service centre as the hub, we set up a triparty mechanism for each expressway with the traffic police bureau and the Road Administration to exchange information with each other. The centre and the Road Administration manage the on-site and video patrol work and co-operate with the traffic police bureau to provide road rescue services for car owners actively and ensure the normal traffic order. Rescue vehicles are available around the clock. We arrange vehicles to carry out rescues on key traffic points based on the actual situation, and transfer vehicles with malfunctions and accidents to make expressways safe and unblocked.



➤ Road Rescue Service

In 2022, the Company equipped

105 professional rescue personnel

regular rescue sites

19

trailers and other devices

62

Offered

2,599 rescue services for traffic accidents and vehicle failures

Barrier clearance

69

The proportion of arriving at the scene within 20 minutes reached

more than **90** %

The average time spent on arriving at the scene was

about **13.6** minutes

Promote Innovation Technology

Innovative Construction Technology

Based on the *Measures on Further Advancing the Technical Innovation of Expressway Engineering (Draft for Comments)*, Shenzhen Expressway proposes to increase investment in the basic theoretical research of expressway engineering, applies new materials, new processes, new technologies and new equipment continuously, and provides technical support to make expressway facilities safer and more durable.

We strengthen the protection of our own intellectual property rights and ensure that we do not infringe on the intellectual property rights of others. In 2022, we had 356 patents of which 29 were granted this year. During the reporting period, there was no infringement on intellectual property rights.

● Case | Shenzhen Expressway won the second prize of the "Science and Technology Award of Guangdong Province Highway Society"

On June 23, 2022, Guangdong Province Highway Society announced the list of the Third "Science and Technology Award of Guangdong Province Highway Society". The "R&D Project of Glass Fibre Reinforced Concrete Bridge Guardrail" of the Outer Ring Expressway declared by the Construction Company won the second prize. It marks the first time to use glass fibre reinforced polymer rebars instead of steel bars in concrete guardrails, which improves the cost-effectiveness and durability of concrete guardrails.

➤ Shenzhen Expressway won the second prize of the "Science and Technology Award of Guangdong Provincial Highway Society"



● Case | A number of innovative technologies of Shenzhen Expressway were granted national patents.

In 2022, Shenzhen Expressway invented a number of innovative technologies granted national patents such as a new viscous damper technology and a horizontal/vertical node plate bolt anti-falling device. These new technologies provide solutions to many construction problems, support project construction effectively to further improve the comprehensive strength of our infrastructure construction and provide replicable experience for similar construction projects in China.

➤ Utility Model Patent Certificates



Build Intelligent Expressways

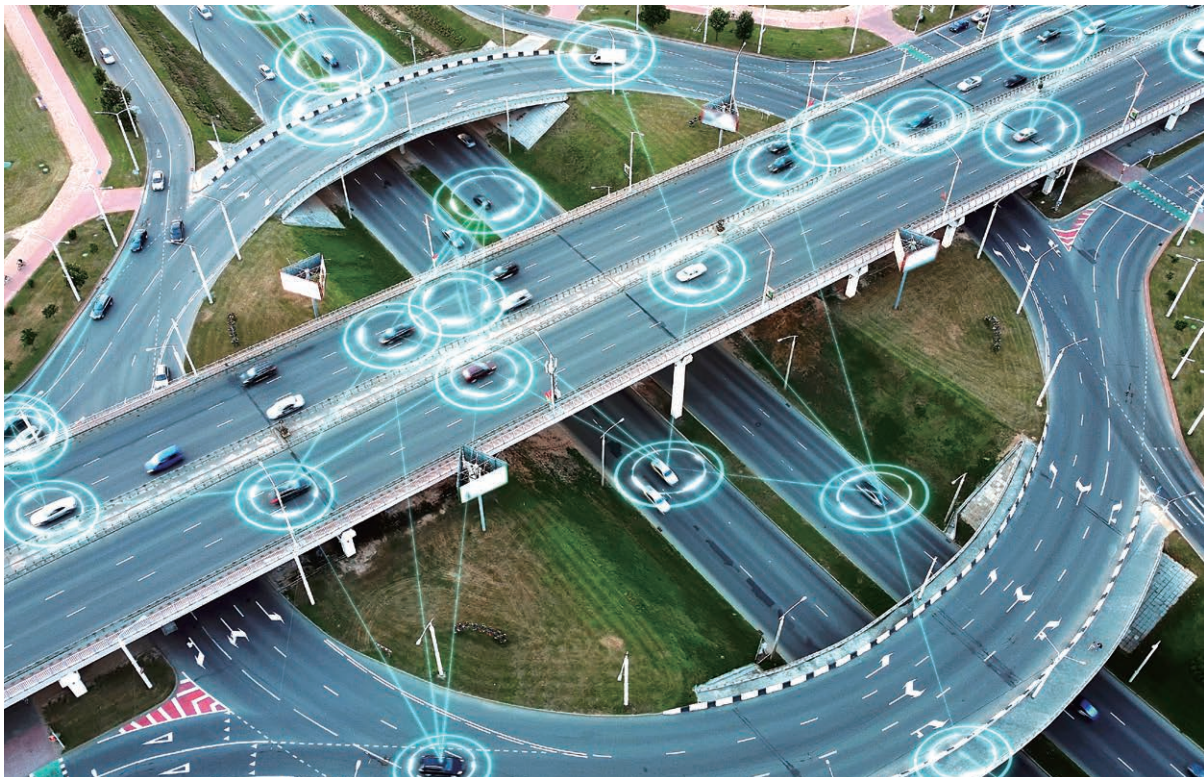
Shenzhen Expressway strictly complies with national and local laws and regulations such as the *14th Five-Year Development Plan of Digital Transportation*, the *Action Plan for New Infrastructure Construction in Transportation Field (2021-2025)*, and the *Guide for Guangdong Intelligent Expressway Construction (Trial)*. Keeping up with the development trend of the new infrastructure era, intelligent means such as 5G, big data and artificial intelligence are adopted to promote transportation development, encourage and support all affiliated enterprises of the expressway business segment to explore and further improve the ability of digital application and technological innovation and application in a new way, and implant intelligent technologies into our traditional expressway projects to improve the operation and management capabilities of expressways.

In 2022, Shenzhen Expressway took further measures to improve the soft power of project construction. Based on the BIM integrated operating management and control platform, we maintained expressways in a digitalised, standard, intelligent and efficient way through big data processing. During the reporting period, the total distance of expressways on the platform was 130.51 kilometers, and a total of 1,507 bridges, culverts, tunnels and slopes was recorded.

● Case | Build China's first intelligent expressway based on digital twins

As a part of the national Shenyang-Haikou Expressway, Jihe Expressway spans across the east-west traffic artery of Shenzhen with a total length of 41 kilometers and a design speed of 100 kilometers per hour. With the rapid development of Shenzhen in the past 20 years, the average daily maximum cross-section traffic volume of Jihe Expressway reaches up to 160,000 standard vehicles, with an average daytime running speed of about 50 kilometers per hour. Traffic congestion has become a common case there and has seriously affected citizens' travel experience and urban development.

Shenzhen Expressway proactively explored the three-dimensional composite reconstruction and expansion mode of expressways, comprehensively built Jihe Intelligent Expressway based on the digital management mode of full life-cycle infrastructure and intelligent means such as digital twins, online simulation, 5G, big data and artificial intelligence. During physical project construction, we also built a virtual project with full time and space perception, full factor connection and full cycle iteration, forecast and analysed the changing trends of investment, progress, safety, quality and maintenance. In this way, "traceable past, perceptible present and predictable future" are realised, the pain points and difficulties in construction and operation management addressed and the traffic efficiency, emergency capability and user experience effectively improved.



Enhance Customer Perception

With the rapid development of expressway construction and operation management, demands for additional services of expressways are growing. In response, Shenzhen Expressway continues to optimise the landscape ascension, upgrade the service quality and operation management of toll stations and service areas, increase the intensity of attention and investment in brand building and information security to build a leading professional brand of expressway services and enhance the sense of safety, happiness and satisfaction of drivers and passengers.

Travel Experience

In line with the customer philosophy of “sincere companionship and win-win growth”, Shenzhen Expressway focuses on road landscape design, service area optimisation and toll station optimisation to enhance the travel experience of customers from multiple aspects.

Road Landscape Improvement

Shenzhen Expressway continues to upgrade green landscape to create a more comfortable travel environment for drivers and passengers. Green belts play an important role in harmonising roads and surrounding environments. We integrate natural factors and humanistic factors into landscape design to achieve a more dynamic and richer landscape effect.

● Case | Landscape improvement design of the Outer Ring Expressway

We followed the principle of “the harmony and unity of humanity, ecology and nature” to design the Outer Ring Expressway. Green belts are adopted alternately with purple rhododendrons and African jasmine to create an ecological corridor with diversified colours and rich levels. With the landscape design of perpetual flowers, with shrubs at the top and arbours at the bottom the humanistic quality is improved.



› Median Strip (Purple Rhododendrons)



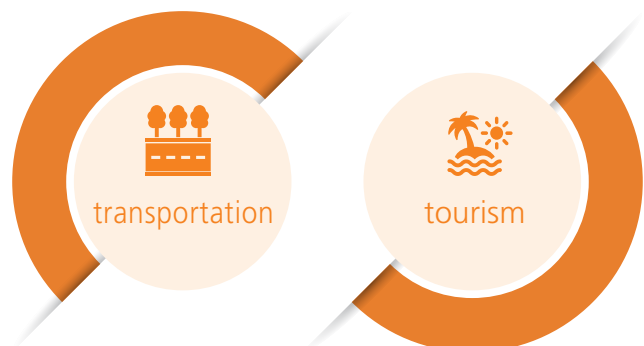
› Median Strip (African Jasmines)



› Landscape Improvement of Grilles and Slopes

Service Area Optimisation

The service area is an important place for drivers and passengers to take rest and an important platform of transportation to serve the public. We conscientiously implement the policy requirements of the *National Highway Network Planning*, reasonably define the functional orientation of each service area, and expand functions of service areas. We organically integrate service areas with characteristic culture and surrounding landscape according to local conditions to promote the integrative development of “transportation + tourism”. In the planning layout of service areas, we take the needs of underprivileged groups and the disabled into full consideration and build “homes of drivers”, nursing rooms, wheelchair accessible and barrier-free unisex toilets to make drivers and passengers experience a stronger sense of belonging.



● Case | Upgrading and reconstruction of Taizimiao Service Area of Yichang Expressway

In December 2022, Taizimiao Service Area was put into use after renovation. Now, it becomes a comprehensive commercial body dominated by tourism equipped with perfect supporting business projects, effectively improving the rest and entertainment experience of tourists. We built new public toilets and improved sanitary facilities there, and now the toilets there are bright, clean and fresh equipped with warm water hand-washing and children's hand-washing facilities, disinfectants, hand sanitisers and hand dryers. With these humanised facilities, drivers and passengers truly feel the convenience of expressway travel.



► Unisex Toilets after Renovation

Toll Station Optimisation

Shenzhen Expressway took active measures to improve the service quality of toll stations. In 2022, a total of 14,000 ETC devices were put into service to increase the traffic efficiency.

Measures to Optimise Toll Station Services in Shenzhen Expressway



acknowledge the importance of the promotion and application of the Electronic Toll Collection System (ETC), to reduce the traffic congestion and time-consuming problems at toll stations due to toll collection and payment.



add duplex lanes and mobile toll devices, and watchmen of ETC lanes at toll stations to deal with ETC special vehicles and maintain a good traffic order.



implement the management measures of "separating passengers and goods" at toll stations, and strengthen the project construction of freight toll stations and supporting facilities, to guarantee smooth freight logistics.



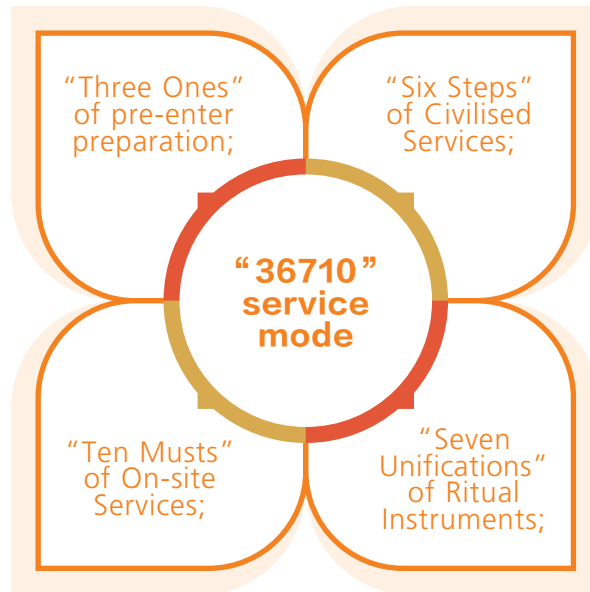
► Guanlan Toll Station



► Excellent Service

Brand Building

In line with the customer philosophy of “sincere companionship and win-win growth”, Shenzhen Expressway has created a service brand system with regional and industrial characteristics, with the “36710” service standard model as the core based on more than 20 years of exploration, conclusion and development practices. In 2022, we revised the “36710” Quality Service Manual and launched an 18-day touring demonstration of quality service in charging windows to comprehensively improve the civilised service level of front-line employees and consolidate a good brand image.



Information Security

Shenzhen Expressway has always focused on protecting the information security of our customers. In terms of posts involving customer information, we sort out the status quo of the OA system role permission of the whole Group every year, strictly manage user registrations and operation permissions, and implement strict authority approval process for special access permissions, to reduce the risk of wrong operation and information leakage. In 2022, we revised our *Management Procedures for Information System Network and Data Safety* and *Emergency Plan for Network and Data Safety Accidents*, further perfecting our information safety management system and ensuring network and information safety with preventive technical measures.

Customer Satisfaction

Shenzhen Expressway highly values customer comments and makes them a continuous driving force to propel business improvement and development. We have opened a 7×24 hotline for consultation, and collected customer opinions through on-site activities, website, media, letters and visits and other channels to provide them with unblocked complaint acceptance channels. After receiving a complaint, our customer service centre carries out incident investigation and feedback, post-event statistical analysis, improvement follow-up, return visit and other work according to the process. Thanks to this, we achieved a 24-hour completion rate of above 30%. We conducted annual customer satisfaction surveys, mainly for the expressways under Shenzhen Expressway’s jurisdiction in Shenzhen in 2022 and the survey included the three main aspects of impression, quality and service. 2,250 road user questionnaires were returned, approximately 300 received return visits by telephone, and 100 people from the government and relevant parties were surveyed. The customer satisfaction survey index was 94.84.

2,250 road user questionnaires were returned	100 people from the government and relevant parties were surveyed	Approximately 300 received return visits by telephone	The customer satisfaction survey index was 94.84
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BE PEOPLE-ORIENTED AND CONCERN ABOUT EMPLOYEES' GROWTH

04

Being people-oriented is the source of energy for Shenzhen Expressway. We thoroughly implement the "people-oriented" concept, constantly strengthen the construction of our employee right and interest system, highly value employees' safety and occupational health and build a growth platform and appropriate career development channels for them to pursue career development. Meanwhile, we carry out various caring activities to create a harmonious and loving work environment and achieve the common development of the Company and employees.

Key Performance

Newly recruited
employees

2,038 Person

YOY change

+1%

Total hours of
employee training

16,488 Hour

YOY change

+42%

Total person-times of employees in difficulty
supported by Shenzhen Expressway

46 Persons

YOY change

+142%



Employees' Rights and Interests and Welfare

Shenzhen Expressway strictly abides by the *Labour Law of the People's Republic of China*, *Labour Contract Law of the People's Republic of China*, *Law of the People's Republic of China on the Protection of Minors*, and other relevant laws and regulations. Moreover, Shenzhen Expressway has formulated several internal systems such as the *Employee Handbook* and the *Procedure for Management of Labour Contracts* to fully protect the legitimate rights and interests of employees in recruitment, promotion, salary and welfare, occupational health, democratic management, building and develop harmonious and stable labour relations.

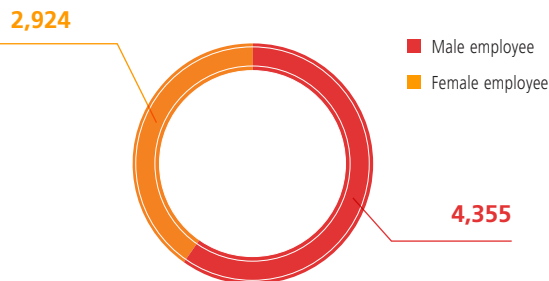
Diversified Employment in Compliance with Laws

Shenzhen Expressway attaches great importance to and guarantees the legitimate rights and interests of employees. In terms of recruitment, development, promotion and other human resources management, we adhere to the principle of equal treatment, do not treat any employee differently due to their gender, age, nationality, beliefs and other differences and provide every employee with equal employment and development opportunities, constantly making our workplace inclusive and our development sustainable.

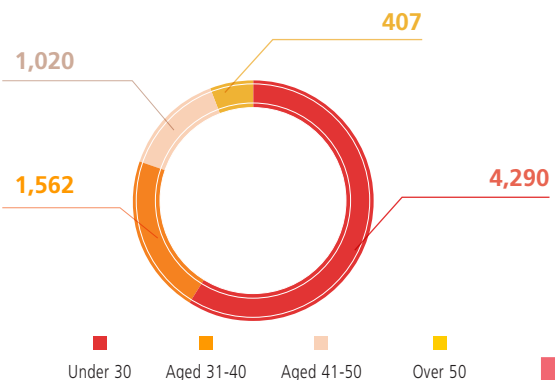
We prohibit the employment of child labour and forced labour in our recruitment process and business. We check the identity certificates of the candidates to ensure that they meet the age limit for employment and don't recruit any citizens under the age of 16, to eliminate any form of child labour and forced labour and avoid employment risks. In the employment process, if any employee is found to falsify or conceal his or her age, the Company will cancel the employment contract according to the law and deliver him or her to the guardian with the assistance of the police. In 2022, we had a total of 7,279 employees, and both the labour contract signing rate and the social insurance coverage reached 100%. We did not breach any laws and regulations relating to child labour and forced labour throughout the year.

In terms of the employment and protection of rights and interests of migrant workers involved in project construction management services and other industries, Shenzhen Expressway requires the contractors to pay the wage security deposit of migrant workers in advance, and strictly guarantees that the wages of migrant workers are paid in full and on time.

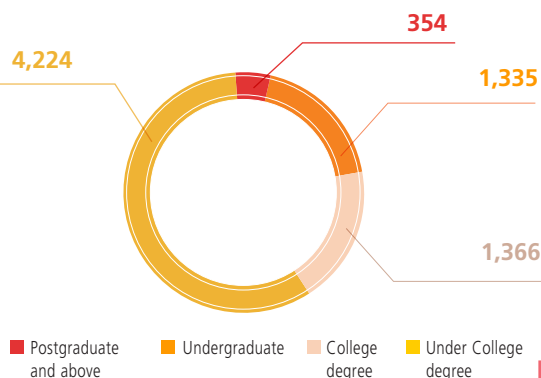
Number of new employees by gender



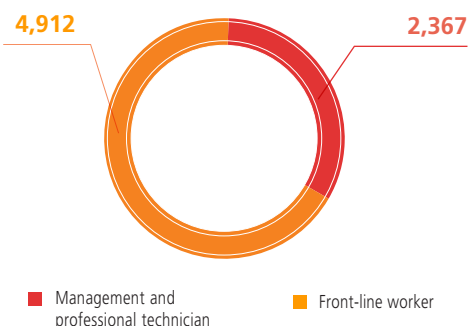
Number of employees by age



Number of new employees by academic qualification

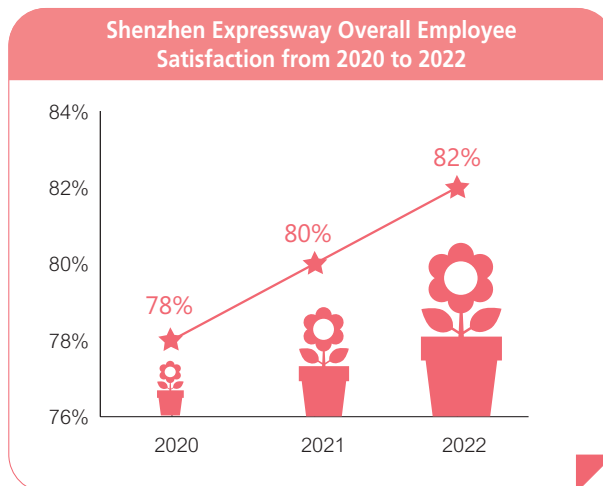


Number of employees by job function



Democratic Management and Communication

Shenzhen Expressway takes the initiative to communicate with employees, encourages them to fully participate in the Company's management through employee congress, employee symposium, employee satisfaction survey, opinion collection box and other ways, and signs collective contracts with them. We carry out employee satisfaction surveys annually from four aspects of job duties, job rewards, work team and corporate management, collect employees' opinions and suggestions to know well and respond to their demands based on survey results, and make constant efforts to improve our human resources management work. Since the launch of surveys, we have solved and kept following up frequent problems reflected by employees, such as our salary system and promotion channels. In 2022, our employee satisfaction increased to 82%.



Fair Remuneration and Benefits

In accordance with the national regulations and the market conditions, Shenzhen Expressway formulates the administrative measures for employee salary in line with its actual situation. Shenzhen Expressway determines the salary of employees according to the market value of positions and the comprehensive performance of employees, to reflect the Company's principles of "taking strategy, market and performance as the guidance and giving consideration to internal and external fairness". In 2022, all subordinate enterprises of Shenzhen Expressway established a performance appraisal system. A full coverage of performance appraisal and procedural performance appraisal process were achieved. The guidelines of the *Management Measures for the Compensation and Assessment of Senior Executives of Subordinate Enterprises* is issued to urged all subordinate secondary enterprises to formulate the *Management Measures for the Compensation and Assessment of Senior Executives of Subordinate Enterprises*.

Besides, the Company practiced an internal welfare policy. In addition to the basic benefits such as social security packages and housing provident fund and paid annual leave, we also provided qualified employees with internal benefits such as enterprise annuity, supplementary medical insurance and commercial insurance to let them share the Company's development achievements. In 2022, all employees have been covered by the Mutual Aid Security Plan for Employees in Shenzhen and 49 employees have apply for the subsidy for outstanding young talents in Longhua District and get about RMB2.46 million of subsidies.

Shenzhen Expressway Employee Welfare

Daily welfare

- Offer employees with free breakfast, lunch, and overtime dinner.

Special welfare

- Offer employees paid leave during their childbirth;
- Offer hardship subsidy for employees who fell on hard.

Holiday welfare

- Send warm wishes and birthday cake cards to employees on their birthdays;
- Send flowers and organise relevant activities on women's day;
- Labour union gives gifts to employees on the New Year's Day, Spring Festival, May Day, Dragon Boat Festival, Mid-Autumn Festival, and National Day.

Health welfare

- Organise regular physical examination of employees every year.
- Offer blood pressure metres, body fat scales and other health monitoring instruments in the workplace for employees.

Take Care of Employees

Shenzhen Expressway shows care about both the work and life of employees and tries to create a warm and harmonious working environment for them. Specifically, a series of popular entertainment and leisure activities were organised to improve employees' work experience. We gave timely help and support to employees in difficulty to make them feel the warmth of "home".

Balance Work and Life

The Company organise various recreational and sports activities for employees according to local conditions to help develop a healthy lifestyle and positive attitude towards life after work. In 2022, we organised team-building activities, parent-child activities, basketball and badminton games and other recreational and sports activities. In this way, we stimulated the vitality of our employees to work together and promote their comprehensive development.

Support Employees in Difficulty

Shenzhen Expressway makes it a usual practice to help employees in difficulty and operates a mutual fund to help those employees who suffer from critical illness or accidental injury. With these actions, we further optimise our employee welfare, improve our employees' compassion and solidarity and finally are rewarded with a good team atmosphere. In 2022, we provided support for 46 employees in difficulty to help them cope with critical illness and accidental risks.

Care for Female Employees

The Company strictly implemented the *Law on the Protection of Women's Rights and Interests* and other laws and regulations, observed the regulations on maternity leave and lactation leave for female employees, offered equal remuneration, benefits and career development opportunities for them and cared for them with concrete actions⁷. We strictly comply with the relevant national policies and regulations for female employees during their menstruation, pregnancy, childbirth, lactation and menopause.



⁷ Menstruation, pregnancy, childbirth, lactation and menopause

● Case | We organised employees to take part in the Shenzhen-Shanwei "May 4th Youth Cup" Basketball Invitational Match

In May 2022, the Infrastructure and Environmental Protection Company won the "Best Organisation Award" through unremitting efforts and working together at the 2022 Shenzhen-Shanwei "Chinese Youth Cup" Basketball Invitational Match organised by the Infrastructure and Environmental Protection Company.



▶ The basketball invitational match.

● Case | Care for employees - create a warm home for employees

The Operation Development Company strengthens humanistic care and psychological counseling for employees by setting up a "Party building and employees' mental health counseling demonstration point". It provides help for employees to help them relieve emotions, release pressure, and promote physical and mental health development through audio and video, psychological support hotline, face-to-face psychological counseling, emotional decompression and other ways. By the end of 2022, it provided psychological counseling for more than 100 employees.



▶ Provide psychological counseling for employees

Talent Training and Development

Shenzhen Expressway has set up a well-established training system, implemented internal systems such as the *Measures for Management of Employee Training* and the *Measures for Management of Employee Position System*, carried out various training activities, provided development opportunities for them and encouraged them to learn to improve their personal ability and make progress together with the Company.

Improve the Training System

Being enterprise strategy-oriented, Shenzhen Expressway regularly analyses the training demands of employees, divides the training content into knowledge training, skills training, and cognitive training according to the analysis results, and practices a high-level talent training system integrating ability training and practices to train modern talents specializing in management, technology and operation for the business development of the Company.

Shenzhen Expressway Employee Training System

	Training content	Training type	Training methods
Knowledge training:	professional knowledge, management knowledge, company knowledge (company development strategy, governance structure, operation status, management concept, rules and regulations, market, and competition), legal knowledge, information technology knowledge, etc.	Induction training for new employees Leadership improvement training for top & senior management. Special training for youngsters and reserve talents of top management.	Mainly includes internal training, network training, external training, and employees' self-development & learning.
Skills training:	comprehensive analysis, planning and judgment, pioneering and innovation, public relations, internal co-operation, computer application, document writing, etc.	Relevant legal knowledge training.	
Cognitive training:	sense of identity with the Company, professional and working attitude, sense of teamwork, etc.	Others.	

In 2022, we formulated the *2022 Annual Training Plan of Shenzhen Expressway* and the *2022 Implementation Plan of Zhi-niao Online Learning Platform* to help employees improve their strategic execution, problem-solving ability and comprehensive quality on the basis of identifying the training demands, fully soliciting the opinions of each department and our key work in 2022.

Zhi-niao Online Learning:

More than **20** live broadcasts with over **10,000** viewing times accumulatively

8 compulsory courses were uploaded to the online learning platform, with a total of **10,000** clicks.

"Talent training":

7 lectures were given, with more than **200** trainees below the line, accumulatively.

Special training:

More than **150** trainees attended below the line.

Intra-departmental training:

12

External training:

28 trainees attended.

Shenzhen Expressway customises multiple training programs to meet diversified demands of employees according to the work characteristics and content for its employees at different levels.

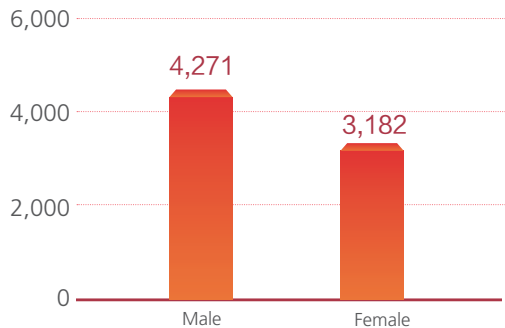
Shenzhen Expressway Customised Training

New employee	Professional employee	Senior manager or above
<ul style="list-style-type: none"> “Development training” and “special training on enneagram”, etc. While publicizing and spreading the corporate culture, help new employees identify their characteristics to maximise the advantages and specialties of employee. 	<ul style="list-style-type: none"> Organise a series of professional skills improvement training activities, which covers training courses in professional fields such as “project construction”, “financial management”, “safety management” and “information technology” 	<ul style="list-style-type: none"> Organise a series of professional skills improvement training activities, which covers training courses in professional fields such as “project construction”, “financial management”, “safety management” and “information technology”

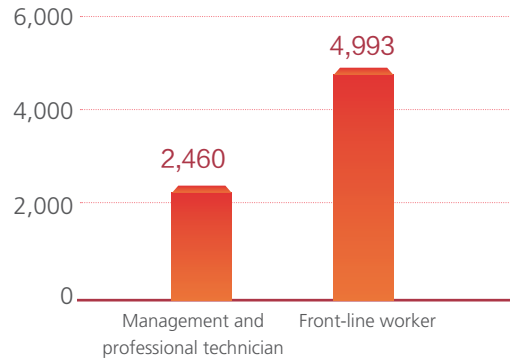
During the reporting period, the total number of training hours for employees of Shenzhen Expressway was 16,488 hours, and the total training investment was RMB 646,608. The training data are as follows by gender and function:

Shenzhen Expressway Employee Training Data in 2022⁸

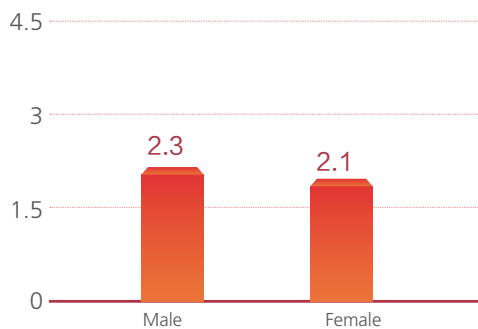
Number of employees trained - by gender



Number of employees trained - by job function



Average training hours of employees by gender



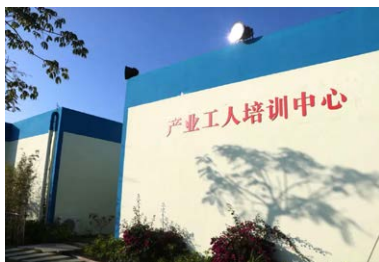
Average training hours of employees - by job function



⁸ The training data is only for the training organised by the Human Resource Department of the Group.

● Case | Shenzhen Expressway establishes an industrial workers training centre in the Environmental Industrial Park.

The Infrastructure and Environmental Protection Company of Shenzhen Expressway built an industrial workers training centre through the Environmental Industrial Park Project carried out together with the Housing and Urban Rural Development Bureau of Shenzhen-Shanwei Special Cooperation Zone and other departments. The centre is equipped with modern high-tech equipment and can provide management personnel and construction workers of the Honghai-Shenshan Avenue Project with excellent learning conditions, providing more flexible and targeted training means for work safety.



› Industrial Workers Training Centre on Honghai-Shenshan Avenue in Shenzhen-Shanwei Environmental Industrial Park



› Fire Fighting Practice Teaching Area



› High-altitude Operation Safety Teaching Area

Encourage the Qualification Upgrade

Shenzhen Expressway advocates the on-the-job self-study and encourages all its employees to actively participate in the same to actively supplement the knowledge necessary for holding the post and for the Company's future development. It gives a certain sum of rewards to those employees who have worked for one year or more for the Company and hold the college degree or above or diploma recognised by the State because of studying in spare time. Besides, to encourage employees to obtain professional qualification certificates, Shenzhen Expressway not only reimburses the training and examination expenses but also gives the corresponding cash bonuses after any employee obtains the certificate.

We actively participate in supporting education and other types of activities initiated by the government, co-operate with universities and colleges to support, and cultivate new young employees, so that they can have opportunities to continue their education. We also keep being concerned about employees' career development and vocational ability training to continuously provide our development with various talents.



In 2022, Shenzhen Expressway

made 7 incentive payments for professional titles and professional qualification certificates	gave awards of RMB 16,000 in total	provided 9 times of training subsidies	made assistance payments of RMB 17,000 in total.
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● Case | Shenzhen Expressway participates in the poverty alleviation in education themed on "Dream Project"

In 2022, through market research and contacting with social education and training institutions, the Operation Development Company issued application guides to employees and guided some of them to apply for the Open University of China and Guangdong Open University with open admission, and also issued register and payment guides to those who plan to attend the 2023 National Unified Examination for College Admissions for Adults to protect their legitimate rights and interests.

Talent Selection and Retention

Shenzhen Expressway is committed to building high-quality professional teams with “bold innovation, good management, significant achievements, integrity and honesty”. Combining employees’ actual posts with their actual situations, we make targeted policies to optimise our talent teams continuously.

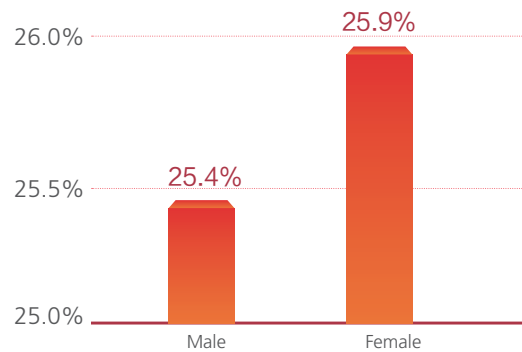
Recruitment and Internal Promotion

To the extent of complying the relevant laws and regulations, Shenzhen Expressway has formulated the *Measures for Management of Employee Recruitment*, the *Measures for Selection and Appointment of Management*, and the *Measures for Management of Employee Competition for Employment*, which states the principles of “open recruitment, giving priority to internal recruitment, fairness and justice”, and specifies steps of the employment process, to continuously improve the employment management efficiency and to ensure the fairness and justice of the process. In addition, we have formulated the *Measures for Management of Employee Position System* and the *Measures for Management of Professional Title and Qualification Examination*, which clarifies the position management of employees, to encourage employees to participate in professional title and qualification examination, continuously improve their ability and work level, and build a sound and broad career development channel for employees.

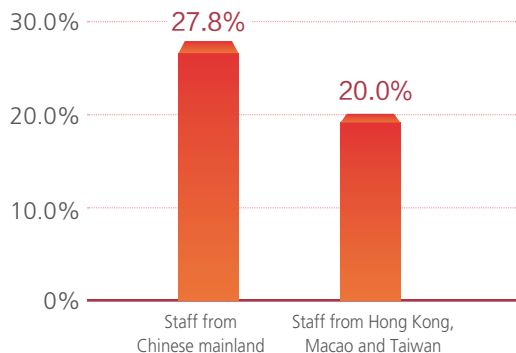
Employee Motivation and Retention

We set the internal rotation mechanism of employees, replenish reserve talents, optimise the management of employees’ qualifications, help employees plan their careers scientifically and rationally, and provide effective support for employees in their career development. In addition, we improve the performance appraisal system and salary distribution plan to enhance the standardisation and scientific management of performance evaluation and boost employees’ motivation. According to the professional ability and performance of employees, we help employees set their quality development goals, select outstanding personnel to form the reserve talents team, and provide corresponding vocational counseling and training to reserve talents for the Company’s development. For the top & senior management and backbone employees, we formulate the *Incentive and Restraint Plan for Incremental Profit* to fully arouse the enthusiasm of top & senior management and backbone employees, and to effectively combine the interests of stakeholders for joint concern about the Company’s long-term development. Due to the industry characteristics, the employee turnover of the front-line toll collection system is relatively high and during the reporting period, our employee turnover rate reached 25.6%. The employee turnover rate by gender, age group and geographical region is as follows:

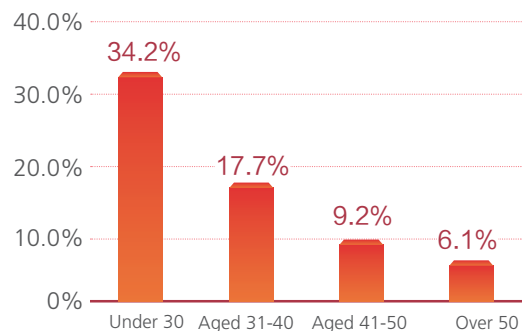
Employee turnover rate by gender



Staff turnover rate by region

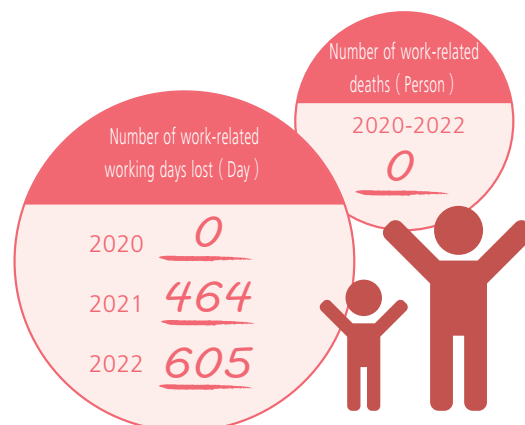


Staff turnover rate by age



Occupational Health and Safety

We put the health and safety of our employees first in business operations. In accordance with relevant laws and regulations such as the *Law of the People's Republic of China on Work Safety* and the requirements of the *ISO 45001 Occupational Health and Safety Assessment Series*, we constantly improve the rules and regulations related to occupational health and safety management of the Company, and make routine supervision and inspection to provide a fair, healthy, safe and comfortable working environment for employees, and we also hold training and assessment activities to strengthen employees' safety and health awareness and promote their healthy life and happy work. During the reporting period, there was no violation of laws and regulations related to occupational health and safety, and no deaths of employees due to work.



Safe Workplace

According to the *Law of the People's Republic of China on Work Safety*, the *Law of the People's Republic of China on the Prevention and Treatment of Infectious Diseases* and other laws and regulations, we provide effective occupational health protection measures for employees to eliminate potential occupational health risks. Amongst others, we provide necessary protective equipment and labour protection articles for employees, strengthen the security of their working environment, purchase employer liability insurances, and arrange regular physical examinations for employees every year to ensure their safety and health in a multi-dimensional way. The Company has passed the certification of the *ISO45001 Occupational Health and Safety Management System*.

Publicizing and Implementation of Training and Awareness

In strict accordance with the *Labour Law of the People's Republic of China*, the *Occupational Safety and Health Supervision System* and other relevant laws and regulations, Shenzhen Expressway formulates the Work Safety Education and Training Management System to provide adequate training for different types of employees, including but not limited to new employees, safety management personnel, special operation personnel and management personnel at all levels. In 2022, all affiliated enterprises of the Company organised and launched more than 690 safety training and education activities of management and skills, with a total of 58,500-plus participants.

● Case | A special fire drill for the high-rise office building of Shenzhen Expressway Hanking Headquarters

In order to strengthen the fire safety awareness of employees of Hanking Building and improve their emergency response and escape ability in case of a fire, the Commercial Company, together with the Group Office, the Safety Supervision Department and the Property Service Department of Hanking Building, carried out a fire drill for the high-rise office building of Hanking Headquarters on May 20, 2022.



► Fire drill

● Case | Focus on emotion – offer psychological construction courses for toll stations

To cope with potential psychological problems of employees, Operation Development Company sets up a dedicated team to publicise psychological construction courses for employees to carry out a two-week tour speech at toll stations under its jurisdiction to care for employees, relieve their anxieties and stress, and enhance their ability to regulate emotions. This activity includes 20 lectures with about 2,100 participants present.



► Psychological publicity activities

WORK TOGETHER TO CREATE A BETTER FUTURE

05

The Company is committed to bringing happiness to people. As a state-owned enterprise, we always bear in mind our corporate social responsibility, explore and build a value chain system of “openness, sharing, co-operation and win-win results” with our partners, actively participate in social and public welfare undertakings, promote the sustainable development of regional economy and the society, and help to achieve rural revitalisation and common prosperity.

Key Performance

Number of Suppliers

3,633 Supplier(s)

YOY

+68%

Total hours of volunteer activities

3,444 Hour

YOY

+78%

Total public welfare expenditure

RMB **2.80** million

YOY

+460%



Build a Responsibility Supply Chain

Stable and sustainable suppliers lay down a solid foundation for us to build high-quality projects and provide excellent services for drivers and passengers. We have formulated a strict supply chain management system, actively carried out communication and training with suppliers and built a transparent and win-win responsibility procurement relationship with them to ensure the performance quality of materials, engineering and service suppliers. We encourage suppliers to use new technologies, new materials and new processes, and constantly optimise the management mode to jointly build a stable and efficient responsibility supply chain system.

Supplier Management

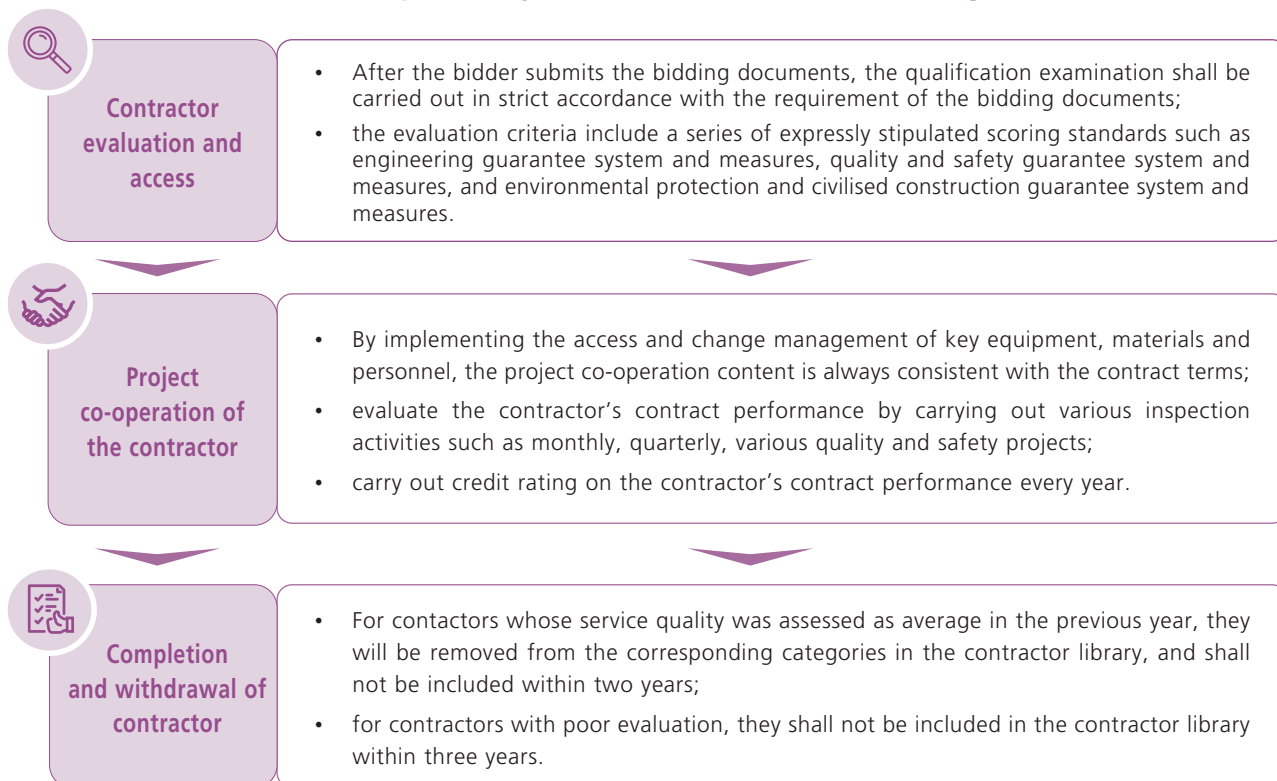
We have formulated the *Outsourcing Management Control Procedure* and the *Management Measures for Alternative Libraries of Outsourcing Parties of Construction Companies* in strict compliance with the *Tendering and Bidding Law of the People's Republic of China* and the *Measures for Tendering and Bidding of Construction Projects*, as well as various requirements of State-owned Assets Supervision and Administration Commission for bidding and purchasing of state-owned companies, complied with the basic principles of openness, fairness, impartiality and good faith to ensure the interests of the Company and the legitimate rights and interests of bid inviters and bidders and achieve professional management and standardised operation. We require all ownership agencies to formulate their own internal control system and establish a bidding and procurement management system implemented by the whole Company.

Number of Suppliers of Shenzhen Expressway in 2022

Supplier location	Unit	Year 2022
China	Supplier(s)	3,633
Overseas including Hong Kong, Macau and Taiwan regions	Supplier(s)	8

In the process of supply chain management, we implement the requirements of sustainable development, clarify the full life-cycle management process of supplier introduction, evaluation, co-operation and withdrawal, effectively identify risks, reduce environmental, social and safety hazards, and promote suppliers' product quality and service capability, so as to form a standardised, fair and unified supplier management system.

Shenzhen Expressway Process of Contractors Management



Responsible Procurement

Shenzhen Expressway integrates sustainable development into the management of the supply chain, and is committed to minimising environmental, social and governance risks in the supply chain to ensure that suppliers bear the responsibility for the environment, employees and society.

We strictly abide by national laws and regulations such as the *Anti-Corruption and Bribery Law of the People's Republic of China* and *Criminal Law of the People's Republic of China*. Integrating our work principles of "standardisation, efficiency, fairness, and integrity" into the procurement management, we abide by the internal procurement management method to ensure a transparent procurement process with full information disclosure, and ensure that the bidding is organised in line with the standards and procedures and in an information-based manner. We resolutely and completely eradicates all forms of corruptions in the bidding process, striving to build long-term stable co-operation relationship with its suppliers in good faith. In 2022, we paid 100% of the suppliers' payables according to contracts. At the same time, we integrated environmental requirements into all stages of supplier management and made every effort to promote green and sustainable development of the supply chain.



Contractor evaluation and access

Rules for bidding scoring items include:

- Scientific measures can be formulated, the construction can meet the requirements of environmental protection, corresponding measures can be taken for civilised construction, and a good construction environment can be created.
- Make relevant measures for environmental protection and civilised construction of the Project.



Project co-operation of the contractor

Environmental protection materials and equipment requirements:

- The contractor is required to use environmental protection materials that are conducive to environmental protection, saving materials and materials, saving water and water resources, saving energy and energy utilisation, saving land and land resources for green construction.

Environmental protection requirements in construction stage:

- Establish environmental protection system during construction.
- Environmental protection measures shall be taken for temporary roads, temporary facilities, subgrade construction and bridge construction on site.
- Do a good job in prevention and control of construction dust pollution. Management of water source protection areas.



Demobilisation of a contractor

- After the completion of the project, the contractor is required to fully restore the land temporarily occupied during the construction period, such as the construction road, residence, material yard, mixing yard and construction site, according to the principle of "destroying a place then restoring the place".

Support Community Development

As a responsible corporate citizen, we pay close attention to the well-being of the people, handle concrete affairs and solve problems for local communities, and strive to make positive contributions to communities. Based on our strengths, we help to repair community infrastructure, support the development of local education, create close relations with regions, enhance the affection and friendship with community residents, and build a shared and sustainable future with communities together.

Assist in Rural Revitalisation

Over the years, we have always been focusing on the development of China's rural areas, responded to national policies actively, worked for rural revitalisation, contributed to the revitalisation and development of rural education, infrastructure, human settlements, industrial development and other fields to build beautiful villages.

Assign cadres to villages

In order to promote revitalisation by industry, talent, ecology, organisation and culture, we have assigned two grass-roots cadres to Anbei Village, Daan Town, Lufeng City, Shanwei City to serve as major secretaries and donated a total of RMB188,000 to the two villages since 2021.



› Promote love (elder) canteens



› Offer consumer assistance counters



Support educational culture

Since 2012, we have supported the educational culture development of the Third Primary School in Longli County, Guizhou Province for 11 consecutive years. We not only improve its hardware facilities, but also assign outstanding young employees to support education there regularly, and organise student representatives to participate in summer camp activities in Shenzhen.



› Donated art rooms



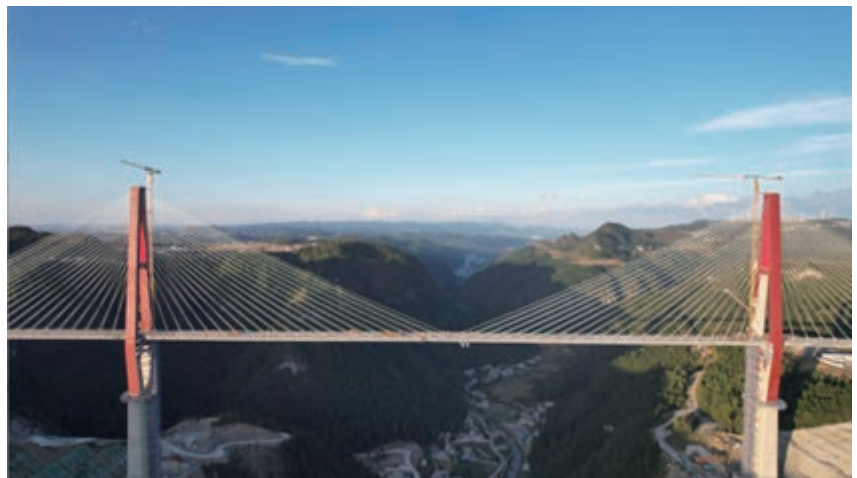
› Donated plastic tracks



› Visit during the Children's Day

Improve infrastructure

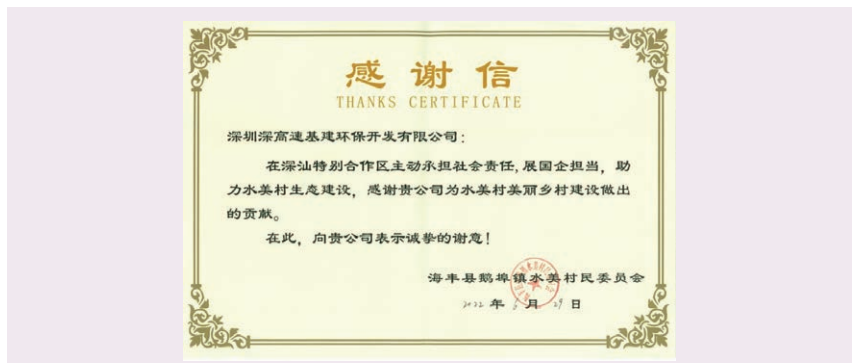
In 2022, the Longlihe Bridge (formerly known as the Duohua Bridge) project constructed by us in "Build-Transfer" mode (BT mode) was put into operation. The completion of the project contributes to the overall urban planning and construction of Longli, breaks regional traffic barriers, promotes the interconnection of local infrastructure, greatly improves the traffic conditions of core tourist areas there, brings positive benefits to its tourism economy, residents travel and employment, improves the living standards of people around, increases resident income, reduces poverty, and makes positive contributions to social harmony and stability.



› Longlihe Bridge

Improve the living environment

In 2022, under the guidance of Shenzhen-Shanwei Administrative Bureau of Ecology Environment Bureau of Shenzhen Municipality, Shenzhen Expressway Infrastructure and Environmental Protection Company and the constructions units of Honghai-Shenshan Avenue jointly launched the "Assisting Shenzhen-Shanwei Rural Sewage Treatment Action" to upgrade the sewage treatment system of Shuimei Village and Nanxiang Village, and achieve resource saving, water quality purification and rural beautification by improving the sewage treatment capacity there.



› Letter of thanks from Shuimei Village Neighbourhood Committee

Community Care

By building and operating comprehensive community service centres and participating in community public services, we make great efforts to ensure the needs of people's livelihood, improve people's quality of life, and deliver warmth and positive energy to our society.

● Case | Provide convenient services for communities

In July 2022, Guangming New Village and Phoenix Jiulongtai Community Comprehensive Service Centre invested and managed by Shenzhen Expressway were put into operation. They provide 37 kinds of convenience services in total, including nursery services, exercise rehabilitation, cultural entertainment, community restaurants, child nursery and home-based services.

We have received **50,000** people, carried out more than **590** public welfare activities, served more than **9,600** people, and launched **35** reading and reader activities.

Based on the early and pilot implementation of pilot projects, we have received more than **30** investigation visits and communication of government departments, elderly care and childcare industries.

There are **5** classes for **96** children, serving more than **110** children in total.



We introduced entrepreneurship incubation projects including the elderly physical fitness and health and Ge Xian Weng traditional Chinese medicine health yoga to serve community residents.

Our community restaurants have served more than **23,000** people in total, including more than **1,500** served by our love canteens and buffets for the elderly.



› Birthday party of the elders



› Parent-child experience class

Public Charity

Shenzhen Expressway is committed to social public charity, encourages employees to actively participate in voluntary community activities, solve problems for the needy to promote the sound interaction between the Company and the society. We established the Shenzhen Expressway Volunteer Team in line with “serving the society and spreading civilisation” and with the slogan of “volunteer Shenzhen” in 2015. The team plays an important role in Spring Festival travel, community services and other fields, and actively promotes the prosperity of local communities.

In 2022,

the total duration of volunteer activities was

and we invested RMB

287 person-times participated
in volunteer activities,

3,444 hours,

2.8 million in public
charity.



› Cleaning services of Guangming Community nursing homes



› Services for drivers and passengers by the Party Committee of the Operation Development Company



› Volunteering services of Qinglian Companies



› Baotou Nanfeng Party Branch provides daily necessities for shepherds in difficulties.

Appendices

KEY PERFORMANCE INDICATORS

Indicators	Units	FY2022	FY2021	FY2020
Environmental				
★ Emissions				
Exhaust emissions				
Nitrogen oxides (NO _x)	kg	4,601	22,507	3,065
Sulphur oxides (SO _x)	kg	1,630	32,990	969
Particulate matter (PM)	kg	158	768	40
Greenhouse gases (GHG) emissions				
Direct GHG emissions (Scope 1)	tCO ₂ e	8,706	8,485	4,048
Indirect GHG emissions (Scope 2)	tCO ₂ e	60,068	73,177	48,906
Total GHG emissions(Scope 1 and Scope 2)	tCO ₂ e	68,875	81,662	52,954
Total intensity of GHG emissions	tCO ₂ e/million income	7.34	7.5	6.6
Non-hazardous waste				
Non-hazardous waste	ton	95,612	149,508	49,448
Total intensity of non-hazardous waste	t/million income	10.2	13.8	6.2
Hazardous waste				
Hazardous waste	kg	9,142	12,589	3,855
Total intensity of hazardous waste	kg/million income	0.98	1.2	0.5
Sewage discharge				
Sewage discharge	ton	941,867	608,015	307,225
Total intensity of Sewage discharge	t/million income	100.49	55.9	38.3
★ Resources and water consumption				
Electricity	kWh	105,328,316	125,950,025	57,686,809
Gasoline	Litre	703,942	681,188	502,369
Diesel	Litre	2,475,094	1,833,307	914,958
Natural gas	m ³	132,350	828,174	120,874
liquefied petroleum gas (lpg)	kg	210	10,879	735

Indicators	Units	FY2022	FY2021	FY2020
Total water usage	ton	1,755,037	1,537,969	1,191,067
Total intensity of water usage	t/million income	187.25	141.5	148.4
Total intensity of energy consumption	kWh/million income	19,545.38	18,180	9,020

Social

★ Employment

Employees	Person	7,279	7,105	6,705
New employees recruited in 2022	Person	2,038	2,033	2,555

Employees-By types of employment

Full-time employees	Person	7,279	7,105	6,705
Part-time employees	Person	0	0	0

Employees-By gender

Male	Person	4,355	4,173	4,016
Female	Person	2,924	2,932	2,689

Employees-By age groups

30 years old or below	Person	4,290	4,255	4,033
31-40 years old	Person	1,562	1,588	1,472
41-50 years old	Person	1,020	921	908
50 years old or above	Person	407	341	292

Employees-By Qualification

Postgraduate and above	Person	354	330	295
Bachelor	Person	1,335	1,290	1,231
College	Person	1,366	1,259	1,308
Below College	Person	4,224	4,226	3,871

Employees-By employee category

Management and technical professionals	Person	2,367	2,330	2,703
General staff	Person	4,912	4,775	4,002

Employees-By geographical location

Mainland China	Person	7,269	7,099	6,699
Overseas including Hong Kong China, Macau China and Taiwan regions	Person	10	6	6
Others	Person	0	0	0

Indicators	Units	FY2022	FY2021	FY2020
Total employee turnover				
Total turnover rate employee	%	25.6	30.8	23.8
Employee turnover rate-By gender				
Male	%	25.4	13.4	28.2
Female	%	25.9	17.7	20.9
Employee turnover rate-By age group				
30 years old or below	%	34.2	25.4	32.8
31-40 years old	%	17.7	3.9	13.3
41-50 years old	%	9.2	1.1	6.1
50 years old or above	%	6.1	0.4	0.1
Employee turnover rate -By geographical location				
Mainland China	%	27.8	30.8	23.8
Overseas including Hong Kong China, Macau China and Taiwan regions	%	20	0	0
Other	%	0	0	0
★Health and safety				
Work-related fatalities	Person	0	0	0
Work-related working days lost	Day	605	464	0
★Development and training				
Training performance				
Total training employee	Person	7,453	825	261
Total training hours	Hours	16,488	11,614	2,004
Total price of training	RMB	646,608	1,023,082	95,235
Training performance-By gender				
Male	Person	4,271	413	128
Female	Person	3,182	412	133
Average training hours of Male	Hours	2.3	15.3	8.2
Average training hours of Female	Hours	2.1	12.9	7.2
Training performance-By employee category				
Management and technical professionals	Person	2,460	825	261
General staff	Person	4,993	0	0

Indicators	Units	FY2022	FY2021	FY2020
Average training hours of Management and technical professionals	Hours	4.7	14.1	7.7
Average training hours of General staff	Hours	1.0	0	0
Supply Chain Management				
Suppliers	No. of suppliers	3,633	2,168	1,156
Supplier Rate of Integrity Agreement Signing	%	100	100	100
★ Product responsibility				
Customer Service				
Business operation under complaint	cases	3,967	5,031	6,398
Complaint handling rate	%	100	100	100
Customer Satisfaction Index	Score/100	94.84	94.77	94.12
Intellectual property protection				
Infringing or being infringed by IPRs	cases	1	4	0
Patents granted	No. of patents	356	333	275
New patents	No. of patents	29	39	17
★ Anti-corruption				
Anti-corruption educated employees	Person	7,279	7,105	–
Total hours of anti-corruption education	Hours	137	69	145
Anti-corruption educated senior management	Person	14	12	36
Total hours of anti-corruption education for senior management	Hours	5	6	5
★ Community Investment				
Public welfare donation	RMB	2,800,000	500,000	6,000,000
Volunteers	Person	287	480	769
Hours of volunteer activity	Hours	3,444	1,932	1,704

REPORT DISCLOSURE INDEX

Self-Regulatory Rules for Companies Listed on the Shanghai Stock Exchange

NO.	Description	Chapter
8.1	Stakeholder communication and social responsibility practices	ESG Governance
8.2	Compliance with business ethics and anti-unfair competition	Integrity and Anti-corruption
8.3	Social Responsibility Management and Strategic Planning	ESG Governance
8.4	Social contribution per share	Core Highlights in ESG
8.5	Social Responsibility Report Disclosure Subjects and Public Disclosure	About the Report
8.6	Scope of the social responsibility report	About the Report
8.7	Protection of employee rights and benefits	Employees' Rights and Interests and Welfare
8.8	Environmental Management Policy	Strengthen Environmental Management
8.9	Environmental Management Performance	Practice Green Operation
8.10	Environmental impacts	NA
8.11	Environmental Remediation	NA
8.12	Emissions and Emergency Management for Key Emission Companies	NA
8.13	Production and product safety	Keeping a Tight Grip on Safety
8.14	Employment management, occupational health and safety, employee training	Employees' Rights and Interests and Welfare Talent Training and Development Occupational Health and Safety
8.15	Science ethics	Promote Innovation Technology

Environmental, Social and Governance Reporting Guidelines of the Stock Exchange of Hong Kong Limited

Aspects		Description	Chapter
A Environmental			
A1: Emissions	General Disclosure	Information on: (A) the policies; and (B) compliance with relevant laws and regulations that have a significant impact on the issuer relating to air and greenhouse gas emissions, discharges into water and land, and generation of hazardous and non-hazardous waste.	Strengthen Environmental Management
	A1.1	The types of emissions and respective emission data.	Ecological Environment Protection
	A1.2	Direct (Scope 1) and energy indirect (Scope 2) greenhouse gas emissions (in tons) and, where appropriate, intensity (e.g. per unit of production volume, per facility).	Practice Green Operation
	A1.3	Total hazardous waste produced (in tons) and (where appropriate), intensity (e.g. per unit of production volume, per facility).	Ecological Environment Protection
	A1.4	Total non-hazardous waste produced (in tons) and (where appropriate), intensity (e.g. per unit of production volume, per facility).	Ecological Environment Protection
	A1.5	Description of emission target(s) set and steps taken to achieve them.	Practice Green Operation Ecological Environment Protection
	A1.6	Description of how hazardous and nonhazardous wastes are handled, and a description of reduction target(s) set and steps taken to achieve them.	Ecological Environment Protection
A2: Use of Resources	General Disclosure	Policies on the efficient use of resources (including energy, water and other raw materials).	Strengthen Environmental Management
	A2.1	Direct and/or indirect energy consumption by type (e.g. electricity, gas or oil) in total (kWh in '000s) and intensity (e.g. per unit of production volume, per facility).	Practice Green Operation
	A2.2	Water consumption in total and intensity (e.g. per unit of production volume, per facility).	Practice Green Operation
	A2.3	Description of energy use efficiency target(s) set and steps taken to achieve them.	Practice Green Operation
	A2.4	Description of whether there is any issue in sourcing water that is fit for purpose, water efficiency target(s) set and steps taken to achieve them.	Practice Green Operation
	A2.5	Total packaging material used for finished products (in tons) and (where appropriate), with reference to per unit produced.	NA
A3: The Environment and Natural Resources	General Disclosure	Policies on minimising the issuer's significant impact on the environment and natural resources.	Strengthen Environmental Management
	A3.1	Description of the significant impacts of activities on the environment and natural resources and the actions taken to manage them.	Ecological Environment Protection
A4: Climate Change	General Disclosure	Policies on identification and mitigation of significant climate-related issues which have impacted, and those which may impact, the issuer.	Practice Green Operation
	A4.1	Description of the significant climate related issues which have impacted, and those which may impact, the issuer, and the actions taken to manage them.	Practice Green Operation

Aspects		Description	Chapter
B Social			
B1: Employment	General Disclosure	Information on: (A) the policies; and (B) compliance with relevant laws and regulations that have a significant impact on the issuer relating to compensation and dismissal, recruitment, and promotion, working hours, rest periods, equal opportunity, diversity, anti-discrimination, and other benefits and welfare.	Employees' Rights and Interests and Welfare Talent Training and Development
	B1.1	Total workforce by gender, employment type, age group and geographical region.	Employees' Rights and Interests and Welfare
	B1.2	Employee turnover rate by gender, age group and geographical region.	Talent Training and Development
B2: Health and Safety	General Disclosure	Information on: (A) the policies; and (B) compliance with relevant laws and regulations that have a significant impact on the issuer relating to providing a safe working environment and protecting employees from occupational hazards.	Occupational Health and Safety
	B2.1	Number and rate of work-related fatalities occurred in each of the past three years including the reporting year.	Occupational Health and Safety
	B2.2	Lost days due to work injury	Occupational Health and Safety
	B2.3	Description of occupational health and safety measures adopted, how they are implemented and monitored.	Occupational Health and Safety
B3: Development and Training	General Disclosure	Policies on improving employees' knowledge and skills for discharging duties at work. Description of training activities.	Talent Training and Development
	B3.1	The percentage of employees trained by gender and employee category (e.g. senior management, middle management).	Talent Training and Development
	B3.2	The average training hours completed per employee by gender and employee category.	Talent Training and Development
B4: Labour Standards	General Disclosure	Information on: (A) the policies; and (B) compliance with relevant laws and regulations that have a significant impact on the issuer relating to preventing child and forced labour.	Employees' Rights and Interests and Welfare
	B4.1	Description of measures to review employment practises to avoid child and forced labour.	Employees' Rights and Interests and Welfare
	B4.2	Description of steps taken to eliminate such practises when discovered.	Employees' Rights and Interests and Welfare
B5: Supply Chain Management	General Disclosure	Policies on managing environmental and social risks of the supply chain.	Build a Responsibility Supply Chain
	B5.1	Number of suppliers by geographical region.	Build a Responsibility Supply Chain
	B5.2	Description of practises relating to engaging suppliers, number of suppliers where the practises are being implemented, how they are implemented and monitored.	Build a Responsibility Supply Chain
	B5.3	Description of practices used to identify environmental and social risks along the supply chain, and how they are implemented and monitored.	Build a Responsibility Supply Chain
	B5.4	Description of practices used to promote environmentally preferable products and services when selecting suppliers, and how they are implemented and monitored.	Build a Responsibility Supply Chain

Aspects	Description		Chapter
B6: Product Responsibility	General Disclosure	Information on: (A) the policies; and (B) compliance with relevant laws and regulations that have a significant impact on the issuer relating to health and safety, advertising, labelling and privacy matters relating to products and services provided and methods of redress.	Strictly Control Project Quality Enhance Customer Perception
	B6.1	Percentage of total products sold or shipped subject to recalls for safety and health reasons.	NA
	B6.2	Number of products and service-related complaints received and how they are dealt with.	Enhance Customer Perception
	B6.3	Description of practises relating to observing and protecting intellectual property rights.	Promote Innovation Technology
	B6.4	Description of quality assurance process and recall procedures.	Strictly Control Project Quality
	B6.5	Description of consumer data protection and privacy policies, how they are implemented and monitored.	Enhance Customer Perception
B7: Anti-corruption	General Disclosure	Information on: (A) the policies; and (B) compliance with relevant laws and regulations that have a significant impact on the issuer relating to bribery, extortion, fraud and money laundering	Integrity and Anti-corruption
	B7.1	Number of concluded legal cases regarding corrupt practises brought against the issuer or its employees during the reporting period and the outcomes of the cases.	Integrity and Anti-corruption
	B7.2	Description of preventive measures and whistleblowing procedures, how they are implemented and monitored.	Integrity and Anti-corruption
	B7.3	Description of anti-corruption training provided to directors and staff.	Integrity and Anti-corruption
B8: Community Investment	General Disclosure	Policies on community engagement to understand the needs of the communities where the issuer operates and to ensure its activities take into consideration the communities' interests.	Support Community Development
	B8.1	Focus areas of contribution (e.g. education, environmental concerns, labour needs, health, culture, sport).	Support Community Development
	B8.2	Resources contributed (e.g. money or time) to the focus area.	Support Community Development

About the report

Introduction

This is the 3rd Environmental, Social and Governance report and the 14th social responsibility report issued by Shenzhen Expressway Group Company Limited ("Shenzhen Expressway", "the Group", "the Company" or "We") to reflect the Environmental, Social and Governance ("ESG") performance of the Company and its subsidiaries. The purpose of this report is to provide a true picture of Shenzhen Expressway's practices and achievements in fulfilling its social and environmental responsibilities to its shareholders, employees, government, customers and consumers, partners, the public and other stakeholders.

Scope and boundaries

This is an annual report covering the period from 1 January 2022 to 31 December 2022 and the organisations covered by this report during the reporting period are Shenzhen Expressway Group Company Limited and its subsidiaries.

Basis of preparation

The ESG Report is prepared in accordance with the Guidelines for the preparation of reports on corporate social responsibility released by Shanghai Stock Exchange and the Environmental, Social and Governance Reporting Guide in Appendix 27 of the Rules Governing the Listing of Securities on The Stock Exchange of Hong Kong Limited.

Data sources

All information in this report is derived from the Company's financial reports and from the Company's statistical, aggregated and reviewed environmental, social and governance information. Unless otherwise stated, all data in this report are measured in RMB. During the reporting period, some information has been restated due to the adjustment of statistical methods, and please refer to this report for any inconsistency with the data reported in previous years.

The Board of Directors of the Company undertakes that this report does not contain any false information or misleading information and is responsible for the truthfulness, accuracy and completeness of its contents.

Publishing channels

You can access and view this report on the Company's website (www.sz-expressway.com), the website of the Shanghai Stock Exchange (<http://www.sse.com.cn>) and the website of The Stock Exchange of Hong Kong Limited (<http://www.hkexnews.hk>). In the case of discrepancy, the simplified Chinese version shall prevail.

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Survey

Dear Readers.

Hello!

Thank you very much for reading the 2022 Environmental, Social and Governance Report of Shenzhen Expressway Group Limited. We hope you evaluate this report and provide us your valuable feedback, your comments and suggestions are an important basis to help us make continuous improvements to the report. Please fill in the survey form below and send us your feedback via ir@sz-expressway.com.

2022 Environmental, Social and Governance Report of Shenzhen Expressway Company Limited Feedback Form

Name _____

Occupation _____

Tel _____

e-mail _____

1. The comment of this report is:

☐Excellent ☐Good ☐Fair ☐Poor ☐Very poor

2. What do you think about the accuracy, completeness, timeliness and clarity of the information disclosed in this report?

☐Excellent ☐Good ☐Fair ☐Poor ☐Very poor

3. Is the content and style of this report designed to be easy for you to read?

☐Excellent ☐Good ☐Fair ☐Poor ☐Very poor

4. What materiality are you interested in?

5. What do you think is the complementary information that is not in the report?

6. Do you have any other feedback to the environmental, social and governance aspects of Shenzhen Expressway 's work?



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